Universal Instructional Design
CCDI Conference
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Overview
- Brain Research and Learning
- History of Universal Design
- What is UID?
- Principles of UID
- Why Implement UID?
- Roadblocks - Supports
- Questions?

Brain Research and Learning
3 Primary Networks

1. Recognition Networks
   Gathering facts.
   - How we identify, categorize, what we see, hear and read
   - Identifying letters, words
   - an author's style
   - recognition tasks.
   - The “what” of learning
Brain Research and Learning

2. Strategic networks

- Planning and performing tasks.
- Organize and express our ideas.
- Writing an essay or $\times 9$

The “how” of learning

Brain Research and Learning

3. Affective Networks

- How students are engaged, motivated, challenged, excited or interested.

The “why” of learning

Source: Centre for Applied Special Technology, 2007

History of Universal Design

Origins in architecture
- Curb cut
- Automatic doors
- Ramps
- Elevators with Braille signage
- Wider door frames
- Water Fountains
Definition of Universal Design

- is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (Ron Mace)

Universal Design History

- Centre for Universal Design at North Carolina State University
- Group of architects, product designers, engineers, and environment design researchers
- Developed 7 principles for universal design

Product Design

- Equitable Use
- Flexibility in Use
- Low Physical Effort
- Simple and Intuitive
- Tolerance of Error
- Perceptible Information
- Size and space for approach and use
### Product Design

<table>
<thead>
<tr>
<th>Equitable Use</th>
<th>Instruction Design Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility in Use</td>
<td>• Read or listen to a description</td>
</tr>
<tr>
<td></td>
<td>• Right-left handed scissors</td>
</tr>
<tr>
<td>Simple and Intuitive</td>
<td>Equipment with red/green buttons</td>
</tr>
<tr>
<td>Perceptible Information</td>
<td>Multimedia with captions</td>
</tr>
<tr>
<td></td>
<td>• Talking Thermometer</td>
</tr>
<tr>
<td>Tolerance of Error</td>
<td>“undo” button computer</td>
</tr>
<tr>
<td>Low Physical Effort</td>
<td>• Door opens automatically</td>
</tr>
<tr>
<td></td>
<td>• Lever door handles</td>
</tr>
<tr>
<td>Size and space for approach and use</td>
<td>• Wheelchair accessible turnstiles</td>
</tr>
</tbody>
</table>

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**Cell phone**

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**Georgian College**

Jim Bryson

- **Universal Instructional Design In Postsecondary Settings, An Implementation Guide.**
- **Learning Opportunities Task Force, Ministry of Training, Colleges and Universities**
University of Guelph

- Project to make “universal design” principles applicable to third level education
- 7 Principles of Universal Instructional Design

Universal Design

- Is Not One Size Fits All
- The term "universal" means universal access to your courses, not a universal curriculum.

Acronyms

- UID - UDL - UDI
- Universal Instructional Design (UID)
- Universal Design for Learning (UDL)
- Universal Design for Instruction (UDI)
7 Principles of UID
Instruction Materials and Activities should:

1. Be accessible and fair.
2. Provide flexibility in use, participation and presentation.
3. Be straightforward and consistent.
4. Be explicitly presented and readily perceived.
5. Provide a supportive learning environment.
6. Minimize unnecessary physical effort or requirements.
7. Ensure learning spaces that accommodate both students and instructional materials.

Principle 1

Instructional materials and activities should be accessible and fair.

Definition
- Instruction is designed to be useful and accessible by students with diverse abilities, respectful of diversity and with high expectations for all students.
Principle 1

Examples
• organizers
• lecture outlines
• key points
• announcements
• Invite students with disabilities to meet with professors individually to review their specific needs

Principle 2

Instructional materials and activities should provide flexibility in use, participation and presentation.

Principle 2

Definition
• Learning is most useful when it is multimodal. Materials are presented in multiple forms. Students have multiple ways of demonstrating their knowledge
Principle 2 - Examples

• Presentations in verbal, text, images, audio

• Variety of teaching strategies – discussion/problem solving exercises

• Exercises and quizzes posted on-line

Principle 2 - Examples

• Choice of assignments – report, project, portfolio, take-home test.

• Choice of topics and sometimes due dates

• On-line discussion groups

• Group work to foster peer-to-peer learning

Principle 3

• Instructional materials and activities should be straightforward and consistent
Principle 3

Definition
There needs to be consistency between course objectives and how the course is presented.

Principle 3

Examples
- Lectures - consistent with course objectives
- Headings in a consistent manner
- Concept maps for complex topics
- Simple language
- Grading Rubrics
Principle 4
Instructional materials and activities should be explicitly presented and readily perceived.

Principle 4 - Definition
Maximize the clarity of each medium of communication and present information through multiple channels.

