



Reliable Green -

Remote work, telework and learning with innovative and accessible educational resources for businesses and labour markets in Europeans Green Economy



Module 4

Applying Universal Design for Learning principles with technology



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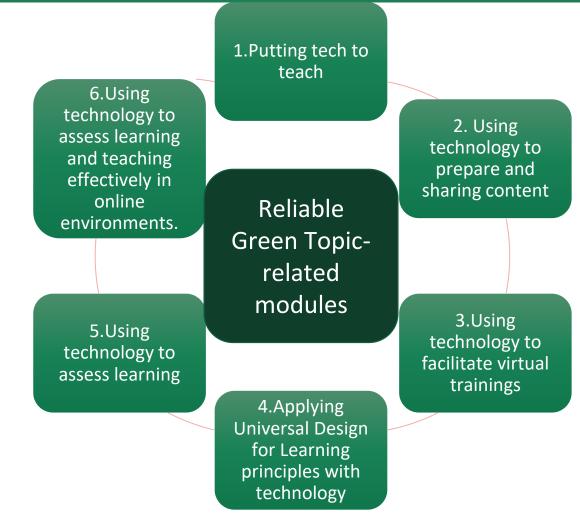
D1. Useful tools and examples



The six modules of Reliable Green



The learning course consists of 6 modules

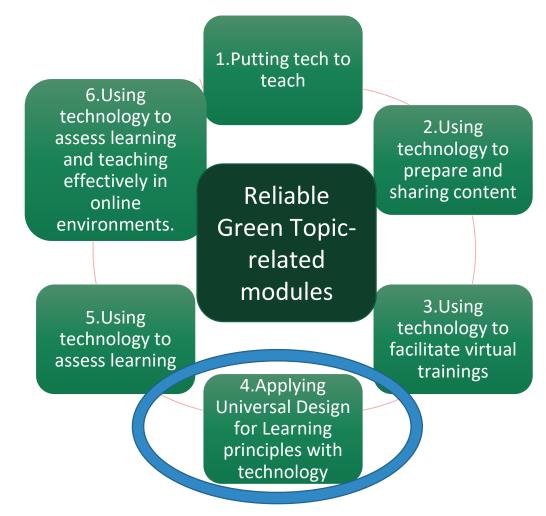




The six modules of Reliable Green



Today, we focus on "Applying Universal Design for Learning principles with technology"





Importance of Universal Design



The construct of Universal Design (UD) has been used in a number of fields such as engineering and architecture to design and produce products and services that are usable by people with a wide variety of characteristics.

The Center for Universal Design (CUD, 1997) at North Carolina State University defines UD as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design".



The sidewalk curb cuts now found in cities and towns throughout EU were designed to help people in wheelchairs, but the design is also useful for bicycle riders, skateboarders, runners, and others.

The benefit of UD is that products and environments are made more usable to a wider range of people.



Understand the Universal design framework for learning





AHEAD (2017). Universal design for learning. Retrieved from: https://www.youtube.com/watch?v=AGQ_7K35ysA



Why use Universal Design for Learning?



The ultimate goal of UDL is for all learners to become "expert learners." Expert learners are purposeful and motivated, resourceful and knowledgeable, and strategic and goal-directed about learning.

- it helps you anticipate and plan for *all* your learners.
 It can help you make sure that the greatest range of learners can access and engage in learning leaving no one behind.
 UDL does not need specific tools or technologies to follow, but only the tools and resources the trainer already has, but used in a different way.
- □ UDL may change how you think about what prevents students from learning
- □ UDL looks at the *learning environment*. Because, the learning environment can include barriers to learning, like the design of the curricular goals, assessments, methods, and materials.



What does UDL look like in the classroom?



Universal Design for Learning looks different in every classroom. But there are commonalities. There's always a focus on building expert learning for all. Other common elements of a UDL experience include:

- > All learners knowing the goal
- > Intentional, flexible options for all learners to use
- > Learners access to resources from the start of a lesson
- > Learners building and internalizing their own learning







Photos retrieved from Video titled: Seeing UDL in Action in the Classroom found: https://www.youtube.com/watch?v=B7qYJY62X2s&t=165s





How can I use the three principles of UDL?





