

Combined Transcript for OCR Digital Accessibility Videos

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An Introduction to Digital Accessibility for People with Disabilities

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: An introduction to digital accessibility for people with disabilities.

[music]

Naudia: When I have my screen reader or braille display, I can access my assignments easier and just at the same pace as my peers do.

Kai: The screen reader and braille display help me do things but just in different ways.

Mina: Students with disability can learn the same way as other kids, they just need equal access.

Kelis: Having online videos with closed captioning helps me understand all the information to be able to complete my work.

Catherine Lhamon: Accessible online learning and other educational programs and services support students across the country, and their parents and community members, to access online learning and information about what's happening in school.

I'm Catherine Lhamon, and I am the Assistant Secretary for Civil Rights at the U.S. Department of Education's Office for Civil Rights. We at the Office for Civil Rights enforce equal access to education, including for students with disabilities, and through ensuring that school programs are accessible to parents and guardians with disabilities. Our goal for this video series is to promote understanding of what digital accessibility is, and how to ensure that students and others with disabilities have access to the online tools that are increasingly often an essential part of education.

So, what is digital accessibility in the context of education? It's about making sure that anything a school offers using technology is accessible to everyone, including people with disabilities. Students and parents with certain disabilities, such as blindness, low vision, dyslexia, and motor disabilities may interact with technology and digital content differently from others. Some use screen reader software to have digital content read aloud. Some magnify the screen, change the color contrast, or avoid flashing images. Others navigate the computer using only a keyboard, because a mouse doesn't work for them. And some students rely on accurate captions to have access to audio and video content.

In addition to technology, the law plays an important role here. The Office for Civil Rights enforces two laws that prohibit discrimination based on disability in education programs and activities. First, Title II of the Americans with Disabilities Act, and second, Section 504 of the Rehabilitation Act. Both of these laws pre-date the Internet's wide use, so they don't specifically address online learning or education-related digital communications. But together, these laws require that all public schools and all private schools that receive federal funds ensure that students and others with disabilities enjoy the same benefits and services as those without disabilities.

We want to help you make your programs more accessible. Here is one student to explain why:

Naudia: When I'm able to do things the same as my peers, it makes me feel good because I'm able to be the same as them. And it just helps me become more independent.

David: This video was produced by the U.S. Department of Education, Office for Civil Rights.

Jessica: You can find us at www.ed.gov/OCR or email us at OCR@ed.gov.

Topic 1 - Digital Accessibility: 3 Points About the Law

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 1 – digital accessibility: 3 points about the law.

David: Welcome. My name is David.

Jessica: And I'm Jessica. David and I both work for the U.S. Department of Education's Office for Civil Rights.

David: Alongside our colleagues at OCR, we created this series of videos to help you learn more about digital accessibility for people with disabilities. These videos are for a wide audience: school administrators, web designers, disability services, teachers and professors, IT services, students, parents, and community members, to name a few. So it's possible that not every video will be applicable to you.

Jessica: We'll be talking about the main things that we see regularly in our work: the need for keyboard testing, sufficient color contrast, logical reading order, meaningful alternative text for graphic images and photographs, video captioning, and a few other topics.

David: This will give you a good start, and you'll be able to find additional in-depth resources online from a variety of sources for each of these topics. Pick and choose the content that best helps you. Our goal is simply to help you understand some basics.

Jessica: At the end of each video, you'll also see OCR contact information. Use that to reach out and ask for help. Our team is full of people who are passionate about accessibility for people with disabilities, which really means communicating your message to everyone.

David: In this video, we'll share 3 key points for you to know about disability law, school websites, and accessible online learning. If you're an administrator at your school serving students anywhere from kindergarten to postgraduate studies, or a student, parent or guardian, or a community member, this information will help you better understand your school's legal requirements for digital accessibility and how you can help.

Jessica: First, the two relevant laws. The U.S. Department of Education's Office for Civil Rights helps enforce two civil rights laws that address the rights of students, parents, caregivers, and community members with disabilities, with a focus on ensuring access to educational institutions' services, programs, or activities. The first is Section 504 of the Rehabilitation Act, which covers recipients of Federal funding. These include school districts, charter schools, parent information centers, and colleges and universities that receive this funding or other assistance from the U.S. Department of Education. The second is Title II of the Americans with Disabilities Act, sometimes referred to simply as Title II. Title II applies to state and local government entities, including public schools and libraries, regardless of whether they receive federal funds. Public schools that receive federal funding are covered by both laws. The U.S. Department of Justice interprets Title II; OCR's Title II work focuses on public schools and libraries.

David: Next, here are three key points for you to know. First, both Section 504 and Title II prohibit discrimination against people with disabilities.

Second, both laws require that students with disabilities – and others who have rights under these laws - have an equal opportunity to participate in everything a school does. Under Section 504, this is called the recipient's "program or activity," while Title II refers to a public entity's "services, programs, or activities." The scope of these laws is broad in prohibiting disability-based discrimination. For example, a school's services, programs, or activities may include course registration, book and t-shirt sales, cafeteria menus, and employment-related services in addition to athletic programs and other activities. With online learning, "services, programs, or activities" may also include digital course materials, online assignments, lectures over a video conferencing platform, and online chat rooms or discussion boards used for class. These are not exhaustive lists, but they should give you a good idea of the wide scope of these laws.

Jessica: Third, in general, all schools covered by these laws must ensure that students, parents, caregivers, and community members with disabilities are able to enjoy the same benefits and services as their peers without disabilities, unless doing so imposes what the law calls a fundamental alteration or undue burden. Additionally, under Section 504, elementary and secondary students must receive what's called a free appropriate public education, or FAPE. These topics are not covered in this video series - to learn more, please see OCR's website.

David: Many schools follow an accessibility standard to gauge whether they are complying with their responsibilities. The Department of Education does not endorse any particular set of standards, and none is specifically required by the Section 504 or the Title II regulations, but many schools have adopted the Web Content Accessibility Guidelines, or WCAG.

Jessica: For next steps on ensuring digital accessibility in your school, join us for the next video in this series. We hope this information is helpful as you work through digital accessibility issues.

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Topic 2 – How Some People with Disabilities Use Technology

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 2: how some people with disabilities use technology.

Jessica: David... Imagine if you unplugged your computer's mouse or turned off the touchpad. Would you still be able to navigate to the play button on this screen? Now we'll turn off the sound on the computer on which the video is playing.

[Narrator: A man, singing passionately...]

Jessica: Can you understand what the speaker said? These are some of the barriers that inaccessible technology can pose to people with disabilities, including students and others with disabilities who are trying to learn and communicate using digital platforms.

David: This video is designed for school administrators and leaders who want to better understand how technology is accessed by people with disabilities, including those who are blind or have low vision, those with mobility disabilities that impact hand control and coordination, those who are deaf or hard of hearing, those with seizure disorders, and many others.

