The Multiple Means of Universal Design for Learning

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Agenda:

9:30 am. Welcome - Introduction to UDL and Instructional Design.

10:45 am. What Do You Teach?

12:00 pm. Lunch Break.

12:45 pm. How Do You Teach?
   How Is Accessibility Related to Your Teaching?

2:15 pm. What Have They Learned?

3:15 pm. Wrap-up.
AN INTRODUCTION TO UNIVERSAL DESIGN:
FOR LEARNING, AND FOR USE IN HIGHER EDUCATION.
In-“sight”…

We all are *variably* abled.
We all are *multi*-abled.
We all are *temporarily* abled.
We all are *redundantly* abled.
Ronald Mace: Universal Design

The design of products and environments…
• to be usable by all people,
• to the greatest extent possible,
• without the need for adaption or specialized design.
Emmert, M. A (2008) explains:

With UDL, “we strive to focus on the strengths of individuals – on what they can do rather than on what they cannot.”

“…this [UDL] approach proactively addresses the needs of people with the broadest range of characteristics during the design process.”
Diversity is diverse!

- Physical,
- Visual,
- Hearing,
- Learning,
- Attention,
- Communication.
Applying UD in HE is a journey.

People began to realize that the ‘problem’ of … access lay not in the [individual] … user but rather in the design…
Applying UD in HE is a journey:

- **Pre-enlightenment**: “My podcasts are not accessible to [student] because [s]he is deaf.”

- **Getting a clue**: “[Student] can not access my podcasts because I neglected to provide transcriptions.”
Enlightenment:

“[Student] can access my podcasts because

• I provide transcriptions to benefit students who are deaf and those whose native language is not mine,

• who wish to search through the content for specific topics, and

• who want to reformat the content into their own study materials.”
 UD in Higher Education…

• is a goal;
• is a proactive process that can be implemented in incremental steps;
• is accessible, usable, and inclusive;
• does not lower quality or standards.
The three principles of UDL are:

- multiple means of representation;
- multiple means of engagement;
- multiple means of expression.
In a UDL curriculum...

- **Materials (representation)** have a flexible format, supporting transformation between media and multiple representations of content to support all students’ learning.
- **Methods (engagement)** are flexible and diverse enough to provide appropriate learning experiences, challenges, and support for all students.
- **Assessment (expression)** is sufficiently flexible to provide accurate, ongoing information that helps teachers adjust instruction and maximize learning.
Burgstahler, S. E., & Cory, R. C.

What do you teach?

Representation…
…begins with presentation:
• Syllabus,
• Core concepts and skills.
(Re)Presentation:

How accessible, accommodating, and inclusive is your syllabus?

- Traditional?
- Exemplary?
List the elements of a house

• ?
• ?
• ?
• ?
• ?
• ?
• ?
• ?
Conceptualize those elements

- Firm foundation (explicit values & beliefs),
- Sturdily-built (codes, standards, etc.),
- Defined, welcoming entre` (contacts),
- “Embracing” walls (requirements),
- Windows for “enlightenment, (resources)”
- Roof (overarching philosophy),
- Accommodating interior (human-centric),
- Well-landscaped (parsimonious design).
“Transfer” to your syllabus

• Firm foundation
• Standards
• Defined entry
• Walls
• Windows
• Roof
• Interior
• Landscaping
A Rubric for Evaluating Your Syllabus

- Traditional,
- Exemplary.
Instructor Information:

• Traditional syllabus provides a *single* way to contact instructor for student questions or concerns;
Instructor Information:

Exemplary Syllabus:

• Syllabus offers varied ways to contact instructor for student questions or concerns, and provides a brief overview of the instructor.
Textbooks:

• Traditional syllabus lists required and recommended textbooks;
Textbooks:

Exemplary Syllabus:
Syllabus lists required and recommended textbooks with information about where they can be purchased. Electronic equivalent provided or texts ordered early to ensure timely conversion in an alternative format. A short statement is provided explaining why the textbook was selected.
Course Assignments (*explanation*):

