

5. Usability and Accessibility Framework for DL

5.1 Nature of digital libraries

Traditional bricks and mortar libraries can be defined as managed collections of information that enable users to increase their knowledge. Modern digital libraries (DL's) endeavour to provide the same services, but deliver information over the Internet or Intranet; therefore they operate in the intersection between traditional libraries and the information superhighway.

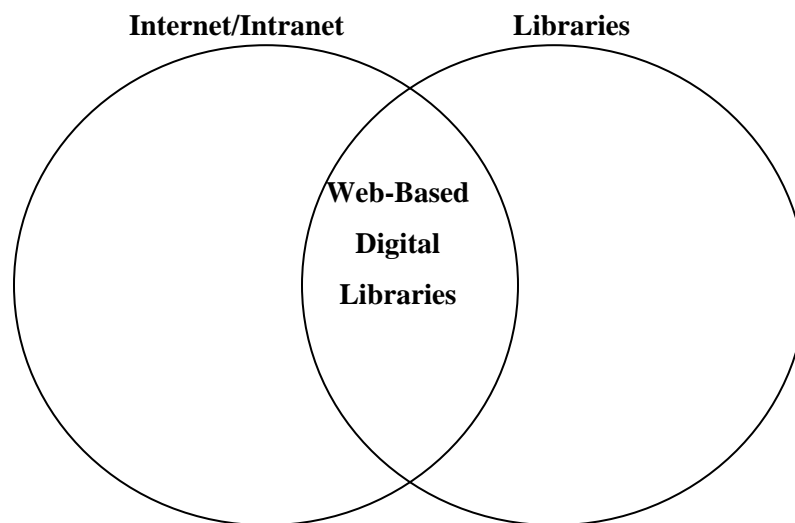


Figure 1: DL's position in relation to traditional libraries and the Internet.

A crucial factor for libraries is that the information they preserve and deliver is effectively organised. With regards to DL's, Arms (2002) notes that a '[d]igital stream of data sent to earth from a satellite is not a library. [However] The same data, when organised systematically, becomes a digital library collection'. This is one of the key dimensions of a DL. Highly effective cataloguing, organisation and structure of information separates DL's from other ad-hoc web services where the information architecture and navigational mechanisms have no particular justification.

Another key dimension is user behaviour. Web-sites are often designed to support browsing activities, whereas DL's need to support task oriented navigation. Helander and Vora (1997) define the difference between these two information-seeking behaviours:

The main distinction between navigation and browsing is based upon user goals. In browsing, users explore the available hypertext to get a general idea about one or several topics. Whereas, in navigation, users have a specified goal in mind (Helander & Vora, 1997).

Figure 5 highlights the position of DL's with regards to information seeking behaviour and the organisation of information, with reference to the Internet.

