Transcript for OER Production Series: Technical Accessibility
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Good morning, everybody. Thank you for attending Technical Accessibility. My name is Arianna Cheveldave and I'm a coordinator on the Open Education team here at BCcampus. In this webinar, we'll be talking about the principles of digital accessibility, as well as some practical examples and best practices for making your content accessible. This webinar is part of the OER Production Series, which is happening every Thursday in August. This is the first of two webinars in the series that talk about accessibility. The second webinar, UDL and Open Educational Resources will be held on August 29. My colleague Harper is our moderator today. He will be monitoring the chat, so feel free to ask questions there as we go. There will also be time for questions at the end of the webinar too. Before we begin, I'd like to acknowledge that I'm coming to you today from the traditional unceded territories of the Musqueam, Squamish, Tsleil-Waututh in what is commonly known as Vancouver. I have lived on these territories, uninvited for the last four years. It is my immense privilege to live, work, learn, and play here, and I am grateful to the peoples who have stewarded these lands since time immemorial. If you wish, I encourage you to write in the chat where you are joining us from.

The topics we will be covering today are the definitions of disability and accessibility, assistive technology, web content accessibility guidelines or WCAG, how to make content accessible, and resources on accessibility.

Firstly, what is disability? In Western society, the common way to think about it is through the medical model of disability. This model understands disability as an individual problem, affliction, or deficit, that needs a cure or accommodation. For example, think of a person who is legally blind. They may or may not have any amount of sight. They may need some help to navigate the physical world, using something like a human guide or a guide dog or a cane, and they may need assistive technology to navigate digitally, like the text-to-speech feature on a phone or a screen reader on a computer. The medical model of disability is used in health care settings, as well as at post-secondary institutions, where students need to have a diagnosed disability in order to be eligible for accommodations. In contrast, the social model of disability sees disability emerging when there is a mismatch between a person and their environment. With this view, disability becomes more of a spectrum that can affect different people in different ways, depending on their context, environment, and the tools they have access to. This model makes clear that the category of disability is a product of history and culture and what is generally accepted as the norm. For a nearsighted person, glasses or contact lenses are necessary for navigating everyday life. They might be classified as disability aids by the medical model of disability, except for the fact that nearsightedness is so common and understood. With the proper aids and possible medical treatment, people who are nearsighted can function with ease. Thus, glasses and the like are a product of our history and culture.

Next, what is accessibility? Accessibility is what happens when we design and create resources, experiences, tools, and spaces that make space for and support the diversity of our bodies and minds and centres the needs of people with disabilities to ensure they can engage in the ways that work best for them. Accessibility is needed for all sorts of things, both in the physical and digital realms. In today's webinar, we will focus on improving accessibility to digital educational resources. To access digital educational resources, some people need assistive technology.

Assistive technology is defined by the Assistive Technology Industry Association as "Any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities." Assistive technology is a broad category. Assistive technology can be low tech, like a pencil grip or a white cane or high tech, like an audio reporter for note taking. Assistive technologies can also be designed specifically for an individual like a custom prosthetic, or they can be mass produced like a laptop. In the next few slides we'll go over some commonly used assistive technologies that are applicable to our context.

A screen reader is a software application that allows someone to interact with a digital interface in a non-visual way. It reads aloud content on the screen and allows a person to navigate using only their keyboard. Common screen readers are NVDA, a free open source software available for windows, JAWS, which is available for free and for purchase and VoiceOver, which is available on all Apple devices. Examples of people who use screen readers are those who are blind or visually impaired, those who have a hard time looking at screens for long periods of time, and those who prefer to listen rather than read.

And a text-to-speech tool is a technology that will read text aloud. Text-to-speech tools can be available as separate software, but they're often also built into tools like Adobe Acrobat reader, Microsoft Word, and internet browsers. People who might use text-to-speech include those who have a condition that affects reading or attention, like dyslexia or ADHD, and those who want to complete readings while walking or doing chores.

