



White Paper

2016 ROADMAP TO WEB ACCESSIBILITY IN HIGHER EDUCATION



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Executive Summary

Web accessibility is one of the most critical issues facing higher education. Although new web technologies and online media have been a boon for distance and online teaching, students and staff with disabilities have become increasingly disadvantaged. The access gap is exacerbated by the skyrocketing growth of the disabled population due to medical and technological advancements.

While the need for equal access in education is at an all-time high, there are no easy solutions. How can universities align departments to make accessibility a priority? Where should the budget come from? What is the best approach for allocating resources and responsibilities?

This white paper delves into these questions and provides guidance for making online university content accessible to as many stakeholders as possible. Through in-depth research and advice from university administrators, accessibility coordinators, faculty, and disabled students, 3Play Media has compiled the best practices for creating an accessible web infrastructure. This white paper includes case studies, strategies, implementation designs, applicable laws, and helpful resources.

While the road to accessibility is not easy, the following pages present a wealth of information and experience to motivate and guide all educational institutions.

Who Is this White Paper For?

Administrators, technologists, web developers, faculty, course designers, disability services professionals, accessibility coordinators—anyone who wants to be an agent of change for higher education accessibility on the web. Whatever your role, this white paper provides actionable advice to help you overcome barriers and expand awareness across campus.

Web Accessibility – A Growing Concern for Higher Education

What Is Web Accessibility?

Web accessibility refers to the practice of creating websites that are usable by people of all abilities or disabilities. According to the U.S. Census figures for 2000, 20% of Americans have a disability that impairs access to websites and Internet content.ⁱ In Canada, 3.6 million people experience some form of disability that limits their activities: this is about 12% of the population,ⁱⁱ and generally on par with the disability rates of other highly developed nations.

Deafness or auditory challenges, blindness or low vision, color blindness, physical disability, and temporary disability (such as a broken arm) are all physical or sensory difficulties that can interfere with consumption of digital information.

Web accessibility is increasingly important as we live more and more of our lives online. Even with assistive technology, disabled users often hit roadblocks that prevent comprehension of educational content due to poor course design and technical incompatibilities. For example, among those enrolled in public 4-year institutions, 33% of students with disabilities complete a bachelor's degree, compared with 48% of students without disabilities.ⁱⁱⁱ Institutions of higher education have a responsibility to review digital learning resources and ensure accessibility for their students, faculty, and staff.

Because the disabled population will surge over the next 50 years,^{iv} accessibility laws can be expected to expand and be more strongly enforced in the future.

A Surge in the Disabled Population

According to a 2011 report on disability from the World Health Organization, 56 million people in the U.S. identified as having a disability. 1 in 5 Americans aged 12 or older experiences hearing loss significant enough to interfere with day to day communications.

Furthermore, 11% of post-secondary students report having a disability.^v The percentage of people who are disabled is increasing disproportionately with population growth. This is due to a variety of factors:

Medical and Technological Advancements

With advancements in the medical field, babies are surviving premature births, accident survival is higher, and more stroke victims are going on to live long lives. Unfortunately, many of these individuals are more likely to have a disability.

Military Operations

After a decade of war, the U.S. population has felt the effect. As with general medical advancements, superior body armor and better surgical techniques mean soldiers are ten times as likely to survive modern war, according to the U.S. Department of Veterans Affairs. Of the 1.6 million veterans who have sought disability benefits, 177,000 of them claim a hearing loss.^{vi}

A blue rectangular box with a white border. Inside, the number '11%' is written in a large, white, sans-serif font. Below the percentage, the text 'Percentage of post-secondary students reporting a disability' is written in a smaller, white, sans-serif font.

Percentage of post-secondary students reporting a disability

A blue rectangular box with a white border. Inside, the number '20%' is written in a large, white, sans-serif font. Below the percentage, the text 'Percentage of Americans with a disability that impairs access to websites' is written in a smaller, white, sans-serif font.

Percentage of Americans with a disability that impairs access to websites

Aging Society

According to the 2010 U.S. Census, there are 40.3 million citizens aged 65 and over.^{vii} This is a historical high for this age group, and older people tend to have more conditions that dull senses, limit mobility, or interfere with perceptions of the world around them. People aren't just living longer; they're living longer with disabilities.

Impact of Accessibility Laws on Universities

Over the years, numerous federal and state laws have sought to mandate telecommunications accessibility. The proliferation of web multimedia has outpaced accessibility initiatives, however, leaving many disabled students more disadvantaged than ever before. Many higher education institutions have been reactive, not proactive, in their response to these developments and thus may find themselves at a disadvantage as accessibility laws tighten.

Currently, legislation impacting accessibility for learning institutions in the United States is as follows:

The Rehabilitation Act

Section 508

Section 508 of the Rehabilitation Act mandates that federal agencies make electronic information accessible to members of the public with disabilities, as well as employees with disabilities. Section 508 applies to certain public colleges and universities that receive federal funding, such as through the Assistive Technology Act.

Section 508 Refresh

In 2015, the United States Access Board proposed a rule to update Section 508's Electronic and Information Technology Accessibility Standards.^{viii} Because of the dramatic changes in technology between its first publication and today, the Access Board felt that it was due to update accessibility requirements to reflect modern technology.

The ICT Refresh will include a "broad application" of the Web Accessibility Initiative's Web Content Accessibility Guidelines (WCAG) 2.0. WCAG 2.0 is an international standard for web accessibility that currently has no legal bearing in the United States but that provides a much more comprehensive approach to web accessibility than the current Section 508 standards.

