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

Peter Williams UCL/UEL
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/
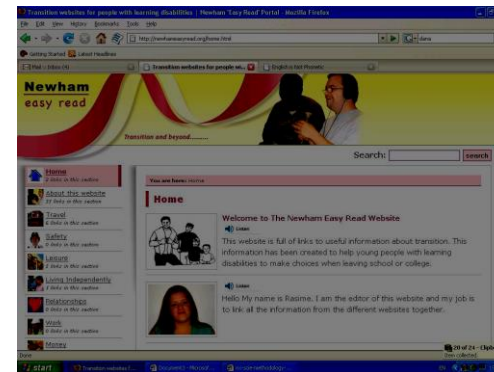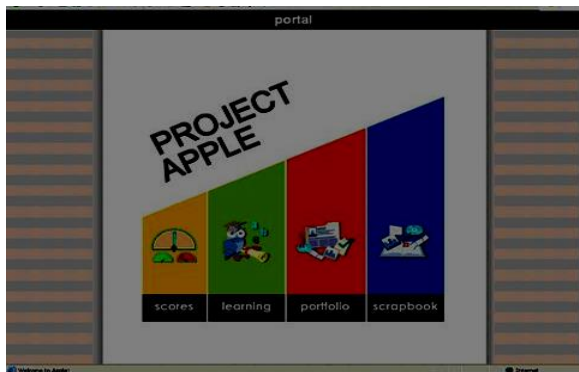
Plan of talk

Background and context

- A (quicker than) lightning tour of law and policy
- The problem / challenge
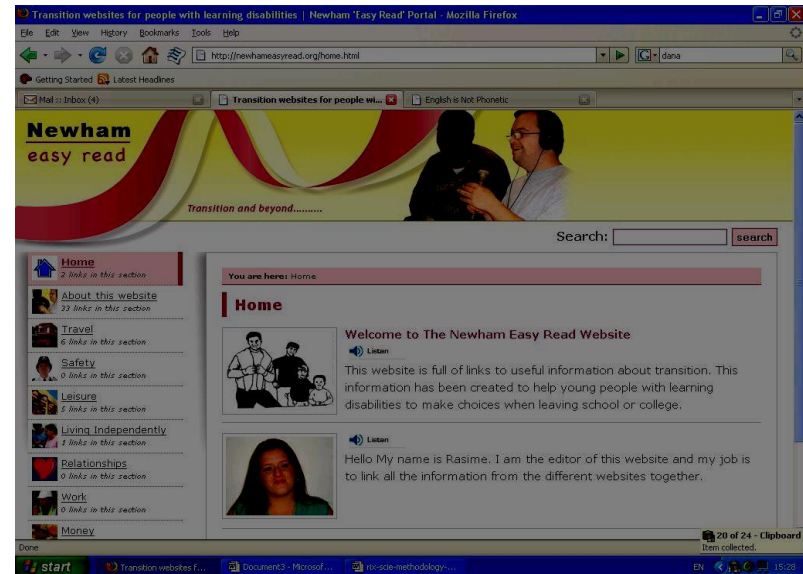
The research (1) Overview

- 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

- 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

__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

SENDA introduced a new Part IV of the DDA

Required reasonable adjustments to 'student services'

- Lectures

- Course materials/e-learning

- Examinations

Other legislation (1)

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)

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

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

About promoting:

- rights
- independence
- choice
- inclusion

Manifested in Person-Centred Planning
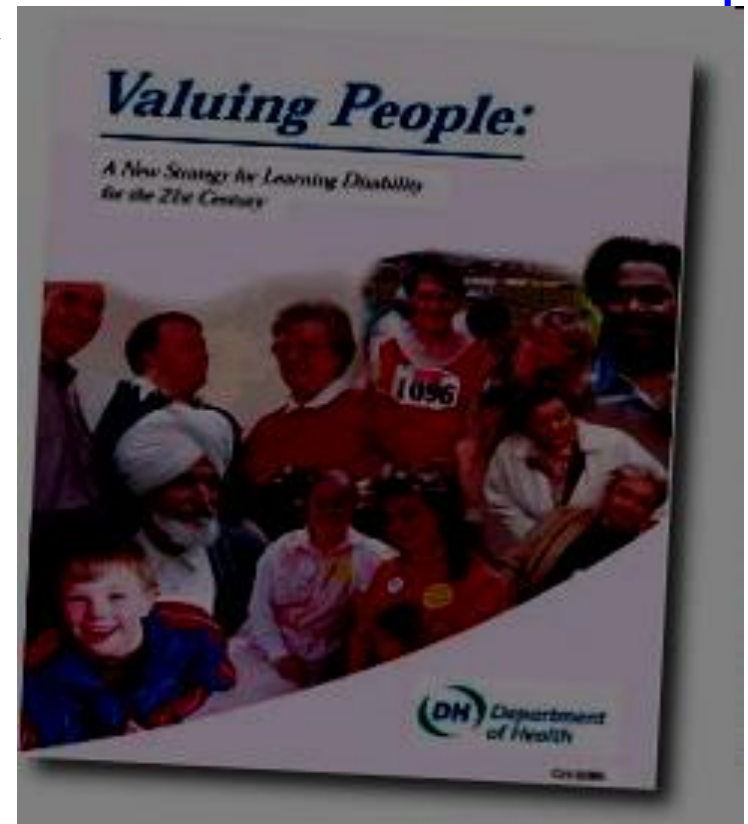
Led to …

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…

- 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
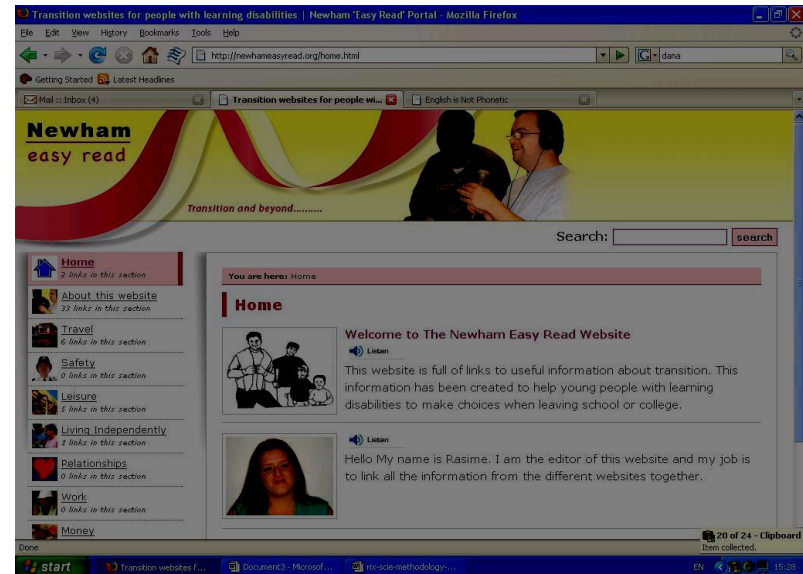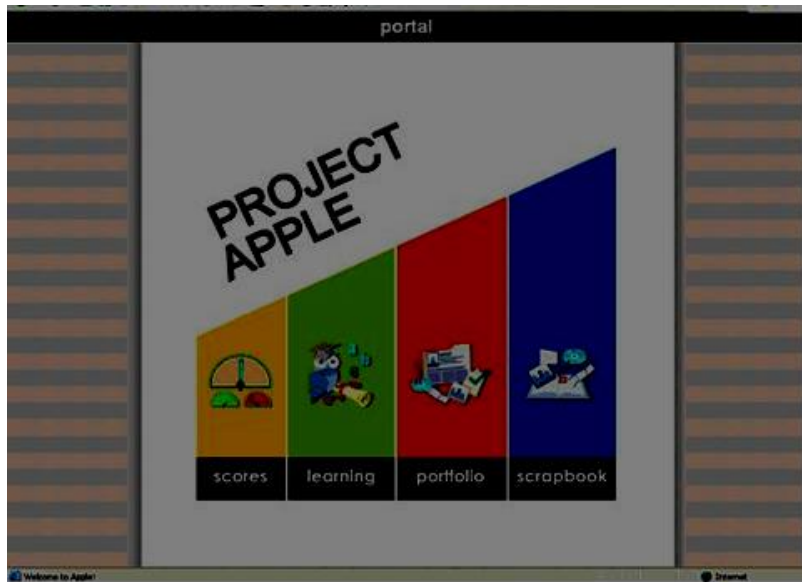
Overall aims

