Transcript for OER Production Series: Universal Design for Learning and Open Educational Resources
BCcampus webinar hosted on August 29, 2024
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JOSIE GRAY:
Hello, everyone. Welcome. Thank you so much for taking the time out of your day to attend this session about universal design for learning and open educational resources. First, I want to point out our event code of conduct, which you would have agreed to when registering for the webinar. And if you'd like to review that code of conduct, my colleague Harper has put the link into the chat. Next, I'd like to highlight that I have posted a link to a folder where you can download all of the resources related to the session. The link is on the slide, but it's also in the chat at bit.ly/udlandoer all lower case. If you go to this link, you can find the PowerPoint file for these slides, which are accessible to anyone who's using a screen reader and also includes my speaking notes. There's also a PDF version of the slides and a list of links to resources that I'll be highlighting during the session. My hope is that by providing these files in advance, it makes it easy for you to go through them at your own pace, also download them to refer back to later. You can also adapt them for your own purposes and basically just engage with the content in a way that works best for you. While I'm speaking today, I will be reading out the content on my slides as well as describing any visuals that are there for anyone who maybe can't see the screen. In addition, we have enabled the automatic captioning in Zoom, which you can turn on for yourself. The recording of this webinar will be properly captioned and then emailed out to everyone following the session.

So, to introduce myself, my name is Jose Gray and I use she/her pronouns. For anyone who can't see me, I am a thin white woman in my late 20s with shoulder length, blond hair, glasses, and septum piercing. I am joining you today from the lands of the Weiwaika and the Weiwaikum and the Laichwiltach First Nations in the area that is now known as Campbell River. I'm visiting here for a few weeks, so I'm grateful to spend some time on these lands and visit my family. I work for BCcampus, which is an organization in British Columbia, Canada that supports all of the public post-secondary institutions in the province in the areas of open education, learning, and teaching, and other special projects. I've been working in open education for eight years now and have supported many people in their OER projects during that time. I also have a strong background in digital accessibility and universal design for learning when applied to OER that I'll be bringing to this session.

To give you a bit of an overview of what you can expect from the session today, we're going to start with a little bit of a recap of some of the previous sessions that we've covered in the previous OER production webinars. We'll talk a little bit about the social model of disability and open educational resources. Then we'll go more deeply into universal design for learning to make sure everyone understands what that is. We'll talk about how universal design for learning or UDL can be applied when creating open educational resources. Think when you're creating OER, thinking about the creation and design and how UDL might fit in there. Then at

the end of the session we'll change topics a little bit to talk about image description. This is building off the technical accessibility webinar that happened a few weeks ago. Just to give you a bit of an idea of what you can expect today. If you have questions while we go through the session, feel free to put them into the chat. I'll also try to pause periodically for anyone who'd rather verbalize their question. I'll try to keep an eye on the chat, but my colleague Harper is also here and he will be able to respond to questions in the chat as well. Please use the chat as much as you'd like to.

To start, I like to start talking about universal design for learning by thinking about what can impact student success in a given course in the types of barriers that students face. That can impact their learning and impact their ability to show up in a course and engage fully. Those can be things like their day-to-day life, their digital literacy, their access to technology, disability, finances, caregiving responsibilities, mental health, the family support that they have, how interested they are in a subject, their experiences of discrimination or privilege, their living situation, and many other things. The types of barriers students can experience in a course can be very diverse and very context specific and very individual specific and can really vary from student to student. Many of these things are completely outside an individual instructor's ability to control or support. But since we're focused on educational resources today and open educational resources, I want to explore the ways that instructors can design educational resources to reduce barriers that students might experience when trying to engage with and learn from a resource.

A concept that I find really helpful when thinking about the range of barriers that students face is called the social model of disability, and especially when you contrast it to the medical model of disability. These are not the only frameworks for understanding disability, but they provide really helpful distinctions when considering how we can best support students in post-secondary environments. The medical model of disability understands disability as an individual problem, affliction, or deficit that needs a cure or accommodation. It sees disability as something that's grounded in the individual, and this is the model that is used in medical settings, and it is also used at universities and colleges where students need to have a diagnosed disability 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, their environment, the tools that they have access to, and it is also a product of history and culture.

What is the result of these different models in the context of post-secondary education? With the medical model, the onus is on the student to request accommodations. To do this, they need to have a diagnosed disability and be registered with the accessibility services office at their institution. This is generally a process that requires a lot of self-advocacy and administration, and even then students may not get all of the supports that they need to be successful. In addition, this model does not guarantee that instructors change their practices going forward, and only the student who made the request receives the accommodation, even

if there are other students who might benefit from those accommodations. So other students whose ability to learn and might improve with those accommodations, but since they don't have that diagnosed disability, they are left without those supports. With the social model, the responsibility shifts from the student to the person designing the learning experience to reduce or eliminate barriers from the beginning. Rather than assuming all students are the same and anyone who is different has to do more work to get what they need. It is assumed that all students are different and have a variety of access needs and preferences based on their bodies, their minds, and their context. The diversity of students is not something to be ignored or downplayed, but it's rather something to be designed for. There may still be cases where students need accommodations, but then that information is used to improve the learning design going forward. While we're not specifically talking about disability today in the session, the social model of disability is a really helpful framework to keep in mind when talking about open educational resources and UDL, because it encourages proactive design to support the diverse needs of students, including students with disabilities and try to build in choice and flexibility as much as possible.