WCAG 2.0 includes a series of guidelines that cover four universal design concepts and three levels of fulfillment criteria.

The Section 508 Refresh will require compliance with Level A and AA Success Criteria, which are as follows:

- ▶ Level A Compliance: captions for prerecorded, synchronized media
- ▶ Level AA compliance: captions for live, synchronized media

By 2016, these WCAG standards are expected to take effect as part of the Section 508 refresh.

Section 504

Section 504 of the Rehabilitation Act is an anti-discrimination measure comparable to The Americans with Disabilities Act that addresses an individual's accommodations. This means an individual with a disability must have equal access to all programs, services, and activities receiving federal subsidy. Web-based communications for public educational institutions are covered by this as well.

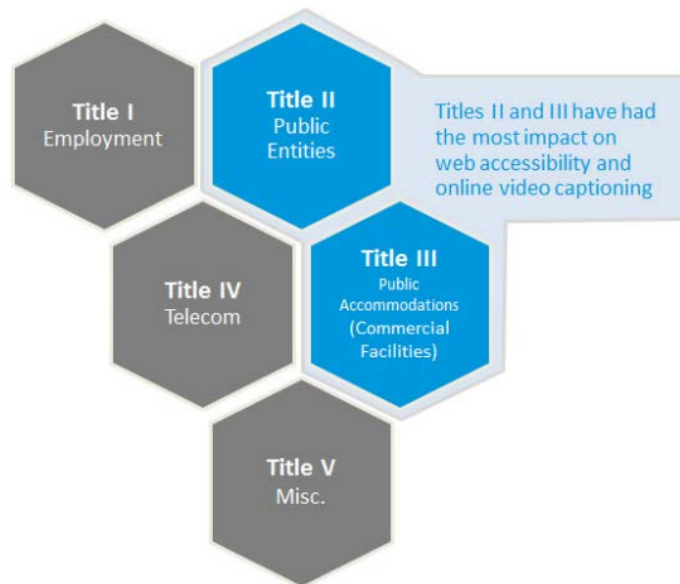
The Americans with Disabilities Act

Title II

Title II of the ADA prohibits disability discrimination by all public entities at the local and state level.

Agencies such as schools, courts, police departments, and any government entity must comply with Title II regulations as outlined by the U.S. Department of Justice, regardless of whether they receive federal funds.

Both Section 504 and Title II are enforced by the U.S. Department of Education, Office of Civil Rights (OCR).



Five Sections of the ADA

Title III

Title III of the ADA applies to commercial entities and "public accommodations," which include most places of lodging, recreation, entertainment, transportation, education, and medical care, among other things. Under Title III, no individual may be discriminated against on the basis of disability with regards to the full and equal enjoyment of the goods, services, facilities, or accommodations of any place of public accommodation.

Broadening to Include Websites and Online Content

Previously, private universities may have considered Title III only in the construction of new buildings, but Title III is quickly becoming about more than just wheelchair ramps. In 2013, the U.S. Department of Justice issued a Notice of Proposed Rulemaking to address how the ADA applies to websites and online businesses. The DOJ broadened the ADA's scope to include "private entities of all types providing goods and services to the public through their websites operate as places of public accommodation under Title III of the ADA." This means online programs at private universities and colleges as well as online-only universities may be considered "places of public accommodation."

This rule was tested in 2015 with two lawsuits filed by the National Association for the Deaf against both Massachusetts Institute of Technology and Harvard University.^{ix} The NAD cited violations of Title III of the Americans with Disabilities Act (ADA) and Section 504 in the universities' failure to provide appropriately accurate and comprehensive captioning for online course materials.

In June, 2015, the DOJ filed Statements of Interest weighing in on the suits in favor of the NAD. They stated:^x

The ADA applies to websites of public accommodations, and...the ADA regulations should be interpreted to keep pace with developing technologies.... The ADA and the title III regulation...have always required that public accommodations provide effective communication to persons with disabilities through the provision of auxiliary aids and services, including, where appropriate, closed captioning.

ADA Amendment Act

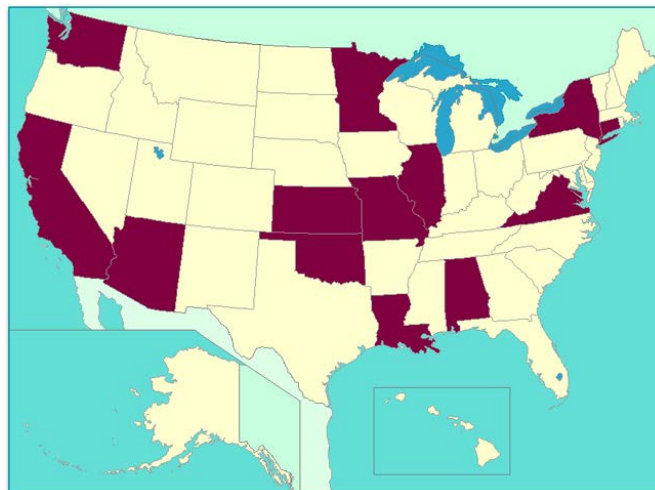
In 2008, the Americans with Disabilities Act Amendment Act (ADAAA) redefined what it means to be disabled. The ADAAA clarified and broadened the definition of "disability." Today, more people are protected under the ADA and other federal disability nondiscrimination laws. Universities are federally required to make accommodations for these individuals.

