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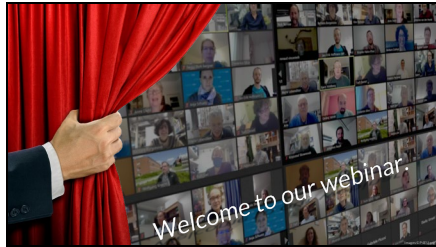


What Universal Design for Learning Looks Like

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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. First, I'd like to model some inclusive techniques based on the universal design for learning, or UDL, framework. Also, I will pull back the metaphorical curtain about what I'm doing, too.

Some housekeeping: there are many ways to "be" in our webinar today. You have control over your camera and your microphone, so have them on or off as you choose. I'll ask that you please mute your microphone if you're not speaking, to help everyone have a clearer audio experience.

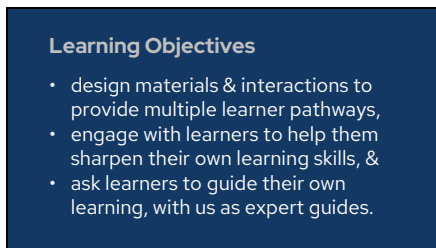
You can lurk: don't say anything to anybody and keep your thoughts to yourself. You can engage in the **Chat** feature, either to interact with the ideas we're all sharing or to hold side conversations—both are welcome. And you can use the **Raise Hand** feature in Zoom (under **More**, usually) to signal that you'd like to come on the microphone and be part of the conversation that way.

Oh, and one last thing: I am interruptible today: if something we're exploring raises a question, brings up a story, or you can help your colleagues with information, don't wait until the end—put it in the chat or raise your virtual hand in the moment, and we'll make space for you.

We will also pause regularly throughout our time and review how the experiences you are having in this webinar are designed with intention in order to lower access barriers, provide space for executive functioning (we'll define our terms as we go), and give you chances to question, practice, and learn together.

All right . . . On with the show!

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During our time together today, we hope that you will leave with a concrete way to demonstrate these three objectives:

- design our materials and interactions to provide multiple pathways for learners,
- engage with learners to help them sharpen their own learning skills, and
- ask learners to guide some or all of their own learning, with us as expert guides when they need us.

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On the screen is an image of students studying together in a classroom. One student has hands on a keyboard, everyone has a laptop, and one student is pointing to an off-camera screen where another student is projecting his computer desktop.

When we say “universal design for learning,” this is what we mean: provide learners with multiple means of engagement, representation, and action & expression. We can also simplify this to “plus one” thinking: if there is one way for an interaction to happen now, make just one more way.

By the way, when I describe what’s on the screen, folks will tell me after a session how refreshing it is to experience someone “doing UDL.” Verbal description is part of what we might call “mere accessibility”: practices that everyone should employ all the time when sharing information. 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.

To get us started, here’s a question for everyone. What does UDL look like in your interactions with learners, whether in formal classroom settings or in your roles supporting students or instructors? 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. I’ll note in the chat when the music will end, so feel free to mute the audio and think quietly, too.

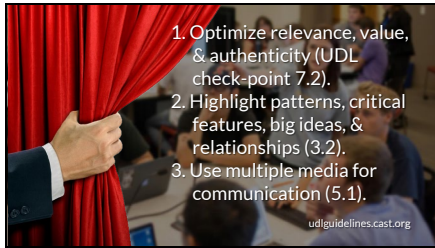
[Music playing, “Dirt Rhodes,” © Kevin MacLeod. Used under CC BY license from incompetech.com]

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Here’s that same image of the students studying, but it’s blurred as a background to the question on the screen: “what patterns do we find among everyone’s responses?” Let’s come up with a few key ideas.

[We examine the live responses from webinar participants]



Now the image of 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.

1. Optimize relevance, value, and authenticity (UDL checkpoint 7.2).

Traditional teaching spaces are all about covering content. 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 are the ones who feel that they have the privilege, standing, and ability to engage. I purposely set some "housekeeping" parameters that explicitly tell you that your ideas are welcome, and that it's also okay *not* to engage in a perceivable way.

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

2. Highlight patterns, critical features, big ideas, and relationships (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 you'd like your learners to engage is a UDL technique.

In whatever tool you use to design the visuals that support your interactions, use similar text sizes, color spots, or images to create a sense of order and pattern—and make sure that the signals are multi-format (so avoid "this blue circle equals a new main topic").

3. Use multiple media for communication (UDL checkpoint 5.1). Why did I take time to explain that you can lurk, use the Chat feature, or come on the microphone? I want to signal that you have lots of ways to express yourselves as learners and participants today. In many learning settings we can assume that people know they can share ideas in many ways, 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 different from what others are doing.

And these checkpoint doesn't even cover two others that I use as a matter of course: offering alternatives for auditory and visual information (checkpoints 1.2 & 1.3). How do I plan for those? I offer a handout with the planned wording that I want to share, so 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. And yes, each of the images has alternative descriptive text for it, too. The idea here is that UDL goes beyond what we called "mere accessibility" earlier, 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: four micro-lessons with a UDL "curtain pull" for each.

