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Usability of public libraries: perceptions and experiences of new users

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First impressions are important, yet few studies examine libraries from the perspective of new users. This comparative project investigates the usability of traditional and newly built public libraries for new users in comparison to bookshops, recording initial perceptions and tools used in retrieval of physical items using a number of methods. Usability varied widely in the libraries studied though they were not necessarily less usable than bookshops. A number of best practices from both libraries and bookshops are highlighted to aid future library design.

1. Introduction

Libraries are going through a period of intense change. The availability of information on the Internet and its immediacy of access, has had a great impact on libraries, forcing them to redefine their relevance, both as a service and as a physical place (Matarasso 2000, p.42; Michaels 2003, p.17).

Libraries are also experiencing competition, especially from larger bookstores which are increasingly moving into the domain of libraries, marketing themselves as places to spend time, using coffee shops and providing other traditional library activities. Surveys show will use whichever service is most convenient (Smith 1999, p.309). Effects are being felt in continually falling issue numbers, with a six percent decrease in the year to 2005 (Creaser, Maynard & White 2005, p.2).

These problems are being tackled in the UK by redefining library roles as outlined in recent reports such as *Framework for the Future* (2003) and *21st Century Libraries* (2004). Since most criticism of libraries by users has centred on the state of library buildings (Dewe 2006, p.5), this has become a focus for inspiring new users, with the Love Libraries campaign transforming three libraries in 12 weeks. There has been increased funding to renew or replace building stock and external investment from the National Lottery and Public Finance Initiatives (PFI) in line with government priorities for improving civic values. A number of groups have been being set up to

facilitate best practice including Building Futures and CABE, the Commission for Architecture and the Built Environment.

Libraries are also starting to actively market themselves, improving and promoting services such as free Internet access and extending opening hours to encourage new users. However, staff familiarity with layout and the difference in their interactions, makes it hard for them to realise just how difficult and intimidating libraries can be for new users to use (Baltimore Public Libraries 1989, p.1; Cohen & Cohen 1979, p.72). Staff expect users to ask for help, understand library organisation and have plenty of time. Studies show that many, especially men, do not ask (Royal Automobile Club (RAC) 2006; Underhill 2000, p.99), do not understand some of the tools (Beecher 2005, p.117) and most visits only last about nine minutes (Van Riel 2002, p.38).

First impressions of a library and its usability are important. They may ultimately affect whether borrowers come back to the library service in the long term, as they will ultimately choose to use services that elicit feelings of comfort and pleasure (Arthur & Passini 1992, p.9; Rizzo 2002, p.459) and avoid interfaces that are hard to figure out, especially if there are easier alternatives (Nielsen 2003).

Libraries can be particularly difficult to navigate as they often have multiple floors, which require reorientation (Kushiyama, Soeda & Ohno 1997) and in terms of layout, individual areas are rarely delimited (Beecher 2005, p.8). Collection organisation may compound this, making it hard to identify precise locations especially as individual items are typically visually alike and stored in a similar way. Library users come from a wide demographic and experience, which will impact their initial wayfinding skills.

The challenge for libraries is to make wayfinding easier for all users, via tools such as signage and logical collection organization providing other visual clues such as layout to make these differences easily visible (Norman 2002, p.192). The importance of gearing the service to users has been recognized by *Building Better Library Services* (Audit Commission 2002), with a number of retail consultants bringing their experience to libraries including John Stanley Associates and Opening the Book to transform libraries with retail inspired layout, furniture and promotional techniques. It is clear that libraries have to improve their perception of value to customers to compete with other leisure services (Childs 2006, p.149) and remain relevant in the 21st century. It is therefore vitally important that librarians and planners can consider the library from the user's perspective when devising or changing layout and learn from best practice and research to optimise their affects.