- Traditional syllabus identifies all learning objectives, course requirements/assignments, and appropriate due dates;
Course Assignments (*explanation*):

Exemplary Syllabus:

- Syllabus clearly explains and links all learning objectives, course requirements/assignments, and appropriate due dates.
Course Assignments (examples):

- Traditional syllabus provides information on how to complete major course projects, activities or papers;
Course Assignments *(examples)*:

Exemplary Syllabus:

- Syllabus provides *detailed* guidance on how to complete major course projects, activities or papers *and offers links* to examples and illustrations as appropriate.
Course Assignments (*submission*):

- Traditional syllabus requires students to submit course assignments in a single or specific way;
Course Assignments (submission):

Exemplary Syllabus:

• Syllabus provides multiple ways for all students to submit course assignments.
Course Assignments *(grading)*:

- Traditional syllabus stipulates grading criteria for all course requirements;
Course Assignments (grading):

Exemplary Syllabus:

• Syllabus stipulates grading criteria for all course requirements, offers detail on items requiring further clarification, and links to instructor grading rubrics.
Course Calendar:

- Traditional syllabus has no or minimal information in calendar form;
Course Calendar:

Exemplary Syllabus:

- Syllabus and Learning Management System (LMS) utilize a course calendar to specify and periodically reinforce due dates, highlighting key course events and activities.
Student Resources:

• Traditional syllabus contains no information about student-oriented campus resources;
Student Resources:

Exemplary Syllabus:

• Syllabus contains general information about student-oriented campus resources, highlights specific additional resources that may be unique to your course, and adds links.
Format \textit{(length)}:

- Traditional syllabus provides basic information in a few pages;
Format *(length)*:

Exemplary Syllabus:

- Syllabus is *carefully crafted* to provide sufficient information and guidance yet clearly links to additional resources and examples avoiding a text heavy document.
Format (accessible):

• Traditional syllabus is offered in hardcopy form on the first day of class;
Format (accessible):

Exemplary Syllabus:
• Syllabus is made available to students as an accessible electronic document and in hardcopy form.
Format *(visible)*:

- Traditional syllabus is offered in hardcopy form on the first day of class;
Format (visible):  

Exemplary Syllabus:

- Syllabus is offered and posted in multiple ways so students can access information easily and repeatedly. Key items are periodically reviewed.
Side-by-side comparison:

- Kim’s traditional;
- Kim’s enhanced/exemplary.
Comments?

Questions?
(Re)Presentation:

15-weeks x twice/week = 30 sessions. What is the key concept or skill you want to teach each class session?
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<th>MEASURABLE OUTCOME</th>
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<td>Planning Sheet</td>
<td>Label / explain tool on Midterm / List skills</td>
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<td>Social Recreation Curve</td>
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Complete your own for a selected course.
Engagement:

How (what methods) do you teach the concepts and skills?

- Physical classroom space,
- Andragogy and / or pedagogy?
Environment = Barriers?

“...an unacceptable physical environment will likely have a negative effect on group functioning.”

Neuroscience + Architecture

“Built structures are more than functional spaces that we navigate; they actually affect us in deep physical, emotional, and even spiritual ways.”

John Eberhard (2005)
“Socially catalytic” spaces

Space has become a strategic lever for stimulating a focus on student learning.

Space matters…
And how we develop space matters.

Bickford and Dittoe (2006)
The Question is…

If we were designing classrooms and other learning spaces for the first time today…

What would they look like?
Classrooms now are... Sawyer, H. T. (1999).

...multimedia, high-tech instructional spaces, not simply square rooms with a blackboard, and should contain:

- Tiered floors, similar to a theater;
- Counter-style desk surfaces with space for books, laptop, and papers;
- Comfortable, moveable chairs to promote accessibility;
- Hook-ups for microphone, computer, electronic device power;
- A control room in back;
- Media stations at front of the room, including monitor, computer, audiovisual controls;
- Combination screen/marker boards on the front wall.
Assessment of attributes:

- Students were asked to sort 44 statements representing design components or elements representative of both typical and ideal classrooms...
- ...according to the relative importance of each component in the creation of an “ideal” classroom.
Results: room characteristics

