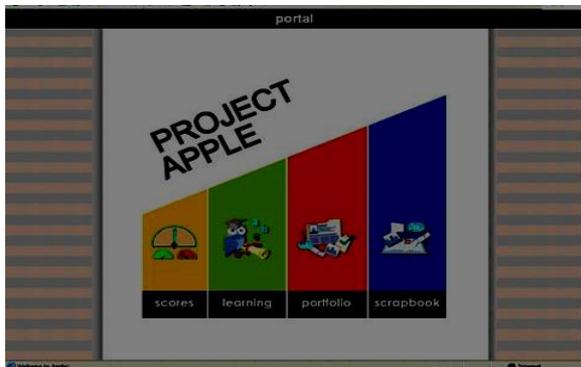


# Exploring methods to test usability of ICT applications with people with learning disabilities

**Peter Williams UCL/UCL**

*With thanks to Andy Minnion and Ian Rowlands*

This document is part of a collection of presentations with a focus on the legal and social aspects of electronic publishing. For full details of this and the rest of the collection see the cover sheet at: <http://ucloer.eprints-hosting.org/id/eprint/23/>



# Plan of talk

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## Background and context

- A (quicker than) lightning tour of law and policy
- The problem / challenge

## The research (1) Overview

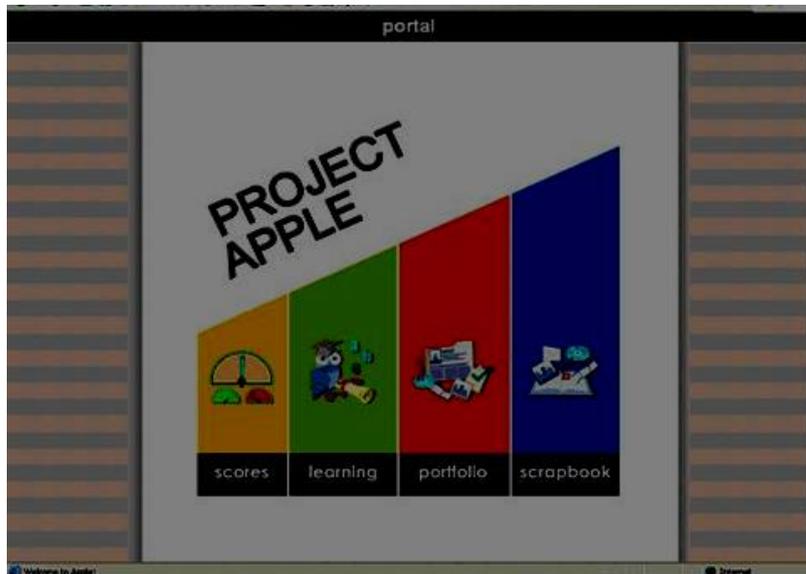
- Aims, methods
- Contextual findings

## The research (2) Usability studies

- Issues informing usability tests
- Usability tests: information retrieval
- Usability tests: games
- Next steps: optimising web interfaces

# Background and context

*(It is all about inclusion!)*



# Disability Discrimination Act 1995

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- Replaced Disabled Persons (Employment) Act 1944)
- Was an attempt at 'a universal, all embracing right of non-discrimination against disabled people ... applicable to all providers of goods, facilities and services to the general public' Minister for Social Security and Disabled People, *Hansard*, H.C. standing Committee E col. 290

- **Part I** Summary of the meaning of disability.
- **Part II** Discrimination in relation to employment
- **Part III** Discrimination in relation to public access to goods, services and premises.
- **Part IV** Education (SENDA - 2001).

# Disability Discrimination Act 1995

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## *Part III: public access to goods, services and premises*

A provider of services discriminates against a disabled person if:

- (a) for a reason which relates to the disabled person's disability, he treats him less favourably than he treats or would treat others to whom that reason does not or would not apply; and
- (b) he cannot show that the treatment in question is justified

**The key is: 'SERVICES' INCLUDES INFORMATION!**

# SEN and Disability Act 2001

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SENDA introduced a new Part IV of the DDA  
Required reasonable adjustments to 'student  
services'

- Lectures
- Course materials/e-learning
- Examinations

# Other legislation (1)

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The Mental Capacity Act (DOH 2005)

- 'The right for individuals to be supported to make their own decisions and to be given all appropriate help before anyone concludes they can't make decisions'.
- every effort should be made to provide the individual with required information