To create resources for ***and by*** young people to

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

Aims of the usability studies

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

"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 @pple

Newham Easy
   Read
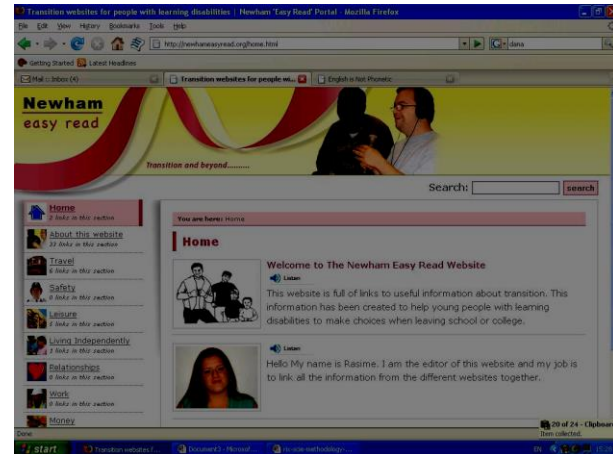
Sample(s)

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

- Interviews

- Observation

- Experimental tests

Findings (1)

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)

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

Usability tests: information retrieval

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

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

Results

- Iconography an issue

- Scrolling difficult

- Links not always recognised

- Text size important

Usability tests: games

We tested:

- Image recognition
- Understanding of task
- Curser dexterity
- Use of forward/back navigation
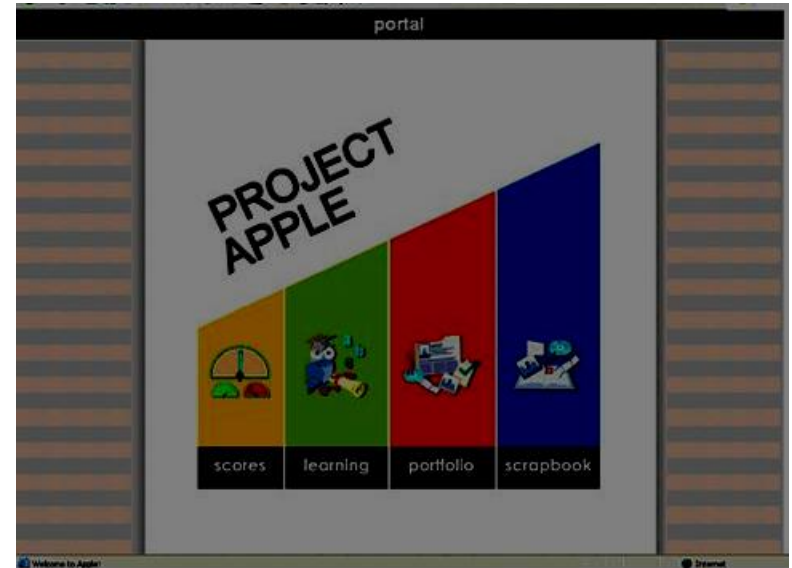
Next steps: optimising web interfaces