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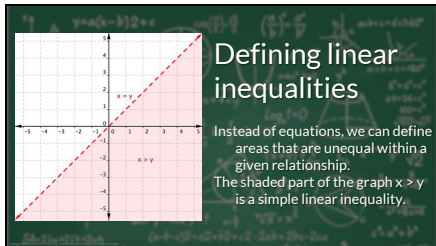
On the screen are four images, linked with a giant number 4: a chalkboard filled with geometry equations and diagrams, a silhouetted business instructor pointing to projected charts and graphs, a white-gloved hand pouring smoking chemicals from one beaker to another, and an instructor inspecting student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

Now, by training, I'm 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 hope I'd pass your classes!

In each of the micro-lessons, we'll pull back the curtain and examine one key UDL practice that you can try in your own interactions with learners.

Ready? Here we go. Put on your mathematics hats!

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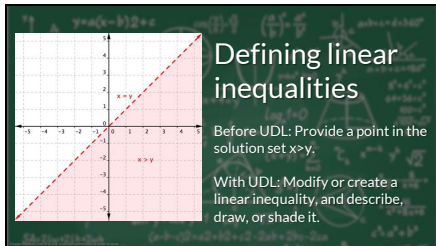


You're all likely familiar with the mathematical concept of equations. The terms on one side are the same as the terms on the other side of the statement. The most famous equation is Einstein's $E=mc^2$ that signifies energy equates to the square of mass times the constant speed of light.

But equations aren't the only ways 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 where the value of x is larger than that of y .

On the screen is a graph with x and y axes from -5 to 5 showing a red dotted line in the diagonal from lower left to upper right representing $x=y$, and the portion to the right and below the dotted line shaded to represent the linear inequality $x > y$.

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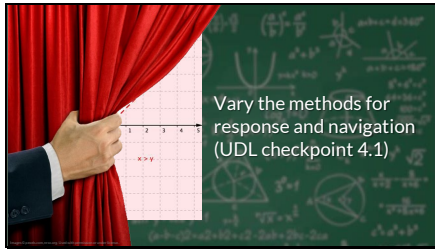
In a traditional math lesson, one activity might be to ask learners to provide a point within the solution set for $x > y$. That is, name any point in the shaded area in the graph.

As I've re-designed this micro-lesson, I might ask you to modify an existing equation from a previous linear problem we've worked into an inequality, create a new linear inequality statement, and then either draw/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 1 minute of music on for some thinking, and then we'll come back together and compare ideas. As usual, you can think to yourself, share in the **Chat** feature, or come on the microphone. You can also mute the audio for some quiet thinking time and I'll mark in the **Chat** feature when we'll come back together. Here's 1 minute of music for responding to the math lesson or predicting what's different about the UDL approach.

[Music playing: "Honey Bee," © Kevin MacLeod. Used under CC BY license from incompetech.com]

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[We examine the live responses from webinar participants]

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 spoken.

That agency is also a key part of the structure of our webinar itself. Remember the “many ways to be” introduction I shared? Same idea.

Next up is business!

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My example of a UDL technique in business comes from a real course at Goodwin University, Business 135, Customer Relations in a Multicultural World. The instructors in the 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. Learners could take in information in multiple ways by selecting the *HBR* article, watching a video of the author talking about the article (thanks, *HBR!*), by interviewing a person who actually does sales calls, or by volunteering with the alumni-outreach office and practicing fundraising calls themselves.

The design of the 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.

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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 content—that variety leads to “what’s important for us” conversations later on.

So, here’s one minute for some thinking and responding: where is one activity in which you could expand how or where learners get the key concepts?

[Music playing: “Easy Lemon,” © Kevin MacLeod. Used under CC BY license from incompetech.com]

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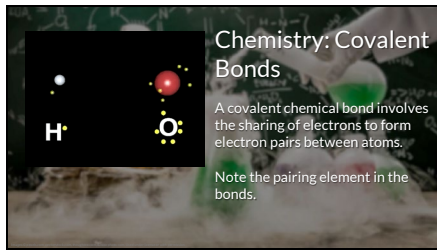


The hand-with-curtain image is in front of the business instructor image, now. And it’s not me who is pulling back the curtain, but all of you! Let’s review your ideas, in light of the Goodwin University folks using UDL checkpoint 2.5, “illustrate using multiple media.”

[We examine the live responses from webinar participants]

Our next micro-lesson is from chemistry.

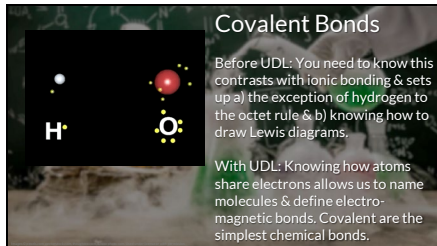
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Hmm. The topic here is “covalent bonds,” which, in chemistry refers to how atoms of one element “steal” electrons from other elements when they form compounds. A covalent chemical bond involves the sharing of electrons to form electron pairs between atoms.

On the screen is an animation of oxygen, with six electrons, coming together with hydrogen, with one, such that hydrogen’s electron starts orbiting the nucleus of the oxygen atom in a stable pair with one of oxygen’s un-paired electrons.

