

Annex D. Additional guidelines for online courses

Web-based course materials present additional design challenges, as they need to implement a sound pedagogic approach within a web structure that is easy to use and navigate.

The term “pedagogical usability” has been used to denote whether tools, content, interface and the tasks of the web-based learning environments support various learners to learn in various learning contexts according to selected pedagogical objectives. [D5]

Specific usability issues that impact on learning materials include:

- Any problems with use or navigation will prevent the student from employing the learning materials effectively.
- Using the materials effectively may be an essential component of a student course.
- The interface needs to support effective engagement with the learning materials over extended periods of time, some of which may be at home.
- There may be a need for two different interfaces, one for the instructor to add material, and another for the student to view and interact with it.

This results in the following additional HCI guidelines (to appear in section 18 of the guidelines):

18a Support interruptions in workflow (e.g. to answer the phone, check on the kids) [D1]

18b Organise pages into a main entrance, main work pages and other auxiliary resources [D2]

18c Arrange information in chunks surrounded by some space [D2]

18d Ensure course pages can be printed [D2]

18e Arrange information in a non-threatening manner so that users are not overwhelmed [D3]

18f Use a fixed screen layout so that navigation information is at the same place on each screen [D3]

18g Use location indicators and progress reports to let users know where they are, where they need to go, and how long it will take them to get there (e.g. how many questions in this section) [D3]

References

[D1] Why people can't use eLearning – What the eLearning sector needs to learn about usability. (2001) Frontend.com

<http://infocentre.frontend.com/servlet/Infocentre?page=article&id=163>

A study of three eLearning services, followed up with recommendations on how to avoid the Usability problems discovered.

[D2] - Illinois Online Network – Guidelines for Academic websites
<http://www.ion.illinois.edu/IONresources/webdesign/academguidelines.asp>

A useful overview of guidelines relevant to academic web sites

[D3] – Okey, James R & Jones, Marshall G. *Interface design for computer-based learning environments*. Northern Illinois University <http://ddi.cs.uni-potsdam.de/HyFISCH/Multimedia/Learning/InterfaceDesignJones.htm>

This article highlights a number of issues surrounding Usability and eLearning, and then goes on to produced a set of guidelines to resolve these issues.

Research activities

[D4] Melis, E., Weber, M., & Andrès, E. (2003). Lessons for (Pedagogic) Usability of eLearning Systems. World Conference on E-Learning in Corp., Govt., Health., & Higher Ed. 2003(1), 281-284. <http://dl.aace.org/13660>

Discusses case studies illustrating the difference between technical usability and pedagogical usability.

[D5] Silius, K., Tervakari, A-M. & Pohjolainen, S. 2003. A Multidisciplinary Tool for the Evaluation of Usability, Pedagogical Usability, Accessibility and Informational Quality of Web-based Courses. PEG2003- The Eleventh International PEG Conference: Powerful ICT for Teaching and Learning, 28 June - 1 July 2003 in St. Petersburg, Russia. Proceedings of PEG2003, [CD-rom]. Saatavissa pdf-muodossa: <http://www.virtuaaliopisto.tut.fi/arvo/liitteet/PEG2003.pdf>.

Proposes a comprehensive framework for evaluating both usability and pedagogical usability.

Annex E. Digital library guidelines

What is different about digital libraries?

- The large amount of information they contain
- Difficult to determine what users want
- Need to cater for browsing and searching

The different types of digital library and the potential features they can provide are listed in [E4].

“Digital libraries demand more sophistication of query formulation than web search engines such as Google™; skills acquired in one library environment are often not easily transferred to another.” [4]

The following additional guidelines were identified for digital libraries.