Research investigating wayfinding in buildings is not new. Previous studies have focused on aspects of usability such as memorability, with subjects drawing maps and answering questions about layout (Baskaya, Wilson & Ozcan 2004), observational studies (Underhill 2000) and online role-playing and photo questionnaires (Guimaraes 2005, p.9). Other authors have attempted to objectively quantify the link between layout and wayfinding, though Best's (1969 cited in Eaton 1991, p.521) 'lostness formula' for large buildings was found to be inapplicable in the library environment (Eaton 1991, p.521). O'Neill (1991) proposes an alternative based on studies in an academic library using an objective measure of connections between a series of points. There have also been a number of item retrieval studies in libraries noting factors such as retrieval time, effectiveness and route (Eaton 1991). These were mostly in academic libraries with users who were already familiar with layout (Bosman & Rusinek 1997; Eaton, Vocino & Taylor 1992). Smiley & Rochford (1998) considered new users assessing tasks via questionnaires, comparing data with statistics collected for directional queries. The only public library study, conducted by Beecher (2005), studied participants with previous library knowledge at three unfamiliar libraries, using self timed retrieval task analyses and recording feelings on dictaphones. This study showed

that the different tools provided at each library, affected use of signs but seemed to have no final effect on retrieval. Participants recorded frequent use of visual architectural clues such as staircases, and elevators, previous knowledge of collection organisation and browsing though they found difficulty using tools such as computer catalogues, maps and directories and did not understand library jargon, abbreviations and acronyms.

The research described here aimed to address wayfinding from a different perspective; using walkthrough audits and task analysis to assess the usability of public libraries for new users. The objectives of the research were:

- To discover initial usability.
- To discover what tools are important for item retrieval in unfamiliar environments.
- To assess and compare usability via item retrieval in unfamiliar bookshops, traditional and new build libraries.
- To identify best practice in usability in bookshops, traditional and new build libraries.
- To provide insight for library designers to improve provision for new users.

The rest of the paper outlines the methodology used in the research, details the findings and presents insights into how library usability can be improved.

2. Methodology

A number of methods were used to evaluate usability and provide contextual data. Walkthrough audits were conducted to note features available to aid item retrieval, while associated task analyses at each site were undertaken to reveal important features used by new users and their experience. Interviews were also undertaken in libraries to give staff perception of usability. In new libraries these also gave contextual information about the layout and design process. Questionnaires were distributed to new library users to obtain the views of "actual users". Other methods such as user observation studies and protocol studies were discounted because of the ethical issues involved. The sample and the methods used are described in more detail below.

2.1 Sample

Ten public libraries agreed to take part in the study, consisting of five new libraries and five traditional libraries. The new libraries, identified from the *Designing Libraries* database were selected because they were completely new build libraries, which had opened between 2004 and 2006. The resulting library list was purposively sampled[1] to ensure even geographic spread in England, a selection of different sized libraries and a variety of design team models. The five traditional libraries were convenience sampled[2], to be libraries local to these new libraries that had not been refurbished in the last five years.

Four bookshops were also chosen using convenience sampling, for contrast with the new libraries, and to assess what techniques, if any, had been harnessed in new library designs. All four were based in the UK Midlands area and comprised large bookshop chains, which are roughly standardised in their approach throughout the country.

2.2 Walkthrough Audit

To assess the process of item retrieval the results of a number of wayfinding studies (for example, Arthur & Passini 1992; Gerber & Kwan 1994; Golledge 1999; Gross & Zimring 1992; Hedge

[1] *Morris, A., 2006. Sampling techniques [lecture for Research Methods, 24th January, 2006].*

[2] *Ibid.*

2004, Weisman 1981) and item retrieval studies were used to identify the tools used to navigate a space including maps, signs and landmarks, and the effects of their availability and location. These are considered from a library design perspective by a number of authors including Brown (2002), Cohen & Cohen (1979), Lushington & Kusack (1991), Pollet & Haskell (1979) and Reynolds & Barrett (1981).

The walkthrough audit was carried out in a similar way to feature checklists as described by Jordan (1998, p. 101) using previous design checklists and taking into account hunters and gatherers, the two main user types identified by Stanley (John Stanley Associates 2004) and was restricted to adult areas of stock. Following the natural logical progression into a library the audit commenced with external impressions looking into the building and was followed by the noting of the successive entrance zones, as defined by Underhill (2000, pp.46-50), which have been shown to affect initial orientation, signs, layout of shelves, rough collection organisation and the guiding methods available to library users. Additional contextual items like self-service machines, counters and information points were marked on plans provided by the library or drawn by the tester. Photographs were taken to illustrate main points.

