Making Space:

Using Universal Design for Learning (UDL) to Create Accessible and Inclusive Environments for Students with Neurodevelopmental Disorders (NDD)- Part 1
Agenda

Part 1 (morning)
• Objectives
• Introduction
• General Access and Barriers
• NDD
• Intro to UDL
• UDL framework
• UDL and NDD

Part 2 (afternoon)
• Welcome
• UDL Test
• UDL & Goal Setting
• UDL in practice
• Lesson Audits
• Case Practice
• Summary
• Questions
Objectives

Following this session, participants will leave with:

1. ...an understanding of the primary elements of UDL and how it can enhance learning for you, your students, and your colleagues and staff. (Part 1 & 2)

2. ...knowledge of the links between support needs of individuals with neurodevelopmental disabilities and UDL components. (Part 1)

3. ...ideas of how to incorporate UDL into your daily practice (Part 2)
About me
Everyday Access and Barriers

Take a minute to jot down your main events from the week.
  • where did you go, what did you do, why did you do it, how did it go?
<table>
<thead>
<tr>
<th>Task</th>
<th>Why</th>
<th>How</th>
<th>Complete/Accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>School ready</td>
<td>Help build routine (easier in future), social time</td>
<td>Varies- usually make breakfast, set up lunch packs</td>
<td>Kids leave on time and ready</td>
</tr>
<tr>
<td>Exercise</td>
<td>Health, break, news</td>
<td>running</td>
<td>Heartrate, sweat, made it around the route</td>
</tr>
<tr>
<td>Work (editing a paper)</td>
<td>$, interest</td>
<td>Reading and typing in work document</td>
<td>No highlighted errors, read through, eventual peer review</td>
</tr>
<tr>
<td>Pay for car parking (errands)</td>
<td>To avoid fine, social norm, convenience</td>
<td>Use credit card to receive ticket</td>
<td>Receive ticket- transaction complete</td>
</tr>
</tbody>
</table>
Access and Barriers

Access
• Able to engage as expected in nearly all activities
  • routine
  • natural to me
  • some are designed for me

Barriers
• Parking- card not read; need to find another spot
Traditional Approaches and Assumptions
## Examples

**Instruction**
- Classroom lecture
- Assigned readings
- Educational video
- Group projects

**Assessment**
- Class discussion
- Multiple choice test
- Written product
- Presentation/speech
- Worksheets
- Group projects

**Motivation**
- Intrinsic
- Post-secondary focused
- Ready-to-learn
Neurodevelopmental Disabilities

• “... behavioural and cognitive disorders that arise during the developmental period that involve significant difficulties in the acquisition and execution of specific intellectual, motor, language, or social functions...” ICD-11

• “...are characterized by developmental deficits that produce impairments of personal, social, academic, or occupational functioning.” DSM-5

examples: attention-deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), communication disorders, specific learning disorder, motor disorders and intellectual disability
General Learning Profiles for Students with NDD

May have difficulty with:

• internal motivation/ engagement or initiation in planned learning tasks
• taking in, understanding, synthesizing information via text, verbalization, or representative images
• expressing their full understanding/ knowledge of course content
Student Samples

Ella, 12
Autism

Lucas, 8
ADHD

Alice, 14
Intellectual Disability
Tools for Inclusion and Accessibility
‘Universal Design’

• Coined by architect Ronald Mace (1941-1998)
• Move from accessibility add-ons to initially accessible design
• focus on accessibility to the greatest degree possible to occur at the start of planning

"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."
Ontario Hall, Queen’s University (built 1903)
Mitchell Hall, QU (built in 2019)
Universal Design for Learning

*extension of UD for teaching and learning*

- framework for inclusive learning from conception
- builds off of cognitive learning networks
- scaffolded integration
- primary focus on goals and open accessibility to all learners
**UDL and Cognitive Networks**

- **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.
UDL Basic Elements
Multiple means of...

Engagement

Representation

Action & Expression
Promotes flexibility for learning through multiple means of:

- **Engagement**: incorporation of student interests and motivations to increase learning interest

- **Representation**: variety in content presentation to increase access and clarity

- **Action & Expression**: diversity in means of demonstrating and using knowledge
Promotes a range of depth

Access

Build

Internalize
UDL Goal
Successful learner -to- Expert learner

Know a lot + Know how to do a lot + Love learning = Expert Learner
UDL research

• Increased access and engagement with general curriculum
• Improved student academic and social outcomes (Ok et al., 2017)
• Improved learning process (Capp, 2017)
• Research on specific UDL elements (see: https://udlguidelines.cast.org/more/research-evidence#checkpoints)
The Universal Design for Learning Guidelines

**Provide multiple means of Engagement**
- Affective Networks
  - The "WHY" of Learning

**Provide multiple means of Representation**
- Recognition Networks
  - The "WHAT" of Learning

**Provide multiple means of Action & Expression**
- Strategic Networks
  - The "HOW" of Learning

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**Provide options for Recruiting Interest**
- Optimize individual choice and autonomy
- Optimize relevance, value, and authenticity
- Minimize threats and distractions

**Provide options for Perception**
- Offer ways of customizing the display of information
- Offer alternatives for auditory information
- Offer alternatives for visual information

