DARLENE MCLENNAN: Welcome, everybody. It's fabulous to have so many people registered to attend today. For those who don't know me, my name's Darlene McLennan and I'm the Manager of the Australian Disability Clearinghouse on Education and Training, or ADCET for short.

The webinar is being live captioned and you can access those on the CC button in the toolbar wherever your toolbar is positioned. Thomas just told us before that his toolbar's gone on to the side, so I'll have to change my script to top, bottom and side, wherever you find it, but we also provide the captions in a browser. Our team will add that link into the browser now so you can access it through there as well.

I'm on lutruwita, Tasmanian Aboriginal land, and in recognition of the deep history and culture of this island I would like to acknowledge and pay my respects to the Traditional Owners of the land on which I'm on. And I want to acknowledge and pay respect to all Tasmanian Aboriginal communities, all of whom have survived invasion and dispossession and continue to maintain their identity and culture.

In the spirit of reconciliation and acknowledging all the countries participating in this meeting, I invite you to add that to the chat, which I think many of you have already started doing because you're very well trained. Thank you. I also want to acknowledge the elders and ancestors and the legacy from the lands on which you are and any Aboriginal and Torres Strait Islander People participating today.

Really excited about this webinar today. It was an idea we had following on from our last symposium last year where a lot of people commented on how much they enjoyed Thomas Tobin's presentation because he UDL’ed it, he actually showed and walked the talk of UDL and they could see that in that presentation.

I approached Thomas and said could he help unpack what he does in the back end for us so that we get to see really what happens, the magic behind what actually happens. So he kindly agreed. That's what the session is today, what Universal Design for Learning looks like. We're going to hopefully learn some specific techniques and kind of get inside the workings of Thomas' presentation. For those who have seen Thomas present before, know he's a very engaging presenter.

Before we continue on, just a couple of more housekeeping. As I said at the beginning, Donna from Bradley Reporting will be captioning. We are recording and the recording will be on ADCET in the coming days. If you have any technical difficulties, you can email us at admin@adcet.edu.au.

Thomas will talk with us for around 50 or so minutes, but it is an interactive presentation. So he will be stopping and encouraging people to ask questions in the Q&A box, but also, we probably can actually have people raise hands as well so we can unmute you and you could talk. So we do ‑ even though it's a webinar platform, we are encouraging participation as much as possible.

The reason for the webinar was I think to help bandwidth for people with cameras, et cetera, but we do want it to be interactive. Please feel free to chat in the chat, but if you have specific questions you want to ask and have answered put that in the Q&A box.

Alright. I think that's enough from me. I'll hand over to you, Thomas. Once again, thank you for your time in presenting this topic to us. It's fabulous to have you and work with you again. Thank you.

THOMAS TOBIN: Absolutely. It's splendid to be back. Thank you for that warm, welcome. I'd like to say hello and welcome to everyone who is here on the live session, as well as those of you who are going to be watching the recording later on. As Darlene mentioned, you have control over the captions and we're grateful to Donna from Bradley Reporting doing the captions today, and grateful for Kylie and Darren and Darlene who are going to be behind the scenes helping out with everybody on the live session today as well.

A couple of housekeeping items before we get going. We're going to look at a few things to pull back the curtain on Universal Design for Learning, and we'll have some stopping points and interactions for people to do and, fun fact, I'm interruptible today. Yes, there's a couple of hundred of us in the live session. At the same time if something we're talking about raises a question or you have a story to share, or you can help answer a question that someone else has asked, post it in the chat or use the raise hand feature under reactions and we can recognise you and bring you on to the microphone, time permitting.

With that, let's get started in a more formal way. On your screen now is a title slide that says What Universal Design for Learning Looks Like. There's the ADCET logo, and there's a photograph of me in a suit. I'm a white man with grey hair, black glasses and a giant black moustache. I'm with the Centre for Teaching, Learning and Mentoring at the University of Wisconsin Madison and I use he and him pronouns.

With that introduction out of the way, let's actually get started. On the screen is an image of a hand pulling back a red curtain to reveal a massive grid of tiny video signals, each one containing a face or a name, the typical Zoom meeting format.

In our webinar today I want to do two things at the same time. One, I'd like to model some inclusive techniques based on the Universal Design for Learning, or UDL, Framework. Also, I'll pull back metaphorical curtain about what I'm doing too.