Jessica: First, we'll introduce you to a couple of students so you can see how they use the technology.

[Naudia singing and strumming on a ukulele]

Jessica: Meet Naudia. Naudia is blind and uses keyboard controls along with screen reader software that reads on-screen text out loud [screen reader enunciates: "eleven forty-five, am"] in addition to "invisible" information specially coded into the webpage that was included to reduce barriers to access for people who cannot see the screen.

Jessica: Here's another student, Kai. Sometimes, Kai uses refreshable braille display.

Kai: The braille display takes what's on the screen and then translates it into braille.

Jessica: The braille display is an electronic device with pins that move up and down to translate text into braille characters, allowing him to read rather than listen to words on the page.

David: But it's not just students who rely on good accessibility. Parents and guardians are impacted as well. Lisa Maria, who is blind, loves staying involved with her children's schools. One of the tools she uses is magnification with the help of her phone. For example, a smart phone will allow blind people to magnify the words and images on the computer screen so that they can read webpages more easily. This works well when everything resizes without losing content. In addition, Lisa Maria uses tools like screen readers [sound of screen reader enunciating content from her phone] and braille to keep her informed and involved in her children's school education.

Lisa Maria: I need that non-visual access, because for me as parent, I want to be involved in my children's education. I want to be the parent that helps their kid with their homework.

David: There are also people who have low vision, which can impact how they see colors on a screen. Julia has 9-percent of her vision and has difficulty with color contrast in certain circumstances.

Julia: Within determining the different colors, how different are those colors, right? So because you could have white and black, right? And that's, you know, a very easy difference to tell. But when you have more similar colors, like black and navy, that is much more difficult to tell, um, especially for me.

David: As you can tell, color contrast is different person-to-person.

Jessica: Some people have mobility disabilities – they can't use a computer mouse or standard keyboard. Instead, they rely on keyboard controls, or other kinds of tools, like sticky keys, foot pedals, mouth sticks, eye tracking, or pointing devices, and speech recognition software. There's a lot that you can do with a keyboard, as long as the website, app, or Learning Management System is set up properly. With a keyboard, you can navigate to links, buttons, and search boxes. But if the website, app, or Learning Management System isn't fully accessible, a student with a mobility impairment might not be able to, for example, take a quiz that requires using a mouse to drag and drop the correct multiple-choice answers to the right location.

David: Next, let's talk about how people who are deaf or hard of hearing access information online. When people who are deaf or hard of hearing watch videos like this one, they need captions or a transcript so that they can understand the content. Captions generally are shown alongside the video track, and synced with it to appear on the screen at the same time. Transcripts tend to be separate documents that are not synced with the onscreen video.

Jessica: Some technology automatically generates captions, but your school should always check the accuracy of the captioning to make sure it's meaningful and effectively communicates the audio tracks. We often get questions about whether captioning is needed or if a transcript is "good enough." Here's a trick: if you can listen to the video, without watching your monitor or screen, and still understand what you should from the experience, a transcript is likely fine. But if you need to watch the video while listening to the audio track to make sense of the experience, then it's better to provide captioning so that you can ensure you're communicating what you want to communicate.

David: For example, if you are watching a chemistry experiment where the color of a liquid changes when another substance is added and the narration is best understood while watching the color change, then captioning may be required for effective communication.

Jessica: We met several people who use additional tools to help them use technology. As you think about digital accessibility for your institution, think about your students, and parents, along with caregivers and others, and consider effective ways you can help them gain the content and information they need to access your programs.

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Topic 3: Recommended Practices & Tips for Digital Accessibility

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 3: recommended practices and tips for digital accessibility.

David: In this video, Jessica and I will share some strategies that our team has learned in more than ten years of investigating digital accessibility cases at the Office for Civil Rights in the U.S. Department of Education. While there is no one size fits all approach to improving the accessibility of websites and other digital information, there are common strategies that schools have used successfully in making their digital information accessible.

Jessica: First, have a plan. Establish your accessibility goals and benchmarks and determine how quickly you can meet them. You may want to convene a team as you do this, bringing together tech experts, procurement personnel, teachers, or even vendor representatives. Also – and very importantly – talk to people with disabilities and get their input on what barriers they experience when accessing your services, programs, or activities, and what they would like to see prioritized. Lisa Maria is blind and a mother of three. She, like many parents, likes to stay involved in her children's education. She believes any implementation should include those with disabilities.

Lisa Maria: It might be accessible on paper. But when it comes time to actually using the product, get people with disabilities involved. We will tell you if it really, really works.

Jessica: So, as you work towards your goals and benchmarks, talk to people with disabilities and make sure to keep up on current technology and your users' needs. After all, both may be changing as you do your work.

David: Second, evaluate your online programs and activities – how accessible are they? There are many automated website checking tools that can help catch accessibility barriers, but there are lots of things they won't catch accurately, if at all. So we strongly recommend your team also makes a regular practice of manual testing. What do we mean by manual testing? This involves checking for keyboard access, color contrast, document accessibility, caption accuracy, and validating your automated checker results to ensure the meaningfulness of alternative text and other text descriptions of images, field labels, and others.

David: Here's how to start: unplug your mouse and see if you can navigate to and activate everything on a webpage by using only your keyboard, in a logical sequence, and that you can tell where you are on the webpage at all times. Use the TAB, ENTER, SPACEBAR, and arrow keys. If you can't get to something with the keyboard that you can get to with a mouse, or if you cannot tell where you are on the webpage, that lets you know that there will be users with disabilities who won't be able to navigate the page. If there is another equally easy way for people with disabilities to get the same information or accomplish the same task, then that's ok under the law, but otherwise, it will be important to make some changes – we'll discuss how to do this later in this series.

Jessica: Third, review the services, programs, and activities that are part of your online learning environment, beyond your public-facing website, including course registration, online lectures, systems for turning in assignments and posting grades, and more. These may involve different personnel at your school, so think about ways for your technology staff and instructional staff to work together.

David: Fourth, as you work toward full digital accessibility, you can prioritize your remediation efforts, to focus on the most important or impactful work first. For example, you might want to look first at webpage templates (the framework used for many of your school's webpages). That way, as additional pages are built using those templates, many of the accessibility components are already built in. Or focus on the online programs and activities that are used the most. As you set your priorities, have a system in place for individuals with disabilities to request that the specific content that they need can be made accessible right away. Keep working steadily, and you will build a digital school culture where everyone—with and without disabilities— can participate.

Jessica: Lastly, provide training that is tailored to the needs of different staff. For example, instructors may get specific training on how to create accessible documents, or how to create and edit captions for videos that are posted online. Information technology staff may need training to be sure they are familiar with what digital access requires and the technical work required to fulfill that responsibility. For those in your procurement or purchasing department, training can emphasize the importance of contracting with vendors that offer accessible products.

