SOFIA LEIVA: Thank you, everyone, for joining us today for the webinar, Bringing Equity and Inclusion to Remote Learning with UDL. My name is Sofia Leiva, and I'll be moderating today. And today I'm joined by Luis Pérez, Technical Assistance Specialist, and Sam Johnston. Director of Postsecondary and Workforce Development at CAST. And with that, I'll hand it off to Luis and Sam, who have a wonderful presentation prepared for you all.

LUIS PÉREZ: Thank you so much. And welcome, everyone, to this webinar. We're so excited. And we think 3Play Media for this opportunity to share what we know about Universal Design for Learning, or UDL.

I do want to begin with just a recognition on the late Congressman John Lewis, whose funeral is taking place right now. And since we are talking about equity and inclusion, I think it's really important to recognize those who have come before us and have done so much to further the cause of equity and inclusion. So godspeed, Congressman Lewis. And as he said, our goal for this presentation today is to get into some good trouble.

As Sofia said, my name is Luis Pérez. I'm a Technical Assistance Specialist at the National AEM Center. And we'll discuss in just a second what the AEM Center is. And with me today I have Sam Johnston, who is the director of postsecondary and workforce development. Do you want to say a few things, Sam, before we get going?

SAM JOHNSTON: Hi, everybody. Thank you for joining us today. And I just second Luis's acknowledgment of the late congressman. And also, we are 30 years past the Americans with Disabilities Act as of this past weekend. So another-- continuing to build on our work around equity and inclusion, and recognizing all the work that has gone in over 30 years, big and small, to get us to where we are today. And still lots more to do.

LUIS PÉREZ: Thanks, Sam. Just to tell you a little bit about the organization that we work for before we get into the content of the webinar, both Sam and I work for CAST. And CAST used to stand for the Center for Applied Specialized Technology, but now we

just go by CAST.

And CAST is a small nonprofit based in Wakefield, Massachusetts. And our mission is to bust the barriers to learning that millions of people experience every day. We work with educators and with organizations to apply the insights that we've gained from the learning sciences, and also what we've learned from working with educators around the world who are implementing UDL. And CAST is known for pioneering universal design for learning, which is our main lever for change, in order to create more inclusive learning experiences for everyone.

And within CAST, there are a number of federally-funded centers. And the National Center on Accessible Educational Materials for Learning, or the AEM Center, for short, is one of those centers. We are federally funded to provide technical assistance around accessible educational materials. And our mission is twofold. It's to increase both the availability and the use of high-quality, accessible materials and technologies. And those two things typically go hand in hand. You want to make sure that the materials are accessible, but also that the delivery mechanisms for how learners get access to those materials also support accessibility.

And our ultimate goal is to support improved learning opportunities for all learners with disabilities. And originally, I had the word "students," there. But the AEM center originally focused primarily on K12, as did CAST. But our mission has expanded over the years to focus not just on K12, but on higher education, on early learning, as well as the workforce. And so I like to joke that our work goes from twinkles to wrinkles instead of from womb to tomb. And I prefer that term much better.

So we want to start by explicitly stating the goals for this session, and then inviting you to share your own goals, what you want to get out of this presentation. So we're going to explain what UDL is. So even if you're brand new to UDL, Universal Design for Learning, we're going to provide a definition of that. We're going to get to know the universal design for learning guidelines as a tool for designing more inclusive learning experiences. And then we're going to discuss a number of strategies for more inclusive and equitable participation in remote learning experiences, which are probably the experiences that a lot of people are going to have with learning this fall as we continue our pivot related to the response to the COVID-19 crisis.

So I want to just take a second, and if you could, in the chat, just let us know what is your intent for attending this webinar. What is that you hope to get out of it? So go ahead and share that in the chat for us. That will be great to know.

And as well, continue to introduce yourselves and let us know where you're joining from. That's also very helpful. That's how we build community. So I see Sue just shared, "to learn that the top three things that you can do in remote learning." Oh, this is going way too fast for me. [CHUCKLES]

But I think we all share a common goal here, is to understand accessibility and the role that it plays in creating more inclusive learning environments. So I think we're all on the same page. So I'm going to continue here with the presentation.

So we want to make sure that we all start with a common language. And so I want to make sure to take a second here to define Universal Design for Learning, or UDL. This is an approach that was pioneered at CAST starting in the early 1980s. And the goal with universal design for learning is really to optimize teaching and learning for all. And the way that we do that is by setting clear and rigorous goals, by anticipating barriers that may keep some learners from accomplishing those goals, and then by proactively designing to minimize those barriers.

And one common misconception about universal design for learning over the years is that it was often seen as an approach that was really focused on accommodations and the needs of students with disabilities. But really the goal of universal design for learning is to create opportunities for everyone and to make sure that everyone has the chance to become an expert learner.

