Enhancing the Participation and Ensuring the Right to Education for Children with Intellectual Disability: Developing Capacities and Opportunities (EPERE)

Open Seminar

Universal Design for Learning (UDL) in Inclusive Education: A Framework for supporting diverse learners

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Why do we need UDL?
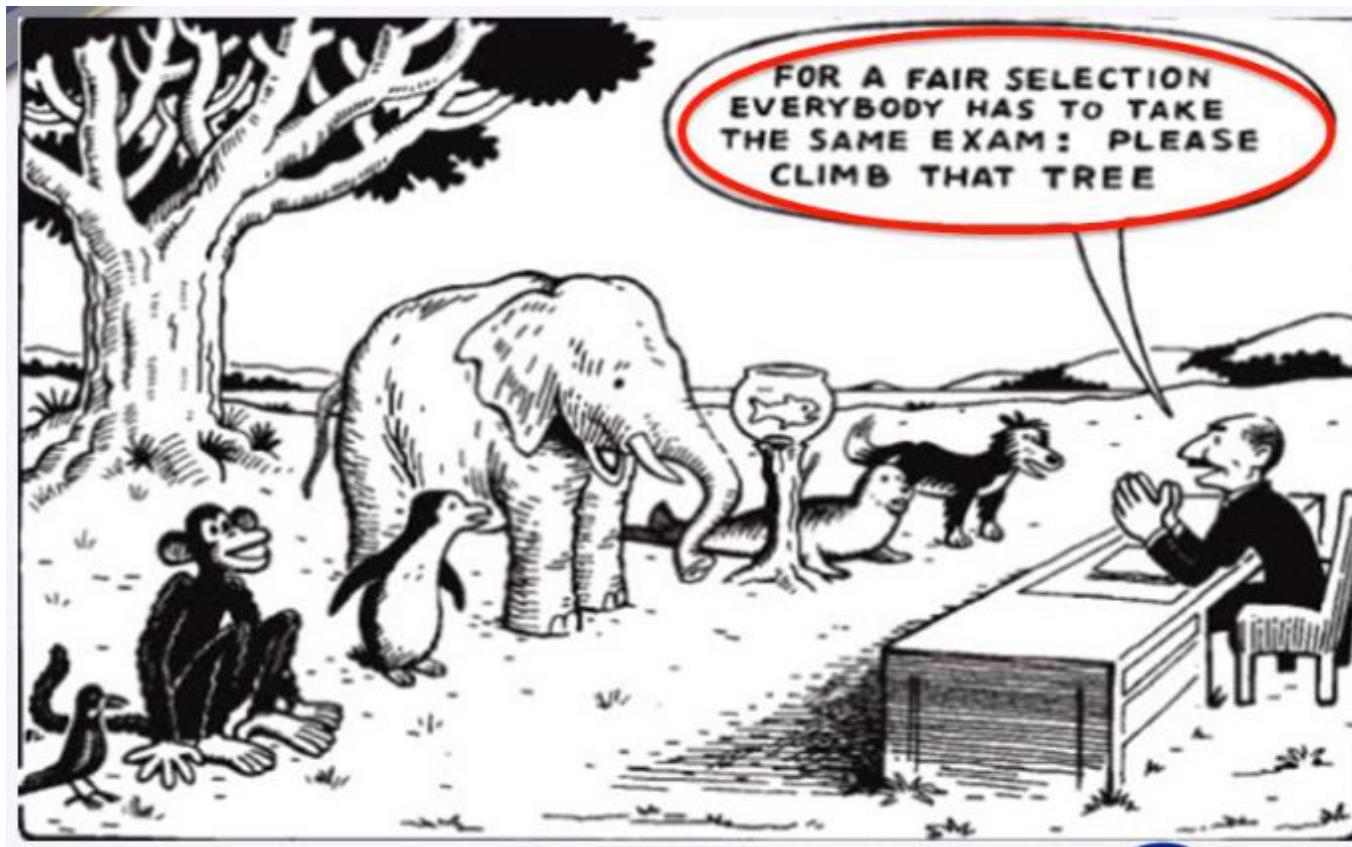
General Trends in Inclusive Education (2010-2017)
(Buchner et al.2020)

- Increase in inclusion
- Invisibility of students with ID
- ID as a "key population" in Special schools
- Decrease in exclusion rate
- Causes of exclusion for students with ID?

