

## **Supporting Flexible Learning Opportunities**

Based on the knowledge generated from the Australian Flexible Learning Framework projects and selected external literature, the Quick Guides series provides an introduction to key issues related to flexible and online delivery of Vocational Education and Training (VET).

# **What is Universal Design and How Can it be Implemented?**

**Australian Flexible Learning Quick Guide Series**

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*

The intent of universal design is to simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost. Universal design benefits people of all ages and abilities.

*The Center for Universal Design*

## Scope of this guide

This Guide provides an overview of the concept of Universal Design. Universal design is an overarching philosophy that is increasingly being adopted to ensure that practical issues such as accessibility for people with disabilities are dealt with by an inclusive approach to the planning of products and services, rather than being 'add-ons' once completed.

This Guide:

- provides an introduction to the principles of Universal Design
- identifies the contribution of particular projects within the Australian Flexible Learning Framework to understanding and implementing Universal Design principles
- lists relevant resources on both the philosophy and practical implementation of Universal Design.

## Why is it important?

All providers of education and training have a moral as well as a legal requirement to make their products and services available to the widest range of users, irrespective of their physical ability, literacy capabilities, nationality, geographic location, or learning circumstance.

The Australian Quality Training Framework (AQTF) requires training and assessment to be equitable for all persons, taking account of cultural and linguistic needs (ANTA 2001, Section 8.1 (viii)).

A major finding and recommendation of the Australian Flexible Learning Framework Access and Equity project was that catering for the needs of equity groups should be a normal part of the work in developing online and flexible delivery resources, not 'bolted on' as an afterthought. (A&E)

There is increasing recognition that the philosophy of Universal Design provides an overall approach which ensure that educational products and services:

- meet legislative requirements
- benefit everyone, not just those with a disability
- are cost effective (It is less costly to design for universal access, than to make changes to a poor design to meet the needs of particular groups.)
- widen the market for products and services
- facilitate modification of learning materials for specific needs
- promote learners' independence.

## The philosophy of Universal Design

Universal Design is a philosophy, not a set of rigid or hard and fast rules. And, contrary to what some people believe, it is not restricted to the creation of website or online learning resources. It is an approach to design that can be applied to all types of products and services.

The concept of Universal Design is not tied to any specific organisation, nor to any particular single set of principles, however, the work of the Centre for Universal Design at North Carolina State University is seminal. A key reference is their 1997 seven Principles of Universal Design which are, in brief:

1. **Equitable Use**, seeks to maximise the usefulness of design for everyone, identical whenever possible and equivalent when not, so that it avoids segregating or stigmatising any users.
2. **Flexibility in Use**, values design that accommodates a wide range of individual preferences and abilities.
3. **Simple and Intuitive Use**, seeks to create ease of understanding for users, regardless of their experience, knowledge and language.
4. **Perceptible Information**, seeks to ensure that design allows information to be communicated effectively to the user, regardless of ambient conditions or the user's sensory abilities.
5. **Tolerance for Error**, seeks to minimise hazards and the negative consequences of accidental or unintended actions.
6. **Low Physical Effort**, seeks to ensure that interaction with the environment can occur efficiently and comfortably and with minimal fatigue.
7. **Size and Space for Approach and Use**, seeks to maximise approach, reach and manipulation capabilities of users irrespective of their size, posture and mobility.

## Universal Design in education

Professor Barrie O'Connor's keynote address to the NET\*Working 2000 conference discusses these principles in the context of e-learning and students with disabilities.

A world renown organisation promoting universal design within education is CAST, a not-for-profit organisation that uses technology to expand opportunities for all people, especially those with disabilities. They are best known as the developers of *Bobby* a tool for testing the accessibility of websites. CAST have developed a philosophy of Universal Design for Learning (UDL) described as "a new paradigm for teaching, learning, and assessment, drawing on new brain research and new media technologies to respond to individual learner differences." The UDL website explains further the theory and research behind this approach. The website includes "Teaching Every Student" which is both a book and an interactive online resource providing tools and activities to put aimed at putting universal design into practice.

## Relevant Australian Flexible Learning Framework projects

The key project within the Australian Flexible Learning Framework which addressed Universal Design issues is the Access and Equity project (A&E).

This project discusses issues of universal design in relation to equitable access for students with special needs most specifically, but within a general context also of making resources more accessible to all students. This project report lists and links to pertinent resources on accessible design.

Other projects that have incorporated the philosophy of inclusive design include the Toolbox Project. The Guidelines for Flexible Delivery Toolboxes state that "the development of platform independent resources which allow for maximum portability to users' delivery platforms" is a desirable characteristic of Toolboxes.

