Universal Design for Learning: Developing Your Courses for Diverse Learners

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“Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.” -- Albert Einstein
Overview and Objectives

- Universal Design for Learning framework
- Why it is important
- Three principles of UDL

After this presentation, faculty will be:
- Familiar with the UDL framework
  and able to:
- Identify the three principles of UDL
- Implement one aspect of UDL when planning instruction
What is Universal Design for Learning?

Universal Design for Learning (UDL) is a set of design principles, a framework used to provide opportunities to all individuals to ensure equitable access to curriculum, assessment and learning.
Equality, Equity and Accessibility

In the first image, it is assumed that everyone will benefit from the same supports. They are being treated equally.

In the second image, individuals are given different supports to make it possible for them to have equal access to the game. They are being treated equitably.

In the third image, all three can see the game without any supports or accommodations because the cause of the inequity was addressed. The systemic barrier has been removed.
Accessibility Over Accommodations

- Improved class accessibility = less need for special accommodations
- Learning outcomes remain the same for all students
The sympathetic system, in times of high stress, does things like speed up your heart rate.
Traditional Teaching Model

- Focus on teaching to the “average/normal” students
  - How students learn
  - How fast students learn
  - How students express their learning
  - What motivates and sustains students
Universal Design for Learning Framework

- Moves the systemic focus on the average to the extremes
- Provides flexibility, options, methods and content in such a way that students at either extreme can succeed
- Reduces and often eliminates barriers to learning
Three Principles of UDL

I. Multiple Means of Engagement (Methods)
   ▶ Tap into students’ interests, challenge them appropriately, and motivate them to learn.

II. Multiple Means of Representation (Content)
    ▶ Provide students with various ways of acquiring information and knowledge

III. Multiple Means of Action and Expression (Assessments)
    ▶ Provide students with various routes for demonstrating what they know
I. Multiple Means of Engagement
Getting Started with Engagement

- Goal: Purposeful and Motivated Students

- Consider activities that focus on:
  - Relevance to students’ lives
  - Value
  - Authenticity
The Four Typologies of College Engagement
Developed by Dr. Andres C. Salazar for ESCALA
3 Aspects of Engagement

1. Develop Interest
   - Promote student choice
   - Make activities and projects authentic
   - Minimize distractions
How-to: Developing Interest

- Supplement lecture and reading assignments with visual aids
  - Photographs
  - Videos
  - Diagrams
  - Simulations
How-to: Developing Interest

- Borrow from News Values:
  - Impact
  - Timeliness
  - Prominence
  - Proximity
  - Conflict
  - Human Interest
3 Aspects of Engagement

2. Sustain Effort and Persistence
   - Clarify learning goals and objectives
   - Foster student collaboration and community
How-to: Sustaining Effort and Persistence

- Give students opportunities to speak to each other.
- Open each lecture with learning goals and revisit those goals in summary at the end of class.
- Use spaced practice by revisiting key information throughout the semester.
3 Aspects of Engagement

3. Promote Self-Regulation
   - Develop self-assessment and reflection opportunities
   - Facilitate personal coping skills and strategies
How-to: Promoting Self-Regulation

- Ask students what was the most confusing concept from your lesson.
- Use a polling tool to have students vote on the best or most accurate explanation of a topic or concept.
- Give students examples of how to study.
II. Multiple Means of Representation
Multiple Means of Representation

- Ensure there are a variety of ways information can be presented
- Provide options for accessing information
  - Text
  - Audio
  - Video
- Customize the interface
  - Manipulate the font size and style
  - Enlarge an image
  - Use closed captioning
  - Amplify the sound
Representation for Deeper Understanding and Comprehension

- Chunk information into smaller units
- Present materials in a consistent outline/format
- Graphic Organizers/Overviews/Summaries
- Explain how new materials connect to previous materials
- Explain the relevance of the new materials
## Representation Example - Graphic Organizer

<table>
<thead>
<tr>
<th>Title/Main Concept</th>
<th>Connection to Prior Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Ideas (bulleted phrases) or Concept Map of Ideas</td>
<td>Key Vocabulary with Definitions</td>
</tr>
<tr>
<td>Two-Sentence Summary</td>
<td></td>
</tr>
<tr>
<td>Questions I Have</td>
<td></td>
</tr>
</tbody>
</table>

Source: ESCALA Educational Services Inc.
Representation Example

- Text versus Graphic

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection Papers</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>12%</td>
</tr>
<tr>
<td>Exams</td>
<td>18%</td>
</tr>
<tr>
<td>Discussions</td>
<td>10%</td>
</tr>
<tr>
<td>Final Project</td>
<td>35%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

PIE Chart Representing Grade Percentages
III. Multiple Means of Expression & Action
Multiple Means of Expression & Action (Assessment)

- Provide options for how students participate and achieve course objectives by:
  - Providing choices in assignments
  - Providing options in how students will be assessed
Self-Introduction in an Online Course

3. Self Introduction Written or Video Response

Please post an introductory response to the Self Introduction discussion board under the Discussions tab. You may write your response or create a video to introduce yourself to your classmates. If you decide to create a video, it should be no longer than 2 minutes. Dress appropriately for the video as well. A written response should be about three paragraphs.