And the way that we define an expert learner is someone who doesn't just know a lot, but they have mastered the art of learning. They know how to learn. They can learn more. They're motivated to learn more. So really that's our ultimate goal is expert learning, expert learners, and expert learning systems, so systems that continue to improve, continue to learn from themselves.

And one of the tools that we have for implementing universal design for learning in our designs of remote learning environments, as well as face-to-face and hybrid learning environments, is the UDL guidelines. And there is a link. You can go to udlguidelines.cast.org, where you can download a version of the guidelines. There's

also a QR code on the screen right now that you can scan that will take you to that website.

So a core idea of universal design for learning is the idea that we all vary and we're all on a spectrum when it comes to ability and disability. And more specifically, we vary along three different dimensions. We vary in the ways that we're motivated to learn and in the ways that we engage with learning. We vary in how we take in information and how we make sense of that information and turn it into meaningful knowledge. And then we also vary in our interactions with the environment and how we're able to take purposeful action to show our understanding and to show what we know.

And those three dimensions really correspond to three different parts of the brain that have been identified by neuroscience. One part is the effective networks, and that's the why of learning. So again, that has to do with a motivation for learning. Another part is the recognition network, and that's the what of learning. And that's all of the information that you acquire through the senses, and how you recognize patterns in that information and make sense of it. And then the final network is the strategic network, and that's how we plan and develop strategies for interacting and for showing what we know.

And so in each of those areas, because we have that variability, we need to provide options. Because no "one size fits all" solution is going to accommodate that variability.

So another key idea of UDL or universal design for learning is that there is no average learner. And I like to joke that there's only one place that I've ever seen an average learner, and that's in my stats book. Because the average is really a statistical construct. It doesn't actually describe any of the learners that we get to work in in our environments.

So universal design for learning is all-around recognizing and valuing that variability, and then building flexible learning environments that have lots of options for our variable learners. They are options for engagement. So we provide multiple means of engagement. They're options for representation We provide multiple means of representation. And they're options for action and expression. We

provide multiple means of action and expression.

So the UDL guidelines, like most guidelines, can be somewhat intimidating when you first look at them, because they have a number of checkpoints. But I want to emphasize to you that the goal is not to use it as a checklist and to check off every single guideline. The goal is to use the guidelines as a tool for studying the curriculum and identifying barriers, and then finding solutions, finding strategies, for minimizing those barriers. And so today we want to give you a high-level overview first, and then we're going to take a deeper dive into each layer of the guidelines.

Because the guidelines, in its latest version, have been organized around three different layers. The first layer is the access layer. And the goal there is to create access through universal design of the learning environment and the use of assistive technology for students who need it. The second layer is the build layer. And here the goal is to make learning meaningful, to build those learning skills, and in addition to that, to build those social connections, because we know learning is socially constructed.

And the final layer is the internalize layer. And our goal there is to build independence, to make sure that those learning skills that have been developed in the previous layers now become internalized and learners are able to put them into practice independently.

So the guidelines move from the outside in. At the access layer, a lot of it is about the environment and the interactions between learners and the environment. And then, as we move further into the guidelines of that internalize layer, it really is about what happens inside of learners, how they've taken in those skills, those dispositions for learning, and they've internalized them.

Also, the guidelines build from more extrinsic to intrinsic motivation. And also there is a gradual release of responsibility. So at the access layer, there is a lot that we do as instructors, as instructional designers. But at the internalized layer, it's all about learners building that independence and doing more of it for themselves. They're doing more of the work of learning, if you will.

So we want to begin by taking a deeper dive into that first layer by saying that access matters. Access has an impact. Sam mentioned the Americans with

Disabilities Act, and how we just celebrated the 30th anniversary of it. I'm one of those people that has greatly benefited from the Americans with Disabilities Act.

I would not be here with you today, having moved through my educational journey and being able to accomplish my goals, had it not been for the Americans with Disabilities Act. Going through graduate school and having the accommodations that I needed, but also having universally-designed curricula really made a big difference. So it's important to acknowledge that, that access matters. And it really plays a key role in ensuring that there's equity in all learning environments.

Now when we talk about access, we typically go right away to the methods and materials. But we take a different approach. We always begin, within universal design for learning, by first looking at the goals and understanding that it's important to help students understand what the goal is, what the expectations are, making sure that we all have a common language and that we're all on the same page.

And then making personal connections between those goals that we have or that we bring to the learning experience and the goals that learners have. And so that's why I asked you at the beginning to state a goal for yourself of something that you wanted to get out of this webinar.

And ultimately, even though we're focused on accessibility, really the next question is, accessibility for what? Because we can make materials, methods, as accessible as possible. But if they're not relevant and they're not engaging, then again, accessibility for what? So we want to make sure that we can answer that question, that it's not just accessibility for its own sake, it's accessibility for engaging learners and making learning relevant and meaningful to them.

So we've developed a resource that's available to you for free from CAST Professional Learning. It's Top 10 Tips for Developing Learning Goals. We'll share that link with you. We invite you to check that out. It has lots of tips for how to develop high-quality goals.