Some housekeeping. There are many ways for you all to be in this session today. You can have control over your microphone, we'll open that up for you if you use the raise hand feature, and I'll ask that if you're not speaking, make sure you're not on the mic or if we've given you that control we'll turn that back off when you're not speaking so everyone has a clearer audio experience.

I see in the Q&A someone is asking what are your thoughts on the proposed UDL 3.0 guidelines? Those are actually expanding to include social intersections and so we won't actually get into that in the webinar today. I've got thoughts and I'd love to talk with you afterwards. So reach out to me after the session and I'd love to connect with you there. We'll get into that as we go through.

Now, there's a lot of different ways that you can be in the live session, friends. You can lurk. Don't say anything to anybody, keep your thoughts to yourself. You can engage in the chat feature, either to interact with the ideas we're all sharing or to hold some side conversations. Both are welcome. And you can use that raise hand feature under "reactions", or it might be under that "more" menu, and signal that you'd like to come on the microphone and be part of the conversation that way. We'll recognise you there.

One last thing, I am interruptible today, so put it in the chat or raise your virtual hand. In the moment we'll make space for you. We'll also pause regularly throughout our time and review how the experiences you're having in this webinar are designed with intention in order to lower access barriers, provide space for executive functioning and we'll define our terms as we go, and give you chances to question, practise, and learn together.

Alright. On with the show. During our time together today we hope that you will leave with a concrete way to demonstrate these three objectives that are on your screen. How do we design materials and interactions to provide multiple pathways for learners? How do we engage with learners to help them sharpen their own learning skills and how do we ask learners to guide some or all of their own learning with us as expert guides when they need us?

Now, on the screen is an image of students studying together in a classroom. One student has hands on a keyboard, people have laptops, one student is pointing to an off‑camera screen where another student is projecting his computer. When we say Universal Design for Learning, this is what we mean. Provide learners with multiple ways for engagement, representation, action and expression. We can also simplify those three parts of Universal Design for Learning to plus one thinking like you see on your screen. If there's one way for an interaction to happen now, make just one more way.

By the way, when I'm describing what's on the screen, folks will often tell me after a session how refreshing it is to experience someone doing UDL. Verbal description, though, is part of what we might call mere accessibility, practices that everyone should employ all the time when they're sharing information.

Now, UDL, strictly speaking, is the planning and design process that happens before we ever interact with learners. Applying UDL principles in the design of our learning interactions sets us up to be able to lower access barriers for more learners when we are engaging with them.

So to get us started, here's a question for everyone. What does UDL look like in your interactions with learners, whether that's in a formal classroom setting or in your roles supporting students, or if you support instructors as learners? Share one example and we'll bring some of them to our collective attention. I'll put two minutes of music on to hold some space for thinking and sharing now, and I'll note in the chat when the music will end, so feel free to mute the audio if you want to think quietly as well. So here's two minutes of music and I'll post the question in the chat. So what does UDL look like in your practice right now? You can tell that I'm typing this in live because I'm correcting my typos as I go. Here we go. And then here's two minutes of music for thinking. And you can post your ideas in the chat now or hang on and come on the microphone in a minute. Here comes the music.

Alright. Two minutes goes by quickly when you're thinking and doing, and thank you, everyone, who is posting ideas in the chat. We've got about 80 something responses in the chat, so I'm going to do a little thematic looking around here. I see a theme about multiple means of representation. So I've got people talking about providing learners with both written content and then the spoken version of that, or giving students a piece of paper that is printed and also giving them access to the digital version of it.

Those are all really good Universal Design for Learning ideas. And one of the key elements that I want you to take away from our time today is the difference between mere accessibility and universally designed interactions. Mere accessibility, I see a theme of putting captions on our videos, which is a wonderful precursor to Universal Design for Learning, because you're giving people more than one way to get that information. But just automatically using captions isn't by itself something that leads to universal design, and we'll talk about why that might be so.

Also using alt text on all your images. That's another baseline accessibility thing that everybody should be doing and isn't by itself Universal Design for Learning necessarily.

I also see a couple of folks saying "I want to use accessible document structures, so if I'm creating a Word processed file I'm going to use the title and subtitle and heading level 1, heading level 2", work that the document attributes in order to be able to allow folks to search through the documents and make sense of the structure. So those are all wonderful accessibility techniques and I'll encourage everybody keep doing those things. So that's fantastic.