Human Rights Act, 2008

- Article 14 prevents discrimination because of disability

## Other legislation (2)

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### Disability Equality Duty (2006)

*All public bodies - government, schools, health trusts, emergency services – must pay ‘due regard’ to equality for disabled people.*

#### Requires:

- Elimination of discrimination / harassment
- Steps to meet disabled people’s needs, **even if this means more favourable treatment.**
- Promotion of participation by disabled people in public life

# Policy

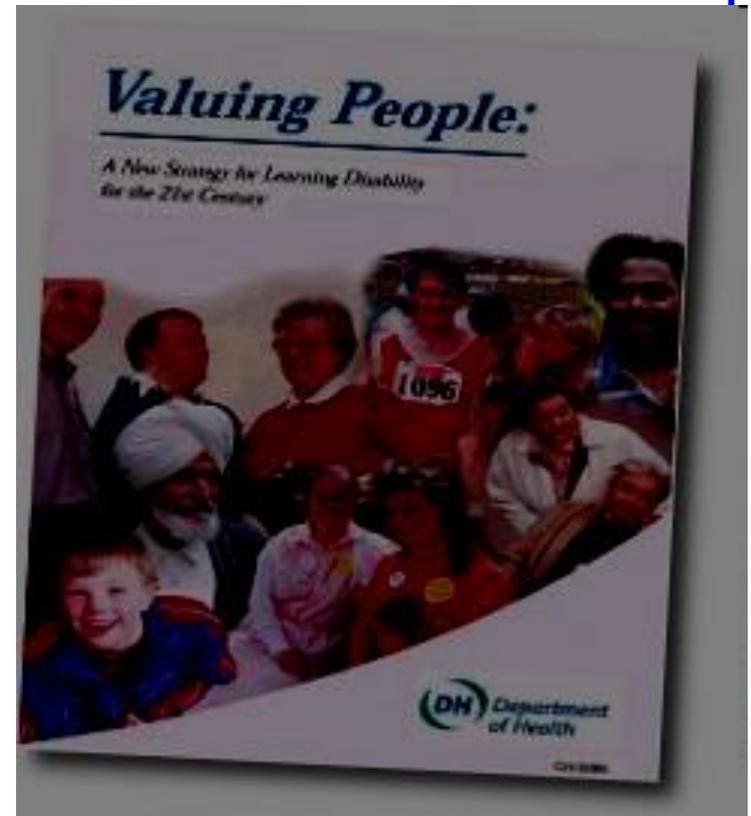
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## Valuing people: A strategy for learning disability for the 21st century

About promoting:

- rights
- independence
- choice
- inclusion

Manifested in Person-Centred Planning



# Led to ...

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## The Road Ahead

Social Care Institute for Excellence (SCIE) funded\* investigation into the information needs of young people with learning disabilities at transition

- Focus group interviews
- Systematic review of the literature
- A review of information available

(\*carried out by Norah Fry Research Centre (NFRC))

## ... which found...

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- Young people not involved in decision-making
- A lack of appropriate information
- Much information was inaccessible

Recommended that:

- 'information should be developed in conjunction with the target audiences, that is young people, their parents and supporters'



Rix Centre funded to address this.....

# The research

## Part 1: overview



# Overall aims

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To create resources for and by young people to

- Help with transition
- Promote inclusion
- Facilitate self-advocacy

# Aims of the usability studies

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To determine which factors facilitate accessibility and usage of electronic information resources by people with LD, by:

- Examining the environment and context
- Developing usability methods, and use these to:
  - Elicit issues related to **task**
  - Identify any specific **design / accessibility** issues
  - Address issues related to **participation**
- Iteratively improving the platform and materials

# Approach

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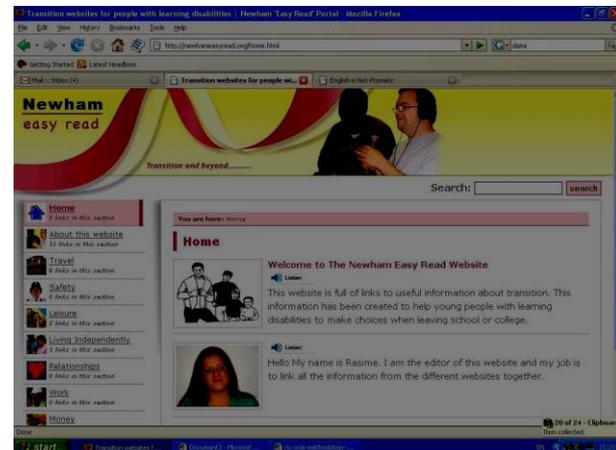
*“Design is a social issue because it is poor design which turns an impairment into a disability” - DRC Inclusive Design Manual*