	Digital libraries
1	Design Process and Evaluation
1a	To design good, usable digital libraries, one requires knowledge about who will use them, what they will be used for, the work context and the environment in which they will be used, and what is technically and logistically feasible. [26]
1b	Copy an interface that is already widely used and successful (e.g. a similar service) to facilitate transfer of learning [4]
1c	User should be able to focus on their task rather than how the DL works [4]
10	Links
10a	Links should be embedded in the documents to provide users with the ability to move to related information quickly without having to waste time submitting another query and waiting for the query results. [26]
15	Writing Web Content
15a	Documents (content) should be easy to read or skim [5]
15b	<i>Do not overwhelm the user with text, keep it simple and informative [29]</i>
15c	Use a meaningful document header to identify the content of the document and page footer to identify the origin, authorship, author contact information, date of creation, copyright info, etc. [26]
15d	Match the system to the real world. Simulating an existing artefact can improve the integration of the DL with current work practices. [29]
17	Search
17a	Provide clear information about which libraries are available to the user and the scope of content of each library. [4]
17b	Support browsing to find how well does a collection covers a topic area [5] Clearly indicate when entering or leaving a particular library search environment. [4]
17c	Users do not want to receive all the results, they prefer a manageable number that are easily distinguishable in terms of the documents’ content [4]
17d	Users will give up unless they find relevant material rapidly, and really want new, interesting, and possibly surprising material. [4]
17e	Allow people to save, modify, and review queries for reuse over time. [5]
17f	Offer alternative search forms for users with different understanding of the content (advanced and novice) [29]
17g	Eliminate as much typing as possible, support abbreviations and acronyms for advanced users [29]

References

[4] Blandford, A. & Buchanan, G. (2003) Usability of digital libraries: a source of creative tensions with technical developments. IEEE-CS TC Bulletin <http://www.ieee-tcdl.org/Bulletin/current/blandford/blandford.html>

A clear overview of current research and design guidance, with a comprehensive list of references.

[5] Bryan-Kinns, N, Blandford, A (2000) A survey of user studies for digital libraries <http://www.ucl.ac.uk/annb/DLUability/DLuser.pdf>

Reviews user behaviour with digital libraries and details a number of evaluation methods that are applicable to Digital Libraries, including, diary studies, questionnaire, observation, usability testing, focus groups and transaction logs.

[26] Theng, Y.L., Duncker, E., Mohd Nasir, N., Buchanan, G. & Thimbleby, H. (1999), Design guidelines and user-centred digital libraries, Lecture Notes in Computer Science: Research and Advanced Technology for Digital Libraries, Third European Conference ECDL'99, Abiteboul, S. and Vercoustre, A.(Eds.), pp. 167 - 183, Springer. <http://www.cs.mdx.ac.uk/staffpages/yinleng/eurodl99.pdf>

Makes design recommendations based on the results of evaluating three digital libraries.

[29] Van House, N A, Butler, M H, Ogle, V, Schiff, L (1996) User-Centered Iterative Design for Digital Libraries. D-Lib Magazine, February 1996. www.dlib.org/dlib/february96/02vanhouse.html

Suggests design principles based on the results of evaluating the Cypress digital library.

Other digital library research

[E1] Anderson, T., and Choudhury, S. (2003) A Usability Research Agenda for Digital Libraries. Digital Knowledge Center, Sheridan Libraries, Johns Hopkins University. http://dkc.mse.jhu.edu/usability_1.html

Discusses quantitative methods for digital library usability, location of user population and test participants, diversity of user population and test participants, testing part vs. whole digital library, test environment (natural vs. lab settings), and balance between user feedback and librarian expertise

[E2] Covey, D. (2002) Usage and Usability Assessment: Library Practices and Concerns. Digital Library Federation. Washington, D.C.

Details a number of evaluation methods that are applicable to Digital Libraries, including, questionnaires, focus groups, user protocols, Heuristic Evaluation, card sorting, paper prototypes and transaction log analysis. For each method a description is given as well as details of why, how, who and what is involved in carrying the method out.

[E3] Research in Digital Libraries (RIDL) <http://www.cs.mdx.ac.uk/ridl/>

[E4] Sandusky, R. J. (2002) Digital Library Attributes: Framing usability research. In A. Blandford and G. Buchanan (Eds.) *Proc. Workshop on Usability of Digital Libraries at JCDL'02*. 35-38. <http://www.ucl.ac.uk/annb/DLUsability/Sandusky35.pdf>

[E5] Theng, Y.L. "Lost in hyperspace" problem revisited and framework for building digital libraries. Middlesex University

Annex F. Personalisation guidelines

There are three ways of personalising a web site: by categorising the user by *role*, by allowing the user to specify their personal *preferences*, or the system can *automatically* personalise the interface by observing the user's actions and making assumptions based on other users with the same interests use these to determine what the user sees.