## Policy and planning

The "Guides to universal design of E-Learning for Managers and Practitioners" produced by the Strategy 2001 Access and Equity project provide a framework to assist managers and practitioners to identifying good practice strategies to produce e-learning resources and materials that are inclusive in their design and delivery. It also includes summaries and links to numerous relevant resources.

These guides identify the major components as:

- Planning
- Managing
- Learner Support
- Content and Delivery
- Professional Development.

## Implementation tools

In addition to the Guides for Universal Design mentioned above, there are numerous sources of checklist and tools to assist practitioners and developers plan for and produce accessible learning material, and accessible course web-sites.

The Option Keys website (OTEN-DE 2001) provides a good framework for this process with links, checklists and examples based on the following stages:

- **Plan for accessibility:** An accessible website is a product of careful planning and design. It is unlikely to happen by chance. It has to be planned from the conception of the project.
- **Choose accessible tools:** Authoring tools play a critical role in ensuring web accessibility.
- **Follow design guidelines:** This section lists design elements, outlines possible access barriers for users and provides Guidelines for overcoming these.
- **Test for accessibility:** Testing can be conducted with validation tools and with users. It is advisable to do a preliminary test once a prototype is ready and a full test when the entire site has been developed.
- **Inform users of site's accessibility:** This covers both informing users of accessibility features of a site, as well as things which users can do to improve their own web access which they may not be aware of.

The Option Keys site is mainly about developing accessible websites, but much of this information is equally relevant to other types of online and multimedia resources.

## Useful Resources

### What is Universal Design - Principles of Universal Design

The authors, a working group of architects, product designers, engineers and environmental design researchers, collaborated to establish the Principles of Universal Design to guide a wide range of design disciplines including environments, products, and communications. These seven principles may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments. Includes guidelines and illustrations of the principles in practice. This document, and the seven principles, are not specific to education or to the design of software and websites. [http://www.design.ncsu.edu/cud/univ\\_design/princ\\_overview.htm](http://www.design.ncsu.edu/cud/univ_design/princ_overview.htm)

### E-Learning and Students with Disabilities: From Outer Edge to Leading Edge

Professor Barrie O'Connor's keynote address to the NET\*Working 2000 conference addresses the importance of e-learning as a means of access to study by people with disabilities. Includes: What is e-learning, Implications for post-secondary education, Accommodating diversity through universal design (including the implications of the 'Seven Principles of Universal Design'), New approaches to teaching in five stages, and Embedding disability expertise across the educational institution through various technologies and protocols. References and contact details are provided.

<http://www.flexiblelearning.net.au/nw2000/main/key04.htm>

### Option keys: developing accessible websites

A website developed by TAFE NSW to assist all TAFE online teams in developing online resources and websites which can be easily accessed by all users. Includes background on the rationale and legal requirements for accessibility as well as practical guidelines and tools for planning, designing and testing accessible websites. Includes an extensive glossary and reference section.

<http://www.oten.edu.au/optionkeys/>

### Guides to universal design of E-Learning for Managers and Practitioners (R014G)

A guide for managers and practitioners on universal access issues and good design and implementation principles produced by the Strategy 2001 Access and Equity project. The guidelines are intended to assist managers and practitioners to identifying good practice strategies for planning, developing and consulting to produce e-learning resources and materials that are inclusive in their design and delivery.

<http://flexiblelearning.net.au/>

### CAST Universal Design for Learning

Universal Design for Learning (UDL) is described as "a new paradigm for teaching, learning, and assessment, drawing on new brain research and new media technologies to respond to individual learner differences."

<http://www.cast.org/udl/>

## References

A&E: Access and Equity Project

<http://flexiblelearning.net.au/accessequity/>

ANTA 2001, *Australian Quality Training Framework: Standards for Registered Training Organisations*, Australian National Training Authority, Melbourne

<http://www.anta.gov.au/publication.asp?qsID=86>

O'Connor, B 2000, *E-learning and Students with Disabilities: From Outer Edge to Leading Edge*, NET\*Working 2000 Online Conference.

<http://flexiblelearning.net.au/nw2000/main/key04.htm>

OTEN-DE 2001, *Option keys: developing accessible websites*, New South Wales Department of Education and Training.

<http://www.oten.edu.au/optionkeys/>

The Center for Universal Design, NC State University

[http://www.design.ncsu.edu:8120/cud/univ\\_design/ud.htm](http://www.design.ncsu.edu:8120/cud/univ_design/ud.htm)

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Reference as:

Backroad Connections Pty Ltd 2002, *What is Universal Design and How Can it be Implemented?* (Version 2.00), Australian Flexible Learning Framework Quick Guides series, Australian National Training Authority.

HTML and PDF versions available at:  
<http://flexiblelearning.net.au/guides/universal.html>

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