*Reflects the ‘**social model**’ of disability & inclusive approaches*

# Projects undertaken

Project @ppl

Newham Easy  
Read



# Sample(s)

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Ranged from those with:

- No literacy skills
- Limited or no functional language
  - (but good receptive language)
- Limited motor skills
- Some computer experience
- The ability to perform basic physical tasks

To those who had:

- Functional language (inc. one bilingual)
- Basic literacy
- Good computer skills

# Methods (1) Overview

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- Interviews
- Observation
- Experimental tests



# Findings (1)

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## Contextual issues

- Inappropriate materials/use
  - Electronic babysitter
  - Age-inappropriate materials
- Poor 'inclusion' practices
  - assistive devices not used
  - lack of training/confidence
- Competing agendas and pressures
  - use as evidence-base
  - commercial concerns
- Role of supporter vital

# Findings (2)

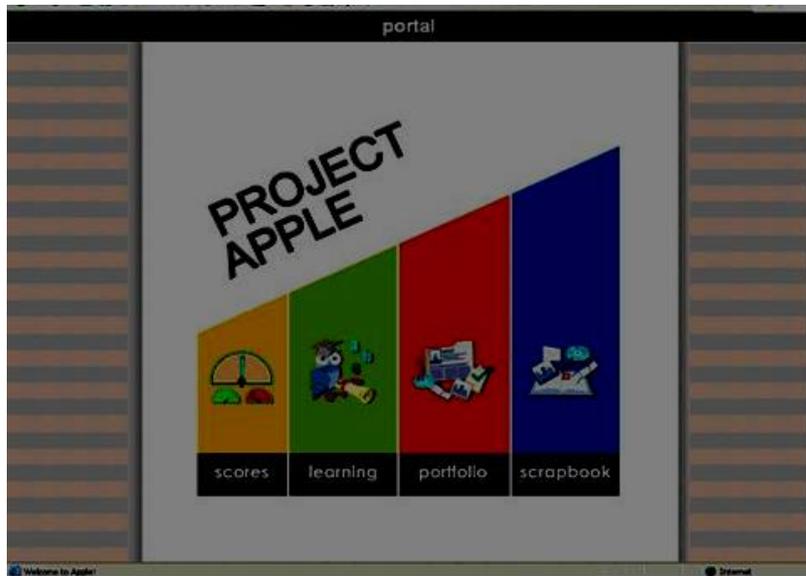
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## Issues informing usability tests

- Learner understanding of tasks
- Interpreting idiosyncratic behaviour
- Interpreting 'non-compliance'
- Learner motivation

# The research

## Part 1: usability tests



# Usability tests: information retrieval

Mail :: Inbox (4) Transition websites for people wi... English is Not Phonetic

## Newham easy read

Transition and beyond.....

Search:

**Home**  
2 links in this section

**About this website**  
33 links in this section

**Travel**  
6 links in this section

**Safety**  
0 links in this section

**Leisure**  
5 links in this section

**Living Independently**  
1 links in this section

**Relationships**  
0 links in this section

**Work**  
0 links in this section

**Money**

You are here: Home

### Home

**Welcome to The Newham Easy Read Website**

 Listen

This website is full of links to useful information about transition. This information has been created to help young people with learning disabilities to make choices when leaving school or college.



 Listen

Hello My name is Rasime. I am the editor of this website and my job is to link all the information from the different websites together.

20 of 24 - Clipboard

# Usability tests: information retrieval

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Two tests, at different levels. For **all** we tested:

- Recognition of
  - icons
  - links
- Scrolling
- Navigating forward/back

And, for literate participants:

- Content understanding

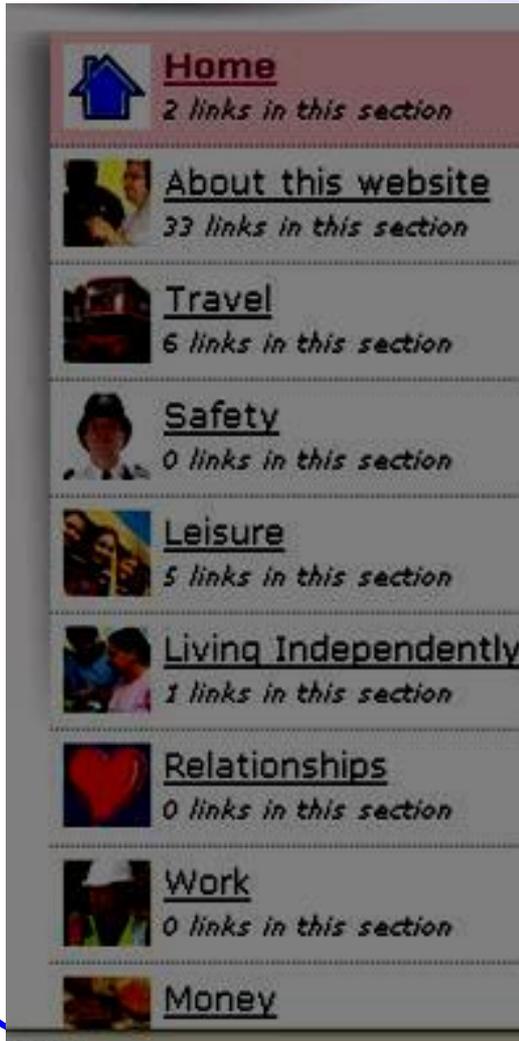
# Usability tests: information retrieval

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## Test one (literate sample) tasks:

- Where will you find information on transport?
- What does the page tell you about travelling by bus?
- How to you get the sound to play?
- Can you go back to the page where we started?

# Usability tests: information retrieval



## Test two (non-literate sample) tasks

- Find a white hat
- Click on it
- Look for the treasure chest
- Click on it
- Look for another treasure test
- What letter is on it?

# Usability tests: information retrieval

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## Results

- Iconography an issue
- Scrolling difficult
- Links not always recognised
- Text size important

# Usability tests: games

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We tested:

- Image recognition
- Understanding of task
- Curser dexterity
- Use of forward/back navigation



# Next steps: optimising web interfaces

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What are the optimum features for presenting information on a website for people with learning difficulties?

- First, imagine 3 mobile phones, with different...
- Weight, Battery life, Cost
- Then, get people to state their preferences
- 1 v 2; 2 v 3; 3 v 1

# Next steps: optimising web interfaces

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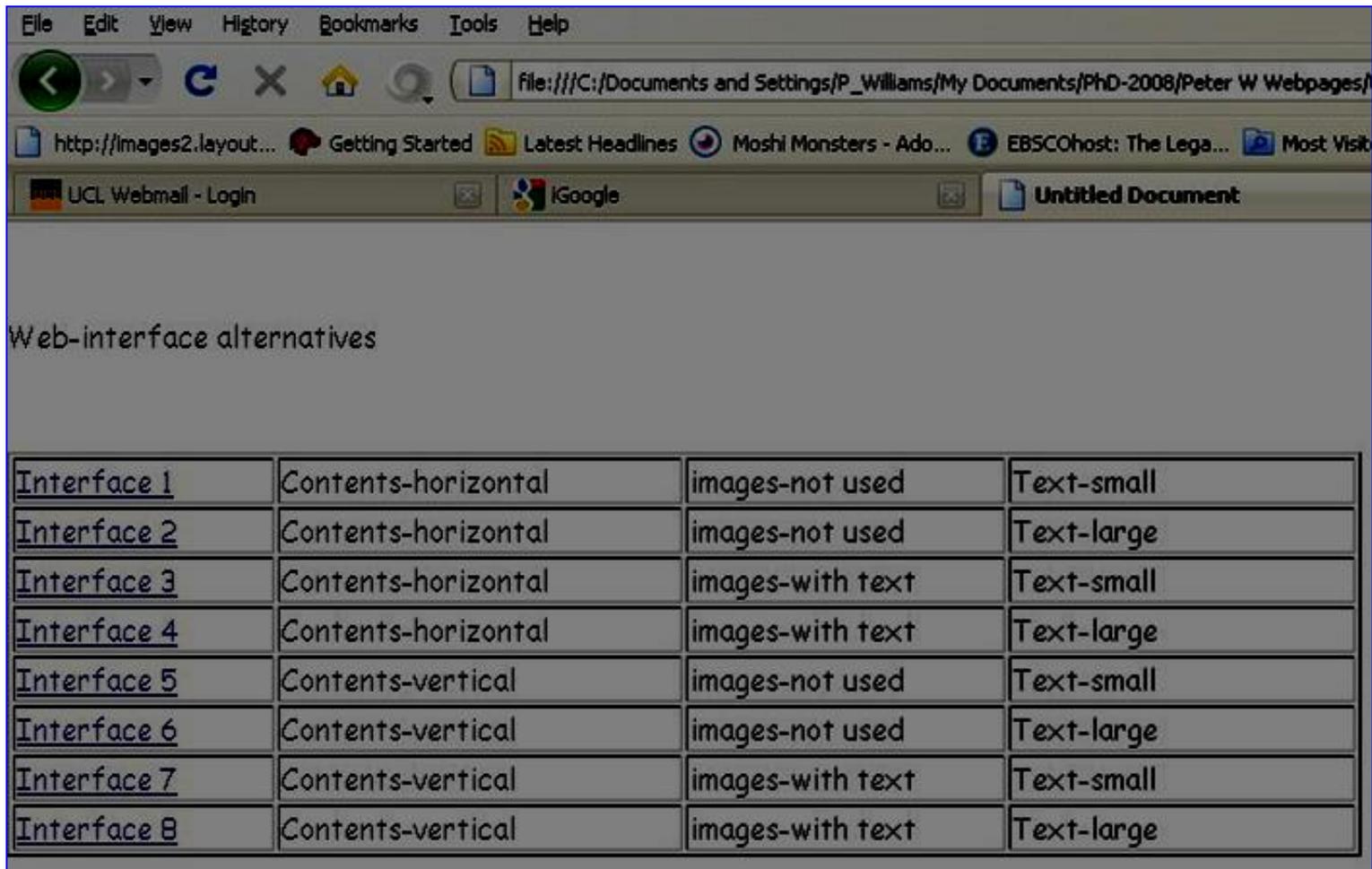
Then, whiz it through a Conjoint Analysis. This determines:

- The most important factors
- The relative importance of each

**Now** imagine various web page designs:

- Scrolling
- Menu position
- Text
- size

# Next steps: optimising web interfaces



The screenshot shows a web browser window with the following details:

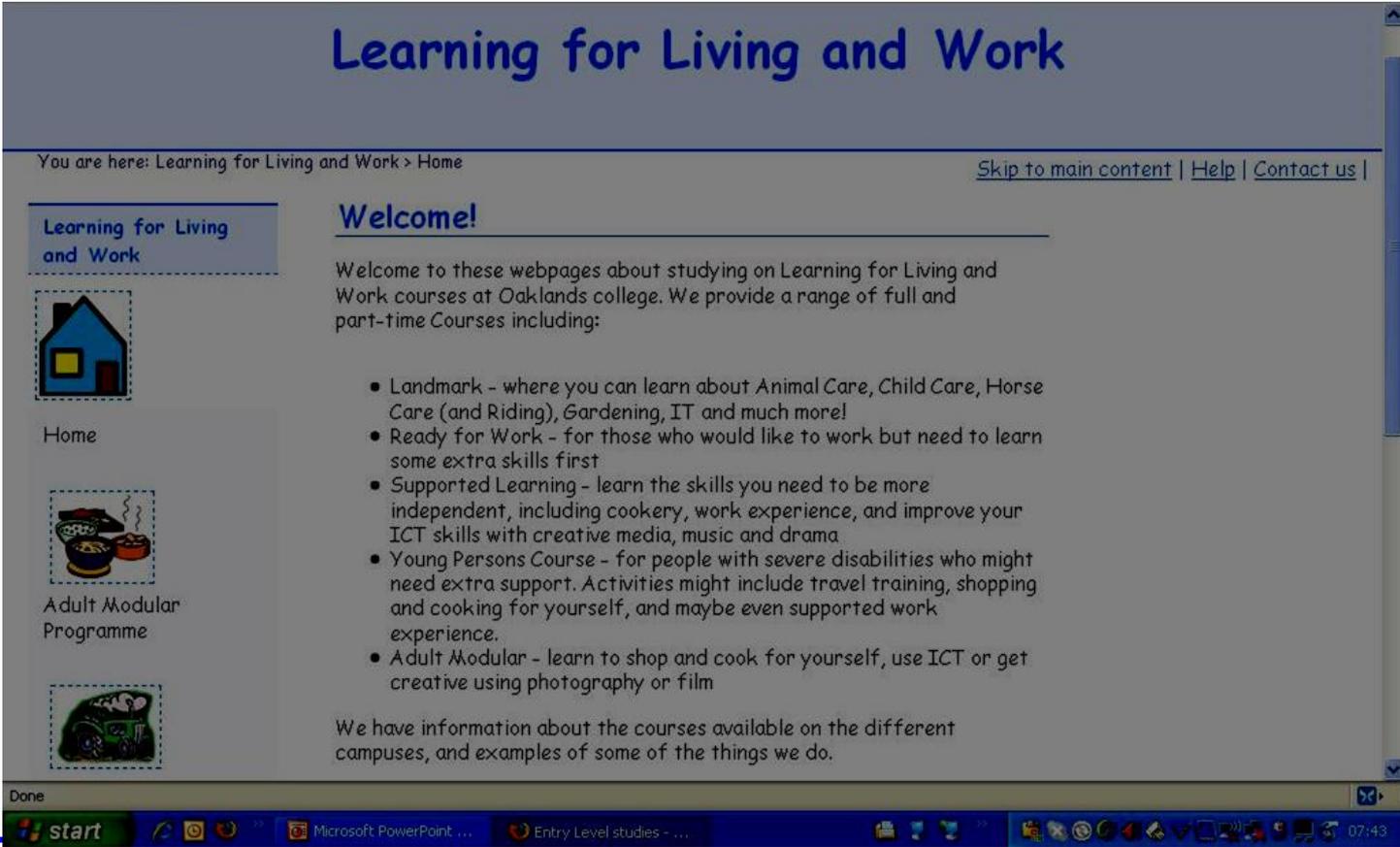
- Menu bar: File, Edit, View, History, Bookmarks, Tools, Help
- Address bar: file:///C:/Documents and Settings/P\_Williams/My Documents/PhD-2008/Peter W Webpages/
- Bookmarks bar: http://images2.layout..., Getting Started, Latest Headlines, Moshi Monsters - Ado..., EBSCOhost: The Lega..., Most Visi...
- Open tabs: UCL Webmail - Login, iGoogle, Untitled Document