UDL principles focus and describe the human variability based on parts of the brain that manage the "why" (affective network), the "what" (recognition network), and the "how" (strategic network) of learning

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"why" (affective network) - Engagement



Ways to increase access to the learning goal by recruiting interest

How can I engage all students in my class?	Examples:
• In what ways do I give students choice and autonomy?	• Survey students about their interests, strengths, and needs. Incorporate the findings into lessons.
 How do I make learning relevant to students' needs and wants? 	 Use choice menus for working toward goals.
• In what ways is my classroom accepting and supportive of all students?	 State learning goals clearly and in a way that feels relevant to students.





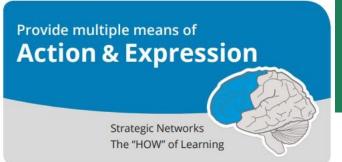
"what" (recognition network) - Representation



Ways to increase access to the learning goal for perception

How can I present information in ways that reach all learners?	Examples:
 Have I considered options for how printed texts, pictures, and charts are displayed? 	 Make it easy for students to adjust font sizes and background colors through technology.
 What options do I provide for students who need support engaging with texts and/or with auditory learning? 	 Provide options for engaging with texts, such as text-to-speech, audiobooks, or partner reading.





"how" (strategic network) – Action & Expression



Ways to increase access to the learning goal by offering options for physical action

How can I offer purposeful options for students to show what they know?	Examples:
 When can I provide flexibility with timing and pacing? 	 Provide calendars and checklists to help students track the subtasks for meeting a learning goal.
 Have I considered methods aside from paper-	 Allow students to show what they know
and-pencil tasks for students to show what they	through a variety of formats, such as a poster
know?	presentation or a graphic organizer.
 Am I providing students access to assistive	 Provide students with access to common AT,
technology (AT)?	such as speech-to-text and text-to-speech.



Why to apply UDL for the students and educators using technology?



Is technology that important?

The actual answer comes from the below examples:

The company Knovation develops **its products utilizing UDL**. They fully understand, though, that it is **through the product's use** that UDL truly comes to life. For example, one school system in Indiana, US implementing UDL has used a product created by Knovation and has seen positive outcomes at the high school level (Nelson, Arthur, Jensen, Van Horn & Garrity, 2011).

Why technology alone can not deliver desirable outcome?

It isn't the product alone, but is the combination of UDL and the product that led to the positive outcomes

Nelson, L. L., Arthur, E., Jensen, W., Van Horn, G., & Garrity, K. (April, 2011). Trading textbooks for technology: New opportunities for learning. Kappan, 92, (7), 46-50.



Key Questions to Consider When Planning Lessons



When planning a lesson or unit, consider these questions to ensure that the environment is flexible and inclusive of all learners.



Think about how learners will engage with the lesson.

Does the lesson provide options that can help all learners:

- regulate their own learning?
- sustain effort and motivation?
- engage and interest all learners?



Think about how information is presented to learners.

Does the information provide options that help all learners:

- reach higher levels of comprehension and understanding?
- understand the symbols and expressions?
- perceive what needs to be learned?



Think about how learners are expected to act strategically & express themselves.

Does the activity provide options that help all learners:

- act strategically?
- express themselves fluently?
- physically respond?

CAST (2020). Key questions to consider when planning lessons. Wakefield, MA: Author. (Reprinted from Universal design for learning: theory and practice, by Meyer, A., Rose, D.H., & Gordon, D., 2014, Author). Retrieved from http://www.cast.org/products-services/resources/2020/udl-guidelines-key-questions-planning-lessons



Implementation of Universal Design of Learning for training using technology



CAN AVERYBODY USE UDL in their classroom?



Misconception on the following statement! "Using technology, teachers are automatically utilizing UDL"



First, technology is only as good as its defined use. Allowing a student to use a smartphone or tablet during class brings no value if its use is not directly linked to the goal of the lesson. The use of the technology must be purposeful; otherwise, the technology can be come another barrier.

Second, some technologies (primarily programs and applications) are marketed as having been designed either utilizing UDL or that they help a teacher implement UDL. While a technology that has been designed utilizing the UDL framework will likely provide more flexibility in comparison to similar products, it is how the technology is used that decides whether or not it supports the implementation of UDL.



Common characteristics of educators applying the UDL



Have a shared understanding of praxis

a foundational understanding of UDL, instructional strategy and design, instructional technology, cognition and learning, proactive behavior management and student engagement, and self-determination.

collabora responsi ble

Are data-driven problem solvers, critical thinkers, and active designers

- ➤ View instructional design and teaching as an iterative process influenced by learner variability and performance.
- ➤ Are encouraged and given the authority as well as mental and physical tools to iteratively design for all learners.
- > Are able to actively move through the design process.
- Recognize that they think differently about lesson design

<u>Are trustful and take responsibility for ALL</u> learners.