I also noticed another theme here. A number of people are asking students how they prefer to communicate or learn, and that's wonderful, and it's differentiated instruction. So when we are asking the students who are in front of us now about their preferences, we can make adjustments on the fly, in the moment for those folks, and the challenge with that is Universal Design for Learning is what happens before we ever know which learners are going to be with us. So UDL works hand‑in‑hand, UDL works with differentiated instruction so that we can start asking those questions of our learners.

If it sounds like I'm making really thinly sliced distinctions, I am, and in terms of everyday practice maybe we make those distinctions and maybe we don't.
So now on the screen is the image of the students studying. It's blurred out as a background. And what patterns do we find among everyone's responses? Well, when we were getting ready for this session the hosts and I were talking and I said, "If you asked 10 people to define Universal Design for Learning, you would get 10 different answers."

So I want to help everybody. When you're talking with your colleagues about UDL, focus on the D part of UDL. So let's focus on the design aspect of it and talk about how Universal Design for Learning is intentional effort in the design of our learning spaces.

Darren posted in the chat, he says, "I love the notion of you can do accessibility without UDL, but you can't do UDL without accessibility." Fantastic. Thank you, everybody, for the side conversations that are happening over there as well. Appreciate that.

So let's dive right in here. We haven't actually done any of our examples, but you've already learned a couple of UDL things. Now the image of the students studying is paired with the hand pulling back the curtain. Yes, it's time to examine three UDL elements that you've just experienced. Here's what I did before we even started to help things begin well.

First, I optimised relevance, value and authenticity. This is UDL checkpoint 7.2. Traditional teaching spaces are all about covering the content. How many times have you heard your colleagues say, "Hey, I don't have time to do anything but cover content." You ever wonder why only a few learners engage or speak up in your interactions, and it tends to be the same people all the time? They're the once who feel that they have the privilege, the standing, the ability to engage.

I purposely set some housekeeping parameters today that explicitly tell you that your ideas are welcome, and that it's also okay not to engage in a perceivable way. Lurking is great, right?

I also know that we tend to remember the beginnings and endings of experiences in greater detail than the rest of things. So I frontloaded a chance for you all to think and apply some ideas, even before we get into the details. That two‑minute music break, that's designed time for all of you to actually think.

The second thing that we looked at earlier is highlighting patterns, critical features, big ideas, relationships. This is UDL checkpoint 3.2. Have you noticed any elements in our webinar coming up again and again? The hand pulling back the curtain is going to appear every time we pause to examine the design work that went into the interactions you've just experienced. Using visual and verbal markers to show the structure in which you'd like your learners to engage is a UDL technique.

And in whatever tool you use to design the visuals that support your interactions, use similar text sizes, colour spots or images to create a sense of order and pattern and make sure those signals are multi‑format so you can avoid this blue circle equals a main topic. And I see we have one of our participants with a hand up. Can we bring Magella on to the microphone, please? Only the host can probably unmute her. Let's see if we can get you on to the mic real quick.

MAGELLA: Sorry, I think that might have been a mistake. I didn't put my hand up intentionally.

DARLENE: That's okay. We'll make sure we chat with people when they put their hand up just to confirm with them before we get them to…

THOMAS: I also see Anne‑Maree has her hand up. Please come on the microphone. Let's see if we can get you unmuted here.

DARLENE: Kylie, are you there to unmute. This could be a challenge for us. The hand has gone down so we'll keep going.

THOMAS: No worries. Keep practising with that. If you do want to come on the microphone, please come on.

The third piece for our introduction here is using multi‑media for communication. This is checkpoint 5.1. Why did I take time to explain that you can lurk, use the chat feature or, we hope, come on the microphone? I want to signal you have lots of ways to express yourselves as learners and participants today. If you're watching the recording, make sure there are some pause points in here too and we'll get to those too.

In many learning settings we can assume that people know they share ideas in many ways, right, but unless we actually say it out loud, in the directions for activities, as we get started with live interactions, some of our learners might not feel empowered to come into the conversation in a way that's different from what others are doing.

Paula says, "choice and more choice", I love it, "and explicit invitation". Excellent summary there.
These checkpoints don't even cover two other ones that I use as a matter of course, offering alternatives for auditory and visual information. Those are checkpoints 1.2 and 1.3. How do I plan for those? I offer a handout with the planned wording that I want to share. Here I'm holding up a piece of paper with the scripting that I want to work from today, and you can follow along that way.