And then a screen magnifier is software that allows a person to enlarge content on a screen much beyond what is usually possible. A screen magnifier is often used in combination with a text-to-speech tool. This kind of software might be used by someone with low vision who needs content to be very large in order to read it.

So we've talked about a few different assistive technologies that can improve access to digital content. In order to make sure that digital educational resources are compatible with assistive technologies, we turn our attention to technical accessibility.

The technical accessibility of a digital resource is determined by its adherence to the Web Content Accessibility Guidelines or WCAG. These are the minimum technical requirements that must be met in order for students with disabilities to be able to access all the information in a digital resource. WCAG is an international digital accessibility standard that is developed and

maintained by the W3C Web Accessibility Initiative. WCAG has four main principles which state that web content should be perceivable, operable, understandable, and robust. We're going to review the first three principles in more detail.

The first principle states that information and user interface components must be perceivable to users. This principle is concerned with the format and display of content. All content included in a resource should be perceivable through user senses. This means that all information needs to be available through sight, sound, and touch, or formatted in such a way that assistive technology can be used to transpose that content for another sense. For example, a blind student may use a screen reader to access digital resources. This student will require text or audio alternatives of all visual content, such as images and video. In contrast, a deaf student will need captions or transcripts for video and audio only content.

The next principle states that user interface components and navigation must be operable. This principle is concerned with the structure and navigation of a digital resource. Guidelines related to operability include standards for how to format headings, links, and lists, which give a digital resource structure. For resources to be operable, users must be afforded enough time to read the content provided, and they must be safe from medical events such as seizures. A resource must be operable by users accessing it with assistive technology. The resource's interface cannot require interaction that a user cannot perform. Everything should be operable using only a keyboard, as not everyone has the fine motor skills required by a mouse.

The third principle states that information and the operation of the user interface must be understandable. That means the text is readable and comprehensible. The layout of a page is predictable and consistent, and there are features that help users avoid and correct mistakes. Now let's look at how these principles can be applied in the design of educational resources and look at more concrete examples.

Let's talk about how to improve the structure and navigation of your digital resource when formatting headings, links, and tables.

First, let's talk about the organization of content. Using headings to identify sections and subsections of a document helps readers comprehend the structure and content of a document. Headings provide a visual cue that helps sighted readers skim content until they find a section they're looking for. Similarly, if there are headings, it makes it possible for someone using a screen reader to navigate a page or document. A screen reader won't identify bolded or larger text as a heading, so it's important to indicate these headings semantically, meaning with the proper technical mark-up. If you're working in Pressbooks, which is BCcampus's self-publishing tool, this means selecting a heading style from the style menu or marking up the heading using HTML. In addition to making the structure of a chapter clearer, using proper headings allows a screen reader user to skip from heading to heading to get an idea of what the chapter is about. Understand how the different sections relate to each other based on the heading levels and their hierarchy, and then skip to the parts that they actually want to read.

Without headings, a screen-reader user would be forced to read the entire chapter through from beginning to end every time they wanted to find specific information on a page. With headings, they can scan the page like a sighted user would. To ensure that the page structure makes sense to a screen-reader user, use headings and subheadings sequentially. If you have a section that begins with a heading two, the first subsection should begin with a heading three, not a heading four or five.

Next is links. There are a few things to keep in mind when making accessible links. Firstly, the hyperlinked text should describe the destination or content of the link when it is taken out of the context of the sentence. Someone using a screen reader can hop between all full links on a page. Having descriptive link text is important for when they are taken out of context. Links that open files should include the file type in the link text. For example, if the file link is PDF, the link text should be the name of the file followed by PDF written in square brackets. Some files require specific software to open and a user may not be viewing your content on a device that allows them to comfortably operate that software. Giving a user warning about the file type allows them to decide if they would like to attempt to open the file. Generally speaking, it is most accessible for a link to open in the same tab. It can be disorienting and confusing for the user, non-sighted or sighted if a link opens in a new tab or window unexpectedly. That being said, there are some cases when it is important for a link to open in a new tab. For example, if there is a fillable form on a web page, and there's a link on that page to more information about one of the form fields, then opening that link in the same tab would likely lose any information the user had already input into the form. In this case, the best thing to do is open the link in a new tab and add to the end of the link text "new tab" or "new window" in square brackets. Finally, where link text is provided in a digital resource, the linked web address should be available for those using a print copy. It's not very useful for the print reader to only be able to see the link text without any indication of where to find the link resource. BCcampus uses a particular custom style in our resources, created in Pressbooks that automatically generates web addresses right after link text in the print copy. For more information about that, view the chapter on links in the BCcampus *Accessibility Toolkit*. That link is going to be dropped in the chat. All right.