2.3 Task analysis

Task analysis was carried out to gain further insight from a perspective of a new user. The tasks consisted of the retrieval of a number of standard items at each library, such as obtaining specific fiction and non-fiction books. Feelings and tools used were noted on a task analysis form. Because the results of both the task analysis and the walkthrough audits were subjective and could be affected by cognitive characteristics of the tester (Jordan 1998, pp.8-11), questionnaires were given to new library users to ascertain their views.

2.4 User questionnaire survey

Self administered questionnaires were distributed by staff to new users when they joined, as the most easy and time efficient means of studying new users and their needs. Each library were sent 50 one-page questionnaires with stamped addressed envelopes and background information. Initial questions were used to gain idea of why users had joined and if searching, to assess what type of searcher they were and whether their search was successful. Other questions presented diametrically opposed pairs of emotional responses as a method of testing feelings evoked by the search process. These were followed by a standardised set of positive statements with five point Likert scales which were used elicit more general feelings about the library and its use of specific search tools. Demographic information that took into account cognitive factors including previous experience and knowledge, expectation, cultural background, disability, age and gender were also collected.

2.5 Interviews with staff

Face-to-face interviews with management staff at each new library occurred to explore their perception of how user-friendly the library was, the typical questions users asked regarding directions and issues experienced both during and after the design process.

2.6 *Changes to method for bookshops*

The methods were altered slightly prior to visiting the bookshops to focus on book stock only. This was reflected in the tasks in the task analysis and recorded data on floor plans. The walkthrough audit was adapted to suit the different premises.

3. Results and discussion

Brief details of the libraries and bookshops in the study are provided in Table 1. The results of the walkthrough audits, task analysis and interviews are discussed below under subheadings.

	Size	Type	No of floors	Population served	Stock size
New libraries					
A	Very large	Central	2	141,600	176,000
B	Large	Town	2	28,000	22,918
C	Large	District	2	25,025	30,000
D	Medium	Town	1	6,600	23,500
E	Small	Community	1	4,000	11,279
Traditional libraries					
F	Medium	Branch	1	16,510	17,133
G	Medium	Branch	1	10,196	11,453
H	Small	Branch	1	12,562	11,811
I	Small	Town	1	4,000	11,279
J	Medium	District	1	Not known	Not known
Bookshops					
1	Very Large	City Centre	5		c.100, 000
2	Large	Out of town – retail park	2		Not known
3	Small	Town Centre	1		Not known
4	Small	Out of town – retail park	1		Not known

Table 1: Summary details of the libraries and bookshops in the study

3.1 Walkthrough audit

The results of the walkthrough audits are summarised in appended Tables A1 to A3. Floorplans for each location are given in Barlow (2006).

3.1.1 Libraries

As Figure 1 shows there was not always a contrast in external appearance between new and old libraries as new libraries vary in style. Libraries A B and C were modern two storey buildings, with A and B being truly iconic glass structures with environmentally friendly features including solar panels. Library A built through Private Finance Initiative funding has won a large number of awards for this design. Libraries D and E were more traditional. The majority of older libraries studied, were flat roofed single storey municipal buildings. Most new libraries were built on new sites in convenient locations near retail areas replacing local libraries and two of the new libraries (B and E) were co-located with schools. Older libraries were located in similar locations though typically in less prime sites.

In most of the libraries though different stock areas were visible initially, as shown in Table 2, counters were immediately evident and in the larger new libraries, A and B self-service machines were on hand, with baskets at Libraries A and C. New libraries typically had less visual clutter in this area, aiding orientation with wayfinding tools such as maps (Library A), signage (Libraries B and D), or directories (Libraries A and C). Interestingly, Library E used blue backlighting to highlight key areas such as the counter and promotional areas, which was effective in drawing the

Figure 1: Exterior of Libraries studied with new libraries A, B, C, D and E on the left and old libraries F, G, H, and I on the right.

eye to these important areas (see Figure 2)[3]. Apart from this library, most new libraries were spacious.