The main content area displays the text "Web-interface alternatives" above a table with 8 rows and 4 columns.

<u>Interface 1</u>	Contents-horizontal	images-not used	Text-small
<u>Interface 2</u>	Contents-horizontal	images-not used	Text-large
<u>Interface 3</u>	Contents-horizontal	images-with text	Text-small
<u>Interface 4</u>	Contents-horizontal	images-with text	Text-large
<u>Interface 5</u>	Contents-vertical	images-not used	Text-small
<u>Interface 6</u>	Contents-vertical	images-not used	Text-large
<u>Interface 7</u>	Contents-vertical	images-with text	Text-small
<u>Interface 8</u>	Contents-vertical	images-with text	Text-large

# Next steps: optimising web interfaces

## Example (with images; small text; vertical menu)



The screenshot shows a web browser window displaying a website. The title bar at the top reads "Learning for Living and Work". Below the title bar, there is a breadcrumb trail: "You are here: Learning for Living and Work > Home". To the right of the breadcrumb trail are links for "Skip to main content", "Help", and "Contact us".

On the left side, there is a vertical menu with three items:

- Learning for Living and Work** (with a house icon)
- Home
- Adult Modular Programme (with a cooking icon)
- (with a car icon)

The main content area features a "Welcome!" heading followed by a paragraph: "Welcome to these webpages about studying on Learning for Living and Work courses at Oaklands college. We provide a range of full and part-time Courses including:"

- Landmark - where you can learn about Animal Care, Child Care, Horse Care (and Riding), Gardening, IT and much more!
- Ready for Work - for those who would like to work but need to learn some extra skills first
- Supported Learning - learn the skills you need to be more independent, including cookery, work experience, and improve your ICT skills with creative media, music and drama.
- Young Persons Course - for people with severe disabilities who might need extra support. Activities might include travel training, shopping and cooking for yourself, and maybe even supported work experience.
- Adult Modular - learn to shop and cook for yourself, use ICT or get creative using photography or film

At the bottom of the main content area, there is a paragraph: "We have information about the courses available on the different campuses, and examples of some of the things we do."

The Windows taskbar at the bottom shows the "start" button, several application icons, and the system tray with the time "07:43".

# Running this experiment means ...

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... by next year's class I should be able to reveal the optimum website interface!!

Thanks for listening!

Pete

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