Let's do a poll. That'd be fun. Let's look at some concrete examples of links. Which of these links are accessible? A poll should pop up at the four options written on this slide. Cast your vote for which of these four examples are accessible. You can select multiple answers. The first option says, "For more information on web accessibility, click here." Where click here is the linked text. The second option says, "For more information on web accessibility, refer to the *Accessibility Toolkit*. Where *Accessibility Toolkit* is the linked text. The third option says, "For more information on web accessibility, go to https://opentextbook.ca/accessibilitytoolkit" where the web address I read out is the linked text. Finally, the fourth option reads "The BC Open Textbook Review template [Word file] provides guidelines for completing an open textbook review." Where the B.C. Open Textbook Review template Word file is the linked text. Let's take a minute. Cast the votes. Okay. So the answer numbers 2 and 4 are accessible while numbers 1 and 3 are not. Let's talk about why. In the first example, the linked text, "click here" does not

provide any information about where the link is going. This is not accessible to someone using a screen reader to jump between links on a page as the destination of this link is very mysterious when it's taken out of context. In the third example, the web address is the linked text. It is very cumbersome for a screen reader user when the entire web address is read out. This is annoying enough with this example web address, which is relatively short. But think of URL for product pages on clothing websites, which can be extremely long with many odd characters. While this web address may more or less describe the content of the page the user is being sent to, this is far from true of every web address. In the second and fourth examples, the linked text contains the name of the page or file that is linked. The fourth example also indicates the file format that is linked. This makes both of these links accessible. I hope that makes sense. Let's go on.

Another web element that requires structure in order to be accessible is a data table. Data tables must be marked up correctly in HTML, meaning they need a caption that describes the purpose of the table. Heading cells that are marked as headings with the correct scope assigned. Is it a column header or a row header? No merged or split cells and adequate cell padding. In the example shown in this slide, the table has a caption. It also has a header row with three cells. These header cells are marked as headers in the HTML, and they have their scope set to column because they are column headers. Using header cells ensures that the table will be read out correctly by screen-reader technologies. The screen reader will read out the cells from left to right, row by row as you use your keyboard to navigate through the table. When you use column headers, the screen reader will announce what column each data cell falls under as you go through the table. If a table is really long, it's recommended that you provide a way for people to skip the table. This saves screen-reader users from having to navigate through the entire table if they aren't interested in the content. You can insert an anchor immediately following the table and insert a skip table link after the tables caption. You can find more specific instructions on how to create accessible tables in the *Accessibility Toolkit's* chapter on tables, which will be dropped in the chat.

All right. Next, we'll talk about making multimedia accessible.

If your resource includes audio, such as a podcast, an interview, a recorded lecture or a song, there should also be a transcript of that audio. The transcript should include the speakers' names, headings and subheadings for navigation, if it's long. And all relevant audio content, including all speech content, relevant descriptions of speech, such as if the speaker is laughing while they answer a question, and descriptions of relevant non-speech audio, such as if someone hits an object that makes an audible noise. Another reason to include a transcript of your audio content is to make that content more findable if the user goes back to try to remember, why did I hear that sentence? Maybe they thought they read it in the book. So if they searched through the book, and that sentence from the audio is transcribed somewhere in the book, then if they're searching for text content, they might actually, they'll be able to find the source of it easier. If there was no transcript, then they would just be like, where the heck, did I hear this? And they wouldn't be able to search for it because it would just be an audio file.

