

Introduction to Universal Design for Learning (UDL)/UDL for Online Instruction

Multiple Means of Engagement, Representation, Action and Expression (MME)/(MMR)/(MMAE)

Universal Design for Learning (UDL) is a well-researched instructional framework that is meant to guide the design and development of learning objectives, assessments, instructional methods, and content so they meet individual learner needs. Within the UDL framework there are three suggested guidelines related to learner engagement, representation, action and expression that designers can use to “ensure that all learners can access and participate in meaningful, challenging learning opportunities” (CAST, 2021, UDL Guidelines section). For more information about CAST and detailed explanations of each guideline and related checkpoints, please see:

- ❖ [About Universal Design for Learning](#)
- ❖ Multiple Means of Engagement (MME): [Engagement Guidelines & Checkpoints](#)
- ❖ Multiple Means of Representation (MMR): [Representation Guidelines & Checkpoints](#)
- ❖ Multiple Means of Action & Expression (MMAE): [Action & Expression Guidelines & Checkpoints](#)

To support instructional designers’ (IDs’) ability to effectively utilize UDL guidelines, the checklist starts by listing several questions related to UDL guidelines and providing examples of how to apply those guidelines to the design and development of an online, asynchronous learning experience.

Sections 1 – 6 of the checklist, which follow the UDL section, contain questions and examples of criteria that IDs can focus on to make sure that the design and development of each class not only adheres to UDL guidelines, but also that each class is built to promote learning and is accessible to learners of different abilities.

1. Learner Support and Resources

Providing information and resources related to being an online learner and class-specific resources that complement instruction supports learners’ success and ability to meet the stated learning objectives.

2. Online Organization and Design

A well-organized, aesthetically consistent, and easy (intuitive) to navigate class that provides learner tools for checking individual progress can help to alleviate learner confusion and/or frustration that can distract from the content and/or learners’ ability to meet the stated learning objectives.

Additionally, the purpose of drawing IDs’ attention to three of Mayer’s (2001) Principles of Multimedia Learning (Coherence, Redundancy, Multimedia) is to support IDs’ ability to design and develop the type of instruction that best promotes learning and prevents cognitive overload due to extraneous slide content.

3. *Instructional Design and Delivery*

This section outlines best practices for developing online, asynchronous learning experiences and provides concrete examples of the types of design, development, and implementation strategies that align to and support the UDL approach.

Note, there are two links provided in this section to help IDs ensure that a) activities/engagements promote critical thinking and problem solving (Bloom's Taxonomy), and that text is accessible for a wide range of learners/abilities (Quantitatively Measuring Text with Lexile.com or Flesch-Kincaid).

4. *Assessment and Evaluation of Student Learning*

While summative assessment is not built into the SLGuide classes, there are multiple opportunities for formative assessment and learner reflection (activities/engagements). Therefore, the purpose of this section is to provide guidance and examples regarding best practices for checking learners' understanding and providing space for them to consider and reflect upon their learning/the content. This type of engagement helps promote the transfer of knowledge from short to long-term memory and increases the chance of learners applying knowledge gained from classes in the real world.

5. *Innovative Teaching with Technology*

When using technology to teach, it is important to use that technology purposefully. This means not just using technology for the sake of using technology; rather, using technology only when it enhances and/or supports the learning experience and objectives.

Within this section, there is also guidance provided to support IDs' ability to consider learners' styles and different ways to facilitate the types of learning experiences that will increase the likelihood of learners being able to apply what they learn to their own lives (link to article about Kolb's Cycle of Experiential Learning).

6. *Accessibility*

While some of the information in this section may appear to be a repeat of criteria from other sections, the criteria and examples listed are worth emphasizing and expanding upon. This ensures that classes do not contain content that will cognitively overload/distract from the learning experience and that instruction is 508 compliant/WCAG 2.1 accessible to learners with different abilities and/or learners with certain physical challenges (i.e., vision or hearing impaired).

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Does the course promote goal-setting?

e.g., At the beginning of the class, the purpose, goals, and objectives of the class are stated and explained; throughout the course, there are opportunities for learners to reflect and consider their personal learning goals.

Is learner choice provided when appropriate and possible?

e.g., After learning a concept, prompt learners to write a reflection or plan in their journal, or practice using a new skill.

Are there opportunities to receive and give feedback?

e.g., Provide sample answers for all formative assessment/engagements; survey learners about their experience with the class.