And I describe what you see on the screen. So if you're just listening you can still follow along as well. And, yes, each of the images has alternative descriptive text for it too in the handout. The idea here is that UDL goes beyond what we called "mere accessibility" a minute ago into the intentional design of learning interactions, so we can lower access barriers.

Thank you all for your ideas and thinking so far. Let's get into the heart of our webinar now: Four micro‑lessons with a UDL curtain pull for each.

On the screen are four images linked with a giant number 4 in the middle, a chalkboard filled with geometry equations and diagrams, a silhouetted business instructor pointing to projected graphs and charts, a white‑gloved hand pouring smoking chemicals from one beaker to another, and an instructor inspecting student work in a carpentry workshop classroom.

Now, by training I am an art history, literature and information science professor. So you're about to experience four super intro level lessons in math, business, chemistry and carpentry. If any of you are experts in these fields, I will rely on your support and I really hope I would pass your classes.

In each of these micro‑lessons we'll pull back the curtain and examine one key UDL practice that you can try in your own interactions with learners. And John's asking why do designers put the raise hand button next to the reactions button? We need a usability webinar. Actually, the folks at Zoom are eager to hear that feedback and they make updates all the time.

Alright. Are you ready? Here we go. Put on your mathematics hat. You are all likely familiar with the mathematical concept of equations. The terms on one side are the same as the terms on the other side of the equal sign or the statement. The most famous equation is Einstein's E=mc2 that signifies energy equates to the square of mass times the constant speed of light. But equations aren't the only way to state relationships in math. We can define linear inequalities such as the simple expression x>y where we define every point in the field of a two‑axis space ‑ excuse me ‑ where the value of X is larger than that of Y.

On the screen is a graph with X and Y axes from minus five to plus five showing a red dotted line in the diagonal from lower left to upper right. That represents X equals Y. And the portion to the right and below the dotted line is shaded to represent the linear inequality x>y.

Now, in a traditional math lesson one activity might be to ask learners to provide a point within the solution set for x>y. That is, name any point in the shaded area in the graph.

As I've redesigned this micro‑lesson, I might ask all of you to modify an existing equation from a previous linear problem we've worked into an inequality, or create a new linear inequality statement, and then either draw or shade the solution or describe in words what the inequality represents.

As you are thinking about our webinar, you can do two things right now: either be a math student and respond to the activity, or predict what design elements are in the UDL approach that aren't part of the before activity. I'll put one minute of music on for thinking and then we'll come back together and compare some ideas. As usual, think to yourself, share it in the chat, or you can raise your hand and we'll bring on the microphone and we can mute the audio for some quiet time here as well. So here is one minute of music. So respond to the prompt on the screen, we've got the directions up here for you as well. Here comes one minute of music for thinking.

One minute goes by fairly quickly, and I'm seeing a little bit of a weirdness in the chat, a bunch of people are posting just periods and it's made it difficult to find things in the chat, so let me see if I can…

DARLENE: Yes, I noticed that too. I am worried it's a bot or something. We'll try to see if we can kick them out or something. We'll just check.

THOMAS: Not at all. And I see a lot of people saying we can't see something in the chat. Let's actually move forward here and while our hosts are cleaning things up on the back end, we see all of your messages say the chat has disappeared. You may need to scroll up in the chat toward the middle range and we might actually just reset the chat. Forgive me for a moment and let's just keep moving along here.

Let me pull the curtain back a little bit. The planning I did before our math micro‑lesson focused on giving all of you more choices and agency in how you responded to the practice opportunity. Instead of there being just one way to show that you understand what linear inequalities represent, I followed UDL checkpoint 4.1 and varied the methods by which you could demonstrate your knowledge: Drawing, text or speaking it out loud. That agency is also a key part of the structure of our webinar itself. Remember that many ways to be introduction that I shared? The same idea.

We've got some things coming into the Q&A section. I'll keep an eye on that as well. Somebody who is preferring to remain anonymous says, "Students can demonstrate their learning through various forms, like exams or multi‑media, or concept maps, papers or projects." That was fantastically done, and good example. Thank you. Alright. Let's see if we can get the chat ungoofed‑up a little bit here.

DARLENE: I don't think we have been able to, Thomas. We might just move it across to the Q&A if that's okay.

THOMAS: That will make sense. Fantastic.

DARLENE: We've been trying to troubleshoot but it's not working at the moment.