Table 1: *Inclusion rates of students with Special Educational Needs (SEN) and Intellectual Disabilities (ID) in mainstream schools across selected European countries for the school years 2010/2011 and 2016/2017*

Country	SEN in Mainstream 2010/2011 (%)	SEN in Mainstream 2016/2017 (%)	ID in Mainstream 2010/2011 (%)	ID in Mainstream 2016/2017 (%)
Germany	25.26	43.39	4.07	11.85
Poland	41.76	56.88	43.82	49.76
Czechia	54.23	68.16	5.04	13.57
Ireland	80.23	79.45	24.89	30.21
Italy	99.03	99.12	-	-
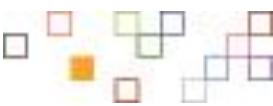
Why exclusion persists?

(Buchner et al.2020)

1. Dual systems of education
2. Lack of teacher preparation
3. Ableist assumptions
4. Invisibilisation in data and policy

What countries say they support?

What actually happens in schools?

Why UDL matters for students with Intellectual Disabilities?

„Students with intellectual disabilities don't need a different school. They need schools that work differently"

UDL is a framework that doesn't ask: *'How can this student fit into my lesson*?'

but rather:

'How can my lesson flex to fit all students — including those with ID?'
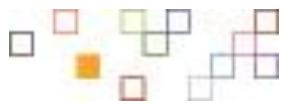
Understanding learner variability

„Variability is the dominant feature of the nervous system. Like fingerprints, no two brains are alike.”

Źródło: https://inclusive.tki.org.nz/guides/universal-design-for-learning/learner-variability-matters/ [access: 12.12.2021]
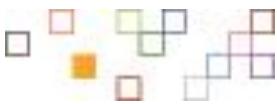
What is learner variability?

Learner variability is the idea
that all individuals are unique in how they learn.

Learner variability is a fundamental premise of
Universal Design for Learning (UDL)

Source: Rose, T. (2016). *The End of Average: How to Succeed in a World that Values Sameness*. San Francisco, CA: HarperOne;
Rose, T. Rouhani, P., & Fischer, K. (2013). *The Science of the Individual.* Mind, Brain and Education, 7(3), 152-158.

The neuroscience behind UDL
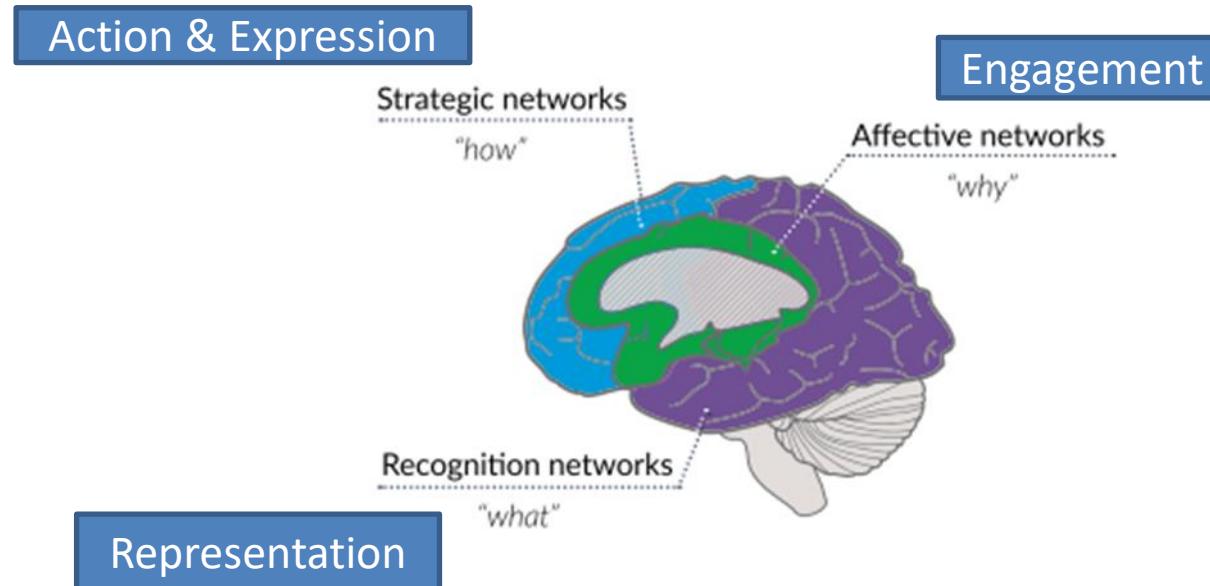
Action & Expression