Is there a variety of media/multimedia used to convey content?

e.g., Content is presented using a mix of text, video, audio, and/or graphics.

Are learners given a variety of ways to demonstrate their understanding?

e.g., Prompt users to write, draw, or create a table or video to demonstrate their understanding of a concept/skill.

1. Learner Support and Resources

Does the class contain information about being an online learner?

e.g., Provide a link or resource document with tips for setting goals, different ways to engage with content, who to contact for help with a course, etc.

Does the class provide class-specific resources?

e.g., Provide tools, strategies, and/or other resources that are specifically aligned to goals of class/content.

2. Online Organization and Design

Is the class well-organized and easy to navigate; can learners clearly understand class components and structure?

e.g., There is an instructional video or text that explains to learners how to navigate the class/what each button does, etc.

Can the purpose of each link, image, button or hotspot be determined from the link text alone?

*e.g., The name of the website the link connects to is used rather than a phrase ([Sustainable Living Guide](#) **not this link**); a description of the image (click the picture of the star **not** click the picture); a description of the button (click the round button **not** click the button); a description of the hotspot (click the flower, tree, or plant **not** click the hotspot/glowing dot).*

Are section headings used to organize the content?

e.g., Add a descriptive and informative title to each slide/page, such as "Mutual Aid Defined"

Does the aesthetic/design clearly communicate class information throughout the class?

e.g., The color palette, images, navigational elements, etc. are consistent, convey the proper mood/tone, underlining/italics/bold font is used consistently to draw learners' attention to key information ideas, etc.

Is information about the user's location within a set of Web pages available?

e.g., Learners can see a progress tracker that indicates where they are in the class and/or the menu is constantly visible unless hidden by the user.

Does the design adhere to the following three Mayer's (2001) Principles of Multimedia Learning: Coherence Principle, Redundancy Principle, Multimedia Principle?

Coherence Principle: People learn better when extraneous words, pictures, and sounds are excluded rather than included (e.g., *Do not add background music or sound to a slide with audio narration*).

Redundancy Principle: People learn better from graphics and narration than from graphics, narration, and on-screen text (e.g., *Try to have just a graphic with narration that explains it/connects to it or a graphic with just on-screen text that explains it/connects to it*).

Multimedia Principle: People learn better from words and pictures than from words alone (e.g., *When describing different types of seeds also provide an image of each seed described*).

3. Instructional Design and Delivery

Does the class have opportunities for interaction and communication (student to content)?

e.g., Learners are prompted to complete different types of engagements (drag-and-drop, hot spot, etc.) and record their thoughts/reflections in a journal/other note-taking tool.

Are class goals defined and aligned to learning objectives?

e.g., On a given slide(s) it may state something like "The goal of developing internal accountability is to ensure that team members know who is responsible for what. Knowing who will do what and when helps the supports the team's ability to meet the objective of completing a mutual aid community project."

Are activities and assessments aligned to learning objectives?

e.g., Engagements and journal reflections are clearly connected to the stated learning objective(s) and content that precedes them.

Are there multiple class activities/engagements to support learners' development of critical thinking and problem-solving skills?

e.g., Activities/engagements prompt learners to think critically and/or problem solve? (see Bloom's Taxonomy verbs/critical thinking through Analysis, Synthesis, and/or Evaluation:

https://drive.google.com/file/d/1_3shnNJFt4BQaC_8bM2vIgtbc3xVmeSh/view?usp=sharing)

Is the text written for a lower secondary education level?

e.g., When the text complexity is measured, it is at a grade 7-9 reading level. (see the video on Quantitatively Measuring Text with Lexile.com or Flesch-Kincaid in Word:

https://mediaspace.itap.purdue.edu/media/Text+ComplexityA+Quantitative+Measurement+Tools/0_aq97gqgh)

Is there a glossary link/document with specific definitions (i.e., technical terms, jargon, advanced terms) provided?

e.g., The glossary is accessible throughout the course and alphabetically lists and defines technical terms, jargon, and/or advanced terminology used in each class.

Is the first use of an abbreviation provided immediately?

e.g., SLGuide (Sustainable Living Guide) [first use]; SLGuide [second and subsequent use]

Is there a mechanism available for identifying the specific pronunciation of words where meaning of the words, in context, is ambiguous without knowing the pronunciation?

e.g., Provide pop-up definitions when learners click on or hover over terms that are challenging to pronounce.