And once we're clear on what the goals are, then the next step within universal design for learning is to take a look at the barriers that will keep learners from achieving them. And on the screen, we have an image of a smartphone that has a

GPS app open. And it's helping someone navigate to their destination. And that's, in some ways, the way that we think about Universal Design for Learning. We want to set high expectations for every learner. But then we want to provide some flexibility in how learners get there, in the same way that, with a GPS unit, you set your destination, but you're able to adjust depending on traffic and depending on the goals that you have for what you want to see along the way. So we want to make sure that that flexibility is there in how those goals are accomplished.

And part of providing that flexibility is bringing in accessibility. And so again, in the spirit of having a common language, I want to share with you a definition of accessibility that we use at the AEM Center and CAST. And this comes from the US Department of Education Office of Civil Rights.

So accessibility is when we provide students with disabilities the opportunity to do three things-- acquire the same information, engage in the same interactions, and enjoy the same services as students without disabilities, and to be able to do that with substantially equivalent ease of use. And I'll clarify what we mean by substantially equivalent ease of use. And we also want students to be able to do so in an equally effective and equally integrated manner. So that substantially equivalent ease of use, in terms of materials and technologies, means at the same time as their non-disabled peers, and, I would add, as independently as possible.

So how do we get there? How do we design accessibility into our learning environments? So there are international standards. Many of you probably know the Web Content Accessibility Guidelines. This is the international standard for web accessibility. And at the heart of the WCAG, or the Web Content Accessibility Guidelines, are these four principles of accessible design. And they are captured in the acronym, POUR, P-O-U-R. And it stands for Perceivable, Operable, Understandable, and Robust.

And addressing those four principles really begins with asking some good questions. And I've listed a number of them here on the screen. And I'll read them out loud as well. So the first question for perceivable is, can everyone sense the content? Does the content rely on a single sense? So you want to make sure that if they can't see it, that they can hear it. If they can't hear it, that they can see it, and follow along

with captions. Or that the information's available in text so that if they're using a Braille device, they can access it through touch, as well. So can everyone sense the content or information?

For operable, the key question is, can everyone navigate the content with ease? Are there flexible options for navigation? Can they skip around the content using the navigational features of their assistive technology?

For understandable, the key question is, is the content presented in a way that is intuitive and predictable? As you navigate the learning environment, are things presented in a consistent way with a consistent presentation and consistent arrangement? Or do you have to learn how to use the page or document each time that you open it?

And then for robust, it's just, is it compatible with assistive technologies? Can everyone use the content whether they're on a mobile device or on a desktop, whether they're using a screen reader or not? So we want to make sure that we follow accessibility best practices to ensure compatibility.

And we do have a section of the AEM Center's website that's dedicated to POUR and those principles. And it has lots of practical tips for how to implement the POUR principles on websites, on videos, and in documents that you might use with your students. So we encourage you to check that out. Our website is aem.cast.org. And we're going to make sure that we share these links with you along with the slides and other aspects of our presentation.

So when it comes to accessibility, it's not just enough to talk about it. We also need to model it as much as possible. And one great place to start with modeling accessibility is the syllabus. Because that's one of those early experiences that learners have. And it really sets the tone for the overall experience that they're going to have with the course.

So we recommend that, in addition to your institution's boilerplate accommodations language, that you include an accessibility statement in your syllabus that describes the different supports that you put in place, that describes the ways in which you strive to provide flexibility in your course design. And that will do two things. Number one, if the syllabus is accessible, it's going to enhance its usability. But also the most

important thing is that it communicates a welcoming environment.

So I recommend that if you're brand new to universal design for learning, a great place to get started is with your syllabus and with that first-week experience. That way you're laying the foundation for a really good experience up front. And it gives you some time so that you can work on the remainder of the course. But it's a great place to put these accessibility practices in motion.

And we have another resource created by CAST that I highly encourage you to check out. It's a website called UDL on Campus. And one of the sections on that website has an example syllabus with lots of different strategies that you can apply to make that syllabus more inclusive.

So I'm just going to share a few of them here with you, and then I want your feedback. We want to learn from each other here. So we want to engage in some conversation as well. So one of the things you can do is really build as much social presence into your online or hybrid courses. Because that's one of the first things that goes when you move to that environment.

So one of the ways you can do that is by creating a personal video introduction, where you introduce yourself, you share some of your philosophy of teaching and learning, and you give a video tour of the course so that you're highlighting the most important things about your course that you want learners to know. And what a great opportunity to again model accessibility by making sure that that video is captioned.

Another thing you can do is provide the syllabus in multiple formats. So if you're using a learning management system, making sure that you have the syllabus included within the course shell as HTML. Because HTML is really robust when it comes to accessibility support. And then you can also provide it in other formats, such as Microsoft Word and PDF. But making sure that it's in a variety of formats means that it's going to provide more options for learners in terms of their assistive technology.