Engagement

Strategic networks
"how"

Affective networks
"why"

Recognition networks
"what"

Representation
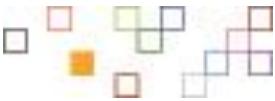
What is Universal Design for Learning (UDL) ?

- **UDL** is a way of thinking about teaching and learning that helps give all students an equal opportunity to succeed.

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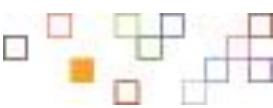
The origins of UDL

The principles of Universal Design for Learning (UDL) emerged as a result of the **universal design** movement in architecture and product development that began in the early 1980s.

Ronald Mace – Design Pioneer and Visionary of **Universal Design (UD)**

His core message was: *'If we design for the most marginalised users, we make better experiences for everyone.'*

Supporting Inclusion: Accommodation vs. Universal Design

Everyone is being "treated the same"

Some level of accommodation

Universal design

1.

2.

3.
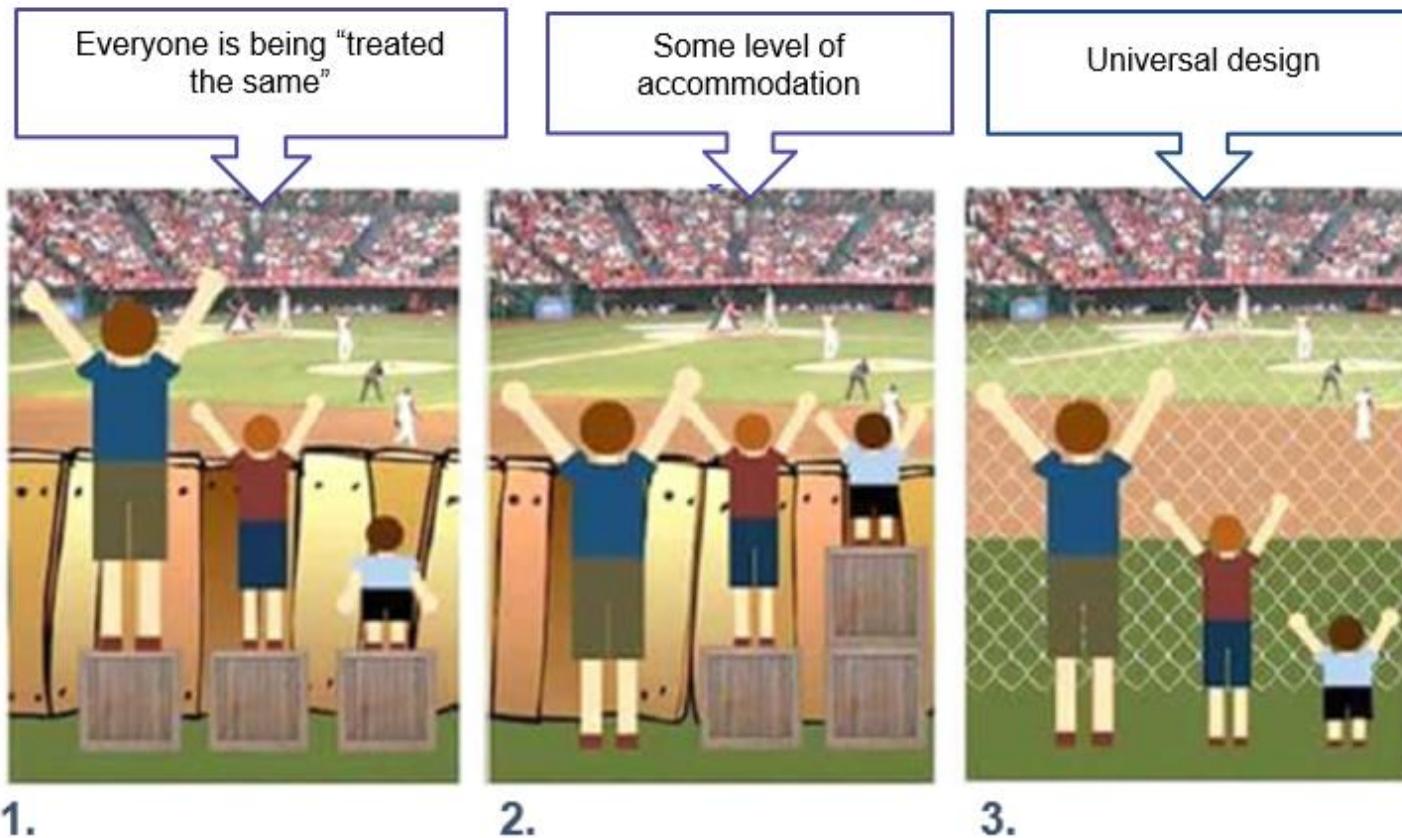
Fig. 3. Difference between accommodation and universal design