In all new libraries and some older libraries (F and I) promotional areas were focused near, or clearly visible from, the entrance. *Face-on* areas were also utilised either on shelves randomly located within the stock (Library C and H) on shelf ends (Library C and D) or on a specific shelving level, where shelves are at or near eye level and are tipped so books lie flat (Library A, B D and E).

In some libraries special collections had been set up for quick access utilising a greater proportion of *face-on* display; *Express* at (Libraries C and H) and *Quick Picks* (Library F). *On Approval* at Library D also had multiple copies. In multifloored libraries, where browsing areas were

[3] This was less pleasant when trying to look at the books more closely.

concentrated on initial floors, it was usually clear from tools, such as directories or visual clues such as stairs or escalators that there were additional floors. Hanging signs were uncommon in the library environment, apart from libraries B, D, G and in C, where an 'Ask here' sign was directly transferred on the wall above the issue and return counter.

In terms of stock arrangement, a number of adjacencies were frequently seen, for example, Teenage and/or self-service near CD's and DVD's (Libraries A, B, C, D), and large print near to spoken word audio (Libraries A, B and E-J). Children's areas were either furthest from the doors (Libraries A, B, C and J) or brought to the fore to be visible in the windows (Library D, F, H and I). Only some of the new libraries (A, C and D) retained re-shelving areas, a prime area for user browsing as recognised by Edward & Jackson (2006)[4], whereas all the traditional libraries studied had this facility. Traditional libraries were also far more effective in provision of tools such as subject guides (Library F and G), fiction booklists (Library F) and book recommendations (Library G and J). Library leaflets were clearly available only at Library B.

Guiding in stock areas was ubiquitous, typically integrally placed in the top line of shelving or immediately above. At Library C loose guiding with a series of pleasant images of borrowers were used as seen in Figure 3. These were in addition to shelf guides at Libraries A and H.

Typically new library guiding was more consistent in style and placing having professional matte finishes which were easy to read, whereas traditional libraries used a variety of inconsistent techniques, styles and terminology and tended to use laminated guides, which gave off a lot of glare.

Dewey Decimal classification (DDC) was used in all the libraries to organise non-fiction, though Library C reorganised travel alphabetically by country. The library service containing Libraries A and F had previously experimented with categories[5]. Most guiding used subject areas, though Libraries D and E used only Non-Fiction on guiding and F used Information. Some areas were commonly shelved separately such as Reference, Local Studies and Biography though there was no evidence of cross referencing. Fiction, typically located on ground floors in multifloored buildings, was always arranged in alphabetical order, sometimes using tools to sub-organise areas. Genres were shelved separately apart from in Library A where genre spine stickers were in use. Categories used varied, with crime, romance and science fiction being the most common.

3.1.2 Bookshops

In all bookshops promotional displays focus on entrance areas showing a large proportion books *face-on*. These vary in different bookshop chains, Bookshops 1 and 2, for example, used brightly coloured promotional guiding in contrast to the rest of the store. Other displays are typically scattered throughout the store utilising tables and ends of shelves to highlight sub areas with *face-on* throughout the main body of shelving at an average rate of three *face-out* titles per shelf.

Most bookshops utilise single counters located on the right of the exit, allowing optimum stock interaction via customers natural movement to the left on entry (Underhill 2000) though attention was not drawn to counters on entering, except for Bookshop 3. In Bookshop 1, a large bookshop with two entrances and four floors, there were a series of counters located throughout the building. Typically counters showed no differentiation in service, though Bookshop 2 had separate information desks on each of its two floors. Baskets were available at the entrance in bookshops 2 and 4.

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[4] Edwards, F. & Jackson, J. 2006. Converting young browsers to borrowers [Opening the Book seminar at Hooked on Reading, Matlock, UK, 5th July, 2006].

[5] Interview with Senior Library Officer, Library B, 17 August, 2006.

Figures 2 and 3: Blue light backlit promotional display at Library E (left) Loose guiding, Library C (right).

