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LEADERSHIP SUPPORT SERVICE

DIVISION OF ELEMENTARY & SECONDARY EDUCATION

Universal Design for Learning:
Multiple Means of Representation

The educator presents new content to students through multiple types of medium by applying the Universal Design for Learning (UDL) Principle of Multiple Means of Representation.

Key Method

The educator delivers new content knowledge through multiple types of medium to enable learners to perceive new information, understand various representations, and transfer new information into usable knowledge.

Method Components

Recognition Networks: Provide Multiple Means of Representation

Recognition Networks in the brain are responsible for receiving, analyzing, and forming concepts from information gathered through the senses. For this reason, the Recognition Networks are known as the "what" of learning. Educators who implement multiple means of representation into lesson design provide students with

- access to key vocabulary necessary to unlock the meaning of disciplinary content.
- control over the pace and process for accessing content.
- ways to understand abstract concepts and the relationships among ideas related to the content.
- smaller segments or chunks of content at one time.

The following guidelines provide a more in-depth understanding of the Recognition Networks.

Guideline 1: Design Options for Perception

Perception refers to the way humans process sensory information and make interpretations about that information. Students often interpret the same information differently based on their current knowledge, past experiences, and societal expectations.

Educators can offer support for Guideline 1 by considering the following checkpoints and supporting questions.

- **Consideration 1.1: Offer opportunities to customize the display of information.** Do you provide students with ways to adjust the display of information (e.g., font size, colors, volume, graphics, contrast) and the speed or rate of delivery? When possible allow students to use accessible materials with settings that can be adjusted based on needs and preferences to reduce barriers to content.

- **Consideration 1.2: Support multiple ways to perceive information.** When you present information orally, offer visual supports for learners who struggle to perceive information auditorily. Graphics, animations, video, and tactile objects can enhance

auditory information and convey meaning about relationships, concepts, or events in a text. When providing non-visual options to text, keep in mind the importance of prosody and emotional tone to the listener. The lack of prosody is often a drawback to some text-to-speech tools. Learners need content presented both visually and auditorily in addition to text.

- **Consideration 1.3: Represent a diversity of perspectives and identities in authentic ways.** Students need to recognize familiar perspectives and as well as be introduced to new perspectives in the curriculum and instructional materials used to represent content.

Guideline 2: Design Options Language and Symbols

For students to build understanding from words, symbols, icons, and mathematical notations, they must first be able to unlock the meaning that each word or symbol conveys. They are then able to build on this knowledge and create meaning as they learn about sentence structures and mathematical formulas, as well as the meaning of figurative language and idioms. Educators support Guideline 2 by considering the following considerations:

- **Consideration 2.1: Clarify vocabulary, symbols, and language structures.** Pre-teach unfamiliar vocabulary, symbols, or icons and embed alternate representations within the content to support students in new learning (e.g., footnotes, glossaries, illustrations)?

- **Consideration 2.2: Clarify syntax and structure.** Explicitly teach the relationship between words, sentences, or paragraphs and notations in a formula or equation.

- **Consideration 2.3: Cultivate understanding and respect across languages and dialects.** The academic language used in curriculum and instructional materials can be challenging for non-English speakers and students unfamiliar with academic discourse. Use translations, descriptions, movement, and images to support learning presented in unfamiliar or complex language.

- **Consideration 2.5: Illustrate through multiple media.** Learning design should provide all students with the same content and information in different ways. Use multiple types of media to illustrate concepts and processes (illustrations, simulations, images, interactive graphics) to make text more comprehensible for students.

Guideline 3: Design Options for Building Knowledge

The goal of comprehension is for students to store new learning in their long-term memories so the information can be recalled and transferred to practical applications in the future. As students increase their comprehension of new learning, they transform the information into usable knowledge. Educators support Guideline 3 by exploring the following considerations.

- **Consideration 3.1: Connect prior knowledge to new learning.** Activate or supply students with background knowledge so they can make connections between what

they know and what they are learning. Help students activate prior knowledge by using concept maps, K-W-L charts, analogies, or demonstrations with concrete objects.

- **Consideration 3.2: Highlight patterns, critical features, big ideas, and relationships.** Emphasize key elements of the curriculum content. Use strategies, such as highlighting, that help students separate important concepts related to new learning from extraneous information.

- **Consideration 3.3: Cultivate multiple ways of knowing and making meaning.** Honor multiple and diverse ways of developing understanding of the world. Allow students to share what they know about the new learning from real world experiences.

- **Consideration 3.4: Maximize transfer and generalization.** Help students organize what they know and what they have learned so they can apply learning to new situations or novel contexts. Offer students mnemonics, checklists, scaffolded material, and opportunities for spaced review and practice.

Supporting Rationale and Research

The Supporting Rationale and Research includes resources for learning more about UDL Multiple Means of Representation. As you interact with these learning materials, take time to reflect on your professional practice.

Research

CAST. (2024). Universal Design for Learning Guidelines (version 3.0). Retrieved from http://udlguidelines.cast.org.