For everyone who attended the first presentation in the OER Production Series, we went into detail about open educational resources or OER. This should be a familiar concept, but I just wanted to recap it a little bit in case anyone needs a refresher or wasn't able to attend that first session. OER, they are educational resources that are shared under an open licence, and the open licence indicates that the copyright holder of the resource has given permission for anyone to use, edit, and share the resource for free. Any type of educational resource can be an OER. It could be a textbook, a video, an assignment, slide deck, etc. The main thing is that it is under an open licence.

There are a number of characteristics of OER that I think make OER stand out from traditional educational resources. The first is the open licences, the most obvious one, which allows for the free sharing and adaptation of content. The second is digital-first design. It's much easier to share and edit content if it's digital. Generally, OER are designed with the intention of them being used and shared on digital devices, although some can be printed as well. This is important because it allows for flexibility and customization that is not possible in print, and it enables some of the additional characteristics of OER that I will talk about. Third is that OER is generally supported by open source technologies. It is completely possible to create OER on commercial platforms, but it's the open source tools that really have allowed OER to grow and flourish. In today's presentation, I will talk a lot about two open tools that are used quite often in OER, so that is Pressbooks, which is an open source self-publishing tool that is often used to create open textbooks, and also H5P, which is a tool that makes it easy to create interactive content to support student learning. Fourth is the multiple formats. For example, resources published in Pressbooks can be accessed as a webbook, as a PDF that can be read on a computer or printed or an ePub that can be read on any digital device, including phones and e-readers. The formats that OER are generally available in, they don't require paid software or a specific device or operating system to be able to open and access the content. Fifth is multimedia. I mentioned that OER published in Pressbooks are available as a webbook. That

webbook supports text and images, but it also allows you to directly embed video, audio, and animations for students so that they can engage with directly in the book. Six is that because of the open licences in digital formats, OER are free for students. Finally, the open licences give instructors agency over their course materials as they are able to customize OER or create their OER to fit the specific needs of their course.

Today, we're talking about applying universal design for learning or UDL to open educational resources. I want to spend some time talking about what UDL is. UDL is a framework that aims to encourage flexible learning design and designing for student variability. UDL encourages designing teaching and learning environments, and materials so that they provide choice and flexibility for students. That's the main idea of UDL is that choice and flexibility.

UDL has three principles. They are multiple means of engagement, multiple means of representation, and multiple means of action and expression. So engagement, that's the "why" of learning. It looks at designing learning experiences that provide options to motivate students to learn. What motivates one student might not motivate another student. So I really trying to think about what are the different ways that I can engage students. Representation is the "what" of learning. It looks at how content is being presented to students and aims to create content that gives students options and how they engage with that content. That one's really looking more at the educational materials. Then the third, action and expression is the "how" of learning. It looks at options that students have for demonstrating and managing their knowledge and learning.

The UDL principles and guidelines, they're maintained by an organization called CAST. CAST has created, the graphic I have up on the slide to represent the UDL principles and guidelines. Each of the principles are broken up into three guidelines that aim to provide access, support, and then executive function supports. Under each guideline are a number of considerations that give more concrete examples of how that principle and guideline could be applied. For example, under engagement, the principles are welcoming interests and identities, sustaining effort and persistence, and designing options for emotional capacity. Then under action and expression, the principles are design options for interaction, design options for expression and communication, and design options for strategy development.

Now, since we're talking about educational resources, in the session, we're going to really focus on the idea of providing multiple means of representation, since it's this guideline that applies most directly when designing educational materials. I'm going to go into this principle in more detail over the next few slides. But if you want to find this graphic later on, you can find the graphic as well as a really detailed description of all of the guidelines and principles at udlguidelines.cast.org and that link is in the chat as well.

For the principle of multiple means of representation, universal design for learning provides three guidelines. They are perception, which is the access guideline. There's language and symbols, which is the support guideline, and then building knowledge, which is the executive

function guideline. I'm going to go through each of these guidelines so we can really get into more specifically what they're talking about and what they mean.

The first guideline is perception, which aims to ensure that key information is equally perceptible to all learners. This guideline is closely related to web content accessibility guidelines, which are guidelines to make web content accessible to people with disabilities. However, a key aspect of the perception guideline is the ability for users to choose and customize, as well as thinking about the diversity of perspectives represented in content. So the first consideration is to support opportunities to customize the display of information. This can look like designing educational resources to be accessible and using learning platforms or publishing platforms that allow for things like changing the size and spacing of images and text, changing colours and increasing colour contrast, adjusting the speed of audio in recordings or text-to-speech tools, and changing fonts. These are all things that are generally possible for digital content, depending on the platform that digital content is in. The second consideration is to provide multiple ways to perceive information beyond just images and text. This can look like including video and audio with transcripts or captions. It can also look like including 3D representations or visual or tactile experiences for things like sound effects, like vibrations. The third consideration is to represent a diversity of perspectives and identities in authentic ways. This is because it's important for learners to see themselves in the curriculum, but it's also important for them to see and learn about the perspectives of others. This can look like discussing authors and scholars of various identities, exploring the diversity in a field of study, and looking at the diversity of representation in things like citations, examples, images, and other things like that. So with all of these things, the purpose is to offer students options and how they engage with content. To address this guideline, educational resources have to be digital, as digital allows a reader to adjust the display of text and colours, use assistive technologies to read content, and engage with multimedia.