And then one more thing you can do is provide a discussion board that's not related to the content, but that really builds an opportunity for learners to build community amongst themselves. So you develop some guidelines or some norms together for

what that discussion board is going to look like. But this will be a great place, if people have challenges with accessibility, where together you can troubleshoot some solutions. So again, it's not necessarily focused on the content of the course, but really on providing students with support.

So I want to know, what are some of your ideas? What are some of the ways in which you're making your syllabus more inclusive? So I'd love to see those in the chat. What are some things that you've tried?

And thank you, Sam, for posting the link to UDL on Campus. That's udloncampus.cast.org.

All right, so I will let you think that over. You can share those in the chat. Actually, I see a few coming through. So having a weekly schedule-- very good. Thanks, Lauren, for sharing that. Converting materials into simpler formats-- absolutely. Adding links to student supports on campus-- very important. And often that's something that's put on the back end of the syllabus. We don't want it in the back end of the syllabus. Let's bring that up front where it's more visible.

Posting the syllabus earlier than the course starts. Absolutely, so students can get their textbooks on time. Have those textbooks converted if that's something that they need to do.

"Ask the professor" discussion board-- another great idea. So it's almost like office hours, but you're doing it virtually and asynchronously. So we love that.

Great. So keep those great ideas coming. And then we'll move along with the presentation.

The other thing with accessibility is that we also need to consider procurement. And so if you are part of a committee that's responsible for procurement, if you have any kind of voice when it comes to procurement, we encourage you to exercise that opportunity to bring up accessibility as an issue. And accessibility has to be more than just asking, is something accessible or not. We need to probe a little deeper and ask more questions.

So if it supports audio, does it support captions? So we're getting more specific

here. Can users perform all functions without a mouse? So not everyone can use a mouse. Some people rely on the keyboard to navigate, either because they have a disability or because they prefer to use the keyboard because they're faster with it. So we want to make sure that everything can work with a range of different input mechanisms.

And then has the content on the interface, has it been tested using assistive technologies? And if so, which ones? And what was the method? What were the findings? Who did the testing? And that's really important to make sure that we're not taking accessibility at face value, but that there's actually some proof behind it. There's been some testing that's been done and that's documented so that we can make an informed decision.

And so again, in the spirit of sharing some AEM center resources, we have an entire section on procurement. And one of the resources is, Is It Accessible? Questions to Ask Before Selecting Educational Materials. And that resource, once again, is organized around those four POUR principles of perceivable, operable, understandable, and robust. So these are questions you can use to evaluate textbooks, to evaluate curricula as you're considering them for adoption.

And I'm going to turn it over to Sam in just a second. But I do want to remind you that there is a companion webinar that I did with 3Play Media that also addresses accessibility in more detail. So that will be a complement to this webinar. So I encourage you to check out the recording and resources for that webinar if you want to dive even deeper.

And both Sam and I are also available. We'll share our contact information at the end. So if you have any questions about any of the topics that I just covered, please feel free to reach out to us. We'll be happy to help you.

So I'm going to exit out of here, and then I'm going to let Sam take over. But in the meantime, if you have any questions, we'll take a couple of them now, and then we'll hold off the remainder until the end for our Q&A period.

Sam, take it away. And I can see your screen, Sam. So just go ahead and launch the slides.

SAM JOHNSTON: One minute. I'm just--

LUIS PÉREZ: And, let's see, do we have any questions that we can address real quick?

SOFIA LEIVA: We had some questions come in. One is, does the UDL framework support SEL? If so, how?

LUIS PÉREZ: Absolutely, especially that internalize layer. A lot of what's addressed in that internalize layer has to do with self-regulation. So it's really important to put supports in place that address self-regulation. If you're stressed, for instance, you're not going to be able to-- no matter how accessible we make the learning environment, that's going to have an impact on your performance. So we want to make sure that we address things like stress, stereotype threat. And Sam is going to get into some of that as we move into the internalize layer.

But if that doesn't address your question, we'll come back to it at the end. And also universal design for learning is compatible with a number of different approaches. It just provides a framework. And so culturally responsible teaching, for instance, can be part of UDL. And there's a number of UDL practitioners out there that are incorporating both very much successfully.

So Sam, do you have anything to add there as well?

SAM JOHNSTON: Yeah, I mean, I think that the one thing I would add is, if we think about social and emotional learning, and we think about issues of engagement, right from the outset for students, in terms of being able to access the information, we often say what that does is it helps reduce threats and distraction. So if I'm in a course, and I need captioned video, and I've been following along fine, and all of a sudden my professor puts up a video and it's not captioned and I can't access it, my emotions are around, oh my gosh, I can't understand, I can no longer follow, whatever, are taking up my energy. And I don't have the capacity or can even understand the information, let alone the experience is really demotivating, upsetting, excludes me as a learner.

So when we think about social and emotional learning, it's not just about targeted

strategies as independent things. It's really about creating an experience for learners from the very outset that recognizes that who they are as a learner, how they show up in the classroom is attended to and thought about.

