First Steps Towards Implementing Universal Design for Learning to Support Equitable Assessments

SAS Teaching Meetup

Presenter: Chelsea Uggenti

Based on conference proceedings paper by Nikolas Zelem, Diana Skrzydlo, Chelsea Uggenti

March 1, 2024

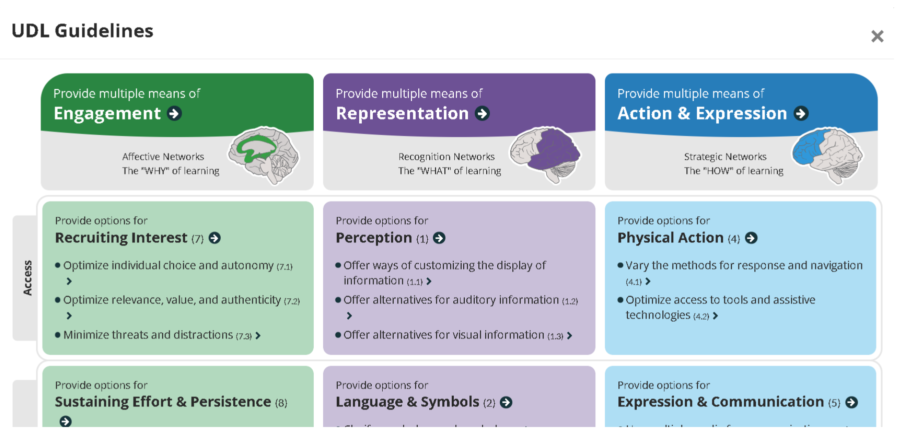
UNIVERSITY OF WATERLOO | FACULTY OF MATHEMATICS

Outline

- Overview of literature
- List of 9 basic UDL changes
  - Supporting information from literature review
  - Examples of implementation from case studies

Universal Design for Learning (UDL)

- CAST (2018) defines UDL as “a framework to improve and optimize teaching and learning for all people”
- They suggest providing multiple means of
  - Engagement
  - Representation
  - Action and Expression



From [CAST (2018)]

Universal Design of Assessments (UDA)

- Lazarus et al. (2022), define the goal of UDA as being to “create tests that present an accurate measure of the knowledge and skills of diverse student populations”
- UDA tends to deal with the more technical aspects of assessments and less with the surrounding supports

Other Acronyms

- UDL seems to be the most broadly used but there are several others:
  - Universal Design of Assessments (UDA)
  - Universal Design of Instruction (UDI)
  - Universal Instructional Design (UID)
  - Universal Design for Education (UDE)

UDL for Assessments in Post-Secondary Statistics Courses

- Papers on empirical research into UDL for assessments are not very common
  - Even more so in a post-secondary STEM context
- Literature is mostly descriptive in nature

A General Note

- Try a “plus one” approach (Tobin, 2019)
  - Make small improvements where possible
  - Avoid trying to restructure an entire course
- Focus on areas of the course where students
  - Have many questions
  - Make mistakes on assessments
  - Need ideas explained in several ways

List of 9 Basic UDL Changes

1. Group Work/Collaboration Options
2. Flexible Grading
3. Flexible Deadlines
4. Extra Resources on Tests
5. Extra Time on Tests
6. Self-Assessment/Diagnostic Questions
7. Clarity of Expectations
8. Choice of Topic
9. Choice of Deliverable Medium

1. Group Work/Collaboration Options

- Providing students with the option to work in pairs or small groups
  - Reduces grading burden
  - Encourages authentic collaboration
- Group tutorial activities were used in a medium-sized probability models course to help students with difficult concepts
- Kumar and Wideman (2014) found that students responded positively to having the choice to collaborate on projects