The second guideline is around the use of language and symbols to establish a shared understanding of topics being discussed, and also recognizing that one way of communicating a concept may not make sense for all students. This can include clarifying vocabulary, symbols, and language structures in different ways, so that could look like using definition lists, legends of symbols, and making connections to prior learning. Also supporting decoding of text, mathematical notation and symbols. That can look like all providing text to speech options. Students can hear something being said aloud rather than just having to read it, and I'll talk more about that later. Also cultivating understanding and respect across languages. For example, this could look like providing definitions of key terms in students' heritage languages and drawing on the work and research from other languages. Also addressing bias in the use of language and symbols. For example, by welcoming the use of multiple dialects for communication and writing, and also avoiding harmful and oppressive language. Then the final consideration for this principle is to illustrate through multiple media. For example, represent a concept in two different ways, like a text explanation and a video demonstration and consider things like graphics, simulations, activities, etc. Ultimately, this principle, this guideline involves

building in supports in your resources to help students understand new concepts and terminology and being intentional and thoughtful about the language and symbols being used.

Final guideline is around building knowledge in a way that it can be used and applied in future decision making. What allows a student to learn something and then take what they've learned and really apply it in the future? What has to happen to allow them to do that and to support them in doing that? The considerations for this guideline include connect prior knowledge to new learning by building connections. Also highlighting and exploring patterns, critical features, big ideas, and relationships by highlighting the important information and telling them what the important information is and how it relates to the learning. Also cultivating multiple ways of knowing and making meaning and honouring the different ways students develop understandings of the world. Then finally, maximizing transfer and generalization by providing opportunities to apply learning to new contexts. Ultimately, this concept is about supporting students' learning of a subject or topic as a whole and connecting ideas together and being able to apply it in the future.

Now that we've gone through OER and UDL a little bit, I want to look at them side by side and show how UDL can be applied to OER. This is a graphic I've developed to show the relationships between these two ideas. OER and UDL, from my perspective, have two things in common. They both encourage a digital-first design, and they both are centred on students. They do have a number of characteristics that distinguish them for their own. For OER, this is the open licences, the multiple formats, being supported by open technologies like Pressbooks and H5P. OER is free to students and has greater instructor agency. The things that make UDL stand out is that it's really about giving students choice and flexibility. It's supporting learning through design, and it has a disability lens. Thinking about that accessible design and assuming diversity of students. When using OER and UDL together, they make each other stronger by filling some of the gaps that are addressed by the other or enabling practices encouraged by the other. I'll talk a bit more about that as we go on.

Let's look at some examples of UDL's principle of representation being applied to OER. All of these examples are based on OER that have been published in Pressbooks, which I mentioned, it's an open source tool designed to support the creation of open textbooks. Although Pressbooks can be used to create other types of educational resources as well.

The first guideline that we talked about was perception, which has to do with providing options for students to interact with content that doesn't rely on just being able to read it or just being able to hear it. Trying to find multiple modes. One of the ways to support perception is to provide content in different modalities by combining images, video, audio, and interactivity to give students multiple ways to engage with content. I'll go through some examples of what that can look like.

Going to have a video that's going to have some audio. This example shows a text-to-speech tool that is available by default in Firefox. It's called Reader View, and it allows you to customize

the display of text on a web page, as well as read that text aloud. In this example, I've enabled Reader View in an open textbook published in Pressbooks. So we're looking at a chapter in the webbook. I'm just going to show a bit of that demonstration.

[AUDIO BEGINS – READERVIEW]
Linear measurement can be defined as a measure of length. The length of a table, the length of a piece of pipe, and the length of a football field are all examples of linear measurement. We might also refer to it as distance.
[AUDIO ENDS]

JOSIE:
So, other browsers have similar tools like this. For example, Chrome has many text-to-speech browser extensions that do similar things. In addition, programs like Adobe Reader and Microsoft Word also have built in text-to-speech speech capabilities. I would recommend experimenting with these tools for yourself and sharing them with your students who might not know that they exist. This is just to show how just by putting educational content on the web, the display can be customized and read allowed by browser tools.

Okay. Another example. Now I have to turn to unmute it, one moment. Okay. Here is an example of an audio version of a *Math for Trades* open textbook. The authors wrote the textbook and then narrated each chapter, and those recordings were compiled in a video hosting platform called Kaltura, where they can be listened to directly.

[AUDIO BEGINS – AUTHOR'S VOICE]
Linear measurement can be defined as a measure of length. The length of a table, the length of a piece of pipe, and the length of a football field are all examples of linear measurement.
[AUDIO ENDS]

JOSIE: So then the recording…

[AUDIO BEGINS – AUTHOR'S VOICE]
…measurement can be defined as a measure
[AUDIO ENDS]

JOSIE:
I feel like this used to work better for me. Anyways. So then the recordings were embedded in Pressbooks directly, so a student could open that chapter in Pressbooks and then listen while they read directly in the book. I'm just going to skip to that part of the video.

[AUDIO BEGINS – AUTHOR'S VOICE]
Linear measurement can be defined as a measure of length. The length of a table, the length of a piece of pipe, and the length of a football field are all examples of linear measurement.
[AUDIO ENDS]

Here is an example of math content in Pressbooks that is written using the LaTeX markup language and then rendered with MathJax. One of the features of MathJax is that it allows users to customize the display of math content. And I'll just show you what that looks like.