Universal Design - summarized

→ It's not one size fits all – but alternatives.

→ Designed from the beginning, not added on later.

→ Increases access opportunities.

What does UD have to do with education besides letting ALL students in the door?
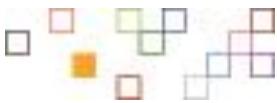
Barriers are not in the learner — they're in the design

Dr. David Rose

The Center for Applied Special Technology (CAST) believes that... "barriers to learning are not, in fact, inherent in the capacities of learners, but instead arise in learners' interactions with *inflexible* educational goals, materials, methods, and assessments."

Teaching Every Student in the Digital Age, p. vi

UDL implementation provides the opportunity for all students to access, participate in, and progress in the education curriculum by reducing barriers to instruction.

So what do we change?

Universal is not about finding one way to teach all students!

The goal of UDL is to use a variety of teaching methods to remove any barriers to learning.
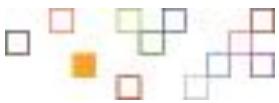
UDL Principles
(The Center for Applied Special Technology, CAST)

1.

2.

3.

| Multiple Means of Engagement	Multiple Means of Representation	Multiple Means of Action/Expression
Stimulate motivation and sustained enthusiasm for learning by promoting various ways of engaging with material.	Present information and content in a variety of ways to support understanding by students with different learning styles/abilities.	Offer options for students to demonstrate their learning in various ways (e.g. allow choice of assessment type).
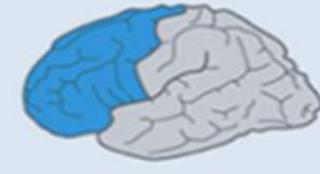
Source: www.cast.org
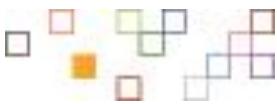
# UDL Principles

Representation Principle 1	Action and Expression Principle 2	Engagement Principle 3
Presenting information and course content in multiple formats so that all students can access it	Allowing students alternatives to express or demonstrate their learning	Stimulating students' interests and motivation for learning in a variety of ways

Examples for students with ID:
- Use picture symbols or real objects alongside spoken and written words.
- Offer video demonstrations or live modeling of tasks.
- Read-aloud content with visual/tactile supports (e.g., pointing, signing).
- Pre-teach key vocabulary using physical prompts or illustrations.
- Use interactive whiteboards or apps with visual and auditory reinforcement.