- 37 students (88.1%) reported that the desks in all or most of their classrooms were arranged in rows facing the front of the room;
- 38 students (90.5%) reported that all or most of those seats had desktops permanently attached to chairs;
- all or most classes attended by 27 students (64.3%) were conducted in rooms lacking windows through which to view the outside environment,
- 33 students (78.5%) attended classes in rooms having no or few wall elements (pictures, posters, maps),
- 25 students (59.5%) reported that all or most of their classrooms had flat floors (not tiered),
- 28 students (66.7%) reported that all or most of their classrooms were carpeted.
- (n = 44; note that not all subjects answered every question)
Results:

The 5 least important components:

- 40. couches or sofas
- 41. skylights
- 42. natural sounds
- 43. waterfall/fountain
- 44. stage area
Results:
The 5 most important components:
• 5. windows to outside
• 4. technology hook-ups
• 3. personal space
• 2. climate control
• 1. comfortable chairs
Compared to Sawyer’s list:

• Tiered floors, similar to a theater;
• Counter-style desk surfaces with *space for books, laptop, and papers*;
• *Comfortable, moveable chairs* to promote accessibility;
• Hook-ups for microphone, computer, electronic device power;
• A control room in back;
• Media stations at front of the room, including monitor, computer, audiovisual controls;
• Combination screen/marker boards on the front wall.
Correlations:

- Between “desk design” and “ability to learn” (.505),
- Between “comfort level” and “ability to learn” (.558),
- “comfortable chairs” ranked #1.
Natural items ranked:

- waterfalls, / fountains #43
- Sounds of nature #42
- Skylights to sky # 41
Personal comfort ranked:

• Personal space #3,
• Climate / temperature control #2,
• Comfortable chairs #1.
Conclusions

• Comfortable seating does not mean “lounging around,”
  (“sofas or couches” was rated 40 of 44)
• Correlation between comfort and learning supports rankings,
• “Technology statements” placed only once within the top 5,
• Only 1.5 of Sawyer’s 7 criteria listed among the top 5 desirable characteristics.
Bottom line:

Human-ness trumps technology AND nature,

My classrooms do not “measure-up” (do YOURS?).
Site visits:

- “Typical” traditional classroom.
- Incubator Classroom.
UDL...

...and andragogy.
Andragogy coined:


Andragogy constructed:

The elements to be joined are the stem andr- of the Greek word aner "man", and the Greek word agogos "leader".

Andragogy defined:

“The art and science of leading adults.”

The goals of andragogy:

Because we are still taught in our youth what we *ought* to know rather than *how* to keep finding out,

...andragogy helps individuals to develop the attitude that learning *is* a lifelong process and to acquire the skills of self-directed learning.

Malcolm Knowles
Andragogy’s assumptions:

• Adults can learn,
• Learning is an internal process,
• There are superior conditions of learning and principles of teaching.
(Andragogy and) pedagogy:

• Most of what is known about learning has been derived from studies of learning in children and animals.

• Most of what is known about teaching has been derived from experience with teaching children under conditions of compulsory attendance.

• And most theories about the learning-teaching transaction are based on the definition of education as a process of transmitting the culture.
Andragogy (and pedagogy):

• Adults have more to contribute to the learning of others; for most kinds of learning, they are themselves a rich resource for learning.

• Adults have a richer foundation of experience to which to relate new experiences (and new learnings tend to take on meaning as we are able to relate them to our past experience).

• Adults have acquired a larger number of fixed habits and patterns of thought, and therefore [may] tend to be less open minded.
Implementing andragogy:

- Creating the learning climate,
- (Self)-Diagnosis of needs,
- The [inclusive] planning process,
- Conducting [shared] learning experiences,
- (Self)-Evaluation of learning.
Pedoagogy + andragogy =

Remembering to “play,” while empowering the players.
Name It, ‘Xplain It, Frame It, Game It!

Accommodating Learning Styles within a UDL Context
Ready ?!? 

Who wants to play catch ?!??
How did you just react…?