State Laws – "Little 508s"

To keep pace with national accessibility trends, some U.S. states have passed laws that adopt the standards of Section 508 accommodations. Public colleges and universities in these states must be aware of the requirements for accessible media in their state. Schools in states with strict accessibility legislation would need captions or transcripts for all their online video content.

States whose accessibility laws reference Section 508 and/or WCAG compliance include:

- ▶ Alabama
- ▶ Arizona
- ▶ California
- ▶ Connecticut
- ▶ Illinois
- ▶ Kansas
- ▶ Louisiana
- ▶ Minnesota
- ▶ Missouri
- ▶ New York
- ▶ Oklahoma
- ▶ Virginia
- ▶ Washington



State accessibility laws are highlighted in maroon

Web Content Accessibility Guidelines 2.0 (WCAG)

The Web Content Accessibility Guidelines (WCAG) 2.0 are the most current in a series of Web accessibility guidelines published by the W3C. WCAG is a set of guidelines for making digital content accessible, primarily for disabled users, but also for all users. It offers comprehensive, specific standards for

remediation, and is recognized (officially or unofficially, depending on the country) as the international standard for inclusive web design.

WCAG 2.0 offers 3 tiers of compliance in escalating requirements: Level A, AA, and AAA. The Section 508 refresh references WCAG Levels A and AA as the guiding standard for web accessibility in the US.

WCAG Standard's main provisions are:^{xi}

- ▶ **Text Alternatives:** Provide text alternatives for any non-text content so that it can be converted into other forms people need, such as large print, braille, speech, symbols, or simpler language. A text transcript is required for audio content.
- ▶ **Video Alternatives:** Provide alternatives for video and audio. Closed captions and audio descriptions are required for time-synced video.
- ▶ **Adaptability:** Create content that can be presented in different ways without losing information or structure.
- ▶ **Contrast:** Make it easier for users to see and hear content, including separating foreground from background and providing color contrast that color blind people can detect.
- ▶ **Keyboard Accessibility:** Make all functionality available from a keyboard.
- ▶ **Time Limits:** Provide users enough time to read and use content.
- ▶ **Seizure Prevention:** Do not design content in a way that is known to cause seizures (for example, do not include anything that flashes more than three times per second)
- ▶ **Navigability:** Provide ways to help users navigate, find content, and determine where they are.
- ▶ **Readability:** Make text content easily readable and understandable (for example, avoid unusual words and chunks of italic text)
- ▶ **Predictability:** Make pages appear and operate in predictable ways.
- ▶ **Input Assistance:** Help users to avoid making mistakes, and make corrections easy.
- ▶ **Compatibility:** Maximize compatibility with current and future users, including assistive technologies.

Types of Disabilities

The term disability applies to a wide range of issues. People affected by a disability face different access barriers and have widely varying needs. Disabilities can be roughly divided into these categories:

Cognitive or Learning Disabilities

A cognitive disability causes a person to have greater difficulty with one or more mental tasks. Most cognitive disabilities have some basis in the biology or physiology of the individual.

Examples: Dyslexia, traumatic brain injuries (TBIs), autism, ADD

Access Barrier: Timed participation challenges.

Auditory Disabilities

An auditory disability refers to mild, moderate, severe, or profound hearing loss. Those who refer to themselves as deaf usually have either severe or profound hearing loss. According to a study by Johns Hopkins Medicine, more than 48 million people in the U.S. have an auditory disability.^{xii}

Examples: High noise hearing loss, conductive hearing loss, profound hearing loss, tinnitus

Access Barrier: Videos without captions. Audio files without transcripts.

Visual Disabilities

Blindness or low vision affects a large number of people, including those who use glasses or contacts to correct vision. Blindness, or a complete lack of vision, is at the extreme end of the scale.

Examples: Low vision, color blindness, legal blindness

Access Barrier: Web sites and electronic documents that aren't accessible by keyboard. Images without descriptive alternative text. Videos without audio descriptions illustrating key visuals.

Motor Disabilities

A motor disability can limit a person's mobility, making it hard for the individual to operate hardware in the way that it was designed.

Examples: Arthritis, muscular dystrophy, spinal cord injury, Parkinson's

Access Barrier: Web sites with user interfaces that require precise control (e.g., small buttons or use of a mouse).

Invisible Disabilities

An invisible disability is a disorder not outwardly noticeable that impacts an individual's ability to perform daily activities like work or school, socializing, or even self-care. Invisible disabilities can include social or psychological challenges, such as anxiety, depression, bipolar disorder, autoimmune disorders, allergies, and Lyme disease. People with invisible disabilities may require different levels of support on different days.

PTSD, or post-traumatic stress disorder, and traumatic brain injury (TBI) are also examples of invisible disabilities. Many returning soldiers struggle with these conditions, which can impact their ability to retain information. As such, veterans enrolled in classes may need more time completing assignments.

Nearly 7,000 universities are eligible to educate soldiers and veterans through the G.I. Bill. With the number of veterans drawing educational benefits soaring to 555,329 in 2011,^{xiii} institutions of higher learning must be prepared for the unique challenges of their veteran students.