Examples for students with ID:
- Use response cards, picture boards, or touch screens instead of oral answers.
- Accept pointing, selecting, or gesturing as valid forms of response.
- Allow art-based outputs like drawings, clay models, or collage.
- Enable the use of assistive devices (e.g., tablets with communication apps).
- Offer physical or movement-based responses (e.g., act out a concept).

Examples for students with ID:
- Begin lessons with a favourite song, short video, or hands-on activity.
- Offer meaningful choices (e.g., where to sit, which tool to use).
- Use peer partners or adult mentors to build social engagement.
- Tie lessons to students' lived experiences (e.g., teaching numbers with snack items).
- Provide consistent routines and emotional cues for transitions.

UDL Guidelines

UMCS

Provide multiple means of **Engagement** ➔	Provide multiple means of **Representation** ➔	Provide multiple means of **Action & Expression** ➔
Affective Networks — The "WHY" of learning	Recognition Networks — The "WHAT" of learning	Strategic Networks — The "HOW" of learning

Access

Provide options for Recruiting Interest (7) ➔
- Optimize individual choice and autonomy (7.1) ›
- Optimize relevance, value, and authenticity (7.2) ›
- Minimize threats and distractions (7.3) ›

Provide options for Perception (1) ➔
- Offer ways of customizing the display of information (1.1) ›
- Offer alternatives for auditory information (1.2) ›
- Offer alternatives for visual information (1.3) ›

Provide options for Physical Action (4) ➔
- Vary the methods for response and navigation (4.1) ›
- Optimize access to tools and assistive technologies (4.2) ›

Build

Provide options for Sustaining Effort & Persistence (8) ➔
- Heighten salience of goals and objectives (8.1) ›
- Vary demands and resources to optimize challenge (8.2) ›
- Foster collaboration and community (8.3) ›
- Increase mastery-oriented feedback (8.4) ›

Provide options for Language & Symbols (2) ➔
- Clarify vocabulary and symbols (2.1) ›
- Clarify syntax and structure (2.2) ›
- Support decoding of text, mathematical notation, and symbols (2.3) ›
- Promote understanding across languages (2.4) ›
- Illustrate through multiple media (2.5) ›

Provide options for Expression & Communication (5) ➔
- Use multiple media for communication (5.1) ›
- Use multiple tools for construction and composition (5.2) ›
- Build fluencies with graduated levels of support for practice and performance (5.3) ›

Internalize

Provide options for Self Regulation (9) ➔
- Promote expectations and beliefs that optimize motivation (9.1) ›
- Facilitate personal coping skills and strategies (9.2) ›
- Develop self-assessment and reflection (9.3) ›

Provide options for Comprehension (3) ➔
- Activate or supply background knowledge (3.1) ›
- Highlight patterns, critical features, big ideas, and relationships (3.2) ›
- Guide information processing and visualization (3.3) ›
- Maximize transfer and generalization (3.4) ›

Provide options for Executive Functions (6) ➔
- Guide appropriate goal-setting (6.1) ›
- Support planning and strategy development (6.2) ›
- Facilitate managing information and resources (6.3) ›
- Enhance capacity for monitoring progress (6.4) ›

Goal

Expert Learners who are...

Purposeful & Motivated	**Resourceful & Knowledgeable**	**Strategic & Goal-Directed**

Source: https://udlguidelines.cast.org, [accessed: 20.12.2021]

From Theory to Practice….

What does it look like to implement the UDL framework into my daily teaching environment?

Applying UDL in your own teaching

- *How do I currently present that content?*
- *How do my students respond or demonstrate understanding?*
- *What strategies do I use to keep all students, including those with intellectual disabilities, engaged and motivated?*

Now imagine making just **one small shift** in that lesson:

- Could you add a visual or symbol-based explanation for a key concept?
- Could you allow students to build or draw something instead of writing it down?
- Could you offer a choice between working alone or with a peer?
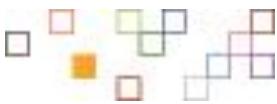
Planning with UDL: a *Quick Teacher Checklist*

Purpose: Help teachers plan flexible lessons easily.

