Diversity in the Classroom: Using Universal Design for Learning to Benefit All Students

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Session Objectives

1. Describe the origins of the UDL movement
2. Describe the neurological foundations of the current UDL framework.
3. Describe the role of technology in UDL
4. Identify the overall goal of UDL
5. Identify multiple techniques for integrating UDL guidelines into your courses
Historically, many buildings have been designed without accessibility needs in mind. This has meant poor (or no) accessibility for people with special needs. Retrofits are often expensive, time consuming, and ugly.
UD = Functionality + Accessibility + Aesthetics

- Enter universal design principles (Ronald L. Mace, NCSU)
- Designs should support a wide spectrum of users, right from the start
- Architects now design with universal design principles in mind
Universal Design for Learning

- Ann Meyer, David Rose, Grace Meo, Skip Stahl & Linda Mensing form The Centre for Applied Special Technology in 1984
- These same universal design principles can and should be applied to learning
- Retrofitting lessons and activities can be time consuming and even impossible
- Have universal design for learning in mind, right from the start
- Technology often plays a prominent role
- Has often been ignored in post-secondary
The Goal of UDL

- To reduce barriers and increase options for all students
- UDL can provide benefits to ALL learners, not just those with special needs. We all learn differently and have unique challenges:
  - Students with learning challenges
  - Students with physical challenges
  - Students who suffer from perfectionism and anxiety
  - English language learners
- There is no such thing as the “average learner”
- UDL principles generally come down to “good pedagogy”
Universal Design for Learning

**Recognition Networks**
The "what" of learning
How we gather facts and categorize what we see, hear, and read. Identifying letters, words, or an author's style are recognition tasks.

**Strategic Networks**
The "how" of learning
Planning and performing tasks. How we organize and express our ideas. Writing an essay or solving a math problem are strategic tasks.

**Affective Networks**
The "why" of learning
How learners get engaged and stay motivated. How they are challenged, excited, or interested. These are affective dimensions.

- Present information and content in different ways
- Differentiate the ways that students can express what they know
- Stimulate interest and motivation for learning
Researching UDL

- There is a wide body of evidence that supports the practices of UDL.
- [http://www.udlcenter.org/aboutudl/udlevidence](http://www.udlcenter.org/aboutudl/udlevidence)
- [http://www.udlcenter.org/research/researchevidence](http://www.udlcenter.org/research/researchevidence)
Goal..

In each of the three sections, choose one idea / tool / technique that you will integrate into the next course you teach.

By the end of the session, you should have three UDL goals.
A Note on Technology...

- Technology has a number of benefits that support the principles of UDL:
  - Versatility
  - Transformability
  - Capacity for being marked / annotated
  - Capacity for being networked

- While not all UDL techniques make use of technology, technology often plays a significant role in UDL practices
Multiple Means of Representation

1. Provide Multiple Means of Representation

1: Provide options for perception

1.1 Offer ways of customizing the display of information
1.2 Offer alternatives for auditory information
1.3 Offer alternatives for visual information

Note: More details about each section can be found here: http://www.udlcenter.org/aboutudl/udlguidelines/
Ideas for Post-Secondary - Multimedia

- Record lectures or posting in-depth explanations using a video recording tool such as YouTube (face) or Screencast-o-matic (slides)
- Consider adding close captions to the resulting video files, or adding transcripts to eClass (e.g. EDPY 303)
- Lecture capture your live class and posting the recordings on eClass
- Post your lecture scripts/notes (if you use them)
- Post descriptions of all non-text resources
Ideas for Post-Secondary - Text Considerations

- Ensure that all of your posted content is in a format that can easily be resized (e.g., web pages, PDFs are easy to resize, while MS Office documents are a bit less resize friendly)
- Show your students Readability
Ideas for Post-Secondary - Design and Usability

- In all of the learning materials you create, pay conscious attention to:
  - Text size
  - Font
  - Image, graphic placement
  - General layout
  - Color contrast
  - Volume
  - Length / pacing
  - User experience
Multiple Means of Representation

2: Provide options for language, mathematical expressions, and symbols

2.1 Clarify vocabulary and symbols
2.2 Clarify syntax and structure
2.3 Support decoding of text, mathematical notation, and symbols
2.4 Promote understanding across languages
2.5 Illustrate through multiple media
Ideas for Post-Secondary - Language Supports