Multi-floor bookshops show good use of directories placed in entrance areas and near stairs, escalators and lifts, with fiction on ground level and most non-fiction on upper floors though Bookshop 2 kept some popular non-fiction categories on the ground floor. Single floor bookshops similarly kept fiction and nonfiction separate, though there was some crossover with True Crime non-fiction often being shelved next to crime fiction and a mix in promotional areas. Hanging signs were well used in bookshops 1 and 2 to identify stock areas and functions such as tills and lifts.

Guiding in bookshops was clear and typically integrated into, or displayed proud of shelving sometimes with additional lighting (Bookshop 1, 2 and 4), though the frequent use of all capital wording recorded is not recommended in the literature.

Non-Fiction, which was typically in no noticable order, was subdivided in all cases into subject areas such as travel, sports and gardening, as reflected in guiding. An exception to this was Bookshop 2 where layout seemed to have been subdivided by gender for marketing purposes, with books that appealed to women such as self-help situated near children's areas and a male oriented reference area. Like libraries, fiction was arranged in alphabetical order, using tools such as letters on guiding and shelf level information. All bookshops used sub-areas for genres including crime, romance and science fiction and children's areas were always towards the rear.

3.2 Task Analysis

A number of tools were utilised in the different tasks in libraries and bookshops as summarised in appended Tables A4 to A6.

3.2.1 Libraries

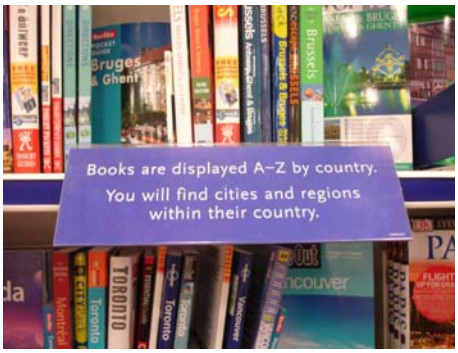
Initial orientation devices, allowing the user to assess where to start on their search, differed at each library. In the absence of signs or maps, shelving at different heights or of different types were used in a number of libraries (Libraries C, D, E, F and G) or in different orientations (Libraries B and H) with additional information from shelf guiding. In some cases, such as in Library J, non-visible areas were identified via a process of elimination or by browsing, though this was aided by division of stock into a number of defined sub-areas. Locating videos was particularly difficult at a number of libraries (D, E and F) as they were situated on the rear side of shelving units, with no additional visual tools.

Once the area to search had been identified layout was often less logical than expected. In only half of the libraries (Libraries C, E, F, H and J) the expected location closest to the entrance was the beginning of the sequence for fiction or non-fiction, in the other half the sequences started

typically at the furthest reaches of the library and didn't always flow well especially in Library I. Only some libraries provided additional aids as to the area of the sequence encountered using spine boxes (Libraries E and F), alphabetical letters or topics on guiding (Libraries B, C, F and I) or end of shelf guides (Libraries A and G).

3.2.2 Bookshops

In bookshops, in a similar way to libraries, initial orientation tools differed, with signs used effectively in Bookshops 1 and 2, and aspects of layout in Bookshops 3 and 4, though Bookshop 4 required preliminary browsing. In most bookstores with the exception of Bookshop 4, guiding was particularly effective, with shelf top guiding identifying initial locations aided by relevant promotional areas. At shelf level tools known as 'shelf talkers'[6] (see Figure 4), identified further sub areas or provided additional information of how the area was arranged. 'Shelf shouters' (see Figure 5) were also used to give staff recommendations, organisational information, award information and alternative areas to try. Similar techniques were used across stock areas easing the burden of knowledge and a greater proportion of titles *face-on* also aided retrieval. In Bookshop 4 shelf top guiding was often hard to see and shelf shouters and talkers were employed less, though some innovative cross shelf guiding effectively separated sub areas when travelling along shelving rows (Figure 6). Most popular areas such as crime were found rapidly, being either visible (Bookshop 1 and 2) or in relatively predictable areas (Bookshop 1 and 2). Overall layout was relatively logical, with only Bookshop 1 starting its fiction sequence at the rear of the store.



Figures 4 and 5: Shelf talker in non-fiction showing sub area, Bookshop 1 (left). Shelf shouter giving organisational information, Bookshop 4 (right).

Figure 6: Perpendicular guiding at Bookshop 4.