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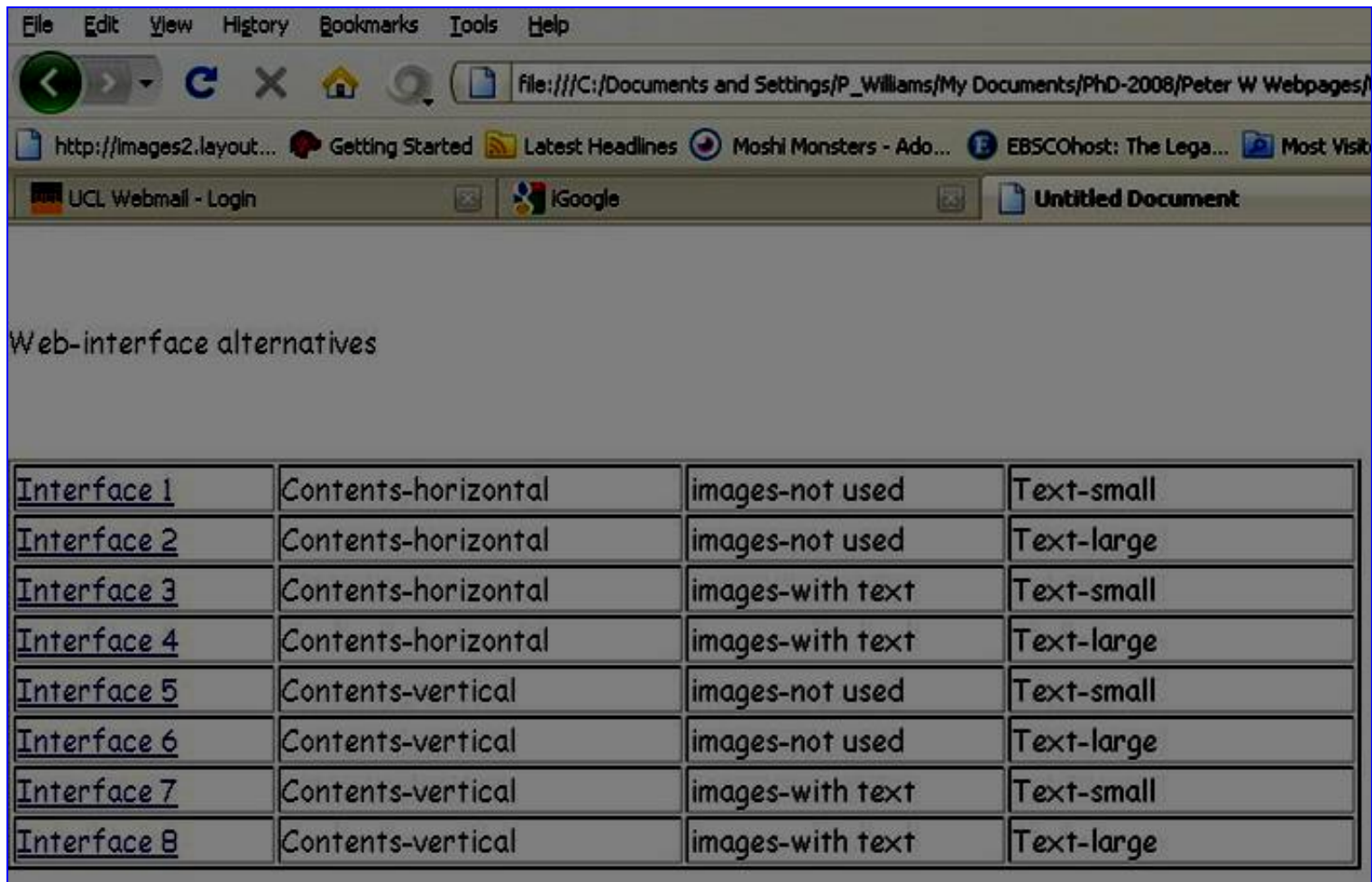
Then, whiz it through a Conjoint Analysis. This determines:

- 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
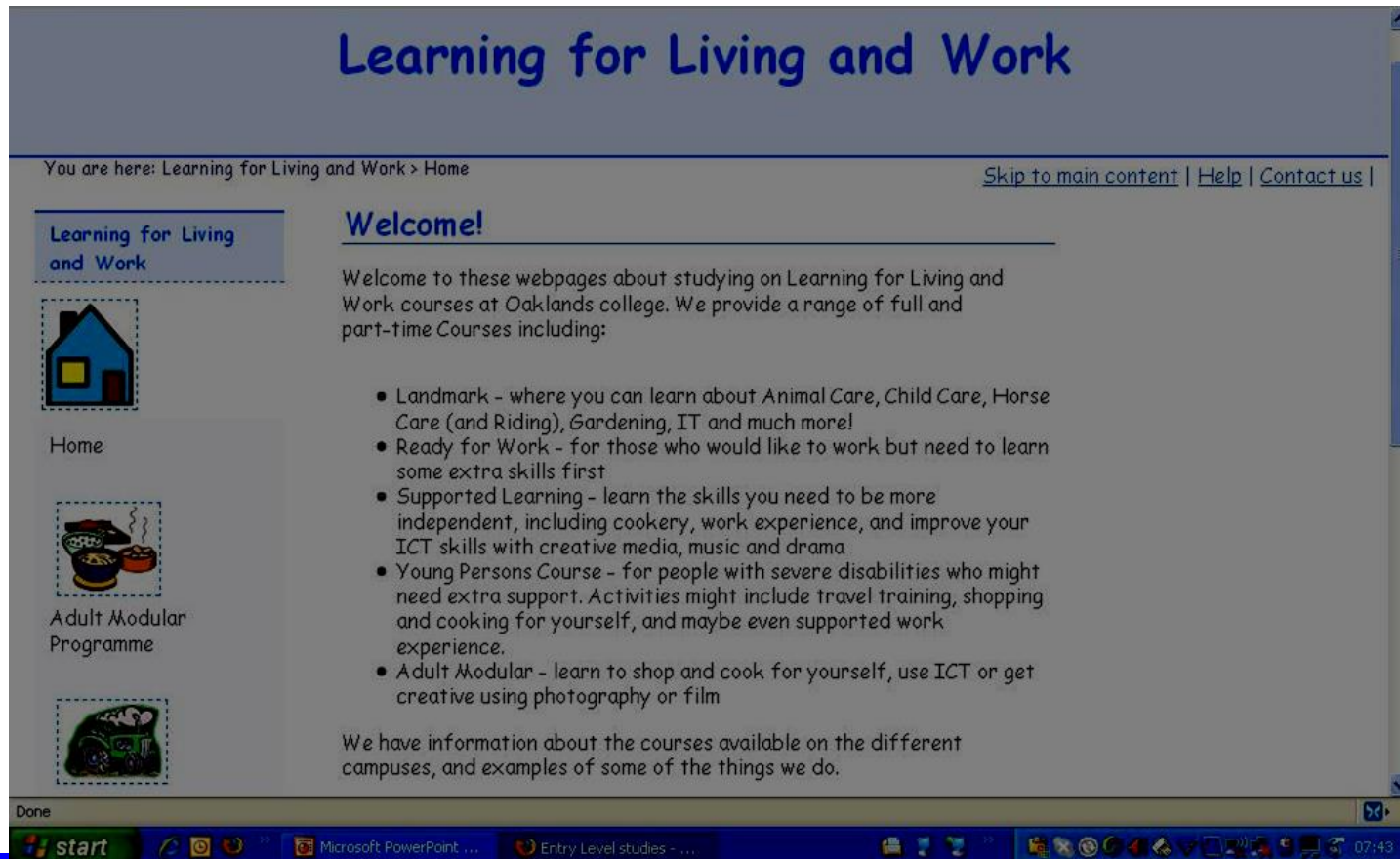
File   Edit   View   History   Bookmarks   Tools   Help

file:///C:/Documents and Settings/P_Williams/My Documents/PhD-2008/Peter W Webpages/

http://images2.layout...   Getting Started   Latest Headlines   Moshi Monsters - Ado...   EBSCOhost: The Lega...   Most Visit

UCL Webmail - Login | iGoogle | Untitled Document

Web-interface alternatives

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

Next steps: optimising web interfaces

Example (with images; small text; vertical menu)

Running this experiment means …

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

Thanks for listening!

Pete

Peter.williams@ucl.ac.uk