- ➤ View all learners as their learners, regardless of their assigned classroom, performance levels, and label.
- Are able to identify when something is not working and needs to be redesigned.
- ➤ View themselves as having the knowledge and skills to be an active team member with in greater context of the learning environment.

Are collaborators who actively communicate

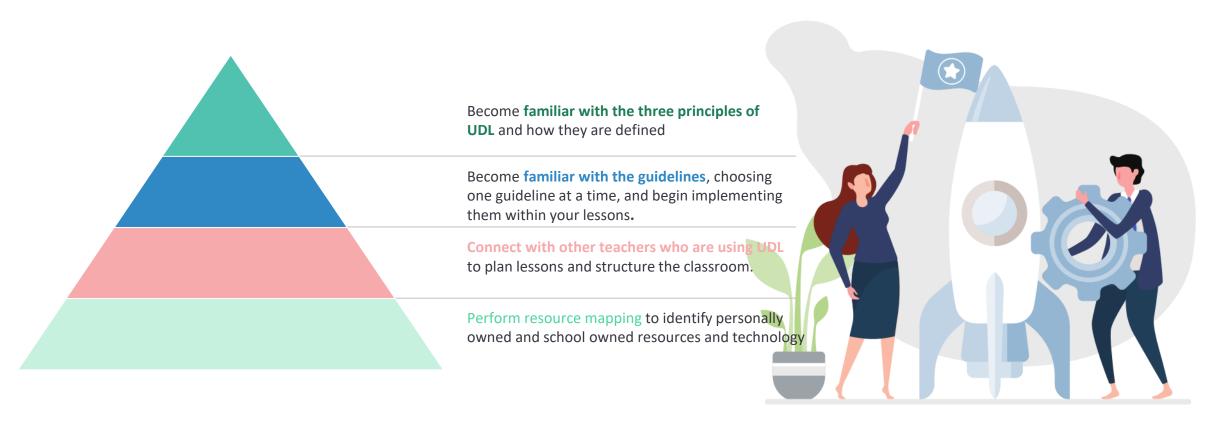
- Actively seek collaboration and actively communicate about what works as well as the challenges they are facing within their learning environments.
- Work together sharing unit/lesson ideas or developing solutions to problems within a learning design.



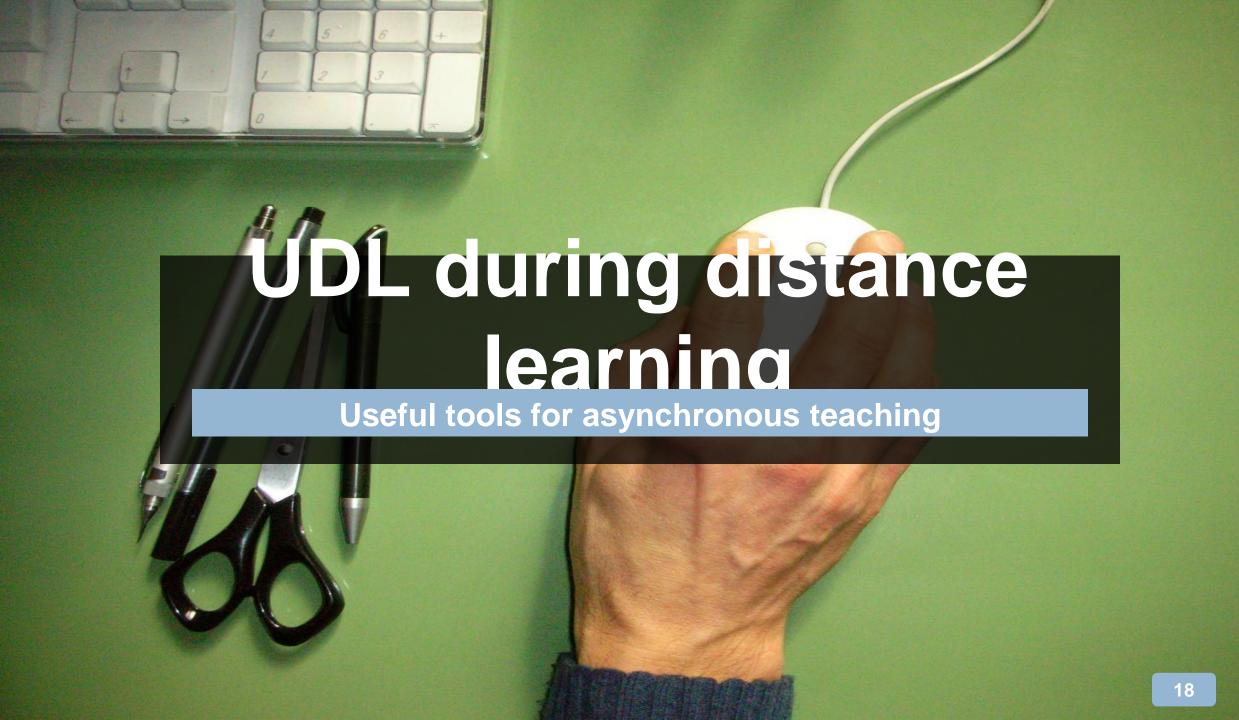
Consider the challenges of designing a course using the UD model