3.3 Interviews

Interviews gave valuable contextual information. They showed that layout changes were common after opening as was seen clearly at Library A, where the maps had subsequently become

[6] Interview with Manager, Bookshop 1, 24 August 2006.

erroneous. The corporate control of layout in bookshops was discussed. In most bookshops, apart from entrance areas and specific rules about some locations such as children's areas and titles that had to be on *face-on* display, there was a lot of local autonomy. There was, however, far greater analysis of stock in bookshops, often on a shelf-by-shelf basis and movement of stock as a result. This was aided by a Dewey-like categorisation at Bookshop 2, with stock moving in response to seasonal periods. Management perception of usability was generally positive in bookshops and new libraries but slightly less so in traditional libraries. In general these impressions were in line with those gained from the task analysis apart from in two of the new libraries, A and D, which were judged to be less usable than management suggested.

3.4 Questionnaires

Questionnaires were cumulated across libraries because of low response, but showed good age distribution with both sexes equally represented. The main reason for joining was to get a book to read, with 60 per cent browsing and 40 per cent looking for a specific item. Over 80 percent were successful in their search expressing positive emotions, though few felt inspired. Some negative feelings, especially of feeling lost were reported at all the new libraries, with Library C showing the largest proportion. Most new users were positive about using libraries generally especially noting comfort and the ease of finding the joining desk though this decreased when compared to bookshops. Interestingly most new users had used a library before, often on a regular basis.

4. Conclusions and recommendations

The aim of this research was to assess the usability of public libraries for new users, via a study of the ease of item retrieval in unfamiliar environments. Areas are considered separately in relation to the initial objectives of the study.

4.1 Initial perceptions of usability

The task analysis suggests that tester perception of usability and therefore new user perception may be affected by the presence or lack of a number of specific simple tools. Items required by the user, their location and organisation may also have a profound influence, especially since some collections, particularly audiovisual material in this study, were neither immediately visible or indicated by signage. Many of these problems may be readily rectified by best practice methods as discussed in Section 4.3.

The questionnaires produced interesting information about feelings experiences within the library by new users. Though the majority of new users expressed positive emotions it is interesting that some reported negative emotions as it was thought it would be difficult to get users to admit to them. If these positive emotions are not due to response bias, this data suggests that respondents consider the libraries studied to be user friendly overall, though there are possibly differences between feelings of just being in the library (relaxed and at ease) and actually searching for things (well oriented, clear headed, confident). If Arthur & Passini (1992) and Rizzo's (2002) assumptions about building use are correct, this implies that these users will continue to use these libraries.

4.2 Usability comparison

4.2.1 Traditional and New build libraries.

The task analysis suggests that usability varied widely in the libraries studied but that the traditional libraries were not necessarily less usable, though they could be less comfortable, than new libraries. In terms of signage, it is clear that in many libraries little has changed, as recommendations given in Barrett & Reynolds (1981) about utilisation of hanging signs, maps and guiding were still not observed in most of these libraries. It is also apparent that as new libraries go through a period of evolution it is hard to assess suitability of layouts during the design process. This is reflected in layout changes at a number of libraries, when compared to initial floorplans. Architects and PFI funding seem to affect Norman's (2002) balance of aesthetics and functionality in at least one of the libraries studied. As Line (1998, p.222) bluntly suggests, it is best to avoid famous architects if you want a usable building.

4.2.2 Bookshops and libraries

In general, the task analysis implies that bookshops have usability issues but are slightly more usable than libraries. In contrast, questionnaire responses suggest users think libraries give a slightly better impression than bookshops overall, with comfort and ease of use rated more highly in libraries, corroborating Cartwright's 2004 findings. Bookshops are clearly more sophisticated in both their use of tools, in imparting information and in seeking out lost users. They are far more aware of subdivision of layout for marketing purposes, using display adjacencies of items, for example, by gender as advised by Underhill (2000, p.146) and moving areas in response to performance. In comparison, libraries are poor at giving explanation of organisation of stock, use fewer wayfinding tools and are less effective at promotion, using only small amounts of *face-on* display of books.