2. Flexible Grading

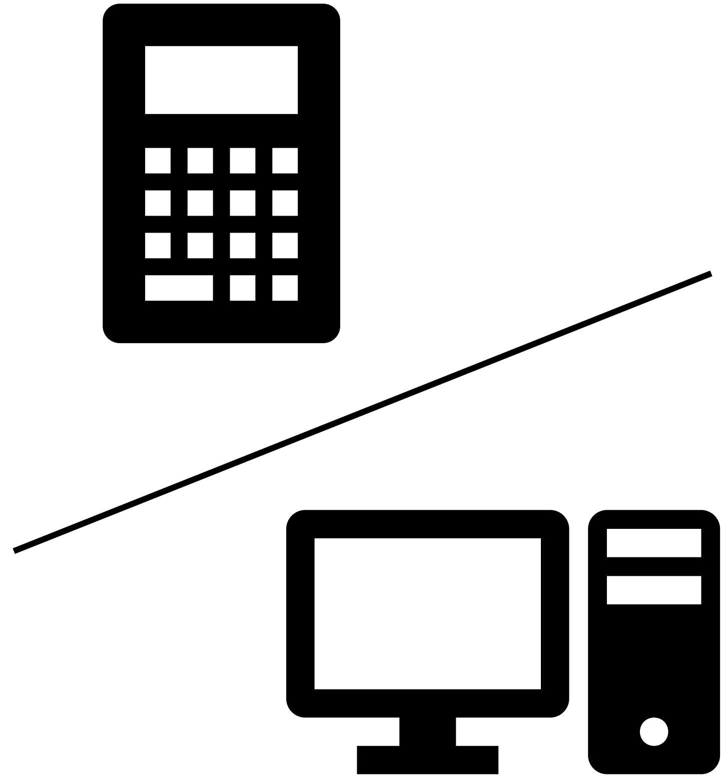
- Can take many forms:
  - Multiple attempts for assessments
  - Best X of Y of an assessment type
  - Multiple possible grading schemes
  - Shifted weight based on performance
- Kumar and Wideman (2014) offered optional assignments to reduce final exam weight

3. Flexible Deadlines

- "Slip" or "grace" days for assignments
  - Only a handful in a term
- Extensions:
  - Automatic
  - Only if students look for help

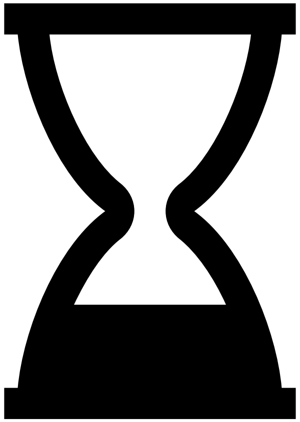
4. Extra Resources on Tests

- Helpful Technology
  - Calculator
  - Dictionary
  - Computer/word processor
- Memory aids
  - Reference/formula sheet
  - Students don’t prepare effectively for open book tests (Block, 2012)



5. Extra Time on Tests

- Provide additional time to reduce stress-related barriers
  - Design shorter tests if finding time is difficult
- Make the change for all students
  - Less complicated
  - Ensures no students are left behind



6. Self-Assessment/Diagnostic Questions

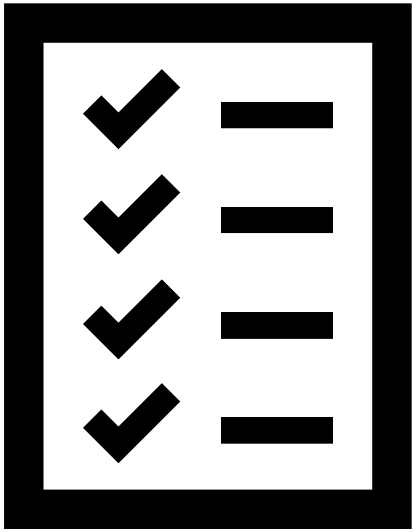
- Questions for students to check their preparedness
  - Common misconceptions
  - Previously used questions
  - List of requisite skills
  - “Knowledge check” quizzes
- Kumar and Wideman (2014) offered study guides including
  - Topic outlines
  - Lists of key concepts
- Nieminen and Pesonen (2020) also found self-assessment practices to be beneficial

7. Clarity of Expectations

- Nieminen and Pesonen (2020) found course rubrics and exemplars to be valuable to students
- Black et al. (2015) found that students need clearly defined course objectives
- “Sometimes students are not really motivated to learn if they’re not sure what the expectations are” (Kumar and Wideman, 2014)

7. Clarity of Expectations

- Rubrics/Exemplars
- Course objectives
- Question design
- Clear instructions for
  - Submitting assignments
  - Working with new software



8. Choice of Topic

- Different levels:
  - List of potential topics
  - Any topic within specific parameters
  - Any topic at all
- Dahlstrom-Hakki and Wallace (2022) gave students data collected from or by the students in the course

9. Choice of Deliverable Medium

- Can the learning outcomes of an assessment be demonstrated in multiple ways?
- For oral communication, consider
  - In-person presentation
  - Recorded presentation
- For written communication, consider
  - Report
  - Poster
  - Pamphlet

Summary

- These suggestions are meant to maximize impact without placing too much of a burden on instructors
- This is not a comprehensive literature review
  - There are other strategies that are just as effective
- Our goal was to give instructors a place to start
- Try some of these out!

UNIVERSITY OF WATERLOO

FACULTY OF MATHEMATICS