So think about captioning as something that's essential for a student, for example, that has a hearing impairment. But imagine also you know you have a student who's trying to manage attending your college program at the same time as parenting children, and now taking online courses when they used to have a quiet place to go work. Now they don't. And those captions are also totally vital, because they're able to follow what's going on without having to have the sound on, so if they have a noisy background.

So these issues of social and emotional learning are not just about specific strategies, but they're really about, is this an experience, is this a learning environment that considers me and my particular needs, and attends to those? And that's where UDL is really about thoughtfully designing for learners from the outset, and really not making any assumptions about people having the same contextual situations, the same needs, the same interests, the same abilities, the same strengths and weaknesses. And so that has a lot to do also with social and emotional learning in conjunction with specific strategies to address that.

LUIS PÉREZ: And the last thing I would add before I turn it over to you, Sam, is that we often separate emotion and cognition when in fact, I think as you just said, they work together.

And similarly, with regard to accessibility, a really popular UDL saying is, accessibility is essential but not sufficient. It just creates the foundation. It's the foundation. It sets the environment up for success. But there are other things that we have to do to create an environment where everyone can be successful. So it really is foundational, but by itself, it's not enough-- if I didn't say that enough in my section here.

So with that, I'm going to turn it over to Sam. So take this away, Sam.

SAM JOHNSTON: Great. So as Luis was saying-- and Luis, you'll let me know if there's a real need. But I'm going to just clear my-- you're seeing my screen. So I just took the pictures of us away.

So Luis talked about access matters. Meaning matters. So as we move to sort of the next layer of the UDL guidelines, we're really thinking about, how do I take accessible information and turn it into meaningful learning, learning that meets my needs for the skills I want to develop, the knowledge I want to have, the value set I bring to the learning environment? How do I now start to make meaning out of this information that I can perceive, that I can manipulate, that I'm paying attention to because people have thought about my motivation? How do I then turn that into a meaningful learning experience?

So that layer of the UDL guidelines, this one in the middle, is really what we call the build layer. And it's really focused on building learning skills around these areas of engagement. So it's just, how do you help people sustain effort and persistence when learning gets hard? That's often when people check out. In these times, learning is hard. It's hard for everybody. It's hard for instructors. It's hard for students. How do we sustain effort and persistence? What are some of the things we can do?

How do we help people understand language and symbols? How do we provide options for how people make sense of information? Some you mentioned-- teaching English language learners, or teaching learners with additional need, how do we make sure that we have things where we can, like glossary terms or translation features in our environments so that people are able to look at the information and get the supports and scaffolds they need in that information to make it make sense for them and who they are? And then how do we provide options for how people engage with information, how they express what they know, how they demonstrate their understanding? So how do we build along those lines and build in support so that they can internalize and make sense of this information themselves?

So we often say, going back to this issue of goals, that we're tight on goals and loose on means. And there what we really want to do is think about the methods and materials that are used to assess students, and that these often require additional skills and understanding that are not relevant to the construct being assessed.

So for example, you imagine a biology course. And you want your students to show

you that they understand the migratory pattern of whales. And you said, OK, I need you to show me that by giving an oral presentation in front of the class. It'll be 10 minutes long. And I want you to stand up in front of this 100-person lecture and talk about the migratory patterns whales.

Now, you're going to have people who are more or less comfortable presenting in that way. You're going to have people who maybe English is their second language. You're going to have people who don't use their voice to share information, use sign language, for example.

And how are you going to make sure that all those people's skills and knowledge around this issue of migratory patterns is represented? Well, you have to build in choice. And you're measuring by saying, come up and give an oral presentation on the migratory pattern of whales. You're embedding the means in what you want to get. You're saying the means to do this is to give an oral presentation. But you're not testing their skills in giving an oral presentation. You're testing what they know about migratory patterns of whales. So you want to give choice so that you're really measuring what it is you actually want to measure, the construct that you want to measure, the knowledge, skills, and abilities that you really are trying to assess.

So that's why we say we want to provide, where we can, more than one way to get to a goal. And assessment is really essential that way.

So we've built something that we've rolled out across a number of settings-- apprenticeship settings, pre-apprenticeship settings, that's really just an example here of thinking about how to provide options for demonstrating understanding. So this is basically a personalized e-portfolio that has both the student side-- so students are able to go in and take what we call challenges. So these are essentially assignments that are created on the teacher side by teachers.

So an instructor can go in and create one of these challenges that students then take when they come in log into their account and they see, OK, here's the 40 challenges I can take. I'm going to pick this one today, around safety, or this one today, around essential industry skills.

And the goal here is to provide options for how people document evidence that they're learning. In this environment, pre-apprentices can show what they know in

different ways. They could show that they know how to change a tire, for example, by uploading a video of them doing it, or by creating and annotating a diagram that shows, here are the four steps for changing a tire, or writing out the three steps that it takes to change a tire. So giving them choice in how they can demonstrate their skills and understanding.