THOMAS: You bet. Next up is business. My example of a UDL technique in business comes from a real course at Goodwin University, Business 135, Customer Relations in a Multicultural World. And the instructors in that course used to ask students to read a Harvard Business Review article about the active listening technique during telephone sales calls. Their students sometimes came to class sessions having not done the reading and the instructors ended up lecturing to fill in the knowledge gaps.

Then they adopted UDL principles. Learners could take in information in multiple ways, by reading the HBR article or watching a video of the author talking about the article… thank you, HBR, for interviewing your authors… or the students could interview a person who actually does sales calls, or they could volunteer with their alumni outreach office and practise fundraising calls themselves.

The design of that learning interaction expanded to include self‑guided and even self‑defined ways of getting the core knowledge, which led to more robust conversation in class of the, what did you hear, read or find out from practice varieties. So your activity for our business micro‑lesson is to predict one way that you could expand how your learners find out new information, especially key concepts. Notice that it's okay if folks get slightly different versions or subsets of the content. That variety leads to "what's important for us" conversations later on.

So here's one minute for some thinking and responding, and you can respond in the Q&A section and I'll give some overview of that. And you can also still use the chat. Even if you can't see your stuff, I can find it. So I'm going to keep rolling with the chat and I'm pretty good at making sure that I can see your stuff. So even if you can't see yourself in the chat, I can.

Let me play one minute of music just for thinking, and here's the question: What's one activity in which you could expand how or where learners get the key concepts? So here comes that music for one minute.

That one was quick. And I'm going to see if I can navigate through some of the chat here and pull out some themes. Olga is saying "alternative forms of assessment rather than just written, such as one‑on‑one verbal demonstration of understanding, inherent requirements of a course or pre‑recorded video files". Excellent. I like that. Ray is talking about "jargon busting online discussions, synchronous during a class or asynchronous via a discussion in the learning management system, or VLE, virtual learning environment".

Erin is talking about "think, pair and share", and the question for that one is how could you expand how the students do that think, pair, share. If you're asking people to get together, is there also an option just to think by yourself if you don't want to engage with one of your classmates, so I'll add one piece to what Erin is saying here.

Melissa says "the key is you may need to teach the skill as well. So if you're asking for a podcast, have students practise making a podcast". So fantastic there. And I'll also plus one that, that not everybody has to make a podcast. Remember, if you're asking people to write an essay in week 1 and do a podcast in week 2 and create a video in week 3, you're not doing Universal Design for Learning, you're doing what we would call serial variety, and just making everyone do the different things at different points.

Universal Design for Learning lowers those access barriers by optimising those choices for our learners, and Melissa got that one right, so splendidly done and thank you for letting me get on my soap box a little bit here as well. Ray is saying "creating glossaries using a Wiki approach". Deborah says, "using cast interactive graphical organiser participants can reflect on what they're already using in their practice and what they might like to plus one on". Fantastic.

We've got some things coming through the Q&A. Rebecca says, "it might be that students prefer the concrete instruction option, the open‑endedness might be overwhelming". I'll add that a lot of our neurodivergent students fall into this category. Or they might like more chases. Rebecca says, "I like the concept of learners opting for their preferred most aligned strategy". Fantastic. Thank you everybody for those ideas that have come through in lots of different ways here. These are fantastic.

So let me switch over and do a little bit of thinking. Here's the hand and the curtain again. And now it's not just me who is pulling back the curtain, but it's all of you. Let's review your ideas, right? I was thinking about using UDL checkpoint 2.5, illustrate using multiple media, and you heard a lot of that in some of the responses that we talked about. And I skipped over a real big theme. People were saying can we use artificial intelligence to offer choices to our learners? The answer is yes, and our colleague who said you have to train them on the technique, that's absolutely correct in terms of artificial intelligence as well. So I don't ask my beginner learners, my freshman level learners to use artificial intelligence for a composition or those kinds of things because the AI is actually doing the skill that I want them to learn.

But for my more advanced learners, my seniors in undergraduate or my graduate level students, yeah, use the AI to help with composition starters and then you go from there. So fantastic.

Next up, a micro‑lesson from chemistry. On the topic here it's covalent bonds, which in chemistry refers to how atoms of one element steal electrons from other elements when they form compounds. A covalent chemical bond involves the sharing of electrons to form electron pairs between atoms.