David: We know it's important to you that all of your students, parents, and community members have the access to learn and participate in your programs. Use these suggested approaches, share others, and reach out to us at OCR@ed.gov for additional support and help. And remember, as Lisa Maria has told us, we're trying to eliminate problems of inaccessibility.

Lisa Maria: If disability is considered in the beginning stages you know in the design stages then this type of problem will exist a lot less and educational sites at least with images would be a lot more accessible to more students.

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Topic 4: Vendors and Partnerships

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 4 – vendors and partnerships.

Jessica: Whenever you're tackling a new project, teamwork helps. And at the U.S. Department of Education's Office for Civil Rights, we encourage you to build partnerships with other educational institutions to create digital accessibility. What does this look like? Well, let's look at it from the perspective of a fictional college, called Sample University.

Jessica: Sample University has realized that its introductory level virtual courses are not accessible to people with certain disabilities. The University has decided to contract with a vendor to create accessible instructional materials for the introductory level virtual courses located on its learning management system. But it has never done anything like this before. So, some of the IT, accessibility, and procurement staff decided to reach out to their counterparts at nearby colleges and universities. And they're in luck! Staff at those schools are also interested in contracting with local vendors to create accessible instructional materials for similar courses – and, better yet, they have adopted similar accessibility goals and benchmarks. So these schools decide to partner with each other, to share ideas, information, expertise, and knowledge. What a huge help. These schools can now collaborate, thereby decreasing costs and time, and act as a unified partnership to provide more accessible programs and services for people with disabilities.

Jessica: With the partnership established, Sample University reaches out to different digital vendors on behalf of the University and its counterparts. Their research has helped them understand that they need to locate vendors whose products will help meet the group's shared accessibility goals and benchmarks. The University's procurement team wants to make sure they work with a vendor who understands accessibility. So they make sure to discuss:

The importance of accessibility testing of digital materials and technologies (like manual testing and priority areas for testing); and

Processes and timeframes for the vendor to resolve accessibility concerns identified by the University.

Once the University has a few proposals in hand, they want to make sure the contract includes, among other terms:

A clear definition of accessibility and accessibility requirements, including the criteria used to determine the accessibility of the content and the functionality of the vendor's product,

A statement that the vendor is responsible under the contract for meeting the accessibility requirements,

How the University should communicate accessibility-related concerns to the vendor, including a direct point of contact, and

How quickly and thoroughly the vendor is expected to respond to those concerns.

And when they evaluate the vendor products for accessibility, they share their results with each other.

The University is now all set and excited about their partnerships with other schools and with vendors that will allow them to achieve digital accessibility! So a quick recap: Create partnerships with peer educational institutions, and work with digital vendors to ensure they prioritize accessibility the same way you and your partners do.

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Topic 5: Creating an Organizational Culture that Embraces Accessibility

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 5 – creating an organizational culture that embraces accessibility.

Jessica: Digital accessibility is a team effort. Issues with accessibility can pop up when departments don't communicate and collaborate well. Consider these two examples.

David: First, imagine a student with a disability who is dealing with broken assistive technology in the library, such as screen reader technology or a refreshable braille display that was provided by the institution but no longer works. Does the student contact the library staff, IT Services, or Disability Services? Would the student be sent back and forth between offices?

Jessica: Or think about the new technology that your school is considering in the procurement process. Has IT reviewed the product to ensure that it includes the accessibility features that your students need?

David: At the U.S. Department of Education's Office for Civil Rights, we understand the challenges of collaborating among different departments. In fact, in making this series of videos about accessibility, we've coordinated with 25 people on 6 different teams! We know that teamwork is key to providing accessible services, programs, and activities. In order to create an organizational culture that embraces accessibility, here's what we recommend:

Jessica: First, learn about available digital accessibility standards and choose one. The Department of Education does not endorse any particular set of standards, and none is specifically required by the Section 504 or the Title II regulations, but many schools use the Web Content Accessibility Guidelines, or WCAG.

David: Next, whatever digital accessibility standard you choose, integrate that standard everywhere - into all your policies, procedures, and practices, and take steps to make sure that key staff throughout the school understand what the standard is and how it works.

Jessica: Third, designate someone to coordinate your school's efforts to comply with digital accessibility and the selected standard.

David: So, what does this organizational culture look like in real life? Perhaps the marketing team is meeting with procurement and IT to confirm that branding colors have sufficient color contrast. Or IT is meeting with Disability Services before procuring a new learning management system to make sure student and faculty perspectives are considered. Or teachers, researchers, and other content creators are attending digital accessibility trainings and conferences that help them reach out to, and engage with, a broader public audience.

Jessica: As you consider how to create an organizational culture that embraces digital accessibility, we also encourage you to reach out to peer institutions. As described in our other video on vendors and partnerships, you may find peer partnerships to be beneficial as you learn and share resources and knowledge.

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Topic 6: The Importance of Manual Testing for Digital Accessibility

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 6 – the importance of manual testing for digital accessibility.

Jessica: Let's turn to the big broad topic – manual testing. Manual testing is just what it sounds like – you're *manually* checking a webpage -without relying on an automated checker - to see how accessible it is for people with disabilities.

David: Automated checkers are software or apps that you can access online or through a vendor. Some are free. They scan webpages and check for specific barriers like whether a form field has a label or if alternative text is available for your images. However, the automated checker is unable to determine whether the label or alternative text is meaningful. It only checks to ensure there's something there. These checkers are somewhat helpful, but they're automated, and they can't tell you about actual user experiences, for example, whether a keyboard user or screen reader user will be able to interact successfully with the page. And since automated checkers can only scan for certain

things, even the best of them miss a lot of serious barriers. And they will flag some things as problems that aren't problems at all. So we'll show you some easy-to-use tools and techniques on how to manually check a webpage, using keyboard access, magnification and reflow, alternative text, captions, color contrast, and logical reading order. This is an overview video of several topics so to learn more, check out our videos on each of these topics.

Jessica: First, I'll need to check for keyboard access and a good visual focus indicator. I want to start by seeing what elements are normally available for someone who can use a mouse. So I hover over the webpage... over the menu... the drop-down menu... and various links on this fictitious Sample University demo page we've created. Then I refresh the page, and try to get to the same elements with the <tab> key and other keyboard commands.

Jessica: Another thing I want to do is enlarge the webpage to 200%, to see how the page works for people who magnify the page because they have low vision. We want to check pages at reflow, which is when the page changes to mobile-friendly format, and see how responsive it is.

David: As we mentioned earlier, an automated checker can determine whether an image has alternative text, but only a human being can really decide whether the alternative text or label is meaningful. Here, when I reveal the alternative text for the menu button – sometimes called a hamburger because of the way the lines stack up, we will see it is identified as “mobile links”. But the words “mobile links” don't tell a blind user what those links are for.