One way that this works is you can right-click on any of the math equations, select Math settings, and then go down to Scale All Math, and then enter a percentage value for what you'd like all the math content to be scaled to. In this case, I changed it from 100% to 200% and all of the equations on this page doubled in size. To change it back, I just right click, select Math settings, go down to Scale all math and change 200 back to 100%. You can also set the zoom so that only select equations zoom. Again, right click, going to Math settings and then Zoom trigger. Here's where you select what you want to cause an equation to zoom. Right now, it is set to no zoom, but you can change it to hover, click, or double click. I'm going to select Click. Now when I click an equation, it enlarges based on the zoom factor, which is also something that can be customized in Math settings. Then here is another example of how MathJax can make math equations more accessible. This video shows content in a math textbook that is written in LaTeX and then rendered with MathJax. MathJax translates the equation into MathML, which can be read by an NVDA screen reader or any screen reader that students might be using. This video shows an example of how the NVDA screen reader interprets these math equations.

[AUDIO BEGINS – NVDA SCREEN READER]
What you do here is take the number of cubic inches you have and divide it by the number of cubic inches there are in one cubic foot. Three lines, Line 1: foot cubed equals the fraction with numerator in cubed and denominator in cubed divided by y of t cubed. Line two.
[AUDIO ENDS]

JOSIE:
The second guideline was around language and symbols. One way that Pressbooks supports this is a feature for handling glossary terms. The authors of this Pressbook used the glossary tool in Pressbooks to provide definitions for key terms directly in the text. The terms that are glossary terms, they appear bold, dark, red, and with a dotted underline. When students select the term, the definition for the term pops up directly in the book. In the screenshot, the terms "voltage, current, and resistance" are all marked as glossary terms, and the definition of "voltage" is displayed. In addition, a full list of glossary terms and their definitions are provided at the back of the book.

This is an example of a video tutorial that a VIU instructor made to demonstrate different hairstyling techniques. The videos don't have sound, but they show the instructor demoing different hair colouring and bleaching techniques on a mannequin. This is an example of something that would be very difficult to demonstrate with just images and text. By providing a video demo like this, students can watch exactly how the technique should be done as many times as they want on their own time.

How information is organized and structured in an educational resource plays an important role in comprehension as well. That means when you're working on a new resource, think about how you'll scaffold new knowledge. Consider how people might navigate the resource. Pay attention to the number of chapters, the titles, and the use of sections and subsections because they can help people form mental models of the subject. Establish numbering systems for headings, figures, and tables because that can help direct people to a specific section. Also, ensuring chapters have consistent elements and structure so students can know what to expect consistently as they move through a resource. Exactly what these considerations might look like, will vary from book to book, but the more intentional you are about thinking about structure and organization and navigation, the more useful and powerful the resource is going to be, which on its own will increase access.

Another way to support comprehension is the intentional use of textboxes, which can be a great way to draw attention to information to key information that supports the main body of a text. For example, textboxes, they can highlight the most important ideas of a section. They can walk through key processes or procedures and also provide concrete examples or case studies to support these main ideas. In the screenshot I have on the slide, there's a purple textbox that contains an example of translating a ratio into higher terms.

Over the next few slides, I'm going to be showing some examples of different H5P activities that instructors have created to support students in comprehending different subjects. H5P is a tool that allows you to create web-based interactive activities and formative assessments. H5P is enabled in tools like Pressbooks and will allow you to build these activities or reuse activities created by others in Pressbooks and embed them directly into the webbook. So for more information, you can visit the H5P website at h5p.org. You can also check out the H5P Pressbooks Kitchen at kitchen.open.ca. This site was created and maintained by Alan Levine, and it was used to support people who had received grants from BCcampus in the past to create H5P activities for existing open textbooks. The project is done now, but the site has many great resources. If you're interested in getting more and trying out H5P, it's a good resource to check out.

This is one activity taken from a *Writing for Success* open textbook. It asks students to identify all of the sentence fragments in the following 10 options. In the screenshot, I have selected all the ones I think are sentence fragments, and then I can click the check button, and the activity will tell me which ones I got right and which ones I got wrong. This allows students to self-assess their understanding of sentence fragments really easily. Here is another example from a vital signs measurement open textbook. This shows an interactive video activity demonstrating hand washing. For this activity, students watch the video and then the video pauses at different points to ask questions or provide more information.

Then the final activity I'll show here is this image hotspots, which allows you to directly label an image. In this example, which appears in a business writing textbook, there is a sample

document provided to illustrate how to write clearly. Then different parts of the document are labeled like the title, headings, topic and transition sentences, and bulleted lists. When someone clicks those different hot spots, more information about each of those items and how they should be used is provided.

If you want to dig into universal design for learning in more detail, as I mentioned, I recommend starting out at UDLguidelines.cast.org. There you'll be able to explore all of the principles, read about the guidelines and the checkpoints, which provide more detail about each principle, and also includes a lot of concrete examples. So really great resource if you're just new to universal design for learning.

I wanted to go back to this idea of how do OER and UDL support each other. What lessons can they learn from each other? I have some things that I think, some ways that they complement each other and to show this framework offers this and that's not really covered by this framework and this is how they can work together. This isn't really to say that people working in these spaces don't already know these things or aren't already doing these things. It's just really looking at these two frameworks and identifying what they contribute to each other and what they can learn from each other, if that makes sense.