Now, on the screen is an animation of oxygen with six electrons coming together with hydrogen, with one, such that the hydrogen's electron starts orbiting the nucleus of the oxygen atom in a stable pair with one of oxygen's unpaired electrons. You can tell I'm reading that off a script because it's been 35 years since I've been in a chemistry classroom. Forgive me.

Before aligning UDL to the design of the learning interaction, the why question was answered by the instructor in terms of content progression. Jennifer says she's a chemistry teacher and there's a big smiley face, so Jennifer please support me on this one. Okay, great.

Now, before we did a UDL part of this lesson, the instructor whom I was working with on this said, "I have to cover the content." The instructor knew what comes next and how the current knowledge supports later and broader applications. So the explanation on your screen about contrasting with ionic bonding or the octet rule about the electrons or Lewis diagrams seems self‑sufficient to the designer or the instructor.

From a UDL mindset, we can keep the goals of the broader lesson in mind and bring them explicitly into each small step of the learning process. Note the overall references to the goals of the larger unit of study that addresses the why‑should‑I‑know‑this‑question directly.

Let's take one minute and please brainstorm in one of two different ways. Either (a) find some ‑ go out online or get on your phone and find some context for the concept of covalent bonds and bring that back to us, link out to a piece of information, or (b) think of a concept, process or idea that your own learners struggle with because it's a just trust me that this is important situation right now.

As we're thinking through on this one, let me put one more minute of music on. And as we did before, you can post that in the chat or you can use the Q&A feature and we'll look in both places. So here comes a minute of music to either go find something about covalent bonds or predict where do your students struggle because you just tell them "hey, this is going to be important" without a lot of context? Here comes that music.

And there was one minute of music. We've got some ideas coming into the chat. Even if it's difficult to find them, you can take that chat slider and move it up and down and we'll try to give some ideas about what people are finding. Here's fun things. Sandra is talking about covalent bonding has to do with how cells divide during mitosis, the difference between mitosis and miosis. I don't remember that actually, so fantastic. Olga says hydrogen‑powered vehicles, breaking those bonds in order to produce energy. Leanne says it might be a good idea to make the why relevant to a real-life scenario to promote a personal connection and a deeper level of understanding. Absolutely.

How do we get students engaged, but how do we keep them with us when things get confusing or complex or challenging? John has posted something from Brittanica, the old encyclopedia company, to talk about the different types of bonds. And Darlene has a private message in to me. Darlene, would you care to make a comment about the chat feature itself?

DARLENE: Sorry, Thomas, I'm trying to discourage people from clicking the new messages. That's where you get lost. Just using the slider as Thomas suggested at the beginning to try to find the messages. I think people are struggling to find them. If you can slide up to get to the messages and don't click the new message because then you get lost again.

THOMAS: Brilliant idea. Thank you for the technical idea here. Rest assured that we can see what you're posting and we'll give voice to as many of them as we can.
Allessandra says bonded atoms are attracted to the shared pair of electrons by electrostatic forces which makes covalent bonds very strong. Somebody who knows what they're talking about. Fantastic. And Natalie says knowing how authors use the notion of interpersonal language resources helps us understand better how language can be used to convince our readers and listeners, versus you know about interpersonal language resources because this helps to build the tenor of the texts. In other words, asking our learners to engage in that critical examination alongside of us. Well done.

In the Q&A, Paula posted a link to a CON academy page about covalent bonds. Fantastic. Michele is talking about the topic can often seem very abstract to students, how and why to engage with real world scenarios. Excellent. Thank you very much for all of the things that people have posted into the Q&A and the chat. I want to pause here on one thing that Erin Withers is saying. Information overload for students. Check credibility and accuracy is challenging in a Google world of information.

Notice a lot of us when we had only a minute to go find something, we went out to Wikipedia or an encyclopedia or just typed something real quick into our favourite search engine, and that's what our students are doing when they're searching for information. So something like covalent bonding can be an excellent way to get students to slow down, use multiple ways to go find information and then work together with us to co‑create information.

Here's the hand with the curtain image again, and as we're reviewing and I was redesigning this chemistry micro‑lesson, I felt keenly the need to have a clear context for not only learning the information, again it's been 35 years since I was in a chemistry classroom, but also why it might be useful or important to me, and I sense that theme in everybody's responses here today.