Jessica: Another thing that needs manual testing is whether video captions effectively communicate the video's audio, for people who are deaf or hard of hearing. Automated checkers are not able to tell whether captions are effectively communicating the audio content, or whether they are properly synced with the video. With the popularity and ease of automated captioning growing, it's essential to make sure the captioning makes sense, so everyone has equal access to information conveyed in the video.

David: You're also going to need to consider how color is used. Color is an important asset in design, enhancing a webpage's appeal and usability, but some users are blind or have difficulty perceiving color. And automated checkers are unable to determine whether important information on a site is conveyed using color alone, or whether there is enough contrast between the foreground and background color of the text.

David: And how about the page's layout? You'll want to make sure that people – including those who use assistive technology such as screen readers – are able to read the page's content in the order that you want them to read it in.

Jessica: So remember, automated checkers are okay... but you will still need to do manual testing to make sure you really know what is going on. That includes: assessing the functionality of the page when it's magnified, checking for meaningful alternative text and labels, meaningful video captions, sufficient color contrast, logical reading order, and other things. There are no shortcuts – and there's no product you can buy that will thoroughly and accurately check your webpage for accessibility. And when you do the manual testing, you'll have the satisfaction of knowing you are on your way to ensuring full and equal access for everyone, including those with disabilities.

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Topic 7: Keyboard Access and Visual Focus Indicators

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 7 – keyboard access and visual focus indicators.

Jessica: Most of us rely on our computer mouse or touchpad to navigate web pages, software, and apps. We rely on that arrow to tell us where we are on our screens, to navigate to different functions, and to help us scroll through content.

David: But many people with disabilities cannot use a mouse or touchpad, and they must rely on their keyboard to navigate through different pages. This includes people who are blind or have low vision, as well as many with mobility issues in their hands. We will call them “keyboard only” users.

Jessica: In this video, we’ll show you what good keyboard access looks like and how well-designed pages work for keyboard only users.

David: Let’s start with the accessible version of this Sample University demonstration page. You can see that with a mouse, I can open drop-down menus and click on links. When I hover over this menu bar, you’ll notice three things: that the mouse arrow changes into a pointing hand. The text color changes from black to blue. And a thick blue line appears under the menu heading. These are three great visual indicators to show where I am onscreen.

Jessica: Accessible page design provides similar visual cues for keyboard-only users. To test the page for keyboard accessibility, I’m going to put my mouse away and only navigate the webpage by using the keyboard. As I press the tab key to move through this accessible demo page, you can see that there is a yellow box or outline around each item. This is a great visual indicator of where I am. Without it, I’d be lost. But that’s not all. I need to be able to interact with all elements, content and the overall functionality of the page using keyboard commands. So let’s go back to the top of this page. First, next to the COVID 19 Advisory is a plus sign. That tells typical users that there’s additional information there. With a mouse, I would normally open and close it by clicking my mouse, and with a keyboard, I can press the enter key to open the content... and again to close it. While navigating with the keyboard, we look to see if all interactive elements receive keyboard focus, display a visible indicator when focus is received, and that everything can be activated without having to use a mouse or touchpad. Keyboard focus should move in a logical order. The keyboard should not skip over interactive elements, nor should it get stuck.

David: Jessica showed you what good keyboard access and a good visual focus indicator *should* look like. Let me show you what inaccessible design looks like. Now, we’re on the inaccessible demo page for Sample University. You can’t see that I’m navigating through the page because nothing’s happening on the screen - you can’t see the visual focus indicator. I am indeed pressing the TAB key. In fact, from the top of the page, I’ve pressed TAB 11 times, and *now* I’ve shifted to the bottom half of the page. So I’m able to move through the page, but I can’t interact with it in any meaningful way. The page’s poor design means that online programs, services, and activities communicated through this page are simply not available to keyboard-only users who rely on vision for navigation, which includes many people with disabilities.

Jessica: Remember, consider EVERYONE when designing your pages, including those users who can’t use a mouse or touchpad.

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Topic 8: Testing When the Screen Is Magnified

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 8 – testing when the screen is magnified.

David: We’ve all been there before. Sometimes you’re looking at a web page on your phone, and constantly need to scroll left to right to read everything. Or something just doesn’t look right, because a bunch of content is blocked by a really big thing overlaying everything else.

Jessica: This can be really frustrating. It can make online content really difficult for people with low vision, which is why we’re going to discuss the need to test web pages and apps at the point of reflow.

David: Reflow display is when different parts of a webpage change as you zoom in on a web browser. It's also known as "responsive mode" or "mobile mode" because the webpage is *responding* to the changing window size or zoom level, and trying to make sure the page makes sense in different proportions and sizes, like going from a laptop screen to your *mobile* device.

David: You can see appropriate reflow right now on our webpage for our made-up Sample University. As I zoom in... and out... you can see that all the content displays in a single column so it's easy to read.

Jessica: But here's what it looks like on a webpage with poor reflow. We have to constantly scroll back and forth, which is pretty frustrating. And then sometimes, you come across things where you can't scroll at all, like this table under the Popular Programs heading. We can only see 3-1/2 program names, not all six, like we're supposed to.

David: Now, if you have appropriate reflow on your web page, as we do on this site, you'll see that as I zoom in to, say, 200%, the main menu items disappear. Instead of a horizontal navigation bar listing all the topics, we instead have this button on the top right corner with three horizontal lines, think two buns and a patty – a hamburger – when I open the hamburger button I can still navigate to all of the main menu items that were available at 100%.

Jessica: But David, let's show everybody what happens with a webpage with poor reflow. We still have a hamburger, but when I use the ENTER key and try to activate the hamburger button, nothing happens. At this point, as a keyboard user, I can't tell if the hamburger button doesn't work, or if all the menu items didn't make it over.

David: So here are two main things to remember about reflow. First, you want to make sure your webpage is responsive to magnification and different devices. Second, everything on your webpage should be accessible via keyboard. Even at reflow. To learn more about testing via keyboard, check out our videos on keyboard testing and visual focus indicators.

David: This video was produced by the U.S. Department of Education, Office for Civil Rights.

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Topic 9: Logical Reading Order

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 9 – logical reading order.

Jessica: David, what are you eating for lunch today?

David: Let's see... Coleslaw Cookie with Vinaigrette Assorted Dressing

Jessica: What?!

David: Look, that's what it says... "Coleslaw Cookie with Vinaigrette Assorted Dressing"

Jessica: Oh, we have a problem here.

David: We sure do.

Jessica: If you look closely at this lunch menu, you'll see that David was reading snippets of the lunch menu from each weekday. On Monday: Cole Slaw. Tuesday: Cookie. Wednesday: with Vinaigrette. Thursday: Assorted. Friday: Dressing. He was reading what a screen reader would read. A screen reader uses standard reading conventions, meaning top to bottom, and then left to right, unless the computer code tells it to do something else. That's why David is talking about eating a coleslaw cookie with vinaigrette assorted dressing... Because that's the information the screen reader is telling him. And this is why we're talking about logical reading order. If the reading order is important to understanding the content, the sequence must remain intact.

