Universal design for learning (UDL) and inclusion of students with disabilities: It is about a choice!

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Universal design “proactively builds in features to accommodate the range of human diversity”

(McGuire et al., p. 173)
PARADIMG SHIFT

“This shift led to a simple, yet profound realization: the burden of adaptation should be first placed on curricula, not the learner.”

(CAST, 2011, p.3)
Universal design for learning (UDL) is not only a practical framework but also educational philosophy and pedagogy used to remove barriers to learning for students with disabilities.
Universal

Curriculum accessible, usable and understandable by everyone.

Individual needs, strengths, weaknesses, and interests are recognized.
Design

Products and environments are designed in a way that makes them usable by the greatest number of people without adaptations and special accommodations.
Learning
Three networks

1. Recognition networks: what representation recognition

2. Strategic networks: how action & expression skills & strategies

3. Affective networks: why engagement caring & prioritizing
Principles of UDL

1. Multiple means of Representation
2. Multiple means of Expressions
3. Multiple means of Engagement

Making learning accessible to all
Multiple presentation:
A verbal description, a picture, a tactile representation, a digital file read by computer, an audio file.

Helps students recognize cues and patterns
Multiple methods of expression:
An essay, a photo story, a model, a painting, a sculpture, a blog, an oral presentation, a concept map.

Master strategies for action
Multiple ways of engagement:
Optimize individual choice and autonomy, minimize threats and distractions, foster collaboration and community, feedback, self-regulation, self-assessment.

Engage with learning
# Universal Design for Learning Guidelines

## I. 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

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

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

## 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

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

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

## 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

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

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

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More ideas [http://www.udlcenter.org/implementation/examples](http://www.udlcenter.org/implementation/examples)
Policy Environment

• USA
  – Individuals with Disability Education Act (2004); UDL specifically mentioned
  – Higher Education Opportunity Act (2008) the first legal definition of UDL

• Canada
  – No specific mention of UDL in any law or government policy
`(24) Universal design for learning.--The term `universal design for learning' means a scientifically valid framework for guiding educational practice that–
``(A) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and
``(B) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient.".
Evidence

- UDL relies on the body of evidence from different disciplines (neuroscience, the learning sciences, and cognitive psychology)
  - foundational research of UDL, research on the UDL principles, research on promising practices, and research on implementation of UDL
Evidence

- Use of specific UDL strategies are well supported by evidence
- Implementation research of the overall UDL approach is in early stages and growing
A look into the literature

Search for original research articles in English, published in peer reviewed journals from 1998-2014

Key words: universal design for learning, universal design, online, technology, digital, distance education

- Over 1500 articles reviewed for keywords and titles resulting in identification of 58 articles for abstract review

- 28 descriptive theoretical or conceptual pieces and editorials
- 20 were articles on use of technologies in education with no explicit link to UDL
- 10 articles used UDL as a framework

Inclusion criteria:
1. UDL is a framework.
2. Clear methodology section.
3. Inform UDL theory or practice.

10 articles identified for full review
- 8 face to face
- 2 online environment
Results

• Eight articles on the application of UDL in the face to face environment (Abell et al., 2011; Courey et al., 2013; Katz, 2013; Kortering et al., 2008; Lombardi & Muray, 2011; Schelly et al., 2011; Spooner et al., 2007; McGhie-Richmond & Sung, 2013)

• Two articles on the application in the online environment (Basham et al., 2010; Simoncelli & Hinson, 2008).
Computer Mediated Communication in the Universal Design for Learning Framework for Preparation of Special Education Teachers

James D. Basham
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University of Cincinnati

This study investigated the Universal Design for Learning (UDL) framework as a basis for a bi-university computer mediated communication (CMC) collaborative project. Participants in the research included 78 students from two special education programs enrolled in teacher education courses. The focus of the investigation was on exploring the outcomes of the UDL-based design that used CMC tools. Results indicated that the UDL framework was important to the overall design, students’ participation times varied, and CMC tool use emerged in two separately important ways. Findings also showed improved instructor ratings for project courses as compared to other courses. Information related to the instructional design and implications for further research are discussed.
There is no difference in perception of various online strategies between students with and without disabilities.