- Name?
- Where are you from and what is your major?
- What do you expect to learn from this class to enhance what you already know or don’t know about nutrition?
- What are 3 foods you LOVE and 3 foods you don’t like or cannot eat?
- What do you think Nutrition is relevant to your future career as a Health Professional?

Video option: Please upload your video in Kaltura so everyone can watch it. The directions on how to create and post a video can be found under Course Documents which contain video tutorials, PDFs, and tips for recording. Here is a quick guide to how to post your video and how to use to your web cam to record - Kaltura Video Submission Tutorial

Annie Fuchs Student Video - http://www.kaltura.com/tiny/nceqh
Sample Assignment using UDL guideline Multiple Means of Expression

There are THREE CHOICES of assignments described below to accomplish the Module 1 objectives. You must choose ONE assignment, and notify me of your choice. Refer to the Course Schedule for the DUE Date. Details for EACH Assignment are provided under the Assignments tab.

1. **Learning Journal:** Summarize the key concepts from the week’s chapter(s) and write a short reflection on your learning from on how you have experienced those concepts in yourself and your life.

2. **Ten minute presentation:** prepare a ten-minute presentation, complete with visual (PowerPoint or similar) on a topic related to the course, and based on at least one source outside of the textbook (do not present material from the text).

3. **Video/Computer object:** Create a minimum 3-minute video or a computer-learning object illustrating a concept or idea related to the course. Base your content on research from the text or from another acceptable source. This assignment may be completed with a partner, and will be briefly presented to the class.
Tips for Assessments

- Provide a variety of assignments/assessments
  - Research paper, presentations, reflections journal, interviews, group projects, peer review, discussion, case studies, etc.
- Provide choices in how students complete assignments
- Include several low stakes assessments
  - Builds confidence
  - Increases self-efficacy
Tips for Assessments

- Provide timely (formative) feedback
- Provide grading rubrics
  - Ask students to evaluate themselves using the rubric
- Provide checklists
- Provide multiple examples of student work
UDL Application and Examples
Engagement Example: Journal Reflection

- Dr. Paul Swets’ Freshman Seminar course

**Reflection on Chapter One - Earth**

*Create Journal Entry*

**Journal Instructions**

Read chapter one *Earth* in the text, and write a brief paragraph about an experience where you or someone you know "understood something deeply" as the authors use the term. Describe what happened, and what was the result.
Hello All! Welcome to Week 2!

I’ve made a video outlining what we will be doing this week or you can read the info below (or both). See the link to the video at the bottom of this announcement.

This week we will be working on Module 1: Earth Structure and Materials, and starting with the subsection Week 2: Earth Structure and Building Blocks. We will be learning about what makes up the layers of the Earth and about minerals, which are the building blocks of rocks.

We will be doing the following:

- Reading from the textbook and a website
- Watching two (2) lecture videos for Structure of the Earth and Minerals. You can follow along and take your own notes by downloading the Powerpoint PDF.
- Completing two (2) assignments in Smartwork: Structure of the Earth and Minerals. So make sure you have signed up for Smartwork!
- Completing the first lab! Lab 1: Minerals. It’s best to have a computer with you so you can check the answers in Smartwork as you go along
Example: Course Announcement and Video

- Dr. Heather Lehto’s Earth Science course
Expression Example: Timeline Assignment

- Dr. Andrew Siefker’s Historical Survey for Math Educators course

**Timeline Project**

Continue your timeline in Preceden featuring the significant mathematicians and events in the development of mathematics. Your timeline will eventually cover from the ancient Greeks (c ~ Archimedes) to the modern era. Create a PDF of your work this week and attach it as a journal entry.
Expression Example: Fountain Project

- Dr. Aldo Piñon-Villarreal’s Fluid Mechanics course
Summary

- No Average Learner
- Learning Environments Need to Design to Consider the Needs of the Broadest Possible Range of Learners
- Equality is not the same as Equity
- Three Principles of Design
  - Engagement
  - Representation
  - Expression
References


- ESCALA Educational Services Inc., http://www.escalaeducation.com/
Resources

- CAST, http://www.cast.org/
- UDL on Campus, http://udloncampus.cast.org/home

Images:

Special Thanks

- Dr. Paul Swets
- Dr. Heather Lehto
- Dr. Andrew Siefker
- Dr. Aldo Piñon-Villarreal
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- Ms. Annie Fuchs