• OH, NO…please don’t throw !
• YES, PLEASE…throw it to me !
• I’m going to watch and wait, to see what everyone else does.
• Hmmm…what’s he really up to ?
UDL principles encourage:

• multiple means of representation;

• multiple means of engagement;

• multiple means of expression.
Ability is diverse!

- Physical,
- Visual,
- Hearing,
- Learning,
- Attention,
- Communication.
UDL and Learning Styles:

Relies on multiple means of ENGAGEMENT...

...through multiple means of representation and expression.
Learning style theory:

- People take-in information in different ways (perception),
- and decide how to engage on different bases (judgment).
Perception aspects

SENSING

INTUITION
Judgment aspects

THINKING

FEELING
The combined aspects form four learning “styles”:

- Sensing
- Intuition

- Thinking
- Feeling

- Mastery
- Interpersonal
- Understanding
- Self-Expressive
A completely balanced learning style profile:
I, M, U, and S all = 56.25  (range 0 - 125)
The average learning style profile for all subjects combined: I=58.8, M=53.8, U=64.2, and S=48
subject with lowest I-score: $I=18$, $M=81$, $U=107$, and $S=19$
subject with lowest M-score: I=72, M=7, U=49, and S=97
Subject with lowest S-score: I=76, M=40, U=92, and **S=17**
Subject with lowest U-score: I=87, M=42, \textbf{U}=25, and S=71
The learning style “gap”: the two extreme individual subjects’ profiles overlap 10%
Due to this “gap,” UDL uses:

• multiple means of representation;
• multiple means of expression;
• multiple means of engagement.
Name It, ‘Xplain It, Frame It, Game It!

Accommodating Learning Styles within a UDL Context
Name It!

Name It, ‘Xplain It, Frame It, Game It!
Name It!

To engage students who like to solve puzzles...

- a statement or question is presented,
- along with clues of some kind.
Name It!

How does an organization “guide” itself?

G_________ V_________
M_________
O_________ P_____________
O____________________
Name It!

How does an organization “guide” itself?

GOALS                  VISION
MISSION               PHILOSOPHY
OUTCOMES              OBJECTIVES
Name It!

Arrange the words in a sequence / list from most general to most detailed:

• ______________________
• ______________________
• ______________________
• ______________________
• ______________________
• ______________________
Name It!

Arrange the words in a sequence / list:

- PHILOSOPHY
- VISION
- MISSION
- GOALS
- OBJECTIVES
- OUTCOMES
Name It!

The concept is named:

PVMGO/O!
‘Xplain It!
Name It,
‘Xplain It,
Frame It,
Game It!
PHILOSOPHY:

• WHAT do we value and believe, and WHY do we continue to value and believe it?

• VALUES AND BELIEFS are essential and enduring concepts or truths that guide behavior toward achieving desirable outcomes...
PHILOSOPHY:

An organization’s core is stable over time, a reliable base.
VISION:

• HOW will the future be different by upholding and applying our values and beliefs?

• Leaders subscribe to the notion that the future can be shaped; it is not predetermined…
VISION...

...evokes inspiration and forward thinking among staff and supporters.
MISSION:

• WHAT is it that we actually DO to achieve our vision?

• A dream (vision) cannot be realized without concrete action…
MISSION:

A mission provides an organization’s reason for being, and the motivation to get the job done – stated in the present tense.
GOALS:

• HOW will we accomplish the intermediate steps or stages that will help us complete our mission?

• A timeline is developed, enumerating major targets and completion dates.
OBJECTIVES:

• What am I going to do *this moment* to accomplish my individual and organizational goals?

• The moment-to-moment, day-by-day duties required to meet goals, and WHO is going to do them...
OBJECTIVES:

• Require a detailed script...

• listing coordinated actions,

• and the particular individuals responsible for implementing them.
Outcomes:

• Organizations must “prove” that they have accomplished their mission and achieved their vision.

• Outcomes are measurable results (statistics) that show what has been done, and what has changed.

• (e.g. an increase in participation or satisfaction over a period of time).
Frame It!
Name It,
‘Xplain It,
Frame It,
Game It!
Frame It!