Role-base personalisation

Customising the interface based on the user's role or subject area can save the user time and produce results more closely matching their needs. But be careful not to antagonise users by making incorrect assumptions. [F1]

User-specified preferences

Users should be able to set personal preferences as defaults by answering questions or selecting options, but in practice, unless there is a well-understood benefit, few users invest much effort in setting preferences.

- people are reluctant to spend much time customizing their views for reasons of privacy and laziness [G1]
- Store user preferences on the server: (If cookies are used then every user of that terminal will see the personal content of the first user and the preferences are lost when the cookies are removed)[28:D4]
- Invite the user to customise, and outline the advantages [28:D4]
- Keep any customisation feature quick and easy to set up [F1]

Automatic personalisation

Automatic personalisation should be avoided unless it can consistently and accurately match the users needs and expectations.

- Users should be informed of any changes and have the opportunity to override them. [F1]

References

[F1] Nielsen, J. (1998) Alertbox: Personalization is Over-Rated
<http://www.useit.com/alertbox/981004.html>

Other information on personalisation

[F2] Infomotions Portal Webliography <http://www.infomotions.com/portals/>.

“The purpose of the webliography is to collect, organize, and disseminate pointers to information and examples of user-driven and customizable interfaces to sets of Internet resources -- portals.”

[F3] Kramer, J., S. Noronha, and J. Vergo. (2000, August) A user-centered design approach to personalization. *Communications of the ACM*, 43(8): 45–48.
<http://doi.acm.org/10.1145/345124.345139>

This article argues that customer-centred design is the key to successful design and implementation

[F4] Krottmaier, H. (2001) Improving the usability of a digital library. Electronic Publishing (ELPUB 2001) <http://courses.iicm.edu/~hkrott/site/docs/publications/elpub-2001.pdf>

Describes the personal workspace for users of the Journal of Universal Computer Science.

[F5] Manber, U., A. Patel, and J. Robison. (2000, August) Experience with personalization of Yahoo! Communications of the ACM, 43(8): 35–39.
<http://doi.acm.org/10.1145/345124.345136>

Discusses the experiences and lessons learned in building and maintaining My Yahoo!, and the fact that people often don't change the defaults.

Annex G. Portals guidelines

JISC describes portals from a user perspective as “a possibly personalised, common point of access where searching can be carried out across one or more than one resource and the amalgamated results viewed”. [G2]

There have been 2 major reports on the usability of portals: by the SAP Design Guild [21] and by the Nielsen Norman Group [G1]. However neither of these reports nor other published material have identified any unique design issues associated with portals, but they do emphasise the importance of applying appropriate user centred design and HCI principles because of the additional complexity associated with portals.

In particular portals are likely to have information-rich home pages, to support navigation across a wide range of content, to be personalised, and to use a search engine. The following recommendations are from reference [G1].

Planning

- To ensure the pages are consistent, a set of information design standards should be produced for people who add content.
- If possible assign a specialist editor to add information to the portal.

The Homepage

- People using a portal are more task-oriented than for a normal web site: they tend to know what they want and appreciate a functionally oriented design.
- It may be appropriate to have more than one home page (e.g. for different topic areas) that could be joined by a master homepage.

Navigation

- If there are many categories of information, two layers of tabs can be used across the top of the page, or drop down menus used to make larger quantities of content visible without clicking to another page.

Content Organisation

- Content should be fast to access and read.

Personalisation

Customised interfaces can be used to prioritise relevant information for specific user groups (see Annex F).

References

[21] – SAP Design Guild (2001) User-centered Portal Design
http://www.sapdesignguild.org/editions/edition3/overview_edition3.asp

This website contains a number of useful resources related to designing portals including information about 'User-centered Portal Design', 'Graphic Design and Branding' and '"Real" Portal Projects'.

[G1] Goodwin, C, and Nielsen, J. (2003) Building Intranet Portals – a Report from the Trenches, Nielsen Norman Group

This report describes issues associated with a portal including search, managing content, personalisation and site design and structure. These areas are reviewed in real company intranet portals and for each one 'lessons learned' from the study are given. Although the report is primarily about company Intranets it provides a useful insight into the general usability issues relating to portals.

[G2] JISC Portals: Frequently Asked Questions

http://www.jisc.ac.uk/index.cfm?name=ie_portalsfaq