Checklist before the lesson:

- ☐ Did I plan different ways to present information?
- ☐ Did I give different ways for students to show what they know?
- ☐ Did I give choices in activities or materials?
- ☐ Did I use visuals, gestures, or hands-on tools?
- ☐ Did I plan small, manageable steps for complex tasks?
- ☐ Did I think about motivating activities (student interests, games)?
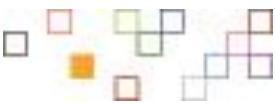
UDL in Action: a simple *Choice Board* example

Tip for teachers: Give students different ways to access content and show learning.

Example Choice Board: "Learning About Animals"

How I want to learn about animals:	How I want to show what I learned:
📚 Look at a picture book	🎨 Draw my favourite animal
📹 Watch a short video	🎤 Tell a friend about an animal
🎵 Listen to a song about animals	🏗️ Build an animal out of blocks
🎮 Play an animal matching game	📖 Match animal pictures and names
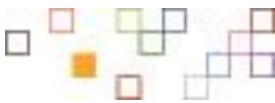
Research-based insights on UDL for students with ID

Literacy by Design: A Universal Design for Learning Approach for Students With Significant Intellectual Disabilities

Peggy Coyne[1], Bart Pisha[1], Bridget Dalton[2], Lucille A. Zeph[3], and Nancy Cook Smith[4]

Abstract

Literacy instruction for students with significant intellectual disabilities traditionally emphasizes isolated skills instruction focusing on sight words and basic vocabulary. Recent research suggests these students benefit from high-quality instruction that includes comprehension and storybook reading. This study examined the effect of a technology-based universal design for learning (UDL) approach to literacy instruction, Literacy by Design (LBD), on the reading achievement of 16 students with significant intellectual disabilities in Grades K–2. The LBD approach emphasizes reading for meaning, combining UDL-scaffolded e-books and letter and word recognition software. Nine teachers received training in research-based literacy practices. Of these, five received LBD training and implemented it four to five times weekly. Controlling for initial reading achievement, the LBD group made significantly greater gains on the Woodcock–Johnson Test of Achievement III Passage Comprehension subtest. Implications for research and practice in beginning reading instruction for children with significant intellectual disabilities are discussed.

Keywords

literacy, mental retardation, universal design for learning, technology

The reauthorization of the Individuals With Disabilities Education Act (1997, 2004) and the passage of No Child Left Behind (2002) signaled a more expansive and potentially liberating view of literacy and learning for students with significant intellectual disabilities—one that would promote participation and progress in the general education curriculum (Jackson, 2005). As the report of the President's Commission on Excellence in Special Education (PCESE, 2002) states, "Leaving no child behind . . . means leaving no children with disabilities behind" (p. 42).

Achieving the goal of improved literacy achievement for students with significant intellectual disabilities has remained elusive. Despite the critical role of literacy in the curriculum, many students with significant intellectual disabilities have limited opportunities for effective literacy acquisition because of the poor quality or absence of literacy instruction, often combined with educators' low academic expectations (Erickson, Hanser, Hatch, & Sanders, 2009; Katims, 2000; Kliewer & Biklen, 2001). For the current study, we developed and field tested the Literacy by Design (LBD) instructional approach and accompanying multimedia e-books to learn whether young students with significant intellectual disabilities would benefit from a technology-based universal design for learning (UDL) approach to literacy instruction.

The e-books embed supports in each of the five areas of instruction identified by the National Reading Panel (NRP, 2000) report as critical for successful, balanced literacy instruction: phonemic awareness, phonics, vocabulary, fluency, and comprehension.