David: So if I start reading at the top of this lunch menu, I would see it as “May 2020, Tiger High School Lunch Menu, Monday the 4th, Tuesday the 5th, Wednesday the 6th, Thursday the 7th, and Friday the 8th.” But a screen reader would read “May 2020, Tiger High School Lunch Menu, Monday, Tuesday, Wednesday, Thursday, Friday, 4, 5, 6, 7, 8.” And so on. I think you get the idea. The way to identify whether this is a problem is to manually check for it because an online accessibility testing tool won’t recognize that this content in this table doesn’t follow a logical reading order. We talk more about this in our video about Tables.

Jessica: Let’s look at another example, this time from our webpage of the fictitious Sample University. Here, a keyboard-only user has navigated to the Admissions page and wants to learn how to apply. I use the TAB button to navigate through the page, but you’ll see that I go from Step 1 to Step 3, then to Step 2 and lastly to Step 4. If I magnify the screen, the order is still not clear. It goes again, from Step 1 to 3... to 2... and then finally to step 4.

David: Again, an online tool won’t catch this problem, only a manual test will. You can tab through the page to see the order in which interactive elements appear. Or, if you can use a mouse or touchpad, just try highlighting the page starting at the top, and see what’s caught and in what order. This isn’t a perfect method, but it will give you some idea if there is likely a problem. If things highlight in an order that doesn’t make sense to you, they probably won’t make sense to someone who is using a screen reader. We want all content to be read in a logical order, regardless of whether you’re reading the content with the help of other technology or software.

Jessica: So remember, unless you want to eat a coleslaw cookie with vinaigrette assorted dressing... make sure your content is in logical reading order when being read by a screen reader. This is important with any tables or charts, and any information that must be read in a particular order to make sense.

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Topic 10: Alternative Text

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 10 - alternative text.

Jessica: If you have a picture, graphic, or chart on your website, or other digital material, you’ll want to make sure to describe it properly. Consider 8-year-old Kai’s experience reading with a screen reader as he came upon an image.

Kai: It wasn’t able to read what was on the screen because there was no descriptive words and so it would just say nothing.

Jessica: We don’t want Kai or other students to have that same experience. So let’s talk about what he called “descriptive words.”

David: Descriptive words, or alternative text, also known as ALT TEXT, are the words used to describe an image to people who cannot see it, but who need access to the information it conveys. Alt text is important because people who are blind, visually impaired, or who otherwise need content read to them, are not able to understand the *context* of an image unless it is described to them. Alt text doesn’t normally appear on a screen unless the designer has made it available to all users on mouse hover.

Jessica: What’s important to remember here is CONTEXT. Think about WHY an image is on the webpage and WHAT information the reader is supposed to get from it.

David: Let’s look at this picture from the Library of Congress of a pair of boots as an example. If it’s an historical artifact posted on a town’s history page, then my alternative text might be “Boots from the mid-1850s, as town was being

founded.” But if the boots are being used on a photographer’s webpage, to showcase her work, the alternative text might say “Black-and-white photograph of low-rise leather boots facing away from each other on a concrete rooftop, with strong use of texture throughout.” However, if the picture is being used to help set the ambiance for a webpage, and users aren’t expected to get any content from the photo, then you can skip the alt text and simply mark the photo “decorative”. So when it comes to alternative text, make sure the description fits the context of the main content on your page and the purpose of the image. Quick tip: think about what you want your readers to learn from the image, not just describing the image.

Jessica: As you can see, there is a lot of leeway in terms of how to write your alternative text. But the one thing we don’t recommend is using something like “shoes-22.jpg” or “slideshow image 1”. Try to avoid using the image titles as the alternative text. It’s convenient, but it’s not helpful to your users using screen readers or other assistive technology. Let’s look at another example. This is a graphic image containing text. It’s a promotional poster for a Halloween Roller Skating Carnival. Your school may use an image like this to promote events at your educational community. You’ll notice that all of the event details are on the image. So you have two options. Option 1: Include all of the important descriptive information about the event in your alternative text. So our alternative text might read: “Halloween Roller Skating Carnival, on the Mall, Central Park, October 31st, 8:30pm, Bring Your Own Skates – Prizes will be awarded for Costumes. Brought to you by the Department of Parks, City of New York.” Or option 2: Mark the image as “decorative”, and include all the important descriptive information nearby. Important: what you DON’T want to do is say – instead of descriptive alternative text- something like “announcement for upcoming Halloween Roller Skating Carnival” without giving people who use assistive technology the same information that is available to everyone else – notably: the location, dates and times, and that prizes will be awarded for costumes. Don’t just describe the purpose of the image. Give the information.

David: Visuals help tell what you’re talking about on your webpage. So make sure that those who can’t easily view the visual, can still understand the relevant information by way of alternative text or by repeating the same information on your webpage in an accessible way. So remember... Context matters. Include the relevant information. And consider what Lisa Maria, who is blind and a mother of three kids has to say.

Lisa Maria: There’s ways to make visual information nonvisual and it’s just a matter of considering that all types of people are going to have to access this.

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Topic 11: Fillable Forms

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 11 – fillable forms.

David: Oftentimes, you need to gather information from your student body, parents and caregivers, community members, or applicants and it needs to be accurate. For example, you don’t want to end up with inaccurate information on student enrollment, because your forms weren’t accessible to everyone, and then end up short on instructors or classrooms.

Jessica: So it’s important to make your online forms as easy as possible to complete for everybody, including people with disabilities. We’re going to go over a few key things in this video regarding fillable forms.

David: First, with any form, test for keyboard access, both at standard resolution and when enlarged to the point when the form switches to a mobile-friendly format (what we call “reflow”). Here is a fairly simple demo form used by our fictitious Sample University for students who are requesting a school account. There are several fields to complete, a

drop-down menu, and radio button options. First, I'll test each of these at standard resolution to make sure they're accessible for keyboard-only users.

Jessica: Next, I'll test each of these when the page is enlarged to the point of reflow. Then, I'll look at the form's field labels – those tell you what information is needed in each box. Are the labels close enough and meaningful so you will clearly know what to do? For example, can you tell whether you are supposed to enter your birth date instead of today's date? When you magnify the screen, do the labels stay close to the correct fields?

David: There are lots of ways to check to make sure your labels will work for those who use assistive technology, such as blind people using screen readers. You can use tools to expose the webpage's code, such as in your internet browser. For instance, here, I'll use the "inspect element" in Chrome's browser development tools. I'm placing my cursor in the form field, right clicking, choosing "inspect," then looking for "Accessibility," and then "Computed Properties". For this form field, I can see the label "email address." Repeating this technique for each form field, I can tell whether each form field is programmed with a meaningful label.