Rao, K., & Meo, G. (2016). *Using Universal Design for Learning to Design Standards-Based Lessons*. SAGE Open. https://bit.ly/3BHvVyG

Strangman, N., Vie, G., Hall, T., & Meyer, A. (2004). *Graphic Organizers and Implications for Universal Design for Learning: Curriculum Enhancement Report*. Wakefield, MA: National Center on Accessing the General Curriculum. https://bit.ly/3vEmpZw

Resources

This micro-credential has been updated to version 3.0. However, some resources still reflect version 2.2.

Access the side-by-side comparison of Guidelines version 2.2 to Guidelines version 3.0

UDLA How to Read the UDL Guidelines. This video explains the Universal Design for Learning Networks, Guidelines, and Principles and includes connections to the classroom.

UDLA Representation Video Series. The Universal Design for Learning Academy developed a series of videos for educators focused on the UDL Principle of

Representation: [Provide Options for Perception](#), [Provide Options for Language and Symbols](#), and [Provide Options for Comprehension](#).

What is UDL? UDL enthusiast Katie Novak defines UDL using a 3-minute analogy in this [video.](#)

What is Different About the UDL Guidelines 3.0? Katie Novak offers a high-level look at the differences between version 2.2 and 3.0 of UDL Guidelines in this 10 minute [video.](#)

Universal Design for Learning: Principles and Examples. This [post](#) from Prodigy provides an easy to understand overview of the three principles with examples for implementation.

Harnessing the Power of UDL. The Providing Options for Language and Symbols [padlet](#) and the Providing Options for Comprehension [padlet](#) provide you with access to various resources and allow you to engage in self-guided learning.

Guide to Universal Design for Learning: Provide Multiple Means of Representation. This [website](#), developed by New Zealand's Inclusive Education website, provides an overview and strategies for implementing the principle of multiple means of representation.

Assistive Technology Resource Guide for Arkansas Schools. Assistive technology is used to increase or improve the independence of a student with a disability in education. This [guide](#) places an increased focus on assistive technology and the application to a Universal Design for Learning Framework.

Arkansas Division of Elementary and Secondary Education: Accessible Educational Materials. This [website](#) is designed to provide information about accessible educational materials, including available resources and services, to Arkansas educators, parents, and students.

National Center on Accessible Educational Materials. The National Center on Accessible Educational Materials for Learning [website](#) at CAST provides technical assistance, coaching, and resources to increase the availability and use of accessible educational materials and technologies for learners with disabilities across the lifespan.

Submission Guidelines and Evaluation Criteria

This section is divided into three areas: Overview, Artifacts and Evidence, and Reflection. To earn this micro-credential, you must receive "Passing" on Parts One and Three, and "Yes" on all criteria in Part Two.

Part One. Overview

Read the Overview criteria carefully to ensure a thorough understanding of the expectations for a "passing" submission.

Prompt: Use the UDL Overview Progression Rubric to self-assess your current implementation of Multiple Means of Representation. Submit the completed UDL Progression Rubric self-assessment as one of your artifacts.

In addition, provide a written response in which you describe challenges or barriers your students experience when perceiving and comprehending information. In your response include:

- Student demographics (e.g., socioeconomic status, English learners, students eligible to receive special education, IEPs, and/or 504 plans)
- Content area and grade level(s)
- Your primary method for delivery of content (i.e., explain how you typically present students with academic content)

This submission is scored either "passing" or "not passing."

Passing: Earner submits a completed UDL Progression Rubric self-assessment and includes a written response to each part of the prompt; total written response should be at least 250-words and provide adequate detail to help the scorer understand the context for your submission.

Part Two. Artifacts and Evidence

Read the Artifacts and Evidence Submission requirements carefully to ensure a thorough understanding of the expectations for a "Yes" on each task.

Task 1: Design Options for Perception

Select an Arkansas academic standard and the text from your curriculum and any supplemental materials you will use as the "what" of learning. As you plan lessons to teach the standard, plan ways to present the content so students both see and hear the new information and have options to customize the text.

In a written response, provide the Arkansas academic standard exactly as it appears in your standards document, describe the learning plan you have designed to use with students to teach this standard, and explain how you incorporated Considerations 1.1, 1.2 and 1.3 into the lesson design. Describe how each consideration impacted students' ability to access and perceive information. **Be sure to cite the specific considerations in your description.**

In addition to your written response, upload at least one artifact that demonstrates implementation of Considerations 1.1, 1.2, and 1.3. Artifacts may include photos, video/audio recordings, or texts provided to students. Be sure to label at least **one artifact of implementation for each checkpoint. If submitting video or audio recordings please include a link that allows anyone with access to view.**

Please submit the written response (at least 300-words) and artifacts with the titles "Task 1 Written Response" and "Task 1 Artifacts of Implementation" as evidence for Task 1.

Task 2: Design Options for Language and Symbols

If teaching a course with text, provide a written response that includes a brief description of the text (title, author, publisher, textbook or supplemental resource, etc) and how the text will be used in the lesson. Identify key concepts and/or vocabulary related to the standard selected in Task 1 that will be new learning for students.

If teaching a course without text, provide a written response that includes a brief description of how you will provide content knowledge related to the standard selected in Task 1. Include the related vocabulary, symbols, equations, notations, and concepts and the ways you will provide students with access to the new learning.