Now, if your resource includes video, all relevant visual information needs to be conveyed in an audio description or a transcript, and all relevant audio information needs to be conveyed via captions or a transcript. Now, you might be wondering about the differences between captions, audio descriptions, and a transcript. All of these features are things that make audio visuals more accessible, but they're all distinct. Captions are text that are synchronized with the audio in a video. You can turn on captions on YouTube and most major streaming platforms. Audio descriptions are for a user who can't see the video and needs descriptions of its visual content that isn't conveyed through the audio. Audio descriptions can sound like the stage directions in a play and that the actions of characters on screen are described as they are being performed. A video transcript includes the same information as an audio transcript would with the possible addition of relevant descriptions of visual content not conveyed by the audio. If you're creating video, try to plan and design the video so that people who can't see it still know what's going on without needing an alternative format. You can do this by having the people who appear in your video or some kind of voice over narrator describe any important visual information that an alternative format is not required. It's a lot easier to bake accessibility into your resource than to go back and add it later.

Let's do another poll. Who might want captions on videos? This poll has five options that are written on this slide. The options are: 1. People who are deaf or hard of hearing, 2. People with auditory processing difficulties. 3. People who are not fluent in the language of the video. 4. People who like crunchy, loud snacks, or 5. All of the above. I'll give you a minute. Let's see the results. Well, ding, ding, ding. All the above. You got it. Captions are applicable to many people. I know that I can hardly watch TV without having captions on because I have auditory processing difficulties. Lots of people can benefit from captions.

All right. Let's talk about visuals, including visual cues, colour contrast, decorative and informative images, and mathematical notation.

So visual cues include any visual elements that you're using to convey information. For example, maybe the correct answer to a multiple-choice question is in green text or maybe some terms in a chapter are bolded to indicate that they appear in the glossary. Maybe important points in a list have a little star icon beside them. Visual cues can be really effective. They can help a student quickly find information and they can highlight what is most important. Visual elements can be a great way to make a resource more engaging. However, when making visuals when using visual cues, please keep these principles in mind. Use visual cues consistently. If you are using bolding to identify key terms, do not bold anything else in the text. If learning objectives appear in black text boxes, don't use black text boxes for examples, too. Ensure visual cues that convey information are accessible in non-visual ways. For example, you can use aria labels in the HTML to make sure that a screen reader will correctly interpret the information. Lastly, never use colour alone to convey information. Let me show you why on the next slide.

The way that colour and colour contrast are used in web content affects how accessible it is for people who have low or poor contrast vision, people who are colour blind, and people who use a device with a monochrome display or who are using a hard copy of a digital resource that has been printed in black and white. For these people and more, information should never be conveyed by colour alone. On the slide, there are three versions of the same bar graph, charting student device preferences. The version on the top left uses the colours red, blue, and green to differentiate between students. Oops Sorry. The version of the graph on the top left uses the colours red, blue and green to differentiate between students who prefer desktops, smartphones, or laptops. The graph on the top right is the same as the first graph, except it's rendered in grayscale. On this graph, it's very difficult to tell which bar corresponds with which category in the graph legend. The first and third bars are almost the exact same shade of gray. This is a serious barrier for someone who has a hard time differentiating between colours like those who are affected by red green colour-blindness, or someone who has printed their educational resource in black and white. This problem can be solved by using colours with higher contrast ratios, as well as by adding labels to each bar. The third bar graph, appearing below the other two, has used both these solutions. Adding labels to each bar ensures that the meaning of this graph is not being conveyed by colour alone.

A good tool to help you measure colour contrast is contrastchecker.com, which allows you to test the contrast between a text colour and the background colour. This site provides past or fail ratings for each colour combination based on WCAG standards.

Who's ready for another poll? Let's see. Is this colour combination accessible? Your answer options are, Yes, it is accessible. No, it is not accessible, or I'm not sure. Which is perfectly okay. The hex code of the colour of the foreground text is 2F9700, which is a shade of green, and the background colour is white, represented by the hex code FFFFFF. I'll give you a minute.