Once I started to look before and after the concept of covalent bonding in the online guides that people have put together, I started to remember that chemical bonds aren't just covalent or ionic, there's a whole spectrum of in‑between types, and knowing about those allows us to combine and break apart atoms and molecules in useful ways. Somebody was talking about making energy in a hydrogen‑powered car.

Every time I do my laundry I'm taking advantage of materials that break apart, mustard, wine, dirt and oil. So the UDL principle here is engagement. Why we should stick with challenging topics in the first place, checkpoint 8.1. Notice that we started our whole webinar with a similar why by focusing first on your ideas with our brainstorming.

Let me check in the chat. Other people are posting ideas from Science Direct, and Darren actually asked artificial intelligence to talk about covalent bonding, so fantastic. We've got a couple of people who are giving examples from their own teaching and design practices. Fantastic. Thank you.

Alright. Here's our last one. Our last micro‑lesson is from a field where folks often say UDL isn't possible, carpentry. Mike Downes teaching a carpentry and joinery course in Galway, Ireland, and our micro UDL example comes from his practices. He introduces his learners to the concept of dados, butts and rabbets. In everyday terms, slots cut into, square cuts of, and tabs that stick out from pieces of wood.

But static diagrams, like the one you see on your screen, didn't really give Mike's students a sense of how to actually create dados like the one on your screen that shows a vertical board with two dados cut into it and two butt end boards about to be fitted into those dado slots.

Mike saw the benefits of animation in his prior role as an AutoCAD instructor. He created animated PowerPoint presentations with voiceovers and video and screen images from software that showed how to perform key carpentry techniques. Early on he would send his apprentices these videos via email and now he hosts them in a Moodle course environment. Mike taught his learners how to access Moodle on their phones too so that they could refer to the videos or text descriptions at any time, in his training centre, at home, when they were on the bus.

This also solved another access challenge: Many of his apprentice learners had no laptop, no desktop computer, and some no internet access at home, but nearly all of them had smartphones. So Mike began designing his content and interactions to be accessible via that Moodle mobile app.

Here's one final activity for everyone in the live session. We'll put on one minute of music again, and here your task is perhaps deceptively simple. What is a learning activity to which it seems impossible to apply UDL, either because of its format or its level of complexity? So what is an impossible UDL activity or topic? I think we're actually back to the bottom of the chat right now, so it looks like that has fixed itself. Let me put one minute of music on here and as usual, post it in the chat or you can use the Q&A function and we'll look there as well. So here comes a minute of music for some thinking.

I love that fanfare and flourish in that clip. I also need to acknowledge that all of the music we've been using in our webinar today is from Kevin MacLeod and he shares his music under a Creative Comments attribution licence so we're grateful to be able to use his music under that licence.

Here's some ideas that have come through in the chat. Let's see. The very first one was fun. Belinda said martial arts. If I'm studying jujitsu, judo, karate, it seems impossible to do Universal Design for Learning. And indeed when we're talking about embodied tasks, there is usually only one way to do that. And in those cases, when students are demonstrating the skill in some final or summative way, yeah, we should say "please chop this board in half with your hand", and at the same time if students are practising on things, can they practise in more than one way? Can you give them an opportunity to think about or play with the principles even if they are just envisioning smashing the boards with their hands?

In fact, in most karate practices and most martial arts we do a lot of visualising the action before we take the action so that the action becomes more fluid. So there's lots of different ways for people do that visualisation. When the format is what's being assessed, yeah, it's difficult to give people choices. Does that mean we can never give them choice? Quite the opposite. We can use Universal Design for Learning in those lead‑up or practice opportunities.

Olga says, "with courses where terms or processes are difficult to remember, using diagrams or video representations as a reference point or like a library". So this is one way that we could work with our carpentry folks. Fantastic suggestions.

Sue says surgery. Technique, yes, but manual skills? Here again we're talking about embodied learning, being able to use the tools for doing surgery, and even in our medical schools today we practise on cadavers, we practise on pigs or other substitutes, we practise on dummies that have lots of robotics in them. So there's opportunities for skilled practice, and even when you're practising before that, those are opportunities where you can probably demonstrate what you're doing in more than one way, or take in the information in more than one way.
No‑one ever became a good surgeon only by watching videos of surgery. There's always a practice element in there. But that's true of a lot of fields. But what does that practice look like and can we give people multiple ways to do that? Fantastic.

Natalie says, "needing to perform a drama piece, like a group or ensemble live for an assessment". I can UDL that too. Can you do your monologue live in front of everybody or can you record it at home and play the recording for everyone and then receive their feedback in the moment?