The next is really to support skill and knowledge development, where teachers or trainers can target what skills they want pre-apprenticeships working on, see their effort, and give feedback. So really, in terms of supporting the demonstration of understanding, thinking about different people and different ways of giving feedback to learners around specific targeted skills.

And then this particular environment really supports motivation because the learners are able to take what's in their e-portfolio, curate a small subset of that information-- so say I want people to understand every time in my program I've been able to use-- there was someone on the chat who's a statistician. So every time I've been able to use Stata or SPSS, if people still use that. And I take the five challenges where I've been able to use that technology. I put them into a folio. And I can send that out to someone who doesn't have access to this environment as a link that says, I'm applying for your job or I want to get to this higher-level course. Here is my curated list of the five times I've used the technology that's a prerequisite for entering this course.

So that's really important about motivation, especially in this remote environment, where people are often separate, how do you give them supports around where they can share their learning? Can they share it with other learners by making the assignments that used to come just to you visible, maybe, on a website? Everyone can see one another's work. That's very often very motivating. Are there ways in which people can share their work with someone else who they want to access in the context of either a job or further education? So what do we do in terms of supporting different options for demonstrating understanding and then getting feedback on that understanding, and sharing that out and giving choice around those things?

And my mouse is giving me grief clicking. So this in this tool, really what we do is we support choice to complete assignments. So this is being used right now in an

apprenticeship program-- piloted in an apprenticeship program in Wisconsin. And what happens is that the goal is for the user to demonstrate their job skills through hands-on work. So many of you right now thinking about, how am I going to handle my lab experiences or other things like that.

So really what happens is, in this environment-- it's a universally-designed environment. So firstly, there's text-to-speech embedded in there. So if I don't want to read what's on the screen, I can have it read to me. That's something very easy in this current environment to get. There are lots of very good text-to-speech tools that you can build in. It's also built in, often, to your browser. Give people the choice in how they access the information.

There's a glossary here. So I can look up key terms. And there's translation. So if I need this information translated into Spanish, for example, I can get it in my native language.

So and the instructors use multiple media in this first step. What they've done is they've provided, here's what I'm testing. I want you to show that you know how to keep a machine running. And I'm going to give you a video-- a little bit of text telling you, I'm going to give you a video of an example of this. So that then, when you come here to step two, and you demonstrate that you have this understanding of how to keep a machine running, you're able to have a good example that's used multiple media, not just one way, and you're able to then think about, OK, how do I make my choice about how I demonstrate my understanding?

So in this piece here, people can upload a diagram, they can upload text, they can upload a video, they could get a testimonial from someone about a skill they have. So there's lots and lots of different ways and choice for how they can demonstrate that they have a skill or an understanding.

And again, here, giving choice, they can use speech-to-text. So many of you probably have students that are learning on their phones. Speech-to-text is native to that environment. So speaking and having that translated into text, that's something that you could build in as an option in your course that supports your students.

And then the third step here for these sort of challenge assignments is to give people a chance to tie specific competencies, relevant competencies that have been curated by the instructor, to the evidence that they have that skill. So they're able to say, you know, I'm demonstrating safety practices, or machine awareness, or whatever, and to just pick three of those competencies that have relevance in this field and tie those to the evidence.

And what's important is you can press the little eye button, and those competencies are defined at the time of use. So rather than have these competencies that students don't really understand what you're targeting, the definition and the explanation of what these things are is right there. So all of these things work together to help students really make learning meaningful. They have choice and options in how the information-- what they're being asked is presented to them. They have choice and options in how they respond to that information and demonstrate their skill.

And they have choice and options in how they make sense of, OK, now I've got this evidence, what are the competencies that that's tied to? They can look at a definition, or they can say, I don't need the definition. It's not important to me in this time. So all those things are very important for building engagement and support for learners to really be able to show what they know well and to have things that are really measuring-- you're really measuring the construct you want, as opposed to a bunch of things that are maybe you're getting a good read on barriers the students have, as opposed to what they really know.

So another piece that's really important in terms of thinking about making learning meaningful is this work around personalizing the reading experience. So this is just another AEM resource you can think about. But this allows learners to have, really, many options for customizing the reading experience to suit their individual needs. So maybe I have a display option needs. I need to think about, OK, I need this enlarged font, or I need greater contrast, I need different spacing. All those things can happen and can really help someone engage with the information and material.

And I just showed text-to-speech. That's another feature that can really make a big difference, that I could have the content read to me rather than have to just read it all on a screen. That's very important now because people are often multitasking,

managing many, many different roles all at once. So that's a resource on the AEM website.

So I'll see if there's any thoughts or questions before we move on to this third part of thinking about independence. The goal there was to just provide some examples of how you can build different supports into the materials and the methods you use to really make sure all learners can access the information that you have. I'm just going to flip back to [INAUDIBLE] for a sec.