Answer, Not accessible. For the most part, this colour combination of a lighter green text on a white background fails accessibility, colour contrast guidelines. At the bottom of the screenshot, you can see bubbles with the letters AA and AAA. These are levels of accessibility defined in the Web Content Accessibility Guidelines. The website might say that it conforms to WCAG AA or WCAG AAA, which is a higher level of accessibility. Most websites conform to WCAG AA. This contrast checker tool will evaluate colour combinations for their compliance with both WCAG AA and WCAG AAA. In this case, this colour combination fails both AA and AAA if used for regular text, which is text smaller than 18 points. For larger text, this colour combination passes AA, but still fails AAA. This contrast checker will also tell us the contrast ratio. In this case, it is 3.79: 1. WCAG AA specifies that the minimum contrast for regular text is 4.5:1. To make this colour combination accessible, we would have to make the green text a bit darker.

We've talked about visuals and colour. Now let's get into more detail about making images accessible and the different strategies for describing images.

When talking about images, we need to distinguish between decorative images and informative images. Decorative images are images that are used primarily for design and do not convey content, or they convey content that is already described in the describing text. As such, decorative images do not need text descriptions. Informative images are images that convey important non-text content. For informative images, you have to consider what information would be lost if those images weren't available. This information needs to be provided in a text format. There are three ways to provide text descriptions for images. Describe the image in the alt-text field. This is sometimes referred to as the alt tag or the alt attribute. Or you could describe the image in the surrounding text or in the image's caption. Otherwise, you could create and link to a long description of the image.

Here's an example of a decorative image that might appear beside a question in a math textbook. The text reads "A car drives down the street at 70 kilometres per hour. How many miles is that?" Below the text, there is an image of a vintage yellow car. This image would help to break up the text and make the resources more engaging, but the image is more decorative than informative. Knowing what a car looks like would not help a student solve a math problem. No information would be lost if this image were deleted.

In contrast, here's an image that might appear in an astronomy textbook, where it might be included to depict the planets in our solar system and their relative sizes. If this image were not included, students would be missing a helpful visual aid for learning about our solar system, which would likely be relevant in astronomy textbook. As such, this image does need a description. A possible description for this image: “An artist's depiction of the planets and their relative sizes in order from closest to farthest away from the sun, the planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune." Depending on what level of detail was deemed necessary, you might go on to include information about how Jupiter and Saturn are large enough to include all the other planets and inside of them. Mercury would fit into Earth at least twice, and Venus and Earth are similarly sized as are Uranus and Neptune. You might even include information about the appearance of each planet. If the subject matter expert you were working with on your resource deemed it appropriate. All right.

Here's our last poll of the day. Which image description is most suitable? There's an image on the slide that we are trying to describe along with three options for image descriptions. Three options are: 1. A food web showing what feeds a fox. Then next, a food web with a fox at the top, a partridge and a rabbit in the middle, and leaves, grass, and berries on the bottom. Then the final option is a food web showing three trophic levels. Organisms in one trophic level eat those in the level below. From bottom to top, the levels are. First level, leaves, grass and berries. Second level, partridge and rabbit, and third level fox. Seems you all got it. Very well done. The third option is correct. The first option might be a good caption for the image, but it does not really describe what the information in the food web is actually trying to convey. It's not an equivalent in what information is being conveyed. The second option gives a little more description, but it doesn't fully tie together all the information being conveyed. It describes the disparate parts, but it doesn't connect all the ideas. Then the third option is the best

description. The first sentence gives a general overview of the image, and then the next sentences give additional detail. Lists are often a good way to convey information in an image description in an organized way. One thing to keep in mind when describing images is that context is important. An image might not need as much detail in one context as in another. The description you write depends on what users are supposed to get out of the image and what information would be lost if the image were missing.

