Designing Websites and Portals that work

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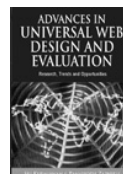
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The Centre for HCI Design (http://hcid.soi.city.ac.uk/) is London's largest HCI-related research group

We research the relationship between people and technology with the aim of creating more useful and easier to use systems.

Offer an MSc in Human-Centred Systems (http://www.soi.city.ac.uk/pgcourses/hcs/)

Have published extensively in this area:

Presentation Structure

- Basic introduction to Digital Libraries and Portals
- Usability and Accessibility Framework for DLs and Portals
- Participatory Design of Information Visualisation Interfaces for Digital Libraries and Portals
- Questions

Introduction to Digital Libraries

Digital Libraries (DLs)

- Defined as:

  "Collections of information that are both digitised and organised" (Lesk 1997).
- As demand for this information resource increased, issues of complexity rose.
- Therefore, there is a need for a comprehensive usability and accessibility evaluation framework for DLs.

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What is a Portal?

- A gateway to information – single point of entry
- A typical portal may offer a search engine, email, chat rooms, and/or links to other sites on the web.
- A portal can be self-contained i.e. a company can provide an array of information without heavily referencing resources on the Internet (e.g. Amazon)
- Can allow a degree of personalisation – customising look and feel, adding personal details etc...

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Examples of Portals

Yahoo

Excite

http://uk.yahoo.com/

http://www.excite.com

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Examples of Portals (2)

Amazon   BBc

http://www.amazon.co.uk   http://www.bbc.co.uk

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Background of JISC

Joint Information Systems Committee (JISC)

- An independent advisory body that supports Information Communication Technology (ICT) in further and higher education.

"To provide strategic guidance, advice and opportunities in the use of ICT to support teaching, learning, research and administration." (JISC)

Usability and Accessibility Framework

Goal:

- To enable designers in the field of digital libraries to employ the most suitable methodologies and techniques for each aspect, at each particular stage.
- Produce truly usable and accessible digital libraries.
- Focused on four types of services: Image services, geo spatial, portals, bibliographic
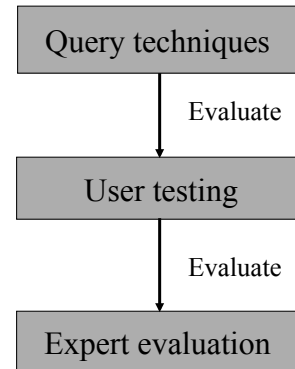
Usability and Accessibility Framework

Stage 1:

- Identify key aspects in the design of web-based Portals via literature review.
- Identify the most appropriate usability and accessibility methods, techniques and guidelines to evaluate them.

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Usability and Accessibility Framework

Stage 2:

Development of Framework for

Digital Libraries:

1) Conduct query - requirement gathering

2) Analyse results

3) Perform empirical (user) evaluations.

4) Assess any areas that have not been covered

5) Supplement these areas by expert evaluations

6) Analyse results

6) Feed results back into the framework

   to assess the validity

Query techniques

↓ Evaluate

User testing

↓ Evaluate

Expert evaluation

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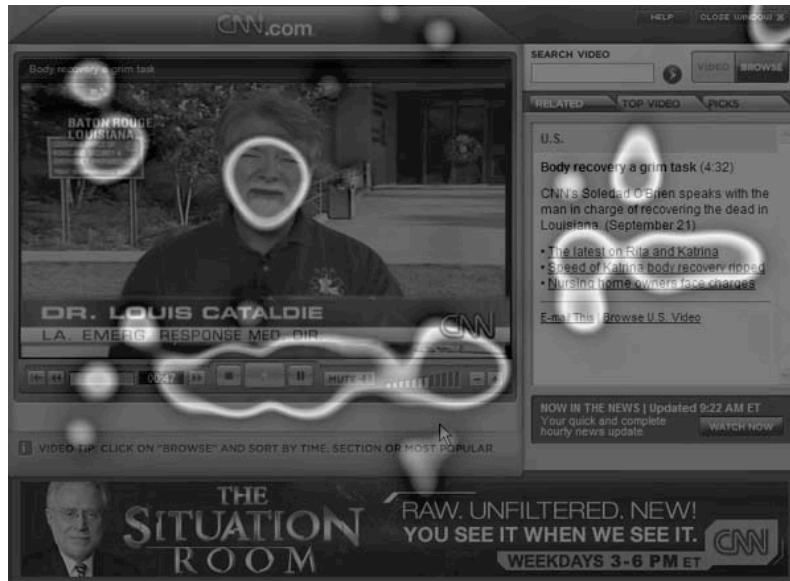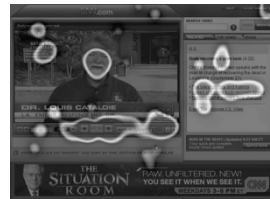
Implementation of framework

Techniques used:

- Requirement gathering (personas, scenarios)
- Query technique (interviews, questionnaires, focus groups)
- User Testing (observation evaluation - one to one, retrospective focus group)
- Expert Evaluation (Heuristic, Cognitive walkthroughs)

Usability Lab (at City University)

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JISC Services - Case Studies

Resource Discovery (Portal) Findings

Questionnaire - 88 responses.