Accessibility: Embracing Universal Design

Accessible content doesn't just benefit those with disabilities. For example, in the case of web video, captioned content benefits ESL students and those who prefer to learn by both reading and hearing new terminology. In a sound-sensitive environment like a library, captioned video can be watched without disturbing those nearby. Essentially, content is most useful when it's available and digestible in whichever format a user needs, including audio, video, or text.

The term "universal design" refers to the idea of creating products and environments whose features are as usable as possible to the widest variety of people as possible, regardless of their age, ability, or status. Below are the 7 principles of universal design to keep in mind when evaluating current online course offerings.^{xiv}

- ▶ **Equitable Use:** design provides the same means of use for anyone accessing resources: identical whenever possible, equivalent when not.
- ▶ **Flexibility in Use:** design accommodates a wide range of individual preferences and abilities. (e.g., left or right handed access and use.)

- ▶ **Simple & Intuitive Use:** design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
- ▶ **Perceptible Information:** design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
- ▶ **Tolerance for Error:** design minimizes hazards and the adverse consequences of accidental or unintended actions.
- ▶ **Low Physical Effort:** design can be used efficiently and comfortably. (e.g., online classes allow consumption of information with little eye strain and fatigue.)
- ▶ **Size & Space for Approach & Use:** design provides for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility. (e.g., online learning platforms allow for the use/integration of assistive devices such as a JAWS reader.)

50%

Percentage of students who used video transcripts as study aids (University of Wisconsin study)

Beyond Compliance: How Accessibility Benefits Everyone

Accessibility laws are meant to protect the rights of people with disabilities. But the truth is that accessible design offers many unexpected benefits to people who aren't disabled.

To illustrate that, consider the numerous benefits of transcribing and closed captioning online video for reasons other than making them accessible to the deaf and hard of hearing:

- ▶ Viewers who know English as a second language benefit from closed captions, because they make it easier to follow along with the speech.
- ▶ Closed captions help with comprehension of dialogue that is spoken very quickly, of speakers with accents, of speakers who mumble, or of content with background noise.
- ▶ For videos that mention full names, brand names, or technical terminology, captions provide clarity for the viewer.
- ▶ Closed captions help maintain concentration, which can provide a better experience for viewers with learning disabilities, attention deficits, or autism.
- ▶ Online videos with subtitles enjoy higher user engagement and better user experience with the content.
- ▶ Captions allow viewers to watch videos in sound-sensitive environments, like offices and libraries.
- ▶ Video transcripts make helpful study guides and let students skim content for important takeaways.^{xv}
- ▶ Interactive transcripts make video content easily searchable by students looking for a keyword, topic, or quote.

80%

Percentage of people using closed captions that are not deaf or hard of hearing (BBC Ofcom study)

In fact, a 2006 study by the BBC Office of Communications found that 80% of people who use closed captions are neither deaf nor hard of hearing.^{xvi}

Institutional Accessibility: A Shared Responsibility

Adding accessible measures to current course development can be difficult. After all, change is hard. There are a number of parties that must work together to make accessibility successful, and the actions you take can differ depending on your role. How can you work within the institutional structure to gain momentum on critical accessibility issues?

Educators

Professors can be your strongest allies in advocating for accessibility. Many educators only become aware of the issues of accessibility when a disabled student enrolls in one of their classes. Those who have not yet had the issue before them can be valuable allies if they have knowledge of the issues involved. Train teachers on the importance of accessible curricula on an ongoing basis. Workshops provide a forum for questions, but sometimes more creative solutions will get attention. Hold a meeting where participants are asked to watch a lecture with no sound and captions. Quiz them on the content. While this tactic may shock, it builds awareness quickly and might generate empathy as well.

Committees

Who are your stakeholders? Find individuals who will passionately stand behind inclusivity. Drawing from different departments, create a university-wide review committee to pool resources, knowledge, and connections to add momentum to your policy efforts. Be sure to include IT professionals, because they possess the necessary skills to make these changes. Also, remember that buy-in from administrators is essential. Letters from the provost can establish accessibility as a priority.

Partnerships

Get help from organizations that support accessibility. For example, the National Center for the Blind, The National Association of the Deaf, and the American Federation for the Blind regularly partner with universities for evaluations and strategic consulting. Also, the American Library Association and Hewlett Packard have created the Library Technology Access Initiative, assisting university libraries in creating completely accessible workstations.

Reactive or Proactive?

Technology has increased our ability to share information and gain access to new resources at breakneck speeds. Not surprisingly, universities have been some of the earliest adopters of new technologies. For those with disabilities, however, the next big thing in online interactivity can be an agonizing experience.

Many universities are only aware of web accessibility when there is a need or accommodation request, resulting in policies that are purely reactive. Why is this?

A major barrier to a more proactive stance can be cost. Take captioning, for example. Captioning thousands of hours of video content can be cost-prohibitive. However, it's important not to let the size of the job keep you from getting started. A realistic approach is to start with core curricula, popular library items, and content with a long shelf life. Focus on your most popular and utilized resources.

Adopting an "access first, accommodation second" model saves time and money. Whenever possible, provide for access with popular or required educational content proactively. Of course, should a request arise, prepare the appropriate accommodation. Build access in first; then respond reactively when these safeguards are not enough.

How to Be Digitally Accessible in Online Learning

What does it mean to be accessible in the digital world? While technology is assistive to many people with disabilities, putting information online isn't a magic cure-all. Many teaching faculty assume incorrectly that just because a learning management system is accessible, any content placed within this system becomes accessible. This is simply not so. Web accessibility is comprised of three components: hardware, software, and the content itself, including text documents, video, and audio.