As I've mentioned, there are a few different locations in a resource where you can describe an image. The most common location is the alt attribute. Alt text is a short text alternative for an image that screen reader users can access. Alt text will also be visible if images aren't loading due to a weak internet connection. Depending on the tool you use to create your OER, you will be able to add something to the alt attribute when you upload or edit the image. When creating alt text, there are a few things that you should keep in mind. Alt text will not appear visually in your resources unless the user has a weak internet connection. Alt text can be accessed by text-to-speech technology. There's no need to include something like "image of" when you're writing alt text. A screen reader will announce the presence of an image before reciting the text. Saying "image of" would just be redundant. And alt text is meant to be short. Some guidelines say to keep all text under 125 characters, including spaces and punctuation. If an image requires a significantly longer description, describe it in the surrounding text or add a long description. If an image is decorative or described in the surrounding text, you can leave the alt attribute blank. This will ensure that a screen reader will skip the image and a screen-reader user's time won't be wasted.

You can also use the surrounding text to provide the same information that is provided in the image. This is often the best option for complex images because it makes the information available for everyone, not just those using text-to-speech technology. If an image has been adequately described in the caption or surrounding text, you can either add a short description of the image to the alt attribute or not provide alt text at all. The caption of the image on this slide reads "Sprinters racing on a track," which adequately describes the image. Therefore, alt text is not required.

Complex images such as charts, graphs, diagrams, maps, and more will likely require descriptions that are longer than an alt attribute can comfortably fit. In these cases, you will need to create a long description for the image that students who can't see the image can access. A long description can be a few sentences, a paragraph, or even something like an ordered list, depending on the image. Writing image descriptions can take some practise. If you're not, we'll be covering image descriptions in way more detail in our second webinar on accessibility, which will be on Thursday, August 29. You'll get all those dates for upcoming webinars at the end of this session.

But today, I'll give you a steak peek of that webinar and provide a few tips for writing image descriptions. In terms of what to describe, focus on the content and purpose of the image. What is the image trying to convey? What information would be lost if this image were

removed? Note that the answers to these questions will likely depend on the audience and context. What subject are you teaching? What level are you teaching? When you're describing an image, try to be as objective as possible. As much as you can, avoid inserting your opinions and stick to the facts. Be concise, and if the image is complex, go from general to specific. For example, if you're describing a photo of a baseball game, you might say, "Baseball game at a major stadium. Thousands of fans stand and cheer. Many people in the crowd wear blue and gray to match the teams playing on the field." The first sentence places the reader at the correct setting, and then the description continues on to provide more illustrated details.

All right. We've talked a lot about images. They're very important. Now I want to talk a little bit about math accessibility and the symbols we use when we write math. This is an area that we at BCcampus are still learning about, but it's a topic that we often get questions about and one we would like to improve our understanding of. The most common mistake we see with regard to math accessibility is authors using incorrect symbols for simple math equations. I've got a number of symbols up on the slide that are used to convey different mathematical concepts. The first row shows different symbols that might be used to denote multiplication. However, a screen reader would only read the middle symbol as times. The first symbol would read as the letter x. That's just an x on your keyboard, and the last would read as a dot. If you want a screen reader to actually read the correct equation out loud, you need to use the middle symbol, which will be read as times. Then the next ratio symbols that might be used for subtraction or negative numbers. The first symbol is a hyphen, and the last is an em dash. Screen readers don't announce the presence of these symbols unless settings are changed. Only the middle symbol is something a computer would read as a minus sign. You have to go into the special character bank or use a fancy keyboard shortcut to get a proper minus sign. Then next we have a division sign and a forward slash. Only the division sign would register showing division when being read by a screen reader. Lastly, we have two different ways to write a fraction. A screen reader would read the first fraction as one half or 1 over 2. Then the section fraction would read as 1, 2, which is not one we want. Another thing to keep in mind is the different ways we use math symbols. For example, in chemistry, you might want to say that an element has a charge of negative one or positive two. But when talking about addition and subtraction, you would want those same signs to be read as minus and plus.