- Service provides comprehensive range of information and is very useful.
- Overloaded with information within a page makes finding relevant information difficult.

User testing - 10 participants

- Search function needs to be more sophisticated.
- Too much information displayed within a page.

Focus group - 10 participants.

- Confused with use of specific terminology.

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The Guidelines

Contains three sections:
1) Presentation and Content Checklist

2) Usability Guidelines

3) Accessibility Guidelines

The Guidelines (1)

1) Presentation and Content Checklist
- Layout and navigation

- Labeling and headings

- Contrast and Scanability

- Images and Animation

- Optimisation (size and print)

The Guidelines (2)

2) Usability Guidelines
- Search
- Information Architecture
- Navigation
- Forms
- Registration
- Help
- Usage of Windows
- Speed and Errors

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The Guidelines (3)

3) Accessibility Guidelines
– Skip navigation option
– Provide alternative text
– Provide navigation schemes
– Minimise the number of links
– Provide user controls (e.g. 'Home' button)
– Provide each frame with a title
– Provide identification of row and column headers for data tables
– Use description text/links (avoid 'click', 'here', 'more' etc)
– Avoid scrolling/moving text
– Avoid colour schemes
– Multi-browser enable

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Summary for the Usability Study

- Main characteristics of a truly usable and accessible portal:
  – Support task-based information seeking behaviour
  – Highly organised information content
- Could be achieved by adapting the suggested framework
- Adopt the guidelines for effective design solutions

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Overall Scope of JISC Information Visualization project

Activity 1: JISC Requirements for Information Visualisation (IV)

   - Identify needs for IV use in JISC portal services

Activity 2: Literature Review

   - Find out more about IV and portals

Activity 3: Study of Current Practice

   - Document existing uses (commercial and academic) of IV for portals

Activity 4: Applying Theory to Practice

   - Participatory design sessions, Usability / Accessibility evaluation of IV techniques

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Participatory Design Sessions

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Aim of the PD sessions was:

- To introduce the concepts of information visualisation

- To generate ideas on how information visualisation can be applied to specific web based services.

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What is Information Visualisation

- Presenting abstract data in an interactive and visual representation
  - Abstract data: stock market quotes, prices, interest rates, football scores, documents, images etc.
- 'Visualisations can be used to store massive amounts of information in a quickly accessible form….in a small space' (Card, Mackinlay, Shneiderman)
- Information visualisation attempts to make large data sets more understandable, reveals patterns in information, aids exploring and decision making.

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What is Information Visualisation (2)

- Allows manipulation of the data
- Reduces the amount of time spent searching as information is grouped together
- Recognition versus recall: minimises the users memory load

Fundamental statement: presenting information visually

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What Information Visualisation is not

- Just pretty pictures

- Virtual reality – use of 3D graphics and devices, games

- Scientific visualisation which is concerned with physical data like the human body, atoms, molecules, earth, space, etc.
  - A medical imaging system showing heart rates, brain structures (3D) etc

What is Participatory Design

- Participatory Design refers to a design approach that focused on the intended user of the service or product, and advocates the active involvement of users throughout the design process (Bjerknes, et al., 1987)
- i.e. not simply design for the users.. But design WITH the users.
- Three tenets (Blomberg and Henderson, 1990):
  - The goal is to improve the quality of life
  - The orientation is collaborative
  - The process is iterative

Methodology

- Separate sessions for Portals, Geo-Spatial, Images, Bibliographical.
- 6 participants in each session
- Care was taken so that users participated in sessions for which they had good prior expertise (e.g. librarians in the Bibliographical session)
- Sessions fully equipped with necessary stationary (colour pens, pencils, scissors, cards, paper, acetates, post-it notes etc)

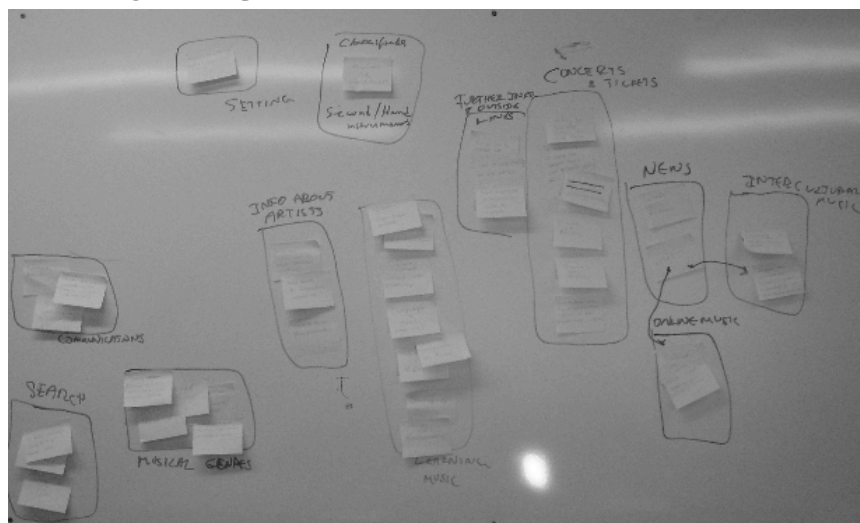CITY City University London — Centre for HCI Design

Methodology (Cont.)