LUIS PÉREZ: Since we're running a little short on time, Sam, maybe we can just continue on. And that way we can leave plenty of time at the end for some Q&A.

SAM JOHNSTON: Right, good. OK, we'll do that.

So this third part is really thinking about independence. And I put tine "in" in brackets. And that's really building those lifelong "anywhere I'm learning" skills that allow me to really be a good learner no matter what's in front of me, those skills that we need to be a good learner.

So if you think about those skills across multiple means of engagement, representation, action, and expression. And engagement, it's really providing options and supports for self-regulation. How do I regulate my emotions in the learning environment so that I can pay attention to the task, so I can engage in demonstrating or building a skill?

What options are there for me for executive function? So are there reminders that pop up in my course that, you know, hey, pay attention. This assignment is due in a week. What are the things that support me to set goals, to move along those goals, to be organized, to plan my learning, to manage my time well? Those are all the things that are really important as a learner-- executive function, being organized, and whatever.

And then providing options for comprehension. So this is so important. And this is a very important conversation related to, for example, is the material I'm learning culturally relevant? Is what I'm learning-- does it make sense for the ways in which I would transfer this information? I'm in this course. Does it connect to what's coming

after my college setting, the employment setting where I might be? So really thinking about comprehension. How do I provide some options for how learners really make sense of this information that I'm presenting and how they go about turning that into meaningful learning?

So one of the things that's really important and just one of these areas with self-regulation is that self-regulation, even though it becomes internal-- we learn to regulate our own emotions-- but we do that from a social-to-self way. So really thinking about self-efficacy first is, really, I feel like I'm skilled at something. And that relates to self-determination and self-regulation, which are really the behaviors I need for turning motivation into action.

But self-efficacy really develops when learners see diverse models succeed and more than one pathway to a goal. So that's why really optimizing your learning environment for all learners is so important. Because when you do that, then me as a learner, I'm able to say, well, this person got to that goal this way. And this person did it slightly different and got there that way. And this person got there that way.

And I can take little pieces out of all these things to figure out how I'm going to get there, how I'm going to accomplish the goal. If there's only one way to get there and that one way really does not look like something viable for me, I'm going to be very not motivated to get there. And my stress level is going to go up. And I'm going to be thinking, oh my gosh, this course isn't for me. I'm not going to be successful. I don't know how to do this.

Whereas if you've built a classroom where all your students can access the information, all your students can communicate, all your students can demonstrate their understanding and skills, what happens is all your students are actually participating, really showing up in a learning environment that's optimized for them. And they're able to really be good learners themselves, and to be good learning partners for others, and to really be well-self-regulated learners.

So what are some ways we can support some of that? So one example, for example, in these environments we're in now, is are there ways in which we can focus on the processes of learning and get some of those processes of learning clearer to students? So one thing that's been used and is openly available from the Playful

Assessment Beyond Rubrics toolkit is to create something like a stuck station.

So if you had a YouTube channel, you could have your students put something-- little videos or little testimonials of not just, hey, here's the outcome, but here's how I was stuck. Here's how I got unstuck. Here's how I troubleshooted the problem. I was not understanding this particular concept. Here's how I came to understand it. And having students share with one another, in an environment, what are they doing as they're trying to work through problems and troubleshoot as they go.

So making some of that thinking of learning and some of that trial and error more visible from student to student. And it also allows you to check understanding, and see who's understanding concepts and not.

Another really important thing in the context of all learning, but right now, remote learning-- which is challenging for some, because a lot of you feel like, oh, I've lost my students; I don't see them; I don't know who's sitting in the third row, whatever-- is to support good conversations.

So one idea that's done a lot and discussion based courses is something called the Harkness method, which is really much more about facilitating a discussion than the professor just conveying information. And what gets done in this works sometimes to support good conversation, it's something called a Harkness map. And what you can do, and what you see in this image is just each student puts their name and a little icon for them around a table. And then mapping is used to see who's talking to who, who's left out of the conversation.

So if I were teacher doing some mapping-- or you can often ask the class to pick up this mapping-- I might see, OK, Luis spoke to Sam, and then Sam spoke back to Luis. And then Luis responded to Sofia, and then Sofia responded to Pedro, and on and on. And then you, over time, get to see, is this a good map where there's lots of connections and everyone's connecting with one another, or is this a map where just a few people are in the conversation?

And what teachers often do is they then present this back to students and get them to take some responsibility for the quality of the conversation by giving them these visual maps of how the conversation is going.

And just a simple tool you can use to create Harkness mapping online-- if you have Microsoft and you really use OneNote to create a Harkness map. I just did an example one here. You can also create a key for marking student contributions. So if I want things like students to be able to summarize what another student said really well, I could create a little key for that, and give to students, here are the five things I'm looking for in a good conversation. And I've got a key for those.

And then as students use those behaviors, I could put that letter behind it. So if I have an S for summaries, I can say, Luis just did a really good summary, summarized what so-and-so said, and whatever. And it's one powerful tool for engaging in that work collectively, to have the discourse in your class really continue to move well in these environments.