We've got a lot of really good ideas like 3D printing or augmented reality or virtual reality, and we probably don't have a lot of space to move in that direction, but even things like orchestra or sign language, yeah. Our folks at Rochester Institute for the Deaf, they use UDL all the time, so when they're teaching sign language. Let's wrap up here.

This is a splendid idea that we're linking on here. Here's that final hand with the curtain image. Mike's explainer videos ‑ remember our instructor Mike? His learners could consume them, rewatch them, mix them on their mobile devices. He was taking advantage of UDL checkpoint 3.3, guiding information process and visualisation.

The videos he created are a collective plus one that addresses an access barrier that we all have, and that is the clock. Nine times out of 10 the learning that happens when students are away from the formal places and spaces of our universities, colleges and technical programs, the learning happens on their own, when they're practising, when they're reading, when they're studying. Ray says, "I like, too, how the carpentry example leverages micro‑learning, chunking things up into tiny little pieces."

It's time to close our webinar with a great big question for everyone. On the screen is a table laden with food. There are tortilla chips, guacamole, various salsas, elotes, the Mexican street corn, tortillas, black beans, a litre margarita in a jar. This is take‑away food that I hope puts you in mind of what you will take away from our session.

Now that you've been part of our conversation, what is one thing you will take away from today's session? We won't play any music. Just post it in the chat real quick and I will repeat as many of them as I can. Paula says, "I'm hungry for more". Natalie talks about "the difference between mere accessibility versus UDL". A couple of people are putting "plus one as a simplification of UDL". Thank you for noting that. Erin is talking about "co‑creating knowledge". Tabitha says "UDL is different from mere accessibility". Teresa says, "be mindful of giving students choice". Caroline says "UDL is possible". Michele says "putting music when letting students do the work. Give them time for thinking". Ray says, "lift the lid on intentional design". Cathy says, "when you're using images, make sure they're actually relevant to what you're discussing". Olga says, "courses are set up to accommodate different learning modalities". Natalie says, "I'd love to keep learning on this one", and that's probably a good way for me to wrap it up.

On your screen now is a screen that says thank you, and I want to say thanks to everyone who has been part of the live session today as well as folks watching the recording. If you're curious to learn more about UDL and other teaching approaches, visit cast.org. It's on your screen. ADCET offers more webinars like this one as well as professional learning events and resources. Check them out at adcet.edu.au.

I hope you've enjoyed our time together today. I hope you'll try one thing in your own teaching support or design work. And if you'd like to continue the conversation, I'd love to hear from you. You can find all of the ways to connect with me at https://thomasjtobin.com. Let me turn it over to our hosts for some closing comments and wrap‑up. Much appreciated and thanks.

DARLENE: Thank you so much Thomas. That was absolutely brilliant. Thank you for the team behind, Darren and Kylie, for managing the stress of the chat section. I do apologise for that to people, but I think we showed that we can keep moving things along with all the variety of the chats in different places.

THOMAS: We have a question in the Q&A, the possibility for an attendance certificate please. I imagine folks can connect with you for that.

DARLENE: Yep. The good news is we're trying to work out some badging systems so people will be able to receive a badge when they attend our webinars, so we're working on that in the back end at the moment.

Thank you, Thomas. As always, your presentations are brilliant. Wanting to give a promotion, we have two new webinars coming up in the near future. One is Autistic Students and the Transition to University, a finding from a wonderful colleague of ours in their PhD, and also the Disability Officer, a Linchpin on the UDL Campus. The links are going into the chat that Kylie is putting in now.

Then also we have a symposium and we're actually going to have Thomas physically in Australia. Really encourage you all, if you can get an opportunity to get to Melbourne on 12 June, we're going to see him in person. It's an amazing thing seeing somebody through a screen for so many years and you think you know them so well, but really looking forward to having some informal conversations as well as formal conversations with Thomas in person which is fabulous.

We will be sending out a survey. Please do that. Sign up to our newsletter. We will also be sending the link out with the recording.

Thank you. You have all been great. It's fabulous to see the chat and the conversation happening. So many people are really taking the UDL journey on and really exploring the thoughts and ideas around it, so really, congratulations to you all for attending and for keeping up your learning. Take care, everybody. Have a great day.

THOMAS: Cheers. We'll see you soon. Bye bye now.