So lessons open educational resources can learn from universal design for learning. In open education, people often talk about accessibility just in terms of the resource being free. For example, a phrase I hear a lot is that my resource is freely accessible online. UDL shows us that free is not enough. Resources must be designed to be accessible to students with disabilities, and doing so will make the resource easier to use and engage with for all students. The second is that multiple formats give students choice and flexibility, and that's a really valuable thing to do. Third is that it is worthwhile to put time into making resources more multimodal and interactive. There's value in putting time into the audio, into video, into interactivity. All of that type of work is really valuable. If I were to sum up these three lessons, it would be that how we design OER matters. The design of your resource can really greatly impact student learning and it's worth putting the time and intention into.

Now let's talk about what UDL can learn from OER. The first is that there are open tools available that support UDL practices, like Pressbooks and H5P. Second is that open licences make it easier for instructors to share work and find educational resources, including ones designed with UDL in mind. Third is that cost is a real and big barrier for students, and it's one worth putting time into trying to reduce.

So far, we've talked a lot about digital, but a big part of UDL is choice and print, sorry, digital doesn't work for all students. We've looked at ways to have content read aloud, ways of customizing the display of text. But what about students who prefer or require a print version?

I'd like to spend some time. Just brainstorming with everyone. I'm going to turn on annotate. You should see an annotate pencil in your menu that you can click and you'll be able to type

directly on the screen. I want to know why might someone want a print copy? What are the different reasons that there might be a preference for print? If you don't want to use annotate, you're also welcome to put responses into the chat as well. If you click on the little pencil button, a little menu should come up and there will be a T, which will allow you to type directly onto the screen. But you're also welcome to use the chat. Why might someone want print? "So they can write on it." Absolutely. Annotation, being able to highlight. Print is great for that kind of a thing. "Easier to read on paper. "Yeah, for sure. Definitely. Some people feel that their ability to read and understand what they're reading is much easier when they're reading in print rather than on digital. "Save eyes from screen." For sure, especially if people are working day jobs at an office where they're on the computer all the time or learning all the time on the computer, it's great to have an option to step away from the computer and read print. "They like to read while on the bus." For sure, can take a paper copy on the bus. "They like to use a finger on paper to keep track of where they're reading." For sure. "So be able to actually have that physical indication of where your eyes are." It can be very helpful. Any other ideas or thoughts? "They have trouble accessing technology." Absolutely. If they don't have their own computer, if they do not know how to access something on their phone. Being able to just have that print copy will be extremely helpful in their ability to actually learn the content they're supposed to. "Unreliable internet connection or shared devices." Absolutely. "Contrast may be better. Could print on coloured paper if needed." For sure that's definitely an option. Yeah, absolutely. Thanks so much, everyone. I really appreciate your ideas and engagement here. These are all really valid reasons why students might want a print copy rather than a digital copy. Very glitch, your computer, sorry, Susan. But thank you for engaging. I'm just going to clear the annotation, and then we'll move on. But if you still have, other comments you want to share in the, continue to do so.

Let's talk about what are considerations for print? Print is still valuable for students. How do we still ensure that that's available when working with open educational resources? Often, when you're creating digital content and following accessibility guidelines and incorporating UDL principles, it can be really challenging to ensure that students using a print copy can still access that same content. For example, text in a print version cannot be adjusted like it can on a digital version. You want to ensure that anything that will be printed is at least a size 12 font and even consider providing larger print options. In addition, you'll need to consider how students accessing a print version will access links, while still ensuring digital version, digital versions use descriptive link text. One way to do this, for example, is by providing the full URL in a footnote or at the end of a resource so that anyone who's printed it out, they can still go find that URL and go to that web page. Another consideration is how to ensure students can access multimedia and interactive content. One way that Pressbooks supports this is by providing direct links to all H5P activities, audio, and video in the PDF version. Students can find that content themselves. They can read through the chapter, and then when they find that interactive content, they can go to that URL and access that through their computer. Another option to consider is providing printable alternatives. For example, multiple-choice questions available in regular text in addition to the H5P activity or providing a transcript for an audio

recording that could be printed. That way students still get that same content. Yeah. Paper survives being dropped in water, run over by a car, absolutely.

Okay. So I'd like to pause for questions about UDL and OER and how they work together and anything related to what we've covered so far. After that, we're going to move to talking about image descriptions. It's a bit of a topic change. So I wanted to make sure to pause here for questions that people have or comments that they want to share so far. If you'd like to put up your hand and unmute, also welcome to put questions into the chat. Please feel free to do so. And I'll just pause to give everyone time to think. It's definitely a lot of information. And if you feel like, it's a little bit overwhelming, definitely download the slides and come back to them at a later time. Feel free to raise hands or put questions into the chat. Then we'll move on to the next topic. Okay. I'm not seeing anything so far, but feel free to still put questions into the chat or raise your hand. Okay. We will move on to image descriptions.

I want to spend the rest of our time digging deeper into image descriptions. This is a build on what was covered in the Technical Accessibility webinar, where we talked a little bit about image descriptions, but didn't go into a lot of detail or example. This is building off that topic. But if you haven't attended the Technical Accessibility webinar, no worries, I will cover the basics here again so that everyone's on the same page. First, what is an image description? Image description is a verbal or written description of an image for anyone who can't see it, and it's really vital for accessibility.

Image descriptions are most commonly used by people who have a disability that affects their vision. For example, someone who is blind. They may also be used by someone with a brain injury that makes it hard for them to look at computer screens or someone with a cognitive disability who appreciates a written explanation of what's going on in the image. Image descriptions can also be helpful for someone with a really poor internet connection that causes images not to load on their page.