Suggestions for Teachers to Move Toward Implementation







Digital Tools which allow you to Consider UDL Online





Rules of thump:

"Integrate various digital tools into your online lessons, taking into consideration the learner variability of your students."

"Check out how various digital tools can be used to support students with disabilities and language learners in your classroom.."



Digital Tools for Engagement



Rule of thump:

"Provide Interesting Opportunities to Communicate and Interact."

Tool	What You Can Do	Ideas for Use Online	UDL Connections
Messaging applications (e.g., Google Hangout, Remind)	Allows phone calls and text messaging using an email address/app instead of personal phone number.	 Asynchronous/Synchronous Send a daily/weekend message to check in and provide updates and assignments. Allow students and parents to text questions if they are not as comfortable with email. 	 Facilitate managing information and resources Enhance capacity for monitoring progress Develop self-assessment and reflection
Online Checklists (https://www.checkli.com/)	• Provide checklists with daily/weekly assignments and/or tasks or step-by-step instructions to chunk and scaffold projects.	 Asynchronous Create checklists with list of daily/weekly assignments for students to complete with an area for students to ask questions. Create checklists with step-by-step tasks and instructions to chunk and scaffold projects. Create daily/weekly check-in to see who is participating and how they are feeling. Create daily, weekly, or assignment-based self-assessments for students or group processing assessments for group work. 	 Facilitate managing information and resources Optimize relevance, value, and authenticity Facilitate personal coping skills and strategies





Digital Tools for Engagement

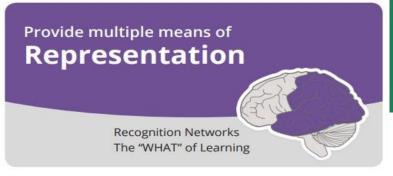


Rule of thump:

"Provide Interesting Opportunities to Communicate and Interact."

Tool	What You Can Do	Ideas for Use Online	UDL Connections
Video applications (record short clips on mobile device camera or on <u>Mac PhotoBooth</u> , <u>Screencast-O-Matic</u> , <u>Screencastify</u> , Zoom)	 Record video messages. Provide personal connection with communication to support students with anxiety and provides audio support for language learners. 	 Asynchronous Record audio feedback for students. Use screen casting to mark student work or highlight areas of student work while providing audio feedback. Use video self-modeling to allow language learners to practice skills and create videos showing themselves in success mode. 	 Optimize relevance, value, and authenticity Heighten salience of goals and objectives Promote expectations and beliefs that optimize motivation
Video Sharing (FlipGrid)	 Video-based apps allow teachers to present key information verbally (up to 5 minutes on Flipgrid). Students can use video apps to record and practice speaking. Teachers can provide written and video response feedback on students' videos 	 Asynchronous Teachers can record instructions or a prompt, and students can post video replies and reply to each other. Teachers can post video feedback modeling the correct answer or providing support. Students can then record a new video demonstrating understanding and application of the feedback. 	 Vary the methods for response and navigation Use multiple media for communication Foster collaboration and community Increase mastery-oriented feedback





Digital Tools for Representation

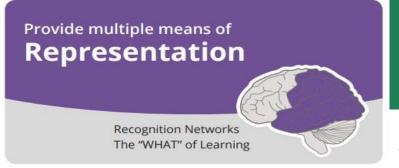


generalization

Rule of thump:

"Making Input Comprehensible."