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Before applying UDL to the design of the learning interaction, the “why” question was answered by the instructor in terms of content progression. The instructor knows what comes next and how the current knowledge supports later and broader applications, so the explanation on your screen about contrasting with ionic bonding, the octet rule, and Lewis diagrams seems self-sufficient . . . to the designer or instructor.

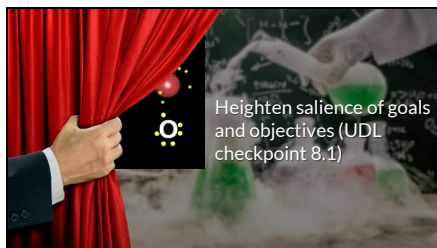
From a UDL mindset, we can keep the goals of the broader lesson in mind, and bring them explicitly into each small step of the learning process. Note the overall references to the goals of the larger unit of study that addresses the “why should I know this” question directly.

Let’s take 1 minute and brainstorm in one of two ways: either a) find some context for the concept of covalent bonds and bring it back to us, 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.

Here’s 1 minute of music for thinking and responding, either to yourself, in the **Chat** feature, or afterward on the microphone.

[Music playing: “Fanfare for Space,” © Kevin MacLeod. Used under CC BY license from incompetech.com]

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Here’s the hand-with-curtain image again. Let’s review your ideas, and then focus on one part of UDL in the design of this micro-lesson.

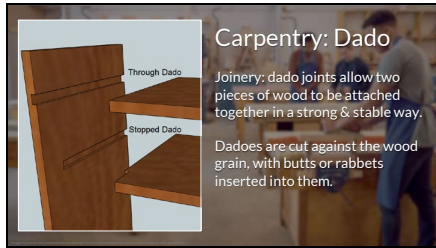
[We examine the live responses from webinar participants]

As I designed this chemistry micro-lesson, I felt keenly the need to have a clear context for not only learning the information (it’s been more than 25 years since I last took a chemistry course) but also why it might be useful or important to me.

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, but 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. Every time I do my laundry, I am taking advantage of materials that break apart mustard, wine, dirt, and oil molecules.

The UDL principle here is engagement: why we should stick with challenging topics in the first place. Notice that we started our webinar with a similar “why” by focusing first on your ideas and brainstorming.

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Our last micro-lesson is from a field where folks often say UDL isn't possible: carpentry. Mike Downes teaches a Carpentry & Joinery course in Galway, Ireland, and our micro-UDL example comes from his practices. He introduces his learners to the concepts 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 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 the dados.

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Mike saw the benefits of animation in his prior role as an AutoCAD instructor, so he created animated PowerPoint presentations with voice-overs and screen images from the software that showed how to perform key carpentry techniques. Early on, he sent apprentices these videos via e-mail, and now he hosts them in a Moodle course environment.

Mike taught his learners how to access Moodle on their smartphones, too, so that they could refer to the videos or text descriptions any time—in his training centre, at home, on the bus. This also solved another access challenge: many of his apprentice learners had no laptop, desktop computer, or internet access at home, but nearly all of them had smartphones, so Mike began designing his content and interactions to be accessible via the Moodle mobile app.

Here's a final activity for you. I'll put one minute of music on for some thinking time, and your task is perhaps deceptively simple. What's a learning activity to which it seems impossible to apply UDL, either because of its format or its level of complexity?

Here's 1 minute of music for thinking and responding, either to yourself, in the **Chat** feature, or afterward on the microphone.

[Music playing: "Division," © Kevin MacLeod. Used under CC BY license from incompetech.com]

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Here is our final instance of the hand-with-curtain image. Let's review your ideas, and then think about UDL more broadly.

[We examine the live responses from webinar participants]

Mike's explainer videos that learners can consume, re-watch, and mix on their mobile devices take advantage of UDL checkpoint 3.3., guiding information processing and visualization. Mike never got rid of the textbook, static drawings, and text descriptions. The videos he created are a collective "plus one" that addresses an access barrier that most of us have: the clock.

And now, it's time to close our webinar with a great big question for everyone . . .

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On the screen is a table laden with food. There are tortilla chips, guacamole, various salsas, elotes (Mexican roasted “street” corn), tortillas, black beans, and a “litre margarita” in a glass jar. This is take-away food that, I hope, puts you in mind of what you’ll take away from this session.

Now that you have been part of our conversation, what is one thing that you will take away and try out, whether it’s an idea or a practice?

We won’t play any music for this lightning-round wrap-up. Shout out or chat-post *one* thing that you will take away from our time together, and we’ll repeat as many of them as we can.

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Thank you very much for being part of our workshop today. If you’re curious to learn more about UDL and other teaching approaches, visit <https://www.cast.org>. ADCET offers more webinars like this one as well as professional-learning events and resources: check them out at <https://www.adcet.edu.au/>.

I hope you’ve enjoyed our time together today, and I hope you’ll try one thing in your own teaching, support, or design work.

If you’d like to continue the conversation, you can find all of the ways to connect with me at <https://thomasjtobin.com/>!