Before we examine hardware, software, and content individually, let us consider some very normal actions that take place during the online learning process and how technological incompatibilities create new barriers to information for the disabled.

MEDIUM	ACTIONS	ACCESSIBILITY BARRIER
Hardware	Student logs on to a university computer to review course materials.	A blind student can't find a connection port for a Braille reader.
Software	During an online lecture, students are encouraged to type questions and discussion in a learning management system.	A blind student cannot complete required classroom participation because the chat software is inaccessible to a screen reader.
Content	Professor emails his class. He attaches a PDF document.	A blind student has trouble accessing the PDF because it wasn't made accessible.

Accessible Hardware

Hardware, such as laptops, tablets, and recording devices should support accessibility features that accommodate disabled students. Administrators have the power to create accessibility from the ground up by requesting accessible devices and components in purchasing contracts. One approach is to offer companies an exclusive contract in exchange for accessibility features added to a current acquisition. It's also effective to team up with other institutions to leverage the power of collective purchasing.

Accessible Software

Faculty should be aware of different disability needs to ensure classroom content is available to their students. For example, a simple switch in Microsoft Word settings can enable screen readers for the blind to interpret headings, tables, and supplementary images. Educate professors about software accessibility and make the simple adaptations mandatory. Information on how to turn on accessibility settings is

available online (see the resources section at the end of this document), but it may be helpful for the office of disability services to conduct faculty workshops.

Accessible Text Documents

Digital documents should be accessible to people who use screen readers. PDFs must be designed and formatted in such a way that a screen reader can navigate and read all components of the document. PDF/UA (PDF/Universal Accessibility), the international standard for PDF accessibility, offers comprehensive accessibility guidelines that can be applied to most digital documents. Some tips for creating accessible text documents include:

- ▶ Add alt text to images and objects
- ▶ Specify column header information in tables
- ▶ Use consistent styles in long documents
- ▶ Use short titles in headings
- ▶ Ensure all heading styles are in the correct order and are unique
- ▶ Use hyperlink text that is meaningful
- ▶ Use simple table structure
- ▶ Ensure that the reading order of each slide is logical
- ▶ Increase visibility for colorblind viewers
- ▶ Avoid using blank cells for formatting
- ▶ Structure layout tables for easy navigation
- ▶ Avoid using repeated blank characters
- ▶ Avoid using floating objects
- ▶ Avoid image watermarks

Accessible Web Design

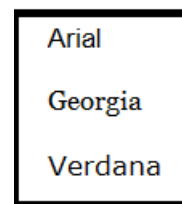
University web developers are crucial to supporting students and faculty with disabilities. As a first step in the development process, it's important to think through who will visit the website and what their objectives will be. Outline or map your site to keep a clear focus on the important content and its navigation. Best practices are to follow the Web Content Accessibility Guidelines (WCAG), a fantastic set of standards published by the Web Accessibility Initiative (WAI), which is part of the World Wide Web Consortium (W3C). Below are some high-level tips for designing accessible websites.

Format

Use a standard page template. Don't assume that what you see is what other users will see; websites are rendered differently depending on the device, browser, monitor size, resolution, and font settings. Logos, menus, and navigation features should be standardized and predictable. Visitors should always know where they are on the site and be able to easily retrace their steps or return to the home page.

Fonts

Use the default or common fonts that work well for web display, such as Arial, Georgia, or Verdana. Displayed font size is affected by monitor size and screen resolution, as well as the browser's settings.



*Default fonts with
minimum readability
sizes*

It is better to use relative instead of absolute font sizes. If using absolute, minimum font size should be 10 on a PC or 12 on a Mac. Use a different font for navigation than content, but don't use more than two font types per website.

Color

Use high contrasting background and text color, preferably light background and dark text. Avoid backgrounds that obscure the text. Use a 256-color palette, which is standardized across all browsers and platforms. Colors should be specified for all elements or none; if none are specified, the site will default to the visitor's settings. Specifying only some colors can result in inconsistent formatting throughout the site.

Images

Use alternative descriptive text (alt tags) to describe the content or function of every substantive image. This is critical for people who are blind or have low vision, but it's also important for search engine optimization and cases when browser images are disabled. Avoid using images as text or links.

Tables

Specify the table and cell width in percentages rather than absolute pixels. Rows should shrink or expand to fit a screen size. Fixed width rows and increased font sizes may result in horizontal scrolling on small screens.

Links

Use descriptive anchor text rather than "click here." Use the pipe character | to separate consecutive links. Do not use images as links because it is difficult to tell that they are clickable.

General Tips

Avoid the use of frames, JavaScript, and Flash without alternate accommodations. Also avoid scrolling text and unnecessary animation.

Testing and Validation

Test your website across different computer platforms, browsers, and devices. Try viewing the website with black and white settings to check for color blindness accessibility. Try deleting images to check for accessibility for people with visual deficits. The W3C HTML Validation Service provides free HTML validation for conformance to W3C web standards.

Accessible Video and Audio

Online video is rapidly becoming the dominant medium for teaching and learning. There are several measures that can provide substantial assistance to people with disabilities.

Transcripts

Transcripts are an important part of video and audio accessibility because they provide a textual version of the content that can be accessed by anyone. Transcripts are valuable to both deaf and blind users. Deaf users can read the transcript, while blind users can digest a transcript with a refreshable braille reader or screen reader. For web video, both captions and a text transcript should be provided. For content that is audio only, a transcript is sufficient.