Image descriptions are important because images have huge explanatory power. Images can provide context. They represent spatial concepts. They can show relationships and provide examples in a very small space. There's a reason why people say a picture is worth a thousand words. In education, images are often crucial parts of course materials. Imagine a history or biology textbook without images. There could be a lot of important information that is lost there. Image descriptions ensure that that important visual information is provided for all students from the very beginning. This is possible when course materials are provided in digital accessible formats. Students can use assistive technologies called screen readers to access digital materials, and a screen reader would allow them to navigate the digital interface of a computer or a phone, and the screen reader would read out the content on the page. If an image has an image description, the screen reader will read out that description, or if the images on a page aren't loading, that image description would display instead.

To illustrate this, I have an image on the screen here that is covered. All that we can see is the figure caption, which reads "Figure 1. The number treaties." Just looking at this caption, do you think you might be able to guess what this image is? I won't call on you. You can just think it to yourself or put it in the chat. But if you only have this caption, would you know what was in this image? If I were to provide a written image description for you, it might read something like "A map of Canada showing the land covered by each of the 11 number treaties and the dates they were signed." It's a pretty basic description, but now you should have a little bit more of an idea of what this image is. Yes, if you've seen this map before, likely, you have a better idea of what it would be showing. That's a simple example of an image description there. Then here is the actual image. Without that image description, a student who relies on image descriptions would be left to guess the content of the image based on only the figure caption. They'd be losing out on a lot of information there.

The description that I provided. If you're looking at this map now, you're like, Oh, there's a lot of missing information there. One of the things we're going to talk about over the next few slides is how much information do you provide, how much detail do you go into, and how do you make those decisions when working with images? Because there's a lot of different ways you could describe this image, and depending on the context it's appearing in, you might need to go into a lot more detail.

Let's talk about how to write image descriptions. A helpful framework for determining what to describe in an image description is the idea of object, action, context, which was developed by Alex Chen. In object, action, context, the object is the main focus. The action describes what is happening, usually what the object is doing, and the context describes the surrounding environment or information that's important to know for it all to make sense. This is to help you structure an image description to ensure the most important information comes first. Here is an example of the line graph. In this case, the object is a line graph. The action is that this graph shows a close correlation between the divorce rate in Maine and the per capita consumption of margarine between 2000 and 2009. The context is that these lines fall at the same rate from 2000 to 2005, and then there's a slight rise before it levels off. That shows how that description could be broken up into a few parts.

When describing an image, there are six things to keep in mind and these were developed by the Diagram Centre. The first is context. Why is the image there? What is its significance in the context it's appearing in? The second is audience. Who is accessing this image? What information are they expected to take away from this image? For example, a description for first-year students may be less detailed than a description for graduate students. Third is concise. Keep it short. Only include information that is relevant to the context and information that would be lost if that image wasn't provided. Fourth is objectivity. Objectivity can be tricky because there are contexts where less objective descriptions are appropriate. But overall, avoid putting your own judgments into the image and only describe what is visually shown in the image. If you do find yourself adding additional context to the description, that's probably something that should be added to the caption for everyone to access and not just the image

description. Five is when structuring your image description, especially for complex images, start with a general overview and then get more specific because that'll make your description easier to understand. By starting with the broad idea, the broad concept, and then getting into the details. Then finally, consider your tone and language. Your tone when describing a personal image for social media will likely be different than describing an image in a textbook, and use language that will be accessible to your audience.

To illustrate some of these points, I have an example to describe. Here is a picture from a psychology textbook. It's the Wong-Baker Faces Pain Rating Scale, which was developed to help children identify and communicate their pain level.

Here is my description, and there's two things I want to point out here. The first is that the idea of describing from general to specific. My description starts by saying in general with the images. It says, "A scale that uses cartoon faces to illustrate levels of pain. Each face has a description of the pain and a number 0 to 10." From there, I go into more detail about what each face signifies. And the second point is that depending on the context that this image is used in, maybe only those first two sentences that I read aloud are needed. Maybe you don't need to go into more detail about what the 0 face looks like or the 10 face looks like. But maybe you do, depending on the context that the image appears in.

A really wonderful resource for image descriptions is called *Alt Text as Poetry* by Bojana and Shannon. This is an openly licenced resource and we'll put a link to it in the chat because it's really really wonderful. In this resource, the authors encourage using strategies and tools developed by poets when writing alt text. They talk about resisting seeing image descriptions as the accessibility compliance requirement, and instead thinking of it as something deserving of creativity and care.

They give three ways that poetry can inform our approach to image description. First is attention to language. This means paying attention to word choice, connotation, tone, voice, and how those things relate to the image being described in the context it's in. Second is word economy. That means working for brevity and conciseness where possible, and third is experimental spirit. Here they talk about being creative and exploring and iterating to improve and constantly learning. They also talk about alt text as translation, which is also a useful metaphor when working through the challenges of describing visuals. So when you are describing an image with words, information is always lost and gained. That's a reality. You're never going to be able to have a perfect description that describes every single part of the image perfectly. Second is that there is no single correct answer. Everyone who describes an image is likely to describe it a little bit differently and that's totally okay. Then third, describing images always involves creative decisions. That's part of the description process.

I have an activity for us to allow everyone to practise a little bit describing an image. So take a look at this image, and I want you to take a minute just to write down five to ten things that you notice about this image. You can write it on a paper in front of you. You can put it into the chat,

whatever you'd like, you don't have to share it. It's just for your practise. So five to ten things that you see in this image that you notice about this image, and I'll give everyone a minute to do so.