Tool to Support Content-related Input	What You Can Do	Ideas for Use Online	UDL Connections
"Speak text" accessibility feature on iOS MacOs, and other operating systems. Read & Write Chrome Plugin (also available as an iPad Keyboard)	 Provides literacy support tools, such as text to speech, fluency tutor, word prediction, and word lookup Text-to-speech can support reading fluency and comprehension Word look-up supports comprehension and vocabulary development Supports language learners & students with reading-based disabilities whose listening skills are often much stronger than their reading skills. 	Asynchronous • Tool can be used with digital files provided for instruction (PDFs, Google Docs, online text). When students read independently, these tools can provide various literacy supports.	 Offer options for customizing the display of information Offer alternatives for visual information Clarify vocabulary and symbols Support decoding of text
Digital Graphic Organizers (e.g., <u>Popplet</u> , <u>Chart of</u> <u>online Graphic Organizers</u>)	 Digital graphic organizers allow students to brainstorm and organize information and use multimodal elements (such as graphics and audio) to amplify the information. Support language learners and students with disabilities by prefilling select key-words to support comprehension of organizational patterns. 	Asynchronous • Have students use during reading to organize their ideas and understanding. • Use as a formative assessment to see students' understanding and connections	 Promote understanding across languages 2.5 Illustrate through multiple media Highlight patterns, critical features, big ideas, and relationships Maximize transfer and



Digital Tools for Representation

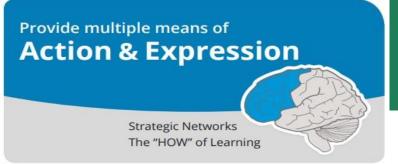


Rule of thump:

"Making Input Comprehensible."

Tool to Support Teacher Talk	What You Can Do	Ideas for Use Online	UDL Connections
Video captioning (YouTube) Clips (iPad app) which will autocaption voice input	 Add captions to any videos to ensure access for students who are deaf or hard of hearing and language learners. Upload videos to YouTube, and captions will be added. Edit captions to correct any errors and add necessary punctuation. 	Asynchronous (for making resources to use) • Add captions to narrated PPTs, video messages, video tutorials, and any other video or audio information that you create.	 Offer alternatives for audio information Optimize access to tools and assistive technologies
EdPuzzle, NearPod, PearDeck,H5P	 Supports comprehension of video input. Embed scaffolds like comprehension questions in self-created videos and online videos (e.g., Khan Academy, YouTube). Crop videos to help students to focus on the most relevant parts. Caption self-created videos or choose online videos that are captioned to support language learners and students with auditory challenges. 	Asynchronous • Embed comprehension questions throughout recorded lessons, narrated lessons, or other video input. • Use as a formative assessment: see which students have viewed videos and their answers to questions to determine needed follow-up support.	Highlight patterns,big ideas, andrelationshipsGuide informationprocessing and vis





Digital Tools for Action & Expression



Rule of thump:

"Give students ways to practice and build up their expressive skills."

Tool to Support
Expression

What You Can Do

Ideas for Use Online

UDL Connections

Online and mobile apps (e.g., <u>UDL Book Builder</u>, <u>StoryJumper</u>, & <u>Book Creator</u>)

- Multimodal story building tools support production of written text, provides built in text-to-speech support, image options, and can foster engagement in writing as students develop their own books and add related graphics and images.
- Students can a read and record their own stories.
- Provides a creative and fun environment to develop writing skills

Asynchronous

- Have students create a book about themselves and their culture, and/or cultural stories to provide relevance for culturally and linguistically diverse students and language learners.
- Have students use story building tools as an outline prior to writing longer, formal texts.

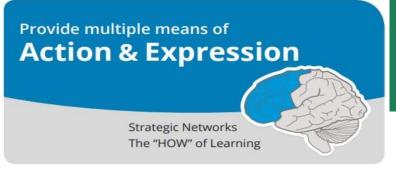
- -Optimize access to tools and assistive technologies
- Use multiple tools for construction and composition
- Support planning and strategy development

Infographics (<u>Adobe</u> <u>Spark</u>, <u>Piktochart</u>, easel.ly)

- Students can combine text and images to present information
- Provides an engaging way to combine graphics and text to demonstrate knowledge; fosters student creativity and can be support/scaffold for writing tasks

Asynchronous

- Students can demonstrate knowledge and understanding in a fun, creative and visual format. Gives students a chance to combine text and graphics in a professional looking product.
- Can be a formative assessment, for example, creating a flyer for a product or concept related to a learning goal
- Use multiple media for communication
- Optimize relevance, value, and authenticity



Digital Tools for Action & Expression



Rule of thump:

"Give students ways to practice and build up their expressive skills."