- Create a glossary in eClass and having contributions worth marks
- Wherever possible, use both images and text to convey meanings
- Provide notes in copy-and-paste friendly formats (e.g., web pages, RTF or Microsoft Word) that allow for easy translation
- Structure group work (and group assignments) to support language learners
Ideas for Post-Secondary - Text-to-Speech

- Show your students text-to-speech utilities:
  - Chrome: [Chrome Speak](#), [Select and Speak](#), [Speakit](#)
  - Firefox: [Text to Voice](#), [Speak It](#), [Just Speak This](#), [Fox Vox](#)
  - Android: [Google Text-to-Speech](#) (and apps)
  - OSX & iOS: [VoiceOver](#) (and apps)
  - Windows: [Text to Speech](#) (up to W7), [Narrator](#) (W8 and up)
  - Anything: [VozMe](#)
Ideas for Post-Secondary - Unique Representations

- Present resources using tools that guide students through information such as Blendspace or VoiceThread
- Consider representing certain information in non-linear ways such as Prezis or Wikis
- Consider using concept maps to present information (and here, here, here)
- Consider using narratives to present information, such as photo essays, comic strips, digital stories and more...
- Consider using more than one of these tools for important information (e.g., both linear and non-linear representations, both text and multimedia representations, etc...)
Multiple Means of Representation

3: Provide options for comprehension

3.1 Activate or supply background knowledge

3.2 Highlight patterns, critical features, big ideas, and relationships

3.3 Guide information processing, visualization, and manipulation

3.4 Maximize transfer and generalization
Ideas for Post-Secondary -
Background and Tangents

- Consider using tools that allow students to annotate, ask questions and add background information to content.
- Use advance organizers that show students prior connections before each lecture.
- Be explicit with students about cross-curricular concepts (e.g., the intersections of arts and science, business and math, etc.)
Ideas for Post-Secondary - Organization & Structure

- Provide outlines to students that highlight, compare, and/or synthesize important ideas
- Structure assignments so that students do not only “regurgitate”, but instead, synthesize and represent what they have learned
- Consider using consistent iconography to support student notes and learning
- Create graphics and infographics to support ideas
- Be consciously aware of chunking, sequencing, information release, scaffolding and modelling when you plan your lessons
- Use mnemonics where at all possible
Ideas for Post-Secondary Instructional Methods

- Consider diversification of instructional methods
  - Instructor-centred: lecture, structured overview, modelling, guest lecture
  - Experiential learning: labs, practicums, role-play, simulations, community-service learning
  - Collaborative work: discussions, debates, structured group work, jigsaw, think-pair-share
  - Individual work: answer questions, graphic thinking, compare and contrast, etc.
  - Either collaborative or individual: case studies, problem-based learning, games, etc...
  - Authentic learning: experiential learning, authentic tasks, project-based learning
- Review concepts and links between concepts regularly
Share the Load...

Create assignments that have students do these things and take the load off you!

Having students synthesize and teach content can be a meaningful learning experience in and of itself...
Doing This Supports the Creation Of...

**Resourceful, knowledgeable learners**

- Students have a good foundation to build upon
- Students have strong comprehension with less effort
- Students can focus on higher order thinking
- Students can identify and use different sources and ways of representing knowledge
Discussion

• Reflection: Have you already used different types of technologies or techniques to implement this ideal of the UDL framework in your classroom?
• What one tool or technique from this section might you apply in your next course?
Multiple Means of Action and Expression

II. Provide Multiple Means of Action and Expression

4: Provide options for physical action

4.1 Vary the methods for response and navigation

4.2 Optimize access to tools and assistive technologies
Ideas for Post-Secondary
The Physical

- Provide options for navigating content
- Allow for alternative means of response (e.g. peers providing feedback with pen and paper, recordings, polling / iclickers)
- Provide alternatives for physically interacting with materials (e.g. a bio professor provided slide pictures instead of physically using a microscope)
- Place students in embedded environments to work with authentic tools
- Provide information about assistive technology tools (e.g. http://techmatrix.org)
Multiple Means of Action and Expression