When dealing with more complex math equations and formulas, using symbols from the special characters menu is no longer enough. There are two ways to write more complex math equations and make them accessible. For those of you using Pressbooks, BCcampus's self-publishing tool available to all B.C. post-secondary staff, the first and best option is to create equations using MathML or LaTeX, which are mathematical markup languages, and then use MathJax to render those equations. MathJax is a plugin found in Pressbooks that will automatically translate the markup into accessible high-resolution equations. As long as the markup prioritizes the meaning of equations over the display, then screen readers will be able to accurately interpret the equations.

If neither MathML nor LaTeX is an option, the next best option is to provide an image of the equation and provide an alternative text description. On the slide is an equation and an example text description showing how it may be read. It says, "m equals, begin fraction, m sub zero over begin square root, one minus, begin fraction, v squared over c squared n fraction, n square root n fraction." A key thing to think about when it comes to describing more complex equations is how to remove ambiguity. In the given equation, it's tempting to read the denominator simply as the square root of one minus v squared over c squared. But that makes it unclear whether the section fraction of v squared c squared is inside the square root or outside of it. In 2014, BCcampus conducted a user testing session with visually impaired and blind students. These students indicated that it would be helpful to place an audio file alongside a formula or equation that describes what it says. Allowing the student to hear exactly how the formula or equation should be interpreted. That's another option to consider when you're dealing with math equations.

Two resources I found really helpful for learning how to describe images and make resources more accessible: BCcampus's own *Accessibility Toolkit*. I've linked to that a few times now, but we're going to link to it again. Then there's a document called *Complex Images for All Learners*, which contains detailed information about how to describe things like charts, graphs, and maps. Very useful. Remember, it can take time to feel really comfortable writing image descriptions, so be patient and keep practising. Also attend our webinar on August 29, which will teach you more about image descriptions.

Okay. We've covered a lot of guidelines for how to make accessible educational resources. Now, a key part of that accessibility work is testing your accessibility.

Now there are a number of testing options available to you. The first is automated testing, which means using accessibility checkers. Accessibility checkers can help catch things like skipped heading levels, images missing text or poor colour contrast. However, they cannot guarantee your resource is accessible as they don't check for everything, so they're not 100% reliable. It's not like you run the accessibility checker. It says, everything's good, and then you are free to certify your resource as accessible. That's not entirely how it works. Then there's manual testing, which is when you test content with different assistive technologies. For example, you can use a screen reader to navigate a page that you just made on your website. If you've never used a screen reader before, they can take some time to figure out. But it's a very useful testing tool if you're not sure if something you created will be interpreted correctly by a screen reader. Finally, there's user testing, which is when you get students with disabilities to test your content. This is the best way to get feedback on your work and will give you the most accurate understanding of its accessibility. Since students with disabilities are the intended users of your accessible content most of the time, they will show you all the different ways that they would like to use your resource.

If you are publishing web-based resources and you would like to use an accessibility checker, I would highly recommend WAVE. It's super easy to use and will highlight most accessibility

problems for you. You can either paste a link to the page you want evaluated. If you go to the home website of WAVE, you can paste in the web address of the page you'd like to evaluate, or you can install WAVE as a browser plug-in. This is the option that I use. It will not only highlight problems, but provide helpful explanations about how a user might experience the problematic feature and how to fix it. I should also note that a lot of software includes built in accessibility checkers, including Microsoft Word and PowerPoint. However, keep in mind that using an accessibility checker, again, does not definitively prove that a resource is accessible. But they can be helpful in identifying accessibility issues that you might have missed.

A lot of the accessibility considerations we've talked about so far are things that can be checked off. Do your images have alt text? Check. Does your table have a caption? Check. Do your videos have captions? Check. I've started by focusing on these checklist items because they're concrete and easily actionable. In addition, these items make up the very important minimum technical considerations to make sure students with disabilities can access their educational materials. However, a checklist approach to accessibility has a number of weaknesses. For one, it makes accessibility seem like something that can be fixed later. Spoiler. It's a lot harder to fix it later. The checklist approach also does not ensure good design. It does not account for the multiple formats of OER. Students face access challenges that are not addressed in standard accessibility checklists, and it does not ensure equal access to learning outcomes.