Okay. Feel free to keep writing things down if you're not done yet. But now I want you to kind of look at your list and kind of go through it and notice, like, what details do you think are the most important here? Okay. Now I want you to try writing a short description for this image. Keep it short. Two sentences, max, don't get too long. But think about context, audience, conciseness, objectivity, general to specific and tone and language. Try writing your own description. Again, you can write this on like a notebook, you can put it into the chat if you're comfortable, but no pressure to. Try writing a description, and then I'll go through some considerations and some ways we can think about this image. Okay. Would anyone like to share their description? If you'd like to, if you'd like to raise your hand or put it into the chat, I'd love to hear what people came up with, but also no pressure. I'm not seeing any eager volunteers, which is okay.

So I'm just going to share a possible description. And if your description is not like my description, that's totally fine. We talked about how everyone's going to describe this differently. So don't stress about that. I don't have the correct answer. I just have a possible answer. So a possible description for this is "Students sit in four rows of tiered desks, and an instructor stands in front of a projector." I think in an earlier description, I'd also specified that it looks like a college math classroom. One thing that I didn't give you with this activity is any context. If you had some context about where this picture was appearing, this activity would be a little bit easier, because context generally affects what you describe in this picture. For example, if this picture appeared in a section talking about the pros and cons of different classroom setups, you would make sure to describe the formation of the rows and the orientation of the room. If it appeared in a section talking about the importance of coming prepared to class, you might mention that students have notebooks and calculators in front of them. We got this image or I got this image from a student success textbook in a section that talks about how normal it is to feel anxious about returning to school as an adult. In that context, this image isn't giving us more information. It's more there for decorative purposes and to break up the text. In that case, we may decide to keep the alt text super short, like "Students and instructor in a college math classroom" or not provide alt text at all because the context it appears in is really important here. Someone shared their description in the chat. It reads "Adult students sitting in a softly lit lecture hall with three tiers of orange curved desks centred around an instructor using a document projector and screen." That's a perfect description of this image, really clear, really descriptive. Thank you for sharing that. It does show you how different people can describe the same image. Thank you.

I want to spend a bit of time talking about writing image descriptions for complex images, things like charts, graphs, diagrams, maps. These types of things usually require longer descriptions than can fit in alt text. In these cases, you'll need to create a long description for the image that students who can't see the image can access. For some images, some complex

images, you might be able to describe them in a few sentences or a paragraph. But over the next few slides, I want to highlight two different strategies for describing different types of complex images to make writing and understanding that description a bit more effective and manageable. These guidelines are based on work shared by Supada Amornchat in a resource called *Complex Images for All Learners*. It's also a really incredible resource and Harper is going to put that link into the chat as well.

The first is using lists. You can use bulleted and numbered lists to represent information that is presented in pie charts, bar charts, line graphs, and flow charts. This can make the information a lot easier to digest and navigate rather than a long paragraph.

You can also use data tables to represent information found in complex tables, pie charts, bar charts, and line graphs. This can also support someone through complex information and data.

Here's another example and I'd want you to consider how you might approach describing this image. What are the different types of information that this image is conveying? What information would you include and how might that change depending on the context? How would you structure the information? This is a pretty complex image. Don't worry about trying to write out a description right now. Just think about how you might approach it, brainstorms and possible approaches. Would a list work, would a table work, what more of a big paragraph work? And just try to think about how you might translate this image into text. A way that can be helpful thinking about this is to pretend you're on the phone with someone and how might you describe that image to them? I'll give you a few minutes to think it through. If you like, the image is probably possibly quite small on your screen. If you'd like to actually go to the source of this image, Harper has put in a link to the PDF that this image was taken from. You just go to page 13 of that PDF. You're welcome to share ideas in the chat as you're thinking, but not at all required to. Once you're ready to move on, I'll walk through some different considerations and some different examples of how you might describe this image. I have a suggestion for putting it into a bulleted list with three levels. Definitely a possibility. Flow charts often translate really well for lists. So lists are often a good option when working with flow charts that show relationships between things. Okay. I'm going to move on into a possible way to describe this image.

Someone mentioned lists. Absolutely. This is one way that this list could be set up. This is using a bulleted list here. In this example, I've started by providing a sentence that gives an overview of the chart, starting with that general orientation. It reads "A flow chart describing the poverty rates of different groups of children in Canada based on 2006 census data." This gives a high level summary of what the chart provides before going into more detail. Then underneath is a bulleted list with three items. The first bullet describes the top level of the flow chart, which is the poverty rate for all children in Canada. Then the next two bullets describe the two branches of the flow chart, which is the poverty rates for Indigenous and non-Indigenous children in Canada. Then underneath those last two bulleted points are subpoints where the poverty rates of Indigenous and non-Indigenous children are broken down further into smaller groups. This

example uses a lot of text, but using that bulleted list with the two levels of bullets gives it structure that loosely replicates the structure of the original flow chart and would make it easier for someone who might be using a screen reader to navigate between the different parts of the list because they could jump between the bullets and the sub bullets as much as they needed to understand the differences in the numbers.