5: Provide options for expression and communication

5.1 Use multiple media for communication
5.2 Use multiple tools for construction and composition
5.3 Build fluencies with graduated levels of support for practice and performance
Ideas for Post-Secondary Communication

- Consider using multiple media for communication. Present, illustrate, and reinforce new content, with materials such as:
  - Online resources, simulations, games, etc...
  - Videos such as TedTalks, TedEd, and YouTube
  - Use podcasting tools such as Soundcloud and PodOMatic
- Physical manipulatives
- Ebooks and digital stories
- Social media
- Consider having multiple people teach important concepts using different techniques and perspectives
- Consider encouraging students to share notes
Ideas for Post-Secondary Self-Expression

- Move beyond the essay!
- Allow students to express themselves with a wide range of mediums and tools, including:
  - Audio recordings and podcasts
  - Drawings and illustrations
  - Comic books and digital stories
  - Visual art mediums
  - Photography
  - Video
  - Concept maps
  - Wikis
  - Blogs
  - Maps
- Consider allowing these techniques even where they don’t clearly “fit” in your mind
Ideas for Post-Secondary Student Interaction

• Consider allowing choice in student expression (e.g. creating different discussion groups - review or advance sessions - and consider making discussion groups that are optional. Students may choose any, all, or none, as one of several ways to fulfill participation requirements)

• Consider alternate mediums for student interaction; either f-2-f or online
Ideas for Post-Secondary Student Feedback

- Consider providing formative feedback (feedback for learning) that is essential for growth
- Have students complete self and peer feedback opportunities where appropriate
- Consider student mentoring (e.g. setting up a volunteer support network of previous students with current students)
- Consider adding these as explicit goals in the course so that students have an explicit understanding of why it is important to their learning
Multiple Means of Action and Expression

6: Provide options for executive functions

6.1 Guide appropriate goal-setting
6.2 Support planning and strategy development
6.3 Facilitate managing information and resources
6.4 Enhance capacity for monitoring progress
Ideas for Post-Secondary Scaffolding Content

- Consider scaffolding student learning by providing outcomes, summaries, study guides, example questions, PPT slides, etc.
- Consider reducing scaffolding as students move through the course (e.g. review sessions, optional readings, etc.)
- Give students organizing clues in class (e.g. indicate key points or relationships between concepts)
- Provide a rationale of required readings and information about what they should be looking for while reading
- Consider walking students through a ‘mark-up’ of a text or reading from the discipline
Ideas for Post-Secondary Self-Regulation and Organization

- Consider providing some of the following organizational structures for students
  - Checklists
  - Planning templates for prioritization
  - Sequences (processes)
  - Schedules
  - Graphic organizers
  - Templates for data collection
  - Note-taking guides
- Use templates that guide self-reflection on course content
- Provide differentiated models of self-assessment and peer-assessment strategies (e.g., role-playing, video, etc...)
- Use checklists, rubrics, and examples of annotated student work to show students what you expect
Ideas for Post-Secondary Self-Directed Learning

- Consider developing student’s self-directed learning (SLD) skills by providing prompts to estimate perceived effort and levels of difficulty as well as examples of goal setting
- Add recommended time allotments to course activities
- Add difficulty ratings to course activities
- SDL skills need to be developed and practiced by:
  - asking questions,
  - critically appraising info,
  - identifying knowledge and skill gaps, and
  - reflecting critically on learning process and outcomes
- Prompt students to explain their work (e.g., portfolio with reflection)
Doing This Supports the Creation Of...

Strategic, goal-directed learners

- Students can set and manage their own goals
- Students can self-organize content
- Students that are less reliant on instructors for support
- Students can express themselves in multiple ways
- Students can choose appropriate methods for self-expression
- Students can interact with learning materials in ways that fit their learning styles
Discussion

• Reflection: Have you already used different types of technologies or techniques to implement this ideal of the UDL framework in your classroom?
• What one tool or technique from this section might you apply in your next course?
Multiple Means of Engagement

III. Provide Multiple Means of Engagement

7: Provide options for recruiting interest
7.1 Optimize individual choice and autonomy
7.2 Optimize relevance, value, and authenticity
7.3 Minimize threats and distractions
Ideas for Post-Secondary Motivation