- *Task 1*: Working individually brainstorm ideas for a given scenario
- *Task 2*: Working in pairs to sketch design ideas for a given scenario using any of the materials around you to help develop your thoughts:
  - E.g. coloured pens, pencils, paper, card, post-it notes, whiteboard, OHP, etc
- *Task 3*: Presentation of the designs and group discussion on what works well and what does not.
- *Task 4*: Redesign - back to the drawing board

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Portals

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Task 1: Requirements for Portals

- The scenario: "JISC is a public organisation that supports further and higher education. JISC has released a tender to develop a new portal site aimed at students in further and higher education to provide information and resources on Music. The tender requires you to:

  – Identify the requirements of the site i.e. what users want in terms of information and functionality

  Few pointers
  - Information: History of music, genres
  - Functionality: Search"

- Participants had to Individually write down their ideas on post-it notes. They had to restrict one idea per post-it.
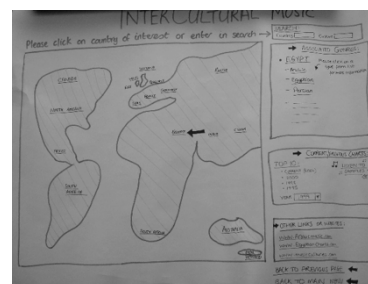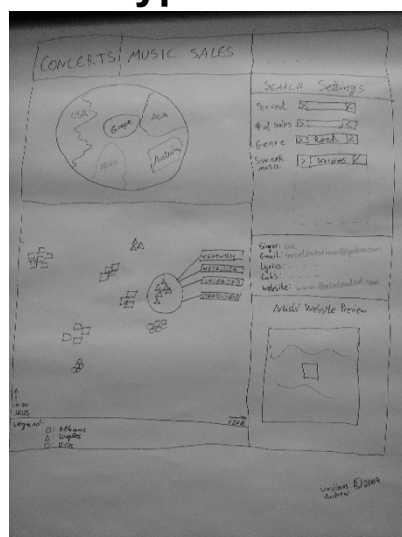
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Affinity Diagram

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Task 2: Design – paper prototypes in pairs

- Participants worked In pairs using the materials provided to sketch a design for the Music portal using some form of information visualisation to display the information

- Instructions:
  - You may use the requirements as a basis for developing the design

  - The sketch may use techniques that have been provided in the handouts or you may design your own techniques.

  - Try and visualise how you would like the portal to display the information to you.

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Prototypes
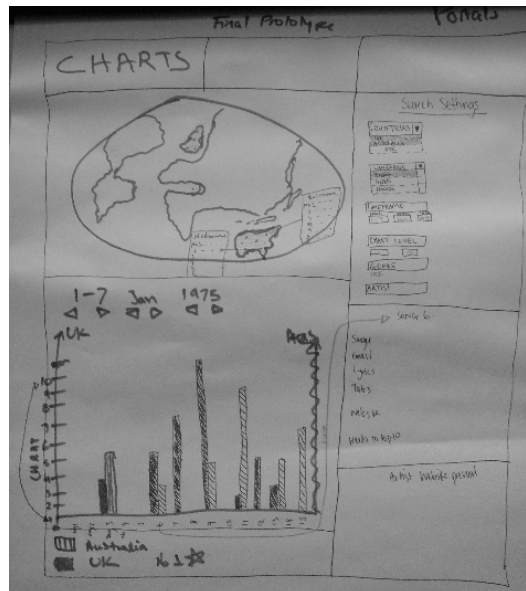
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Task 3: Evaluation – presentation of initial designs

- Each group had to present their designs to the whole group

- Each group had to walkthrough the design discussing it's functionality, what you can do, how you can do it, any problems with it, what you can't do etc…

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Task 4: Unified design – Final prototype

- Instructions:
  - Look at all of the designs produced and assess what works well on each of the designs.

  - Then produce one design that incorporates all positive (well designed) aspects .

Conclusions

- PD achieved to help the process of brainstorming
- It is quick and low cost
- We noticed that it was easier for participants to put their ideas on paper than verbalize them.
- PD sessions revealed some useful and interesting uses of IV in Digital Libraries, but also brought to the surface a number of weaknesses about the complexity of implementing IV.