Andrew Simoncelli
Janice M. Hinson
College Students’ With Learning Disabilities
Personal Reactions to Online Learning

This case study investigates the strategies used to deliver online course content to postsecondary students with learning disabilities who were enrolled in a history course. The purpose was to examine whether course design modifications had any impact on students' attitudes or performance, and if so, which were most beneficial to students with learning disabilities. This study uses Universal Design for Learning (UDL) methods that can be used for all students, not just those with learning or physical disabilities, and includes how proper use of UDL can benefit these learners in the ever changing online learning environment. The findings reflected no apparent differences between the 2 students with learning disabilities and 3 without disabilities in regard to the use of the instructional media. However, some of the most important instructional modifications that might have benefited students with learning disabilities were inaccessible due to technical problems. Results might have differed in a course where students did not experience these difficulties. The results do, however, provide insight into students' reactions to specific modifications and present researchers and course designers with recommendations for improving the experiences of all students in online courses.
<table>
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<tr>
<th>Basham, J. D., Lowrey, K., &amp; de Noyelles, A. (2010)</th>
<th>To explore an instructional design that used UDL holistically to proactively plan for CMC as a means of student representation, expression, and engagement through reflection on key issues in special education.</th>
<th>Mix method using course log in data and content analysis of online contributions and artefacts 78 special education pre-service teachers enrolled in online courses at two universities</th>
<th>UDL-based instructional design that utilized simple CMC tools met the diverse needs of the student population. With minimum guidelines, the project encouraged students to obtain understanding, express knowledge, and engage others in multiple ways. Results indicated that the students' wants and needs varied including the timing, frequency, and type (text, sound, picture) of participation. Students used both synchronous and asynchronous forms to express their personal and professional views.</th>
<th>The results of the study indicate that UDL is a viable framework for planning a collaborative CMC project for students enrolled in special education teacher preparation coursework. The user centered design framework provided students the opportunity to gain understanding, share experiences, and express course knowledge in authentic ways. While more research is needed, designing elements that allow for meaningful yet flexible ways for students to gain and express knowledge, as well as engage with others, appears to be important to the successful integration of CMC tools in the learning framework.</th>
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<td>Simoncelli, A., &amp; Hinson, J. M. (2008)</td>
<td>To investigate the impact that various online instructional strategies have on postsecondary students' perceptions of their learning environments.</td>
<td>Qualitative study 5 students with and without disabilities</td>
<td>The results of these modifications were mixed for both groups of students and showed no indication of helping out one group more than the other. Overall, the students in the study tended to find the component to be either helpful or not helpful regardless of disability, age, or background.</td>
<td>Online environment can put barriers for learning as reported by the participants of this study. However, it also offers many opportunities to explore electronic alternatives to the existing curricula using the concepts behind UDL. This requires that online instructors are trained in UDL.</td>
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UDL, digital and networked learning in HE: Opportunities for inclusive teaching, learning and research.
References


Acknowledgements

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Conseil de recherches en sciences humaines du Canada
UDL ON CAMPUS
Universal Design for Learning in Higher Education

when it comes to learning variability is the rule not the exception. Universal Design for Learning (UDL) is an educational framework that guides the design of learning goals, materials, methods, and assessments as well as the policies surrounding these curricular elements with the diversity of learners in mind.

For more information go to UDL in Higher Ed

View this video with downloadable transcript on the About UDL page.

COURSE DESIGN
Plan and design curriculum with variability in mind.

MEDIA & MATERIALS
Use digital media to create flexible learning environments.

ACCESSIBILITY AND POLICY
Ensure learning opportunities are inclusive of all.
A non-profit leader in education, CAST works to improve opportunities and outcomes for all individuals through Universal Design for Learning.
Founded in 2009, the National UDL Center supports the effective implementation of UDL by connecting stakeholders in the field and providing resources and information.
Durham College Centre for Academic & Faculty Enrichment CAFE.
Described and Captioned Media Programs a library of over 4,000 free-loan described and captioned media titles.

Wikipedia's "Simple English" entries scaffold the reader by using simple language, by chunking the information, and by providing links for further inquiry.

Spell checkers support composition.

Google Earth's capability to zoom in to closely examine a place visually is a unique opportunity to explore a subject using imagery rather than relying solely on text.
Mindmaps as an online visual thinking tools to capture ideas, organize information, diagram processes, and create concise written documents.

VoiceThread is audiovisual tool for sharing and commenting on images or video files by using an image or video, a written or audio commentary for further inquiry.

Skype to foster collaboration among students across classrooms, districts, states, and countries.

Encouraging students to explore a topic of their choice increases engagement.
Blogging to support the development of students' self-assessment skills.

Videos and podcasts to express what they have learned.

More ideas [http://www.udlcenter.org/implementation/examples](http://www.udlcenter.org/implementation/examples)