Jessica: Let's look at fields the user has to complete to submit the form successfully, the "required fields." At the top of the form, there is a note explaining that a red asterisk indicates each required field. In this case, people who use screen readers can tell which fields are required because the asterisks will be read by the screen reader and this kind of text-based warning does not rely on the color red alone.

David: You'll also want to check for sufficient color contrast for plain text, placeholder text, form and button labels, text links, and error or alert messages. Refer to our videos on color contrast and use of color for more information. And watch our other video on form controls and buttons, too.

Jessica: If you use a captcha or other security setting, make sure it is fully accessible, too. Can people who are blind use it? Can keyboard-only users complete it? What about people with intellectual or developmental disabilities?

David: In order to get the information you need from your audience, you want to design your forms for everyone, including people with disabilities. So remember... when it comes to fillable forms, do keyboard testing... make sure your labels are clear... indicate required fields... check for color contrast... and make sure any security features are accessible as well. Finally, think about adding your contact information, so anyone experiencing a problem can reach out for help.

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Topic 12: Buttons & Form Controls

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 12 – buttons and form controls.

David: We're going to take a look at buttons and form controls now, which are essential for being able to do things on webpages. Buttons, form fields (the boxes where you type your information in on a form), form controls (such as a list box or an option toggle), and their text labels must have enough color contrast, so everyone can actually locate everything on the page. Check out our video on color contrast if you want to learn more.

Jessica: To make sense, text labels need to be near – and stay near – the buttons, form fields, and controls, even when the page is enlarged. The labels also need to be available to screen readers. And they need to tell you what will happen if you click on the button. So this blue button with the text "SUBMIT" is ideal, because all users can tell that if they click on the button, they will be submitting their information. What you don't want is a button with an ambiguous label, such as "Go" which could mean "submit" or simply "go to the next page of the form."

David: When buttons are graphics, they need to have text labels. For example, this button depicting an envelope may be designed to give people an option to email Sample University. For blind users to have the same option, the button should have a label that says something like, “email us.” Otherwise, they’ll get to this button and not know what it does. Does it submit a form? Does it open a new page? Or does it trigger an email to Sample University? Check out our video on alternative text for more information.

Jessica: Some buttons and form fields can have multiple settings. And when there are multiple settings, people who use assistive technology and those with low vision need to know which setting has been selected. For example, radio buttons have two settings: the circular radio button will be filled completely in black when the button has been selected or will remain an empty circle if the button has not been selected. Whether a particular setting in a button or form field has been selected is information that must be conveyed to people who use assistive technologies. For example, people who use screen readers can make sense of and be able to use the buttons or enter correct information in the form fields.

David: Everything that can be done with a mouse should also be able to be done using the keyboard. Notice as I use my TAB key to work through the form, I can get to everything and there is a thick blue box around each of the fields that tells me where I am. That’s called a visual focus indicator, something you can learn more about in our video on keyboard access and visual focus indicators.

Jessica: So remember, when it comes to buttons and form controls, look out for: labels that stay with the button or controls, even when the page is enlarged, sufficient color contrast, clarity of the current setting for the button or control, keyboard access, and visual focus indicators.

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Topic 13: Use of Color Alone to Convey Information

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 13 – use of color alone to convey information.

Jessica: People can see color very differently. And it’s important to remain aware of those differences. For example, Julia can see most colors, but has some trouble in some circumstances.

David: We’ll look at a few examples that will hopefully help you as you work through your own online programs. First, let’s look at this portion of our fictitious Sample University. This is the page we designed to show what NOT to do. We’re at a section called Popular Programs. And the text says that undergraduate programs are marked in red, and graduate programs are marked in blue. Because the information isn’t being presented in any other manner, other than color, this is a barrier to access. If I put this page into grayscale, you can understand the problem even better because what was red and blue now look the same. And either in color or in grayscale, someone who is blind wouldn’t ever be able to tell which programs were undergraduate and which were graduate because color - which they can’t see – is the only indicator. Here’s one way to fix the problem. Now we’re on the accessible webpage. You can see that the same information has been reconfigured into a table with column headers indicating rank, undergraduate, and graduate programs. Now it’s clear which programs fall under which level, without relying exclusively on color. See our video on tables for more information.

Jessica: Let’s look at a second example and head back to the inaccessible demo page. In this paragraph, there is a link but there is nothing to distinguish the link other than it being in a *slightly* different color than the main text. For somebody who has trouble differentiating color, they may not know any links are available. Here’s one way to fix the

problem. We're back on the accessible demo page. You'll see here that the links are now underlined. This helps people with low vision or color blindness distinguish links from the main body text.

David: Our last example... Let's look at the all-too familiar school calendar. This calendar heavily relies on color. The color chart indicates that orange is a workday for staff, purple is a holiday, blue is a snow make-up day, and green is the last day of school. For people who are able to distinguish colors, the calendar is easy to read. But let's simulate what a colorblind person may see and put the entire calendar in grayscale. Now, we see four different kinds of gray making it pretty challenging for people with low vision to understand which days fall into which categories. And this calendar is completely inaccessible to someone who is blind. You can fix the problem this way. Create a calendar that lists the dates associated with each of those color blocks. So for example, the last day of school is indicated by green, so next to the green color block, type "May 15th, the last day of school." Now you have a second way to communicate the same information – it works for everyone, and can even be printed in black and white.

Jessica: When it comes to colors... do not rely only on color to share information. And you cannot trust that how you view a color is the same as how another person views that color. So remember... you cannot rely on color alone. Work through that by creating other ways to present the information, like a chart or table. Add underlines or bold-face to content that needs to stand out from the main text. And add additional text to tell the same information as the color.

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Topic 14: Color Contrast

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 14 – color contrast.

David: If you've watched any home remodeling shows, then you know that to draw attention to something, it's all about having color contrast. Place a white vase against a black wall and it will pop. Place the same vase against an ivory wall, and you'll hardly notice it.

Jessica: Well, color contrast isn't just to draw attention to certain things in your house. It's for technology, too.

David: That's right. Color contrast is important because people with low vision need to be able to distinguish between colors, especially between text and its background color.

Jessica: Think of it this way... Would you be able to read something written in red text... over an orange background? Maybe... but it would be pretty difficult. In fact, if the color of the text is too similar to the color of the background... the page may actually appear blank to a person with low vision because the text will not be distinguishable from the background.

David: Contrast is the measure of difference in brightness between two colors, expressed as a ratio, the lowest being 1:1, for example white on white. The highest is 21:1, black on white.

Jessica: For regular text, color contrast checkers will be looking for a ratio of at least 4 ½ : 1. For larger text, which is easier to see, they will look for a lower level of contrast, which will still be accessible to people with low vision.