Captions

Captions are time-synchronized text that can be read while watching a video.

Captions assume that the viewer is completely deaf and include all spoken content as well as non-speech elements, such as sound effects and speaker identification.

Captions differ from subtitles, which presume a viewer can hear, but can't understand the language. For web video, closed captions are favored over open captions because they can be toggled on and off in a video player. Web video captions are typically displayed in two lines at the bottom of the screen, which is called a caption frame.



Captioning can be done in real time, often referred to as CART (Communication Access Real-Time Translation), or in post-production, sometimes referred to as offline captioning.

Audio Description

Audio description is an audio track that describes what is happening visually in the video. While blind users are able to hear the spoken content, they aren't able to see demonstrations or diagrams. In education, missing out on these references can stall the learning process. If a web video is developed with accessibility in mind, it may be possible to avoid the need for audio description by describing the visual actions as part of the main audio.

Disability Scenarios

Sometimes it is helpful to map out different scenarios of the most common disability types against potential accessibility issues. In the example below we examine a deaf student's attempt to use hardware, software, and content.

MEDIUM	ATTEMPTED ACTION		SUCCESS?
University Computer (Hardware)	Surf the web	✓	Yes. Most daily computing activities can be done without the need to hear.
Microsoft Word (Software)	Read a document	✓	Yes. A deaf student can access and read the document.
Video Lecture (Content)	Watch video recording of a lecture	✗	No. A deaf student can't hear the spoken content in the video. <u>Solution:</u> Add closed captions.

Synchronous vs. Asynchronous Teaching

As distance learning programs begin to match the popularity of face-to-face programs, technology becomes increasingly important. When designing for online accessibility, the accommodation model cannot be reactive. In face-to-face lectures, a student can disclose a need and request a teacher make materials accessible prior to classroom discussion. However, with distance education it's more difficult to disclose a disability, and disabled students may be anonymous. For this reason, universal design needs to be implemented at course conception to accommodate a multitude of student needs.

There are different accessibility considerations for synchronous and asynchronous learning that must be addressed when choosing software applications and content.


DISTANCE TEACHING METHOD	DEFINITION	LEARNING TOOLS
Synchronous learning	Instruction occurs in real time	Web conference
Asynchronous learning	Instruction occurs on demand	Correspondence (CDs & print), email, web-based applications

Designing Courses for Student Personas^{xvii}

A new concept in university accessibility is the development of student personas. Often used in product design, personas are tools for profiling a diverse group of users. Real information is applied to imaginary people who represent certain demographics.

Student personas help faculty and staff to be better prepared for the needs of students they have not met. It also helps instructional designers develop course content that accommodate students with various disabilities. Instead of reactively adjusting courses for disabled students, they are able to design for multiple user sets.

A good place to start is to create 5 personas, covering different types of student disabilities: cognitive disability, social or emotional disability, blind or low vision, deaf or hard of hearing, and physical disability. Persona attributes should include disability, age, course level advancement, major, and learning style.

PERSONA	STUDENT PROFILE	DISABILITY	BEST LEARNING ENVIRONMENT
Jenny 	<ul style="list-style-type: none"> ▶ 20 years old ▶ Third year undergrad ▶ Business major 	Linguistic/verbal comprehension	<ul style="list-style-type: none"> ▶ Structured content & lists ▶ Consistent use of labels ▶ Simple page layouts ▶ Due dates clearly stated ▶ Large assignments broken down with feedback between in each submission

Accessible Work Environments for Faculty and Staff

Students are not the only members of the academic community who may require accommodation due to disability. Materials and services for faculty and staff should also be taken into account.

Create Accessible Human Resources and Institutional Resources

Make sure standard forms, like your university's I-9's and tax forms, are completely accessible.

Orient New Hires and Review Technology

When on-boarding a new professor or adjunct with a disability, familiarize them with the technology they will be using, particularly online learning platforms. Don't rely on accessibility measures provided by the software manufacturer. Many training tutorials infer the user can see where the instructor is clicking. For blind users, this is not the case.

Allow Advance Access to Content

For a disabled professor, stepping in to lead a course is not easy. Since teaching materials and course structure might have been crafted by a previous instructor, a disabled professor needs more time to review teaching aids and course content. Often, disabled instructors must convert a semester's worth of materials into an accessible format. For example, a PDF might be embedded into a presentation, but unreadable by a JAWS screen reader.

Learning Management Systems Must Be Accessible to Faculty

Many learning management systems (LMS) work for students with disabilities, but not necessarily for teachers. For example, a teacher may not be able to interact with certain buttons or modules to create courses.

Accessibility Infrastructure Planning

Research Legislation and Compliance

The most applicable federal laws for higher education institutions come from federal sections 504 and 508 of the Rehabilitation Act and the Americans with Disabilities Act. State laws are also very relevant, but vary widely from state to state. It can often be confusing to interpret what is necessary based on these broad laws. A safe place to start is to follow the Web Content Accessibility Guidelines (WCAG) as suggested by the ADA.

There are many available resources that inform you of your legal duties and make suggestions on how to meet standards thoroughly. Many sites have summaries of these laws and can supply you with easy-to-read charts and checklists to make your website and course materials accessible. You'll find some excellent examples of these in the Supplemental Resources section at the end of this white paper. Choose a standard for your institution and be sure every department understands their duties.