Tool for Demonstrating	5
Knowledge	

What You Can Do

Ideas for Use Online

UDL Connections

Online collaborative documents and tools (e.g., Google Docs)

- Support students to build on ideas incrementally and share with peer interaction and support.
- Provide guidelines and language support for how to collaborate effectively and appropriately with these tools.

Asynchronous/Synchronous

- Provide prompts for students to collaborate on a document together.
- Provide headings for required sections of an assignment to provide scaffolding for students. Then assign roles and have students work on different parts and then review together.
- Have students provide peer feedback using the comment tool on student work. Provide guidance on acceptable comments.

- Support planning and strategy development
- Facilitate managing information and resources
- Foster collaboration and community

Presentation software (e.g., Powerpoint or Google Slides)

- Helps students "chunk" information as they practice writing skills.
- Allows students to use embed graphics (and audio/video) to support what they are writing

Asynchronous/Synchronous

- Provide templates for students to follow with prompts and guiding questions.
- Support planning and strategy development
- Facilitate managing information and resources
- Foster collaboration and community

Other General Tech Tools



Technology tools

We invite you to explore these simple tools that may be of assistance in helping your learners get a better handle on impulse control, planning/prioritizing, self-monitoring, task initiation, and organization during learning on and offline.

• 30/30 is time management at its finest! It's a free app that helps students to:



Set up a list of tasks to accomplish and a length of time to complete them

Get a timer that will tell them when to move on to the next task

"See" when they need to work faster or when it's almost break time

about it until a week before finals! Procrastination can be a beast. Exam Countdown is a simple way to keep track of exam and homework dates. You can color-code exams and create countdown timers ranging from minutes to days. Available for and .



Read articles to learn how to use UDL with distance learning



Rappolt-Schlichtmann G., (2020). *Distance learning: 6 UDL best practices for online learning*. Retrieved from https://www.understood.org/en/articles/video-distance-learning-udl-best-practices

Jewett L., (NA). How to plan online lessons with Universal Design for Learning (UDL). Retrieved from: https://www.understood.org/en/articles/how-to-plan-online-lessons-with-universal-design-for-learning-udl

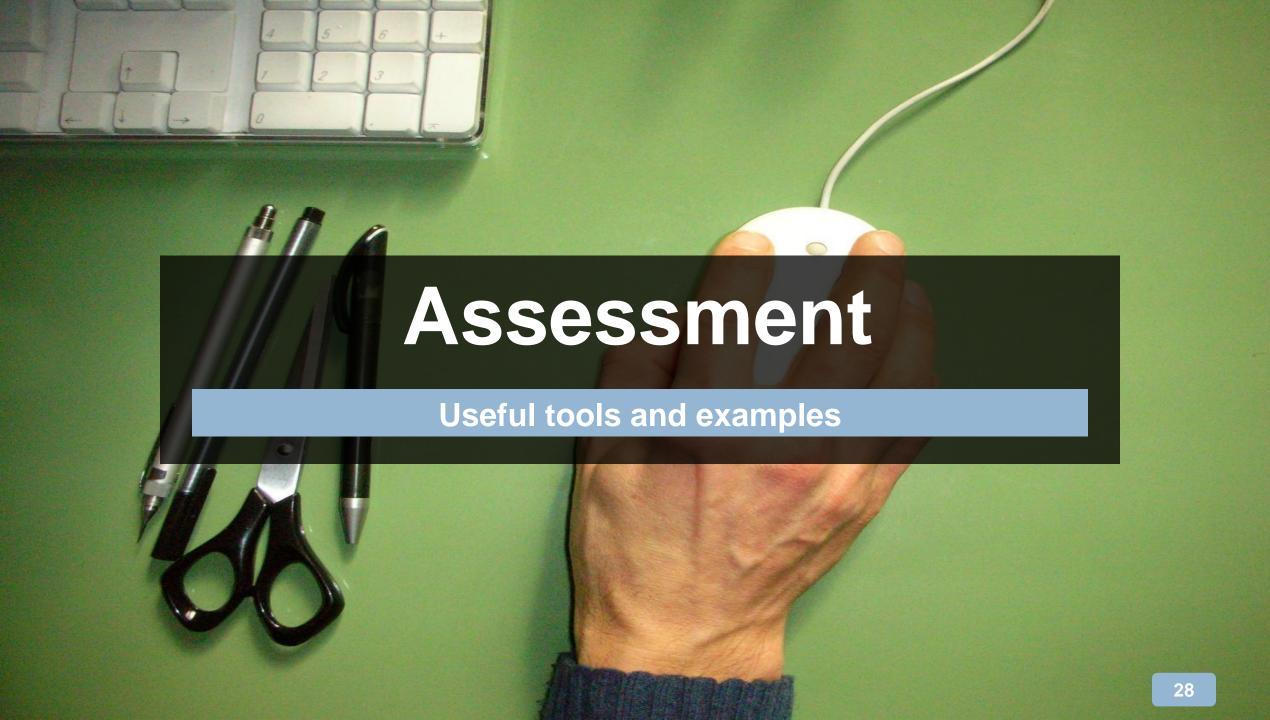
CAST(2010). UDL Unplugged: Role of the technology in Udl. Retrieved from:

https://www.cast.org/products-services/resources/2012/udl-unplugged-role-technology

Torres C. & Rao, K. (2020). Digital Tools for Action and Expression. Retrieved from

https://schoolvirtually.org found in https://schoolvirtually.org/digital-tools-for-action-and-expression/





Formative & Summative Assessment



In order for learner to be motivated through out any training session, educator should provide some questions in the beginning, for the learners to be acknowledge of their motives and personal goals! Also, learners need to be able to deal with frustration and avoid anxiety when they are in the process of meeting their goals. Multiple options need to be given to learners to help them stay motivated.

BUT HOW?

Lets take it STEP by STEP

CAST (2018). Universal Design for Learning Guidelines version 2.2. Retrieved from http://udlguidelines.cast.org







Assessments are tools to gather information!

We know that at he start of each training session, educators have a wide range of understandings, backgrounds, worries and concerns.

Summative assessment

Are usually shorter and assist educator determine where learner might have gaps during the instruction and learning process.

Formative assessment

Are often large end unit measures

Are an ongoing and embedded effort to understand learner learning by creating a dialogue between educator and learner.

An assessment becomes formative when we use the data to inform our teaching practices to support learners learning.

Formative assessment can be questions about content or about learner emotional state or specific feedback educator to learner or vice versa.



STEP 2. Reflect individually or discuss with a colleague



How do you use data gathered by formative assessment to inform your instruction?



STEP 3. Assessment barriers



Barriers in education are roadblocks in learner's learning environment, that prevent them from reaching a learning goal.	
They come in all shape and sizes. Examples of Barriers:	
☐ The background information	
☐ Having instructions presented only one way	
The social emotional demands of regulating during training sessions	
Are build into the assessment themselves	
	/

For instance, one barrier is **the spirals** found in the left side of a notebook for the left-handed learners

BARRIERS ARE IN THE LEANRING ENVIRONEMT AND NOT THE LEARNER!!



STEP 4. Reflect individually or discuss with a colleague



What barriers have you seen learners experience in their assessments?

How might you begin to address barriers in assessments, in order to remove them?



Quiz. Which of the following statements are true? (Select all that apply)



Formative assessments are short and help educators determine where there may be gaps in student learning

Formative assessments are usually longer, end of unit assessments.

Formative assessments are assessments of learning.

Formative assessment should be ongoing, embedded and used to inform teaching.

Which are examples of possible barriers found in assessments? (Select all that apply)

Background knowledge

Instructions

Social emotional demands

Complete the sentence:

Barriers are in the not the student.



Self-assessment and reflection activities summary



Align assessments to learning goals by asking yourself

- Are my learning objectives/goals clear?
- Does my assessment reflect and measure the intended learning goals, or are there additional components or skills that are also being measured by my assessment?

Offer authentic opportunities for assessment by asking yourself

- In what ways do my assessments engage learners in understanding the authenticity and relevance of the content?
- How am I providing opportunities for learners to apply new knowledge to novel situations and relatable experiences?

Assess engagement as well as content knowledge by asking yourself

- How have I assessed learner engagement during the learning process?
- What strategies or supports helped a learner persist through a challenge to engage in the assessment?

Include frequent formative assessments by asking yourself (you could use <u>Plickers software</u> for polls/questions)

- In what ways do my assessments engage learners in understanding the authenticity and relevance of the content?
- How am I providing opportunities for learners to apply new knowledge to novel situations and relatable experiences?