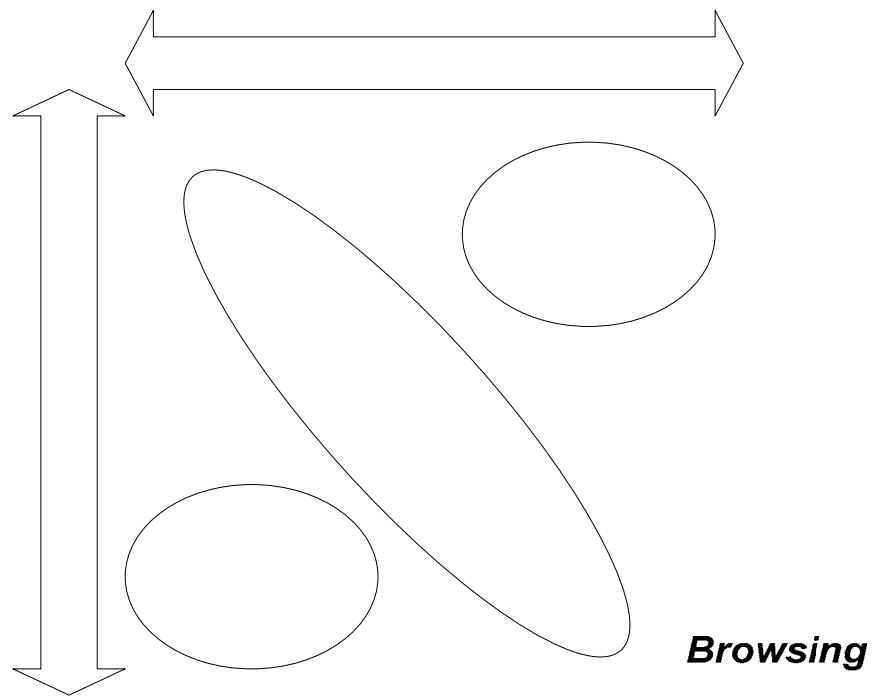


Figure 2: Axis of users behaviour versus information organisation

5.2 Usability and accessibility iterative framework for DL's *Highly*

Libraries have always tried to remove obstacles to information access. A poorly designed DL is certainly a barrier to the library user; therefore the need exists for a specific usability and accessibility framework for DL's, which if adopted can ensure quality and enhanced usability of a service.

We regard the most important aspect in evaluating a system to be the identification of real user problems; therefore our framework plays specific attention to evaluation techniques that involve current and prospective users. Expert evaluation methodologies are also conducted to supplement user evaluations and address areas that are not covered by previous evaluation techniques. After each stage the findings must be evaluated, enabling appropriate design and modification of the techniques in the next stage of the framework, thus ensuring maximum effectiveness.

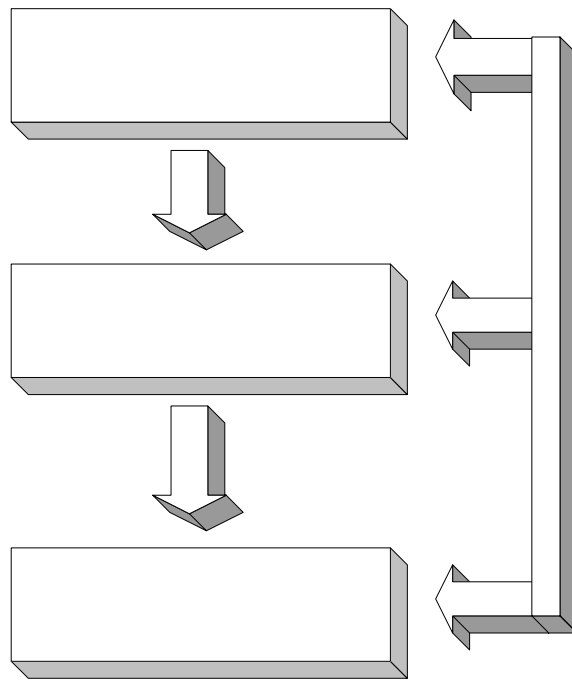


Figure 3: DL's usability/accessibility framework

Query Technique

The framework can be broken down into seven key steps:

1. Conduct Query - Requirement Gathering

Identify satisfaction levels of current users of the system and establish key positive and negative aspects of the interface, what features they would like to see etc.

2. Analysis

Evaluate current findings and identify issues not yet addressed

User Testing

3. Perform Empirical (user) Evaluations

We regard user testing as the strongest evaluation technique, allowing us to identify real user problems by observing users interacting with the system. Retrospective focus groups or interviews conducted after the evaluations also provide a volume of qualitative data.

4. Analysis

Establish key problems and assess if any areas of the service have not been covered by user evaluations

5. Expert Evaluations

Appropriate modification of expert evaluation techniques maybe required so that they supplement previous evaluation findings, and address any areas or issues that have not as yet been covered

6. Analysis

Analyse all data identifying key issues that need to be addressed in the redesign of the service. Establish new usability and accessibility goals for the design

7. Iterative Process

Re-conduct all stages in the iterative framework to evaluate redesign

The techniques in each stage of the process are:

Query Techniques	User Testing	Expert Evaluations
Questionnaires	Retrospective	Heuristic evaluation
Interviews	Concurrent	Cognitive Walkthrough
Focus groups		

The evaluation techniques applied to the DL's framework also need to address the highly organised and task based nature of DL. In our evaluations of four JISC services the tasks applied to the user testing evaluations and cognitive walkthroughs were designed with these two dimensions in mind, for example.