Perform an Accessibility Audit

Because universities are naturally segmented among colleges and departments, many do not have an institution-wide accessibility policy. By undertaking an accessibility audit, you can better understand the

university's current position and prioritize its goals for the future. Dispense checklists and surveys to administrators and department heads.

WCAG 2.0 Checklist

Technologists may consider using WCAG 2.0 checklists to evaluate existing resources.^{xviii} These checklists are often utilized by universities to vet technology vendors before making purchases, but they can be a great resource internally as well. Test your learning apps and student interfaces against government standards. Following the checklist helps your institution's internal learning systems overcome the most challenging accessibility issues.

Consult with Adjunct Professors

Adjuncts can be an untapped resource for accessibility assessments. Adjuncts can be a great source of feedback, because they are part of the team but not necessarily part of the system. A fresh set of eyes, unbiased by established rules and accepted norms, can offer a new perspective on how to prioritize accessibility initiatives.

Collaborate with Peer Institutions

Colleges and universities across the country have started to institute formal accessibility policies, and most are happy to share their information. (Some of the best examples are available in the Supplemental Resources section.) Consider adopting a policy from another institution with similar goals and needs that matches your culture, size, or specialties. Reach out to policy leaders with specific questions and learn from their experience. Local consortia can advise on assistive technology and adaptive technology. Many also share resources, best practices, and training materials.

Set Benchmarks and Reward Success

It is important to use the accessibility policy to create directives and teams. Encourage friendly competition between university sites or departments. Everyone should be working towards the same goal: universal accessibility. How will you define success? Perhaps one year you will focus on making all web content accessible by screen reader, then shift the next year to accessible media portals. Remember, all goals need an end result, executable steps, and a time frame.

GOAL	ACTIONS	DEADLINE	TEAM	PROGRESS REPORT DUE
Make homepage accessible	<ul style="list-style-type: none"> ▶ Caption welcome video ▶ Add alt text to images ▶ Update page title ▶ Code H1 & H2 headings ▶ Change header colors 	Oct 31 st , 2016	Dave (IT) Joan (Admissions) Sarah (Dev.)	Sept 1 st , 2016

We have already stressed the importance of training staff in accessibility practices, but it is equally important to measure progress and keep faculty accountable. Reward success. Faculty who comply with accessibility guidelines regularly should be recognized in some manner, even considered over others for tenure.

Assessments for online instructors are especially important in this regard. Introduce this question on teacher feedback surveys: “Were course materials for this class easily accessible?” Faculty posting inaccessible content too often should be required to get help from IT before placing additional materials online.

Accessibility Policy Pitfalls

As you're developing and implementing your plan, you'll likely run into some roadblocks. Do your best to minimize their impact by avoiding issues that stem from your committee's own work. These include:^{xix}

- ▶ No official technical standard.
- ▶ No indication whether compliance is required or suggested.
- ▶ No implementation timeline or deadline.
- ▶ No system for evaluating or monitoring.
- ▶ No consequences for failure to comply.

Conclusion

Coordinating accessibility initiatives across a university can be time consuming, laborious, and sometimes overwhelming. The costs are substantial and it's not always clear how to prioritize. Furthermore, the spectrum of disabilities makes it difficult to create educational content that is universally accessible. However, the widening access gap leaves us no choice but to tackle this challenge head on. After all, in the age of online education, proper accessibility accommodations are what make the difference between a disabled student's success and failure.

The solution is to embrace universal design and organize efforts laterally as well as vertically. An endeavor of this size requires buy-in and contributions from many different parties. Instructional technologists and designers must be proactive and incorporate accessibility into all stages of course content development, as well as the selection of university hardware and software systems. Professors should make reasonable efforts to create accessible content and work with students to pilot new accessible e-learning practices. Administrators should review university buying practices, push for funding, and seek state and federal grant opportunities. Disability coordinators should align efforts by creating committees to collaborate with peer institutions and disseminate information across all levels of the university system.

Thank you for reading this white paper. We hope that it serves as a useful resource in making your institution more accessible.

Endnotes

- ⁱ [U.S. Census Bureau – Census 2000](#)
- ⁱⁱ [Statistics Canada](#)
- ⁱⁱⁱ [National Center for Educational Statistics](#)
- ^{iv} [2011 World Health Organization Global Report on Aging](#)
- ^v [2011 report on disability from the World Health Organization](#)
- ^{vi} [USA Today "U.S. vets' disability filings reach historic rate"](#)
- ^{vii} [2010 U.S. Census](#)
- ^{viii} [ICT Refresh for Section 508: A Timeline of the Proposed Rule, Requirements, and Effective Date](#)
- ^{ix} [Harvard & MIT Sued for Lack of Captioning In Violation of the ADA and Rehabilitation Act](#)
- ^x [USDOJ Sides with NAD in Web Accessibility Lawsuit Against Harvard & MIT](#)
- ^{xi} [WCAG 2.0: Emerging Standard for Web Accessibility and Video Captions](#)
- ^{xii} [Johns Hopkins Medicine](#)
- ^{xiii} [U.S. Department of Veterans Affairs – Annual Benefits Report 2011](#)
- ^{xiv} [North Carolina State University](#)
- ^{xv} [Exploring Accessibility Strategies for Online Video in Higher Education](#)
- ^{xvi} [Ofcom Study: 80% of People Who Use Closed Captions Are Not Hard of Hearing](#)
- ^{xvii} [Miller, M. & Allen, D. \(2013\) Accessibility Personas. Online Accessibility Committee of the Online Learning Council.](#)
- ^{xviii} [WCAG Checklist](#)
- ^{xix} [webAIM.org](#)