Another way to structure a description of this image, you could also use a table. In this example, again, there's a sentence provided to give context for the table. Very similar to the sentence provided in the previous example. Then underneath, there is a table with four columns, and the column headings are grouped total children total in poverty and poverty rate. This example is much less text heavy and makes it much easier for students to review and compare the data points since they can move between the rows and columns of the table. However, it's more difficult to see how some of the groups are subgroups of others. For example, status First Nation children is a subgroup of all Indigenous children, and that's less obvious in this table. Personally, I can't say which description is better in this case. It's a judgment call. They both have their strengths and weaknesses, but I wanted to demonstrate different ways of structuring the same information.

If you're looking for another resource around describing images, I would really recommend the "POET Training Tool" located at poet.diagramcenter.org. It has information about when to describe images, how to describe images, and has lots of opportunities to practise, describing different types of images, and lots of really great examples. Often the best way to learn this type of thing is to look at examples of what other people have done and think through that thought process because it really does take practise. It's a hard skill to develop and practising is the best way to get better at it. Okay.

So just to go over an overview of what we've covered so far, we talked about the social model of disability and how that model puts the onus on educators to design for accessibility from the beginning rather than requiring students to request accommodations. We talked about universal design for learning, specifically the principle of multiple means of representation, which looks at how to design flexible educational materials to support learning and comprehension. Then we covered three guidelines under that principle. Perception, options for students to interact with content that doesn't rely on single sense, like sight, hearing, movement or touch. We talked about language and symbols, different ways of illustrating and defining concepts. We talked about building knowledge, supporting students in constructing meaning and making connections and being able to apply their knowledge. Then we talked about how OER and UDL complement each other, and then we ended with a more in depth look at image descriptions. A bit of a recap of what we covered today.

I would like to pause again for questions, and I already see one in the chat, which is wonderful. The question is, "How do we incorporate this into Pressbooks? Would it just follow the image of the flow chart?" There's definitely a few different options for how you could include this description in Pressbooks. Ways that we have handled it in Pressbooks is to create a section at

the end of the chapter where we put all of the long descriptions. Everything that is too long for the alt text, we would put it at the end of the chapter. Then what we would do is we would create direct links between the image and the description and then back again. It's a little bit technical to set up because you have to set up those hyperlinks and anchor tags. But the way it would work is a student would encounter the image. Their screen reader would read out the caption, and then at the end of the caption, it would say link to long description, something like that. They could click that link. It would take them to the end of the page, where they could read through that full written description of the image, and then there would be a link that would take them back. That's how we've set it up in the past. If that sounds too technical, you could definitely put the description underneath the image. It would just be a matter then of communicating what that was because all of the students who are reading that book would be encountering that long description. Finding a way to indicate that this complements the image, it's in addition to, it's more centred in the resource rather than at the end of a chapter. Harper put in a link for an example of long descriptions in a textbook so You can see how that was actually set up in one of our Pressbooks books. But thank you for the question. Any other questions? Feel free to put them in the chat or unmute as well. Also, happy to take verbal questions.

PARTICIPANT: Hi, Josie, can you hear me?

JOSIE:
I can. Yes. Go ahead.

PARTICIPANT:
Awesome. This is a specific question, but covers of books. I'm always going back and forth on whether I should add alt text to describe what's going on the front of the book or if that's unnecessary if I have the title and the author as part of that kind of description.

JOSIE:
It's a really good question and also not one that I know the exact perfect answer to. I think as a bare minimum, definitely the title of the book, the author and author and the fact that it's a book cover. That would be the bare minimum description. Then whether you go more, like if there's a particular image or particular artwork, whether you go more into describing that. I think that's really a judgment that you could make if you're involved in the creation of a cover, is that really important to the identity of the book. Sometimes there's custom artwork that's contracted for a cover and it's really important to or really key to the book's identity where you might want to go into more description. But sometimes the picture is not at all relevant to the subject at all. It's just visually nice. There's not really a perfect answer. I think more just thinking about what does this add? And yeah, thinking about the context of a book. If you were working on a fiction book, for example, where the cover art might be really key, you might be more likely to provide a more robust description than you would otherwise. I think you could also base it on where that cover is appearing. Where are people accessing that cover? If it's in a catalogue list where they might be going through lots of book covers, they might not care so

much about the artwork on the book. They mostly probably want the titles of the book. But if it was, for example, like if it was on a page where it's going, you know, you've got the description of the book, and you've got all sorts of information about it where someone is really trying to engage with that book specifically, you might go into more description of the cover. So it's definitely a judgment call. I don't have a clear answer for you, but it's a really good question.
PARTICIPANT: No, that was great. That totally makes sense. Thank you.

JOSIE:
Welcome. Ok, I'm not seeing any other questions, but feel free to still jump in, put something in the chat or put up your hand. Just going to go through my last few slides and then I'll let you all go.

This is our last webinar in the OER Production Series this August. If you've missed any of the previous sessions or want to go back at all, all of the recordings are available to view on the BCcampus website under the Events page at bccampus.ca We also have all of the recordings on a page in one of our Pressbooks, and I'm hoping Harper can post a link to that in the chat as well, where you can find all of the recordings so far on one page.

I'd really like to thank everyone for your time today. I really appreciate your engagement in this session. We do have a feedback form that we'll post in the chat. If you have time to fill it out, we would really greatly appreciate it and that information allows us to report on our activities and identify ways that we can improve. If you have time, we'd really appreciate your feedback. And you can download the slides from the session again at bit.ly/udlandoer And with that, I'll let you all go. But if you do have questions, I have got time, if you'd like to stick around, you're more than welcome to. But thank you very much.