David: There are lots of different ways to check color contrast accurately. Just don't rely on automated checkers, as they may get background color wrong. But you can use an eyedropper tool, or use utilities available in your web browser.

Jessica: Here's how you would use a color-contrast eyedropper tool. Move the tool around until the foreground color has been selected. Do the same for the background. Verify that they look correct. And then check out the tool's readings to see if the foreground and background have adequate color contrast.

David: Here's another method, using a utility available in the Chrome browser: Right click on text and when the menu pops up, press INSPECT. A second window will open. That is called the DOM, and it shows all the code for the webpage. In the upper left-hand corner of that window, you'll see a small tool that looks like a square with an arrow pointing into the square. Click on that. Hover over the text you want to check for color contrast. The tool will tell you if there is a contrast ratio 4 ½ to one. If it is, as in this example, you'll see a green checkmark. If not, you'll see a red exclamation with a circle around it.

Jessica: Keep in mind, browser tools will not work for text in images. And if you have text over images, you'll want to test the contrast for the text with each unique color in your background. Eyedropper-style color contrast tools can be really helpful, as they work even for text in images, or with a photograph as a background.

David: As we know from home remodeling shows, color contrast makes things pop. So remember: Color contrast also helps make our webpages more readable for many people with low vision.

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Topic 15: Links

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 15 – links.

David: Jessica, let's ask everyone to consider this hypothetical situation. You're on a website that says, "click here," "click here," "click here," "click here." But it's not clear which "click here" is the one that you actually want to click on, especially if there's no context regarding each "click here."

Jessica: What David is describing is a problem that some users may come across if they rely on screen reader technology. The screen reader will present a list of links generated by the webpage... but the screen reader may not provide any context to the words "click here." If the blind person only hears the words "click here" coming from their screen reader, there's no way to know what each "click here" refers to. Those links are ambiguous.

David: Take a look at this inaccessible webpage for our made-up Sample University. There are a lot of "Click here's" and if you read just those links, or just heard those words coming from your screen reader, you wouldn't know what each "click here" is referring to. Links provide a simple way to navigate between webpages, and they play an important role in webpage navigation. So users should be able to understand the purpose of each link they encounter so they can decide whether they want to follow the link. An ambiguous "click here" or "read more" won't help.

Jessica: But here's what will. Think about the words you want to use for the link. Here, we're back on the accessible Sample University page; the way the links are worded actually gives you some idea of where you would go if you click on them. The first one says, "visit in person", which likely refers to visiting the campus in person. The second says "virtual tour" which means I should be able to take a virtual tour of the campus instead. Think about alternative text for graphic links in the same way. Describe where the link would take the user. You can learn more about this in our video on alternative text.

David: So we talked about the *words* you should use to describe the links. Now let's talk about *what* the links should look like. Links need to stand out visually from the actual body of text. We often see links in a slightly different color from the rest of the text. That works for some people, but it won't work for people with low vision. Think about color contrast. And recall from our video on the use of color alone, that we need to make sure the links include a non-color text attribute, such as an underline or bold-face, to ensure low vision users are able to perceive the text links as links. Take a

look at our accessible Sample University page, and you can see what we're talking about. The links are underlined, so they stand out from the body of the text.

Jessica: A bunch of ambiguous links - or links people can't really see - won't help anybody. There's no good way I could distinguish one "click here" from another. So remember, to make sure your links are purposeful, and use descriptive text links and non-color text attributes to make those text links stand out.

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Topic 16: Tables

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 16 – tables.

Jessica: You have a lot of information you want to present, and you're thinking about presenting it in a table format. But tables naturally present some accessibility challenges. So ask yourself: is there a better way to present the information? If the answer is "no," then by all means use a table – but realize you'll need to make sure it is accessible to people who use screen readers because the information in any one block or cell needs to be understandable, including for blind users who are using screen readers, and even if the page is enlarged.

David: Let me explain. Here is a well formatted table that works with screen readers. This gives the "Sample University Enrollment by Year". It makes use of column and row headers, to ensure the words across the top (school year, freshman, sophomore, junior, senior, total) are in column headers and the years (2018, 2019, 2020, 2021) are communicated in row headers, and the enrollment numbers, which are in data cells, are read together so the user doesn't lose context. For example, a person who is blind and navigates to two different data cells using a screen reader would hear, "Sophomore school year 2019 – three thousand three hundred nineteen;" and "Junior school year 2020 – two thousand fifteen."

Jessica: To make this work: Header cells are marked up with what are called "Table Header or T-H" elements, and data cells are marked with "Table Data or T-D" elements.

David: To check the HTML markup, search for an automated tool online, such as an HTML table validator, many of which are free. I'm using one popular tool, and on our demo page designed for accessibility, we see that both row and column headers of the "Sample University Enrollment by Year" table have the correct T-H elements.

Jessica: Let's see how this works when the programmatic row and column headers are missing. This table contains the exact same enrollment information as the previous example, but it has been stripped of the programming that made it accessible. Here's what the screen reader user would hear for the two data cells recited in the previous example –they will be read as plain numbers, without any context: "three thousand three hundred nineteen" and "two thousand fifteen." Here's what the table looks like when it's missing the correct row and column headers.

David: As you work in tables, you'll also want to pay attention to the background colors of your cells to ensure you have the appropriate color contrast which you can learn more about in our videos on Color Contrast and the Use of Color Alone. You'll also want to make sure you don't have cells that span multiple columns or rows, and pay attention to other structural elements.

Jessica: Tables can be a really helpful tool to convey information. But don't default to them; use them when they make sense. And if you're going to use them, make sure that all users can make sense of your information. So remember... decide first if a table is your best option. If it is, check to make sure the contents make sense for people who cannot visually see the table layout, and check for sufficient color contrast.

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Topic 17: Heading Structure

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 17 – heading structure.

Jessica: Think about how you navigate a website. Are you reading word-for-word, line-by-line? Or are you skimming, looking for the headings and the key words?

David: Most of us are skimming. We rely on heading structure. And that's no different for people who use screen readers and other types of assistive technology.

Jessica: Lisa Maria is blind and notes that the web pages that are most easily used by her are the ones with good heading structure. For example, a level 1 heading and a level 2 heading.

Lisa Maria: Those are wonderful things to make happen in the code, so that as a blind person, I can skim through the page and know what the different sections of the page are.

Jessica: So, let's look at what Lisa Maria is talking about.

David: Here's an example of what headings should look like on a webpage. The main heading "Sample University" is a Level 1 Heading, the subheadings "Fall: The deadline is quickly approaching" and "Your future awaits" are Level 2 headings, and each of the sub-topics, such as – Take a Tour, News, Academic Calendar, and Homecoming – are Level 3 headings. BUT... Beware... Just because headings on a page *look* correct, doesn't mean that they actually are.

