



Once there was a dog that liked to run on the beach.



SMART **Classrooms**

# Universal Design for Learning An Approach to Maximise Learning for All Students



Queensland Government

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## Session Outline

- Universal Design For Learning approach to catering for diversity
- The principles of UDL and how ICT can support these principles
- Practical examples of using freely available ICTs to enhance learning for all students

## Education in the digital age

### Teachers challenge (Marc Prensky 2005)

- The 21<sup>st</sup> century is characterised by explosive social change driven by major advances in technology.
- High expectations for achievement
- Diversity of learners exists in all classrooms (no longer a “typical” student)
  - Learning styles and needs
  - Language and cultural backgrounds
  - Emotional, social or behavioural needs
  - Motivation and preferences for learning
  - Diverse range of sensory and physical needs
  - Academic ability and giftedness
  - Complex health issues.
- Demand education that caters for this diversity

## Barriers To Learning

- Barriers within the curriculum
  - Goals, outcomes, tasks, assessment does not cater to the diversity within the classroom
  - Restrictions disadvantage student groups
- Barriers within the environment
  - Mode of delivery of information and learning reduces the capacity for some students to engage with the learning
  - Mode of engagement with the curriculum and learning restricts students from engaging with the learning activities

In the built environment Universal Design provides a blueprint for creating accessible, and flexible built environments and materials that accommodate for differences within the community.



Universal Design for Learning (UDL) provides a blueprint for creating and implementing flexible learning environments, goals, pedagogies, materials, and assessments that accommodate learner differences.

[www.cast.org](http://www.cast.org)

## Principles of UDL

**Multiple means of representation** - providing learners with various ways to acquire knowledge and information.

**Multiple means of expression** – providing learners with alternatives to demonstrate what they know and what and how they think.

**Multiple means of engagement** - providing learners with appropriate means of engaging and interacting with the learning environment.

*The provision is built into the planning and design of all aspects of the activity or unit - not as an add-on.*

*The approach of Universal Design For Learning can be supported using inclusive technologies.*

## How UDL can help all students to learn

- Enriches learning environment
- Caters to different learning styles
- Motivates learners and increases productivity
- Engages reluctant learners
- Improves independence and self directed learning
- Enhances self esteem
- Provides indirect and unplanned learning opportunities



## How UDL assists teachers

- Helps to make education practices more inclusive
- UDL caters to diverse learners
- Supports effective pedagogy
- Improves the quality of teaching and learning
- UDL makes planning more efficient
- UDL is cost/time effective
- Supports Curriculum Framework
- Consistent with legislation
  - Disability Standards in Education 2005
  - Education General Provisions Act 2006

How can teachers whose workloads are already at capacity develop strategies, resources and methods to cater to this diversity?

- Establish more universal goals, tasks and assessment at the development stage
- Identify and use resources that represent information in range of ways
- Identify and use resources that provide students with a range of means to deliver their knowledge and understanding
- *Many ICTs already have aspects of UDL built in*

## DEVELOPING GOALS OR TASKS TO MEET THE DIVERSITY OF STUDENT NEEDS

Purpose of the task: To determine student understanding of the unique characteristics of mammals

Task 1: Write a paragraph that identifies the unique characteristics of mammals

Task 2: Identify and present your understanding of the unique characteristics of mammals



## Multiple means of representation

to support all students

### Visual support

- Graphics
- Movies
- Animations
- Text
- Physical objects or movement

Supports visual learners as well as students with cognitive impairment, learning difficulties, Dyslexia, speech-language impairment, hearing impairment, English as second language, Autism Spectrum Disorder.



## Multiple means of representation

to support all students



### Auditory support

- Digital recordings
- Wav or MP3 files
- Text-to-speech

Supports auditory learners as well as students with cognitive impairment, learning difficulties, Dyslexia, speech-language impairment, English as second language.

### Signs

- Makaton signs supports students with intellectual impairment
- Auslan and signed English supports students with hearing impairment

### Captions

- Video captions support students with a hearing impairment

## Multiple means of expression

### Communication modes

- Speech, sign, AAC including speech generating devices, text-to-speech

### Writing modes

- Pencil and paper
- Computer

### Visual modes

- Sculpture
- Photos
- Movies
- Dance
- Drama

### Auditory modes

- Sounds
- Music

## Multiple means of engagement

Tools that assist students to actively engage with learning, both input and output.