All right. Before I finish the part where I talked at you, I wanted to point you all to the *Accessibility Toolkit* once again, published by BCcampus. This Toolkit covers a lot of the same information that I covered today, often in more detail. It also provides accessibility checklists, which I just told you all the reasons that they're not 100% foolproof, but they're a good place to start. The Toolkit also has activities and links to a series of webinars on inclusive design. The Toolkit can be accessed at opentextbc.ca/accessibilitytoolkit And Harper has strapped in the chat probably many texts by now. I can't really see. Yeah. All right.

Thank you so much for attending this webinar. I hope this session was helpful to you and you leave knowing at least a little bit more about web accessibility. If you'd like to attend more webinars in this month's OER Production Series, go to BCcampus.ca/events and look for the events beginning with OER Production Series, happening this August every Thursday. There are three more events in the series after today. We have Introduction to Pressbooks followed by Advanced Pressbooks, followed by UDL and Open Educational Resources. If you enjoyed today's session and want to learn more about accessibility, then the one on August 29, UDL and Open Educational Resources is probably one you want to see. All right. I'm done talking, but we have some more time left in the session. So if you have any questions that you'd like to ask me, now is a great time to ask them. McKenzie has raised her hand. Please speak. MCKENZIE: Hi, Arianna. Thanks so much for that presentation. I was going to try and type out this question, but I don't even know if I can make total sense of it. I'm wondering if you know how transferable between platforms some of this accessibility work is. For example, a lot of us use LibGuides, we add alt text in there. We can download stuff from there or even like PDF to email to posting on a website. In your experience, should we be checking for well, not contrast, that

might be the exception, but checking alt text links, stuff like that, every time we transfer platforms, or does this functionality transfer naturally?

ARIANNA:
That's a really good question, McKenzie. Should you be checking accessibility of your resource every time you translate between platforms? I'm thinking about when I'm working on an educational resource, I'm usually working in Pressbooks, which is WordPress based and HTML based. Sometimes I have to copy stuff from Microsoft Word into Pressbooks, and every now and then, there will be an author who put a lot of work into formatting their Microsoft Word and making everything look really nice and be super functional. Usually that kind of thing disappears. It doesn't translate. My instinct is to say it might not. Your alt text and such might not work between platforms, but I don't have a lot of experience copying images with alt text to see if it stays. If you're copying and pasting HTML, then yeah, I would expect that to stay because It's just written into the code. That's a really good question though, and it's a good thing to be aware of because unfortunately, sometimes platforms eat our work. I wish I had a more concrete answer. Does anyone else know?

MCKENZIE:
I know that I've used Canva and added alt text and it does download fine and PDF recognizes or Adobe recognizes it as alt text and just adds it in. But I guess there's not a solid answer across all platforms, too. It's a case by case, that's great. Thank you.

ARIANNA:
Thank you. I did recently download the planetary poster I used that was from NASA and when I downloaded it as a PDF. It did have alt text that appeared. I was impressed. I don't usually see that in a PDF. Hard to say. Harper says, "Yes, I think you should also check on all platforms removing your work too." It's good practice. I also forgot to say, but Harper remember to drop the link to our feedback form. It's a Microsoft form. If you would fill it out, if you would please, let us know how you felt about this webinar and how we could do better in the future. Thanks, Harper. Shared it again. We're still taking questions, but I just saw the link in the form. Paula, our intrepid support worker at BCcampus says, "I think it's a good practice to check the new documents that you're transferring your stuff to make sure alt text transfers over." You can also use the accessibility checker in the software you're using if there is one." That's a good point, Paula. All right. If everyone is satisfied with the many pieces of information I gave you, then I think we're good to close the session. We have a folder where we've uploaded these PowerPoint slides, as well as a PDF with these speaker notes, and a web doc, a Word doc, full of all the links that we shared. If you'd like to review the content of this webinar, go right ahead, and as Harper mentioned, the recording should be available sometime next week and you should get it in an email and you can also check the BCcampus events calendar to see if the videos uploaded there. Yeah. Thank you so much for attending. It was great to have you all. I hope you learned something.