Traditional Instruction for Students With Significant Intellectual Disabilities

Literacy instruction for students with significant intellectual disabilities has traditionally focused on drill and practice instruction of sight words and other basic literacy skills in isolated contexts (Erickson & Koppenhaver, 1995; Katims, 2000), with little consideration given to balanced literacy instruction (Al Otaiba & Hosp, 2004). Attention to more difficult and complex literacy tasks is lacking (McLaughlin, 1999), with

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Universal Design for Learning (UDL) to Facilitate the Learning of Students with Intellectual Disabilities within the Inclusive Educational Context in Sarawak, East Malaysia

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ABSTRACT:

This study aims to explore the difficulties faced by Intellectual Disabilities (ID) students to learn in inclusive educational settings, and strategies incorporated by the teachers using Universal Design Learning (UDL) to facilitate effective learning of ID students. A qualitative study through document analysis and semi structured interview has been conducted. The informants are 4 special education teachers teaching at Special Education Integration Program (SEIP) classes. Findings indicate that ID students face difficulties comprehending complex concepts and require simplified instructions. Additionally, they also face difficulties in social interactions, articulation-based communication, and sensory sensitivities; exhibit behavioral or emotional challenges that affect their learning and classroom dynamics. There are also limited resources and support service to support ID students within the educational system in Sarawak, East Malaysia can be very challenging. It is necessary for the teachers to modify the different teaching methods so ID students can reach their full potential in learning. Flexibility, visual aids, technology aids, and clear voice and speech are among the strategies used by the teachers. This study can assist ID students to become more socially and functionally literate.

Keywords: Intellectual Disabilities, Universal for Design Learning, Inclusive Education, Teaching Strategies.

Effectiveness of Universal Design of Learning for Students with Mild Intellectual Disabilities - A Review

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ABSTRACT

A special education programme is required for kids who have intellectual disabilities. To help these kids learn how to cooperate while engaging in activities, various activities like music, dance, yoga arts and crafts etc. may be offered. They need to teach practical skills and daily tasks rather than academic knowledge. The misconception is that institutional training is the only way to teach children with intellectual disabilities. To learn about autonomous living, they require attention and inclusion. The Govt also offers additional services and educational opportunities for children with intellectual disabilities. Universal Design for Learning (UDL) is a framework that assists educators in minimizing obstacles and enhancing learning opportunities for every student. It is an instructional approach designed to cater to the diverse needs and capabilities of all learners in the learning journey. Several pieces of literature have been published, illustrating the efficacy of Universal Design for Learning (UDL) in enhancing learning across various subjects for children with intellectual disabilities. Evidence suggests that UDL aids in accessing the general education curriculum, resulting in improved learning outcomes and growth in essential skills such as reading, writing, comprehension, decision-making, life skills, and social skills. These advancements are pivotal in enabling students to lead dignified and standard lives. Researchers in the field recommend further investigation to solidify the evidence supporting the assertions made in this paper.

Keywords: Universal design of learning, Children with intellectual disabilities, Autonomous, Hurdles

AN OVERVIEW

Universal Design for Learning (UDL) serves as a framework that assists educators in minimizing barriers and enhancing learning opportunities for all students. By reducing obstacles to instruction, UDL enables all learners to access, participate in, and progress through the general education curriculum. It optimizes teaching and learning based on scientific insights into human learning processes. This approach caters to the requirements and capabilities of every learner, eliminating unnecessary obstacles in the learning journey.

Research-based insights on UDL for students with ID

1. Effectiveness of UDL interventions

A systematic review analysing studies from 2008 to 2018: UDL-based interventions—such as digital environments, e-books, shared stories, and educational software—significantly improved academic, social, and behavioural outcomes for students with ID (AlRawi & AlKahtani, 2021).

2. Literacy development through UDL

The "Literacy by Design" approach, incorporating UDL principles with technology-based literacy instruction, led to notable gains in reading comprehension among young students with significant intellectual disabilities (Coyne et al., 2012).

3. Teacher strategies in Inclusive Settings

Educators employing UDL strategies—such as simplifying instructions, using visual aids, and incorporating technology—effectively addressed learning challenges faced by students with ID in inclusive classrooms (Saini et al. 2024).

5. UDL in Post-Secondary Education

Applying UDL principles in post-secondary programs facilitated greater access to general education curricula for students with intellectual disabilities, supporting their academic inclusion and success (Kapil, 2024).
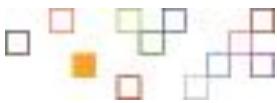
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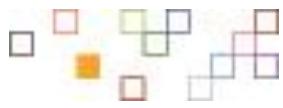
Thank you for your attention ☺