Design assessments alongside learning goals so that you can ensure you are measuring the intended goals of your learning experience.

Whether you are in a face to face setting or in a remote learning environment, ensure that the assessment can be personally relatable and culturally relevant.

Build vocabulary and reflection around emotion and engagement during learning. It can be critical to develop this kind of communication for remote learning, as educators are not necessarily able to accurately evaluate learners' engagement in the same ways in the remote context

Note that formative assessments should be incorporated in any learning experience, including remote learning.



Self-assessment and reflection activities summary



Reduce unnecessary barriers to access by asking your self

- Are there accessibility barriers my learners may encounter in my assessments?
- What are the targeted skills or understandings this assessment is intended to measure?
- What may be preventing learners from showing what they know in my assessment?

Support learner variability through flexible assessments by asking your self

- What is some of the variability I can anticipate in my learners, especially during assessments?
- How do the flexible options for engagement, representation, and action and expression in my assessments align to the intended learning objectives and support learner variability?

Use and share rubrics to clarify expectations by asking your self

- Does the rubric align to the intended skills or knowledge?
- Are there opportunities for learners to contribute to the rubric in ways that are meaningful to them?

Involve learners in assessing their learning progress by asking your self

- Have I offered timely, goal-related feedback for my learners on the assessment?
- Have I offered opportunities for learners to assess their own progress and process (for example, through regular check-ins)?

For example, options such as practice assessments, review guides, flexible timing, assistive technologies, or support resources can be made available for all learners.

use the UDL framework to design our lessons. Flexible options not only enhance access, but can also reduce perceived threats or distractions and ensure all learners are able to demonstrate their skills.

Rubrics can serve as a baseline for what is required and then can include opportunities for learners to add goals they have for a given assignment

Communicate about their progress towards the intended learning goals through formative assessment data, feedback, and providing guidance for possible adjustments to support the intended goal. This allows learners to become active advocates and take ownership of their learning.



Tools to Stay Connected and use Feedback



Tool	What You Can Do	Ideas for Use Online	UDL Connections
Digital flashcards (Quizlet, Memrise)	 Online quiz tools allow students to check their understanding, and practice vocabulary and content knowledge. Tools include flashcards with audio, images, and games, which are effective and engaging ways to practice vocabulary. Provides opportunities to practice, receive immediate feedback, and practice again supports language development. Support comprehension and recall for students with disabilities; provide language development support for language learners 	 Asynchronous Create flashcard sets for vocabulary practice or to support recall of content, like math facts. Assign one activity per day to support students' regular engagement with vocabulary (ex. Quizlet – Monday: Lean, Tuesday: Flashcards, Wednesday: Spell or Write, Thursday: Test, & Friday: Gravity or Scatter game). Have students create their own study sets to share with each other and reinforce their own understanding. 	 Clarify vocabulary and symbols Vary the methods for response and navigation Minimize threats and distractions Increase mastery-oriented feedback
Digital grammar assessment and instruction (e.g., Quill)	 Provides an introductory grammar assessment and then targeted grammar lessons with specific explanations and feedback to help students learn to identify and correct errors. Includes instruction on sentence combining, which is a practice with a strong research base. Provides a fun way for students with disabilities and language learners to practice grammar skills in a non-threatening way. Presents mastery-oriented feedback to help students learn. 	 Asynchronous Assign students to take the self-assessment and work on grammar lessons that the computer assigns. Select common errors for students and assign the related grammar lessons. Identify individual student's challenges, and assign relevant grammar lessons and practice. Have students review the sentence combining lessons in preparation for revising written work. 	 Highlight patterns, critical features, big ideas, and relationships Build fluencies with graduated support for practice/performance Enhance capacity for monitoring progress Increase mastery- oriented feed

Further reading on Assessment



- 1. CAST (2020). *UDL Tips for Assessment*. Wakefield, MA: Author. Retrieved from https://www.cast.org/products-services/resources/2020/udl-tips-assessments.
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- 3. Robyn M. Harris, Ada M., Chris T.,(2012). *Using Formative Assessment to Improve Student Achievement in the Core Content Areas: Southeast Comprehensive Center Briefing Paper.*
- 4. AIR (2012). *Just Wrire!Guide*. Retrieved from: https://lincs.ed.gov/sites/default/files/TEAL_JustWriteGuide.pdf
- 5. C. & Rao, K. (2020). Digital Tools for Engagement. https://schoolvirtually.org





Thank you for your participation

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