In addition to this description, design a learning plan that incorporates a minimum of three Considerations (2.1, 2.2, 2.3, 2.4, and/or 2.5) for Guideline 2: Design Options for Language and Symbols. In the written response, explain how you will incorporate the Considerations and how the inclusion of each Consideration will provide students with access to the content and meaning of unfamiliar words, symbols, syntax, equations, notations, or concepts.

As evidence of implementation, upload artifacts that demonstrate the use of the selected Considerations with students. Artifacts may include, but are not limited to, slide deck presentations, visuals, video/audio technology, or graphic organizers/concept maps that students have completed related to the academic standard. Be sure to include a minimum of one artifact for each Consideration you incorporated in the learning design. **If submitting video or audio recordings please include a link that allows anyone with access to view.**

Please submit the written response (300-word minimum) and artifacts with the titles "Task 2 Written Response" and "Task 2 Artifacts of Implementation" as evidence for Task 2.

Task 3: Design Options for Comprehension

Submit a video of you engaging students in strategies that support comprehension and the transfer of knowledge to new contexts or situations as outlined in Guideline 3: Design Options for Building Knowledge. The video should clearly capture the implementation of each of the four Considerations (3.1, 3.2, 3.3, and 3.4).

In addition, provide a written commentary that thoroughly explains

- how you addressed each of the four Considerations.
- how students demonstrated their comprehension of the information related to the standard from Task 1.
- how implementing the considerations helped students form relationships between new and prior knowledge.

In the commentary, provide the assessor with the video mark that demonstrates implementation of the consideration.

Please submit the video and the commentary with the titles "Task 3 Engaging Students Video" and "Task 3 Commentary" as evidence for Task 3.

Artifacts and Evidence Scoring Guide

Tasks	Not Yet	Almost	Yes
Task 1: Options for Perception	The earner does not submit a written response as required for Task 1. **OR** The earner does not submit artifacts or student interfacing materials as required for Task 1.	The earner submits a written response that partially ● explains how the lesson was modified to incorporate Considerations 1.1, 1.2, and 1.3 ● describes how the changes impacted students' ability to access and perceive information **AND** The earner submits artifacts that partially demonstrate implementation of the Considerations 1.1, 1.2, and 1.3 in the lesson design	The earner submits a written response (at least 300-words) that thoroughly ● explains how the lesson incorporates Considerations 1.1, 1.2, and 1.3 ● cites where the Considerations occur in the lesson ● describes how the changes impacted students' ability to access and perceive information **AND** The earner submits artifacts that convincingly demonstrate implementation of Considerations 1.1, 1.2, and 1.3 in the lesson design.
Task 2: Options for Language and Symbols	The earner does not submit the written response for Task 2. **OR** The earner does not submit artifacts of implementation.	The earner submits a written response that partially ● identifies the new information (vocabulary, concepts, symbols, equations, notations) related to the standard ● describes how it is represented (text/non text) to students ● explains how 3 Considerations (minimum)from Guideline 2 are integrated into a lesson design ● explains how the Considerations support student access to new information. **OR** The earner submits fewer than three artifacts or the artifacts do not provide convincing evidence of implementation of 3 Considerations.	The earner submits a written response (at least 300-words) that thoroughly ● identifies the new information (vocabulary, concepts, symbols, equations, notations) related to the standard ● describes how it is represented (text/nontext) to students ● explains how 3 Considerations (minimum)from Guideline 2 are integrated into a lesson design ● explains how the Considerations support student access to new information. **AND** The earner submits artifacts that clearly demonstrate the implementation of the 3 selected Considerations.

Task 3: Options for Comprehension	The earner does not submit a video that demonstrates the implementation of the Considerations for Comprehension and students engaged in new learning as required for Task 3. **OR** The earner does not submit written commentary as required for Task 3.	The earner submits a video that partially demonstrates the implementation of the Considerations for Comprehension and students engaged in new learning. **AND** The earner submits written commentary that partially explains ● how students demonstrate comprehension, ● how the four checkpoints are used to impact comprehension, ● how the checkpoints support students in forming relationships between new and prior knowledge.	The earner submits a video that thoroughly demonstrates the implementation of the four Considerations for Comprehension with students engaged in new learning. **AND** The earner submits written commentary (at least 300 words) that thoroughly explains ● how students demonstrate comprehension, ● how the four considerations are used to impact comprehension ● how the considerations support students in forming relationships between new and prior knowledge.

Part Three. Reflection

Read the Reflection guidelines and evaluation criteria carefully to ensure a thorough understanding of the expectations for a "passing" submission.

Prompt: Use the UDL Reflection Progression Rubric to reflect on and self-assess your implementation of Multiple Means of Representation. Submit the completed UDL Reflection Progression Rubric self-assessment and provide **specific evidence in the template** to support an improved Consideration rating.

This submission is scored either "passing" or "not passing."
Passing: Earner submits a completed UDL Reflection Progression Rubric as a self-assessment. The completed rubric shows thoughtful reflection to determine the ratings and provides authentic evidence on which the rating is based.