And finally, I'll just finish with one last thing, which is this issue of Wise Feedback. And just, I don't have a lot of time to take for this, because we're going to leave a couple of minutes. But Wise Feedback is really feedback that has a strong body of evidence around it helping students persist when things are difficult, and a way of giving criticism without undermining students' motivation and self-confidence.

And so in studies that have been done with random assignment, what they've done is they've just basically given the same feedback inside the document, but they've just put it on the top page two different things. So in the control group, they just put, "I'm giving you these comments so you have feedback on your essay." And in the Wise Feedback group, they put, "I'm giving you these comments because I have high standards and I know that you can meet them." So the work of really conveying to students that you have high expectations for all of them, especially when you're giving critical feedback, is so, so important for keeping them engaged in the learning environment, keeping them focused and moving in the same direction as you.

So the three core parts of Wise Feedback are these high standards, which you saw in the last one, that the teacher emphasizes and explains the high standards that are used to evaluate the work and to generate the feedback. The feedback description, that the teacher describes the nature of the feedback being offered so it's specific and it's actionable. And the assurance of the student's ability, where the teacher really states explicitly that the student has the skills necessary to

successfully meet the standards. And there's a link here to more information on Wise Feedback if you want to know a little more about it.

So just some final tips on online courses to support independence. Ensuring that there's a clear starting point for every lesson. Use guiding questions at the beginning of each module and summaries at the end to highlight big ideas, key concepts, and important relationships.

Progressively release content as it's needed, to reduce the cognitive load. So giving everyone everything all at once might be very overwhelming now. And then provide frequent opportunities for students to reflect on their learning-- something like the stuck station, something like reflecting on the quality of their conversations through the Harkness mapping. Those things are very important as well for all learners.

So I will stop there-- went longer than we wanted to-- and see if there's any last questions.

LUIS PÉREZ: Yes, and I've been trying to answer a few of them. So I was trying to frantically type. So if I didn't completely answer your question, again, Sam and I are both available. We're going to share our contact information at the end. So please feel free to reach out.

But just to summarize-- if you bring back the previous slide, Sam--

SAM JOHNSTON: Yep.

LUIS PÉREZ: Just the three things that we focused on today. So we know access matters. And modeling accessibility early and often is important. And the syllabus provides a great opportunity to do that. We know that meaning matters. And so again, making sure there are options for communication and collaboration. And we talked about the Harkness map as an opportunity to provide equitable participation in conversations. We talked about the use of e-portfolios as a way that all learners can show what they know in a variety of different ways.

And then, finally, independence matters. So the goal really is to support every learner in accomplishing their goals and then accomplishing their goals independently. Because that's really what builds those life skills that Sam was

mentioning. That's what they'll take away from us that will allow them to be successful in school and in life.

So we want to open it up. We have a couple of minutes here if you have any remaining questions that we can address. Otherwise we invite you to connect with either Sam or myself. You can also follow CAST on social media. We're both on Twitter and Facebook. On Twitter, we're @CAST_UDL. And then on Facebook we're @CASTUDL. So definitely invite you to stay connected with us. And reach out if we can answer any of your questions.

So let's see, what else can we address in a couple of minutes? [CHUCKLES] And I did want to mention one last thing. A lot of the work that Sam talked about with STEMFolio, IMTFolio, that's working with nontraditional school populations. And these are students for whom school hasn't always worked.

And so one of the goals is to make sure that we're providing options that do allow them to remain engaged with education and to be successful. So I wanted to make sure to address that. Because it's really important for equity to make sure that everyone has those opportunities.

Sorry about that. Go ahead, Sofia.

SOFIA LEIVA: No, no worries. We had one question come in just now. "You mentioned that content should be progressively released. I wonder how to balance this, though, with the need to allow students to progress at different speeds. Do you mean that content should be released at the pace that each student progresses?"

LUIS PÉREZ: No. So I think there is a way to balance that. What we mean is maybe not necessarily releasing an entire course, with all of the options, at once. But what I've seen as successful is, for instance, releasing maybe two or three modules at a time. So that way students will be progressing at different rates, but they won't see a barrage of options appear on their dashboard, or whatever it is that they use to access the content.

But you can release two or three at a time. So that way some learners can work ahead if they need to, or if they want to. Some people really are right on it. And so we want to provide that opportunity as well. So I think that's one way to find that

balance.

SOFIA LEIVA: Great. Thank you so much. Well, we're up at 3 o'clock. But I really appreciate you both, Sam and Luis, for such a wonderful presentation. There was a lot of really gold information in there. And I know that the audience, just seeing the feedback coming in, really enjoyed it.

I hope everyone has a wonderful rest of their day. And thank you again, Luis and Sam.

SAM JOHNSTON: Thanks, everybody.

LUIS PÉREZ: Thank you, everybody. Take care.