Express PVMGO/O in a visual way:

- Diagram,
- Sketch,
- Drawing,
- Cartoon,
- Storyboard.
PVMGO

ARE OUTCOMES CONGRUENT WITH THE PHILOSOPHY?

PHILOSOPHY (WHY)
VISION (WHEN, WHERE)
MISSION (WHAT)
GOALS (HOW)
OBJECTIVES (WHO)
OUTCOMES (PROOF)
Game It!

Name It,
‘Xplain It,
Frame It,
Game It!
Game It!

Create an activity that uses physical objects and / or requires people to move around – to be active:

• Playing,
• Demonstrating,
• Patterning or arranging,
• Acting-out a scenario.
Game It!

• 12 volunteers,
• Assemble at the front of the room.
• After 12 pieces of paper have been given to one of the volunteers…
• Arrange selves into 2 parallel rows.
• The front row is composed of the concept’s letters in proper order,
• The back row matches word explanations to their respective letters.
Expression:

How do you know that your students actually have learned the key concepts and skills? (Testing and assessment).
Pre-game prep:

- Each person picks one letter from the front table.
- Kim will draw letters to determine team order,
- Questions will be assigned in that order.
It’s time to play... 

The UDL Game !!!!

• Although we will have fun, our intent is serious

• (engagement and expression !)
The UDL Game !!!!

- Each person will receive a problem or question within the context of a game

- The “general” rules of that game apply (specifics may not)
The UDL Game !!!!

- Only the designated person may answer the question,
- Each person works independently of the other participants.
The UDL Game !!!!

- That person is answering on behalf of the whole group.
- Called-out or whispered answers by others will negate the answer and the class loses the points.
The UDL Game !!!!

• If that person answers incorrectly, the individual loses all those points,

• Another person may attempt an answer to recover HALF the lost points for the group.
List of games

- Frame It / Game It !!!
- Matching,
- Jeopardy,
- Millionaire,
- Losing your marbles,
- Deal or no deal (extra credit).
JEOPARDY !!!

REMEMBER TO PHRASE YOUR ANSWERS IN THE FORM OF A QUESTION !!!

(e.g., “What is...?”)
Complete the phrase: 10

The “D” in UDL stands for:
Game It!

- All people assemble in the front of the room,
- *Arrange* members to show how the “PVMGO/O” concept is “shaped”,
- *Distribute* the letters and words to explain the concept’s components.
Means and methods:

**Mean**
- representation
- engagement
- expression

**Example**
- learning style
- game show
- syllabus
Millionaire

- 1 “lifeline”: can ask one pre-selected person in the class.
- 1 “all-call”: can ask any classmate.
- 1 “eliminate 50%.
- Any used option is not used again.
Millionaire: Round 1

Which of these is not part of LIST?

A. Table
B. Structure
C. Iron
D. Link
Losing your marbles

- Within 1-minute, the person selects 5 letters.
- Kim writes one letter in each marble.
- Kim transfers correct letters to blanks. Wrong letters: MINUS 2 points each.
- The person attempts to solve the puzzle: 1-minute.
- If puzzle is solved within 1-minute: +5 points.
- If no answer, continue to guess letters.
- DO NOT CALL-OUT THE SOLUTION UNTIL READY.
Losing your marbles:

In contrast to “accommodation,” which often is corrective, UDL tries to be…

___  ___  ___  ___  ___  ___  ___  ___ ___

(nine letters)
Extra Credit...

Deal...

Or no deal:
Rules:

- Person views the question,
- 10 secs to decide deal, or no deal,
- No deal: the question and its points go away,
- Deal: 1-minute to answer.
- Wrong answer loses those points.
- Answer is worth 5 points.
Deal, or no deal:

“we strive to focus on the strengths of individuals – on what they ______________, not on what they __________________.”
The Multiple Means of Universal Design for Learning

Elizabeth Tu, Instructional Designer, Center for Faculty Development and Support.
Kim S. Uhlik, CASA Faculty-in-Residence for Accessible Instructional Materials, and Assistant Professor in Hospitality, Recreation, and Tourism.