Further Reading and Supplemental Resources

U.S. Accessibility Laws

[Overview of Federal, State, and International Accessibility Laws](#)

[Americans with Disabilities Act \(ADA\)](#)

[Copyright Law vs. Accessibility Law: Is It Fair Use to Caption Videos You Don't Own?](#)

[How the ADA Impacts Online Video Accessibility](#)

[Higher Education, the Americans with Disabilities Act and Section 508](#)

[Online Video and the ADA: How a Landmark Case Changed the Legal Landscape of Closed Captioning](#)

[Sections 508 and 504: Closed Captioning and Web Accessibility Requirements](#)

[Section 508 Government Website Requirements](#)

[Section 504: Protecting Students with Disabilities](#)

[Ontario, Canada: How the AODA Impacts Web and Online Video](#)

[UK Web Accessibility and Subtitle Regulations](#)

[Web Accessibility and Closed Captioning in Australia & New Zealand](#)

E-learning Policy Aids

[Container, Content, and Capability: The Three C's of Accessibility and Distance Education](#)

[Creating and Producing Accessible Content Courses](#)

[Guidelines for Producing Instructional & Printed Materials in Alternate Media for Persons with Disabilities](#)

[Selecting Software for Students with Learning Disabilities](#)

[Tutorials for Creating Accessible Documents in Multiple Formats \(For Faculty\)](#)

[University of Washington: IT Accessibility Policies in Higher Education \(List\)](#)

Procurement Policy Aids

[California State University Procurement Policy Documentation](#)

[In-House Captioning Workflows and Economic Analysis](#)

[Sources of Grants and Funding for Closed Captioning of Online Video](#)

[University of Washington Procuring Accessible IT Guidelines](#)

Online Learning Consortium University Accessibility Webinar Series

[Accessibility Specialists: Understanding Invisible Disabilities and What this Means for Online Education](#)

[Administrative Panel: Understanding the Law & Building Accessible Institutional Infrastructures](#)

[Faculty Panel: What Faculty with Disabilities Want Institutions to Know](#)

[Student & Alumni Panel: What Students with Disabilities Want Faculty & Administrators to Know](#)

Tools and Resources

[8 Benefits of Transcribing & Captioning Online Video](#)

[10 Tips for Creating Accessible Web Content with WCAG 2.0](#)

[Accessibility Checklist for Web-based Course Material](#)

[Creating Video and Multimedia Products That Are Accessible to People with Sensory Impairments](#)

[Deafness and the User Experience](#)

[Definitions: What is Web Accessibility?](#)

[Demystifying WCAG 2.0: An Intro to Web, Office, InDesign, and PDF Accessibility](#)

[Disabled Population Overview and Disability Types](#)

[DIY Resources for Closed Captioning and Transcription](#)

[“From Where I Sit” Stories of Disabled Students](#)

[Future of Accessibility and Video Captions According to Google](#)

[How to Select the Right Closed Captioning Vendor: 10 Crucial Questions to Ask](#)

[HTML5 Video Accessibility: Updates, Features, & Guidelines](#)

[Microsoft Accessibility for Developers](#)

[Section 508 Accessibility Resources of EIT Professionals](#)

[Summary of WCAG 2.0 Principles & Guidelines](#)

[The Future of Video Player Accessibility](#)

[The World Wide Web Consortium](#)

[Triage for Accessifying Websites](#)

[U.S. Department of State, Voluntary Product Accessibility Template](#)

[WCAG 2.0 Accessibility Checklist](#)

[WebAIM: Web Accessibility in Mind](#)

Partnerships

[American Federation for the Blind: Accessibility Partnerships](#)

[HP Accessibility Partners](#)

[Association on Higher Education and Disability \(AHEAD\)](#)

[California Department of Social Services: Deaf Access Program \(DAP\)](#)

[Equal Access to Software & Information \(EASI\)](#)

[National Center for Accessible Media \(NCAM\)](#)

University Accessibility Resources

[California Community Colleges High Tech Training Center Unit](#)

[California State University Accessible Technology Initiative](#)

[George Mason University Accessibility](#)

[How 5 Colleges Cultivated Video Accessibility at Their Institutions](#)

[How an Accessibility Strategy Can Unlock the Power of Academic Video](#)

[Michigan State University Web Accessibility](#)

[Pennsylvania State Access Ability Resource Center](#)

[San Francisco State University Accessible Technology Initiative](#)

[Section 508 Academic Inclusion Plans \[Complete Educational Institution List\]](#)

[The Long Road from Reactive to Proactive: Developing an Accessibility Strategy](#)

[University of Washington DO IT, Center for Universal Design in Education](#)

[University Web Accessibility Policies: A Bridge Not Quite Far Enough](#)

About 3Play Media

3Play Media provides cost-effective, premium quality captioning and transcription solutions to more than 1,000 universities, colleges, e-learning companies, and government agencies. Our mission is to simplify the captioning process by providing a user-friendly account system, flexible API's, and integrations with a multitude of video players, platforms, and lecture capture systems. 3Play Media is based in Cambridge, MA and has been operating since 2007.

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