Principle 4 - Examples
- Face the class when speaking – use a well modulated voice
- Summary of key points a few days before class – notes after class
- Website - choice of file formats
- Professors - assistance with new teaching strategies
Principle 4 - Examples

- PowerPoint (20pts) instead of handwritten notes
- Clearly identify major topics
- Avoid lingo, culture specific language, or too many acronyms

Principle 5

- Provide a Supportive Learning Environment

Definition

- Provide an inclusive environment, that is welcoming and encouraging to students and allows for learning from mistakes
Principle 5

• Posted regular office hours

• E-mail capability

• Channels for help - a help room

• Include marginalized students

• Share teaching philosophy
Principle 5
- Examples
  - drafts of assignments
  - Think, pair, share activities ***
  - Collaborative Learning***

Think, Pair, Share
- Memorize the following list of letters
  R T R N R H A V S N A I Y E S I Y W E S I G
  A O T O R U T L A C H N T N L P R J I A R G
  T O F C E S C T S R W Y R S B W Y G M S T

Clue
- Clue # 1
Clue

• # 2 Clue

[Image of a reindeer]

Audio Clue

• [http://www.youtube.com/watch?v=9XbN-fSUk](http://www.youtube.com/watch?v=9XbN-fSUk)

Collaborative Learning

• Case Study Review
• Group work
Principle 6

Instructional materials and activities should minimize unnecessary physical effort or requirements.

Principle 6

Definition
Eliminating any unnecessary or not relevant physical effort

Principle 6 – Examples

Course websites:
• minimize clicking, scrolling or hunting for information – include “return to top of page”
• Inform guest speakers of needs of students
• Lighting, physical space, entrances and exits
Principle 6 – Examples

- Labs - work in pairs
- On-line library reserve or Web CT for reading material - students access from home

Principle 7

• Instructional materials and activities ensure learning spaces that accommodate both students and instructional materials

Principle 7

Definition
• Learning happens in virtual and physical space. The space must be designed to accommodate diverse learners
Principle 7- Examples

• Space that fits the professor’s teaching techniques and subject area
• Technology match between course and exercises
• Large and small group activities possible
• Videotape class - review

Universal Instructional Design

• Challenges faculty to incorporate flexibility in instructional methods and materials to serve diverse learners

How do you teach?

• Adults remember
• 90% of what they say as they do a task
• 70% of what they say and write
• 50% of what they hear and see
• 30% of what they see
• 20% of what they hear
• 10% of what they read
Technology in our lives

- List all the new technology you have used in the last 10 years.
Technology in our lives

- Bank machines
- Cell phones
- Blackberry
- Speech recognition technology
- Banks
- Airline reservation systems
- Phone systems

Technology in the Classroom

- Digital media offers feasible foundation for UID
- Versatile
- Transformability
- Networked

Why Change?
Why Change?

- Change is central to college cultures
- New laws (AODA 2005)
- New demographics – Millennial student
- New Educational Theories

Why Change?

- Fewer shared icons
- Entire population of diverse learners

Who benefits from Universal Instructional Design?

- EAL
- Millennials
- Mature Learners
- Cultural Difference - Values
- Students with disabilities
- International Students
- Learning Styles
Why incorporate U.I.D?

- Multiple means of representation
  Offers students various ways of acquiring information

- Multiple means of expression
  Provides alternatives to students for demonstrating what they know

- Multiple means of engagement
  Taps into student’s interests, challenges and motivates them

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Change
3 perspectives

Reason for change
- Inclusive Learning Environment

Process of Change
- Enthusiastic Faculty willing to Change
  - Act as guides

Content of Change
7 Principles of UID

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Universal Design for Student Services


- Video
Roadblocks

Supports Needed

Quotation
• “The greatest good you can do for another is not just to share your riches but to reveal to him his own.” (Benjamin Disraeli)
**Contact Person**

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  613 544 5532 extension 1524

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**Resource List**

CAST – Universal Design for Learning, University of North Carolina  
http://www.cast.org  
Facultyware – University of Connecticut  
http://facultyware.uconn.edu  
Student Case Studies on Universal Design  
http://www.washington.edu/dui/Faculty/Strategies/Academic/International/UD_case_studies  
Universal Design: Applications in Postsecondary Education, University Of Arkansas in Little Rock.  
http://www.uark.edu/pace/ud/index.htm  
Universal Design, University of Washington  
http://www.washington.edu/dui/Resources/udesign.html

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**Resource List**

Universal Instruction Design in Postsecondary Settings, An Implementation Guide, Jim Bryson  
Universal Design for Instruction, Sheryl Burgstahler, Ph.D., University of Washington  
http://www.washington.edu/dui/Brochures/Academics/Instruction.html  
Universal Design Faculty Room  
http://www.washington.edu/dui/Faculty  
University of Guelph, Lecture Guide
Resource List

Universal Design for Instruction, Sheryl Burgstahler, Ph.D., University of Washington
http://www.washington.edu/doi/brochures/Academics/Instruction.html

Universal Design Faculty Room
http://www.washington.edu/doi/Faculty

University of Guelph, Lecture Guide
http://www.tss.uoguelph.ca/projects/uid/guides/Lectures UIDprinc.html

University of Guelph, UID Resources
http://www.tss.uoguelph.ca/uid/uidresources.html.