Are labels or instructions provided when content requires user input?

e.g., Type your response into the box then click "enter." Drag the seed to the correct location in the garden.

4. Assessment and Evaluation of Student Learning

Does the class contains timely and appropriate activities to assess student readiness for class content and delivery mode?

e.g., Prior to engaging with the class content, learners are asked to complete a preassessment and/or respond to a question about the content. Sample responses/answers are provided and serve as a way to focus learners on what they do/do not know about class content.

Are learning objectives provided at the beginning of the class and easily accessed for review throughout class?

e.g., Learners can click on a learning objectives slide/link (a slide/section in the class menu or consistently visible link).

Are there ongoing, multiple assessment strategies used to measure content knowledge, skills, and attitudes?

e.g., Explain the concept of mutual aid to someone you know. Draw a diagram that shows where each type of seed could be planted. Now that you've learned more about (concept), has your attitude about (concept) changed or stayed the same? Explain.

Is timely feedback about student performance provided throughout the class, using different modes when possible?

e.g., Sample answers/guidance aligned to activities/engagements are provided as text in some instances, as a demonstration video or graphic representation in other instances.

Are learner self-assessment opportunities integrated throughout the course?

e.g., Take a moment to reflect on your progress. Think about your responses to the preassessment/prompt at the beginning of the class. At this point in the class, how has your knowledge changed? What do you know now that you didn't know before? How has the content enhanced and/or built upon your previous knowledge?

5. Innovative Teaching with Technology

Does the class use a variety of technology tools to facilitate communication and learning?

e.g., Learners are encouraged to use a notebook tool built into the LMS; text, video, and/or graphics are used to convey concepts (see Multimedia Principles); resources/guidance is provided regarding the use of communication tools such as social media platforms, professional groups, online communities, etc.

Do the instructional methods enhance student learning and engagement?

e.g., Video, graphics, and/or text, as well as activities/engagements are purposeful and tightly aligned to content/learning objectives.

Does the class include a variety of learning activities/engagements that are relevant to address different learning styles?

e.g., Access learners' background knowledge (Concrete Experience: What have you done in the past that is similar to (concept)? Reflective Observation: What was that experience like; what went well/what didn't? Abstract Conceptualization: Now that you have learned about (concept), what will you do differently; how will you apply what you have learned? Active Experimentation: Apply what you have learned by creating a plan for (concept). (see Kolb's Cycle of Experiential Learning <https://www.pugetsound.edu/academics/experiential/create-experiential-learning-opportunities/available-resources/creating-critical-reflection-assignments/design-models/kolbs-learning-cycle/>).

6. Accessibility

Is concise alt text provided for all instructive images/animations?

e.g., A picture of a seed is presented on screen and alt text would read something like "lettuce seed."

Is reading and navigation order logical, intuitive, and consistent?

e.g., When an acronym is given, the explanation of the acronym is presented in the order of each letter; when a list is presented, ideas from the list are discussed in list order; navigational elements are the same in each class (next/prev buttons, play button, etc.).

<p>Do instructions avoid reference to shape, size, or visual location? <i>e.g., There are no instructions that state "Click the square in the top right corner of the screen."</i></p>
<p>Do instructions avoid relying on sound? <i>e.g., There are no instructions that state "Continue when you hear the beep."</i></p>
<p>If a page or application has a time limit, is the learner provided with options to turn off, adjust, or extend that time limit? (Note: not required for real-time events or if time limit is more than 20 hours). <i>e.g., The learner can manually stop a timer or extend the time.</i></p>
<p>Do audio options include stop, pause, mute, and volume adjustment?</p>
<p>Can automatically moving, blinking, or scrolling content (i.e., multimedia, animation) that lasts longer than 5 seconds be paused, stopped, or hidden by the user?</p>
<p>Is the width of text on a single line no more than 80 characters? <i>e.g., See Show Word Count tutorial (also includes information about how to count lines and characters):</i> https://support.microsoft.com/en-us/office/show-word-count-3c9e6a11-a04d-43b4-977c-563a0e0d5da3</p>
<p>FLASHING CONTENT</p>
<p>Is a flash warning included for flashing animation/other content? <i>e.g., WARNING: This video may potentially trigger seizures for people with photosensitive epilepsy.</i></p>
<p>Is there no slide/page content that flashes more than 3 times per second, unless flashing content is sufficiently small?</p>
<p>Do flashes have low contrast?</p>
<p>Do flashes not contain too much red?</p>

References

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