The most successful of these for UDL are those that can engage a diversity of students within the one device or system

Many of these devices will have hidden benefits

### HARDWARE

- Various configurations of keyboards
  - Trackballs
  - Joysticks
  - Alternative mouse systems
  - Glidepoint
  - Touch screens
  - IWBs
- Digital Pens
  - Smartpen
  - Intellipen
- Alternative Computer Systems
  - Micro laptops
  - iPad



# Multiple means of engagement

## SOFTWARE

### Configuration of system or software

- Windows/Mac OS
- Wordprocessor configuration
- Writing templates or scaffolds

### Rate enhancement software

- Supports students who may fatigue from the mechanics of writing
- Supports students who struggle with reading or writing and may have poor motivation
- Reduces errors in literacy processes
- Increases accuracy, speed, productivity and motivation
- WordTalk; Natural Reader; Co:Writer; textHELP

### Graphic Organisers

- for students with difficulties organising information and getting started with writing

### Multi-media interactive

- Contain tools and functions that enable a range of students to engage with the learning
- Framework applications (Clicker 5, IntelliTools Classroom Suite, "Communicate" series)
- 'Learning objects' from TLF

## An example of how ICT functionality and UDL can address learner differences using multiple means of representation: digitised text

- More flexible than printed materials
- Readily manipulated
- Enlarged text
- Background/foreground colour highlighting
- Recorded sounds or voice
- Graphic support
- Text-to-speech
- Converted to MP3
- Print to Braille printer

## For more information and support

- CAST: Centre for Applied Special Technology ([www.cast.org](http://www.cast.org))
- LDC-ICT-SWD
- Learning Place
- Professional Communities
- eLearn Courses
- OneChannel
- Listservs
- Adaptech
- OnLine newsletter



**CAST**  
Transforming education through Universal Design for Learning

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## Universal Design for Learning

Universal Design for Learning (UDL) is a framework for designing curricula that enable all individuals to gain knowledge, skills, and enthusiasm for learning. UDL provides rich supports for learning and reduces barriers to the curriculum while maintaining high achievement standards for all.

- [Read questions & answers](#)
- [View a multimedia UDL tutorial](#)
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### Research & Development

CAST's work is inspired and informed by learners who struggle in traditional education settings.

- [Read about our projects](#)
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### Professional Development

CAST prepares educators at all grade levels to meet the challenge of teaching diverse learners.

- [Visit PD Resources](#)
- [Join the UDL Consortium](#)
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### Policy

CAST assists stakeholders at the national, state, and local level to understand the practical implications of UDL.

- [NIMAS/Accessible Materials No Child Left Behind](#)
- [Accessing the General Curriculum](#)
- » [Learn more...](#)

### Publications

- [Articles about UDL](#)
- [Book: A Practical UDL Reader](#)
- [Book: Teaching Every Student](#)
- » [Learn more...](#)

### Products

- [UDL Book Builder](#)
- [UDL Lesson Builder](#)
- [Thinking Reader & WiggleWorks](#)
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### Highlights

#### Great Resources for Teachers!

New listening-related lesson plans, classroom tools, and other resources on [RFB&D's Learning Through Listening website](#), in association with CAST.

#### Advanced UDL Institutes Announced

[Join CAST for 2008 Professional Development.](#)

#### AIM Consortium

CAST and 15 States work to improve delivery of accessible instructional materials (AIM). [Read the release.](#)



## DSSU Learning Community

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- [LDC - ICTs - Students with Disabilities](#)
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#### GuidePost Pathways

- [Search DSSU Loans Catalogue](#)

#### Curriculum in Schools

##### Kuraby Special School

A productive partnership has been forged between Kuraby Special School and DSSU. Kuraby initiated contact with DSSU through the Request for Support process to review and further develop their Assessment and Reporting Framework. A 6-month project plan has now been developed.

[Read more](#)

#### Search our communities

 [Go](#)

#### Upcoming Events

- [Sunshine Coast Region Occupational Therapy and Physiotherapy Network - \(3/04/2006\) - DSSU Learning Community](#) [View details](#)

[View calendar](#) for all our sub-communities' events

#### News from DSSU

##### Mailbox for DSSU Loans Service

The DSSU Loans Service now has a mailbox for borrowers to use. From now on please direct all your general queries about loans to our new mailbox at [loans.dssu@qed.qld.gov.au](mailto:loans.dssu@qed.qld.gov.au)



For example, please use this mailbox if you want information about:

[Read more](#)

#### In the Spotlight

##### Interim Guidelines and Procedures for the Disability Services Support Unit (DSSU) Loans Service

The Interim Guidelines and Procedures for the Disability Services Support Unit (DSSU) Loans Service have now been approved by Ken Rogers, Assistant Director-General, Student Services, Office of Education Queensland. These guidelines outline the principles, processes and procedures of the DSSU Loans Service that will be implemented from now and throughout 2006.

[Read more](#)

<http://www.learningplace.com.au/en/dssulc>