**Provide options for Physical Action**
- Vary the methods for response and navigation
- Optimize access to tools and assistive technologies

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**Provide options for Sustaining Effort & Persistence**
- Heighten salience of goals and objectives
- Vary demands and resources to optimize challenge
- Foster collaboration and community
- Increase mastery-oriented feedback

**Provide options for Language & Symbols**
- Clarify vocabulary and symbols
- Clarify syntax and structure
- Support decoding of text, mathematical notation, and symbols
- Promote understanding across languages
- Illustrate through multiple media

**Provide options for Expression & Communication**
- Use multiple media for communication
- Use multiple tools for construction and composition
- Build fluencies with graduated levels of support for practice and performance

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**Provide options for Self Regulation**
- Promote expectations and beliefs that optimize motivation
- Facilitate personal coping skills and strategies
- Develop self-assessment and reflection

**Provide options for Comprehension**
- Activate or supply background knowledge
- Highlight patterns, critical features, big ideas, and relationships
- Guide information processing and visualization
- Maximize transfer and generalization

**Provide options for Executive Functions**
- Guide appropriate goal setting
- Support planning and strategy development
- Facilitate managing information and resources
- Enhance capacity for monitoring progress
Multiple Means of Engagement

Engagement

Provide options for:

- Recruiting Interest
- Sustaining Effort and Persistence
- Self-regulation
## Multiple Means of Engagement

<table>
<thead>
<tr>
<th>Recruiting Interest</th>
<th>Sustaining Effort and Persistence</th>
<th>Self-Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimize individual choice and autonomy</td>
<td>Heighten salience of goals and objectives</td>
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<tr>
<td>Optimize relevance, value, and authenticity</td>
<td>Vary demands and resources to optimize challenge</td>
<td>Facilitate personal coping skills and strategies</td>
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<td>Minimize threats and distractions</td>
<td>Foster collaboration and community</td>
<td>Develop self-assessment and reflection</td>
</tr>
<tr>
<td></td>
<td>Increase mastery-oriented feedback</td>
<td></td>
</tr>
</tbody>
</table>
How can Lucas benefit from Multiple Means of Engagement?

- Learning how to set and work toward personal goals
- Student control and choice
- Develop self-reflection and coping strategies
Multiple Means of **Representation**

Provide options for:

- Perception
- Language, Expressions, & Symbols
- Comprehension
Multiple Means of Representation

<table>
<thead>
<tr>
<th>Perception</th>
<th>Language, Expressions, &amp; Symbols</th>
<th>Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer ways of customizing the display of information</td>
<td>Clarify vocabulary and symbols</td>
<td>Activate or supply background knowledge</td>
</tr>
<tr>
<td>Offer alternatives for auditory information</td>
<td>Clarify syntax and structure</td>
<td>Highlight patterns, critical features, big ideas, and relationships</td>
</tr>
<tr>
<td>Offer alternatives for visual information</td>
<td>Support decoding of text, mathematical notation, and symbols</td>
<td>Guide information processing, visualization, and manipulation</td>
</tr>
<tr>
<td></td>
<td>Promote understanding across languages</td>
<td>Maximize transfer and generalization</td>
</tr>
<tr>
<td></td>
<td>Illustrate through multiple media</td>
<td></td>
</tr>
</tbody>
</table>
How can Alice benefit from Multiple Means of Representation?

- Variation for accessing age-appropriate texts
- Incorporation of multi-media
- Support in language/vocabulary
- Focus on background knowledge
Multiple Means of **Action & Expression**

Provide options for:

- **Physical Action**
- **Expressive Skills & Fluency**
- **Executive Function**
## Multiple means of Action & Expression

<table>
<thead>
<tr>
<th>Physical Action</th>
<th>Expression &amp; Communication</th>
<th>Executive Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vary the methods for response and navigation</td>
<td>Use multiple media for communication</td>
<td>Guide appropriate goal setting</td>
</tr>
<tr>
<td>Optimize access to tools and assistive technologies</td>
<td>Use multiple tools for construction and composition</td>
<td>Support planning and strategy development</td>
</tr>
<tr>
<td></td>
<td>Build fluencies with graduated levels of support for practice and performance</td>
<td>Facilitate managing information and resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enhance capacity for monitoring progress</td>
</tr>
</tbody>
</table>
How can Ella benefit from Multiple Means of Action & Expression?

- Variation in her access to class discussion and presenting her ideas
- Information management support
- Access to composition support tools
UDL and NDD

• internal motivation/ engagement or initiation in planned learning tasks = Engagement

• taking in, understanding, synthesizing information via text, verbalization, or representative images = REPRESENTATION

• expressing their full understanding/ knowledge of course content = ACTION & EXPRESSION
References and Resources


UDL Guidelines: https://udlguidelines.cast.org/

UDL på Svenska:

- https://udlguidelines.cast.org/binaries/content/assets/udlguidelines/udlg-v2-2/udlg-graphicorganizer-v2-2-svenska.pdf
- https://udlguidelines.cast.org/binaries/content/assets/udlguidelines/udlg-v2-2/udl-text-version-swedish.pdf