- Consider varying types of activities according to the students’ level of perceived challenge
- Consider gamification techniques to increase motivation
- Consider chunking of activities to maximize motivation
- Create activities and resources that are:
  - culturally and socially relevant and responsive
  - (varying) ability appropriate
  - appropriate for different racial, cultural, ethnic, and gender groups
- Actively create a “safe space” in your classroom
Ideas for Post-Secondary Choice

- Consider allowing some degree of choice in all student assignments / activities
- Consider allowing students to design their own assignments and/or assessments
Ideas for Post-Secondary Authenticity

- Be explicit about connections between learning concepts and real-life activities
- Wherever possible, provide students with authentic and embedded real-life activities
- Provide students with opportunities to actually use the tools that are part of their learning processes
- Provide opportunities for students to reflect on and express connections to their real-life experiences
Multiple Means of Engagement

8: Provide options for sustaining effort and persistence

8.1 Heighten salience of goals and objectives
8.2 Vary demands and resources to optimize challenge
8.3 Foster collaboration and community
8.4 Increase mastery-oriented feedback
Ideas for Post-Secondary Outcomes and Goals

- Post learning outcomes regularly, clearly and in a way that is available to all students
- Consider a concept map of your course concepts to show relationships between them
- Be explicit about goals and outcomes; explain to students why the course goals and outcomes exist and why they are important
- Give students opportunity to provide input into the goals and objectives of the course
- Consider allowing students to set some of their own goals for the course learning (e.g., learning contracts)
- Consider modelling goal setting and chunking to students
- Keep your course calendar/schedule up-to-date so that students have a good idea where they are in the course
Ideas for Post-Secondary Challenging Students

● Use differentiation techniques to allow students to engage with activities at different levels
● Allow students to engage with materials in their own ways
● Minimize academic fallout for “risk takers” (assessment is key in this)
● Evaluate more than just “output”: Consider evaluating improvement, process, impact, etc...
Ideas for Post-Secondary Feedback Quality

- Provide feedback that:
  - Emphasizes growth
  - Encourages perseverance
  - Is frequent
  - Is specific
  - Is timely
  - Is appropriate in relation to their level of understanding
  - Highlights successes as much as gaps
  - Is interactive (e.g. have a discussion on how to make the improvements)
- Model feedback practices in class; consider evaluating something together in class.
Multiple Means of Engagement

9: Provide options for self-regulation

9.1 Promote expectations and beliefs that optimize motivation
9.2 Facilitate personal coping skills and strategies
9.3 Develop self-assessment and reflection
Ideas for Post-Secondary Reflection and Intrinsic Motivation

- Actively encourage self-reflection
- Actively encourage students to identify, set and work towards personal goals
- Ask questions that encourage deep reflection and critical engagement
- Make self and peer assessment part of your assignments. Support it with rubrics, exemplars, and consider allowing students to help create assessment criteria
- Consider discussing metacognition in class and the importance of developing this awareness
Ideas for Post-Secondary Student Mental Health

- Provide links and resources about student mental health
- Make your office hours accessible; consider doing them online via Google Hangout or Skype
Doing This Supports the Creation Of...

**Purposeful, motivated learners**

- Students can monitor their own progress
- Students can choose assignments/activities that suit their learning style
- Students can seek out appropriate support structures based on their needs
- Students can use appropriate coping skills and strategies
- Student can critically self-reflect
- Students understand the importance of metacognition
Expression and Engagement: An Example of How One Activity Reaches Both

- Each week, several students are responsible for taking notes of the lecture and discussion. The notes are made available to everyone and are required as part of students’ participation grades.
- This note taking process exemplifies UDL: First, the notes are more universally designed than the lecture itself; that is to say, different students capture and express very different content from the lecture and they represent it in very different ways.
- In addition, students are highly engaged with the notes, responding to student notes in online discussions on the course website and using them as examples during class.

Rose, et al. (2006)
Discussion

- Reflection: Have you already used different types of technologies or techniques to implement this ideal of the UDL framework in your classroom?
- What one tool or technique from this section might you apply in your next course?
Thank You!

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