Jessica: David's example is from the accessible webpage for our fictitious Sample University. Let me show you the inaccessible demo page. As you can see, the subtopics "Take a Tour, News, Academic Calendar, and Homecoming" under "Your Future Awaits" appear to be in place and correct. But a screen reader will tell you otherwise. The programmatic heading structure is actually missing from these altogether. This means a lot of screen reader users will find it very difficult to navigate to these topics at all, or even know they are there.

David: Hear it straight from Lisa Maria, as she describes how people incorrectly use the term "heading" and confuse the purpose of heading structure.

Lisa Maria: A lot of people use headings to make font bigger and look pretty, but they're not really using it cause it's the beginning of a section and it's a title. They're using it just to make the font bigger.

David: So remember: focus on function. Use headings, and make sure they're nested properly.

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Topic 18: Video Captioning

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 18 – video captioning.

Jessica: You're a content creator for your educational community, and you just made an awesome video! Congratulations! Likely, you've also taken the appropriate steps to make sure your video is accessible to individuals with disabilities, including people who are deaf or hard of hearing. Many people in your school community may use auto

captioning, or captions generated automatically by speech recognition technology. This technology is pretty incredible, but you don't want to over-rely on it either.

David: We've learned that a number of schools, both at the K through 12, and post-secondary levels, don't regularly check the accuracy of captions. Auto-captions are not always accurate, even under perfect recording conditions, and can be even less accurate when the content or setting of the video makes it difficult for technology to recognize speech. In fact, auto-captioning is at its worst if: the speaker is speaking quickly, the speaker's voice is muffled or they're mumbling, the speaker speaks with an accent less familiar to the auto-captioning's artificial intelligence system, there are multiple speakers, the video is highly technical, or if there's a lot of background noise. In other words, auto-captioning can lead to inaccessible—and inaccurate — results.

Jessica: In this video, we'll look at some audio-captioning fails, then clarify how having good systems to ensure correct captioning avoids inadvertent accessibility barriers for students who rely on captions. First, let's look at some fails. There are unfortunately too many to choose from, but these three examples highlight how words can be captioned differently from what was actually spoken. Here's our first example. The staff member featured in a video said, "There is a very generous stipend program in place to cover the financial costs of participating in a summer opportunity, whether it be an unpaid internship with a judge or in a Legal Aid Office," but the auto-captioning reads "... whether it be an unpaid internship with a judge or in an illegal Aid Office." In that example, auto-captioning changed the word entirely, and gave the impression that the aid office was not legal.

David: In this next example, the auto-captioning fails to distinguish between different speakers, and, similar to the first example, captures the wrong words. In a soccer player's profile film, the first speaker said, "What are a few things that you think are her greatest strengths?" To which the second speaker replied, "Well, I like that she takes advantage of her center of gravity being a shorter player." Unfortunately, the auto-captioning reads "If you things that you think I like her greatest strength while I like to be taking advantage of the center of gravity versus Venus shorter player." It's obvious that auto-captioning here turned the speaker's similar-sounding words into an incomprehensible word jumble.

Jessica: Our last example comes from a video about a club that brings together students with and without disabilities for friendship and activities. The student said, "I would always see my friends from the Unified Club in the hallways" but it was captioned as: "I would always see my friends from the Union Fight Club in the hallways." Although it's possible that a Union Fight Club exists and that there are groups of friends within that club, this is clearly not the intended message about an organization that supports relationship-building. In addition to providing the necessary accessibility for students with disabilities, accurate captioning may be beneficial for other viewers as well. Consider your viewers for whom English is not their first language. Captioning may help these viewers understand the video as you intended it to be. Or you may have viewers who are watching the video in loud environments where it's difficult to hear the audio track, or in very quiet environments where they cannot turn up the volume, so they may rely on captioning more than usual. Accurate captioning also can help schools avoid complaints and litigation.

David: At the end of the day, after you spend a lot of time, effort, and energy producing a video with a specific message, you want all of your viewers to understand that message, including those relying on captioning. So, what can you do to prevent poor captioning from occurring in your videos. The solution is actually quite simple: check the accuracy of the captions and make corrections. Most video hosting sites that have the ability to auto-caption also allow a user to manually edit auto-captions on their posted videos.

David: This video was produced by the U.S. Department of Education, Office for Civil Rights.

Jessica: You can find us at www.ed.gov/ocr, or email us at OCR@ed.gov.

Topic 19: Reporting And Responding To Digital Barriers for People with Disabilities

Narrator: Access for everyone. Breaking down digital barriers for people with disabilities.

Narrator: Topic 19 – reporting and responding to digital barriers for people with disabilities.

Kai: When I can access everything, school is easier.

Jessica: And we want education for all students to be easy to access. This video is for people with disabilities and school administrators. We want to address avenues for reporting – or responding to reports – of digital accessibility barriers.

David: A digital barrier is when you can't access digital content you need to access. Most people experience this when the internet is down, but individuals with disabilities may experience digital barriers regularly. For example, when encountering inaccessible technology that cannot be made accessible immediately.

Jessica: Meet 8-year-old Kai. Like most 8-year-olds, he's an active boy and loves doing what 8-year-old boys like to do. But unlike most 8-year-olds, Kai is blind. He uses a screen reader, braille display, and other tools in class and for homework. He likes how technology enables him to do the same schoolwork as his classmates. But it can also be challenging. When instructional materials and websites are inaccessible, individuals with disabilities may be denied equal access to educational programs and other services and activities. Kai told us of a situation where there was no alternative text, so his screen reader couldn't tell him what was on the screen. What can he or his parents do then?

David: As the other videos in this series have addressed, there are lots of ways the educational community can find and remediate barriers, or avoid them at the design stage. But we all realize technology is constantly changing, so even those who are really paying attention to accessibility may let something slip through the cracks. And students like Kai, or parents or community members with disabilities may find themselves in very frustrating situations where they simply do not have equal access to what others enjoy.

Jessica: So, what can a school do to reduce barriers and frustration and increase accessibility for people with disabilities? First, make sure your website contains clear information on whom to contact if a user with a disability encounters a barrier. Make sure the contact information is in an easy-to-find location on your webpages. And second, establish clear procedures within your organization so that when individuals reach out for help, they get the help that they need. Ensure that you're not asking people to bounce between a disability services office and an IT department, or make them go to your vendor for help. Work together to get them immediate access to the underlying service, program, or activity, while you are removing the barrier.

David: If you are a person with a disability who is personally experiencing a digital barrier and can't access content on a school website, as a first step, ask the school for help or to provide another way to get the content or services you need. But if you don't think your school is providing adequate access, contact OCR for technical assistance or to file a complaint. You may also seek to enforce your rights through the courts.

David: This video was produced by the U.S. Department of Education, Office for Civil Rights.

Jessica: You can find us at www.ed.gov/ocr, or email us at OCR@ed.gov.