Bookshops have a number of advantages that libraries cannot hope to emulate. They are able to provide large numbers of copies of new titles and place them in multiple locations. Libraries have a problem with their reliance on Dewey for classification of non-fiction. This may aid library staff in finding items but does not allow flexibility in placement of items and is more complex for users. (It is worth noting that bookshops manage without any noticable retrieval problems.) It was disappointing to find that no libraries had moved away from Dewey, though guiding dominated by topics, could mean that new users are oblivious to a classification system.

New libraries are beginning to use some of the tools of bookshops, such as promotional areas and baskets near entrances, providing multiple copies through special collections and increasing *face-on* display on feature shelves. But if, as Norman (2002, p.81) suggests, the 'difficulty of novel situations is related to the number of possibilities', libraries are still not going far enough to minimise options to aid initial usability of their collections.

4.3 Best practice

A number of features were noted at locations or based on them:

4.3.1 Signage and initial orientation devices

- The use of well placed large clear signage to identify main areas of collection and to indicate exits in large buildings as recommended by Hedge (2004).
- The use of well placed maps in entrance areas to identify initial destinations.
- The use of take-away leaflets with layout maps (though these need to be located in the entrance areas).
- The use of signs to identify important areas which are not initially visible.

4.3.2 Guiding

- The use of similar guiding techniques for non-fiction and fiction as seen in bookshops.
- A hierarchy of guiding from clearly visible top of shelf broad sub-areas to closer up shelf labels to allow rapid orientation.
- Additional guiding tools sticking out perpendicularly from shelves (see Figure 6) to aid rapid identification of relevant areas from a distance.
- Loose guiding on top of shelves (see Figure 3), to allow for collection expansion and movement.
- The use of images on guiding to increase relevance to the user.

4.3.3 Collection organisation

- Quick visual differentiation of areas via shelving type, height or orientation allowing rapid, subconscious pattern matching (Norman 2002, pp125-126).
- Popular areas such as fiction, crime, travel and DVD's brought to the fore, well signed or differentiated so they are identified quickly.
- Collections organised into sub areas or rooms.
- Clear relevant topic labels for non-fiction.
- Alphabetical ordered fiction in a logical flow.
- Nearby areas in flow located close together to avoid unnecessary travel when browsing.
- Genres filed separately located together near fiction with clear guiding.
- The avoidance of multiple spine labels which just confuse borrowers.
- Use of spine boxes on shelves to identify areas.

4.3.4 Other retrieval tools

- Availability of baskets for users visually identifiable from the entrance.
- Self-service terminals located clearly at the entrance so users are aware and are encouraged make use of them as advocated by Underhill (2000, p.187).

4.3.5 Display tools

- Browsing areas in the main line of traffic.
- Retaining re-shelving areas.
- Where specific shelves are used for face out display in the normal run of items, that they are at eye level and tipped sufficiently for viewing.
- Tipped shelves at all lower levels as seen in bookshops to allow easier view.

4.3.6 In multi-storey buildings

- The use of well placed and correct directories and maps in entrance and exit areas on all floors to identify and re-identify initial destinations.
- Clear visual cues to indicate further floors.
- The use of browsing areas concentrated on ground floors for rapid access.
- The differentiation of noisy children's, express and issue areas downstairs with quieter study and non-fiction upstairs.

4.4 Insight for library designers to improve provision for new users.

The questionnaire data gives interesting information about new users for library designers:

- They mostly join to find a book.
- Their dominant search method is to browse
- Users have no gender bias.
- They have used a library before and have used it regularly.
- Some have not used a library for a long time, for unknown reasons.

Task analysis is clearly a vital tool for allowing a perception of new users. It is recommended that such a survey be carried out in the preplanning stages by library design staff, when visiting unfamiliar libraries.

4.4.1 Tools used for item retrieval in unfamiliar environments.

A number of specific aspects are noted that are important to users when visiting an unfamiliar library, which could be given out on joining the library.

- Easy access to information to help identify present location and item location especially in a multifloored building.
- The first items seen, aided by visual differentiation of collections, guiding and signs. These allow the user to estimate layout before approaching the area.
- Anchor points on approach to identify location and determine where what they require is located. These should be clearly visible.
- A clear understanding of where to go from the anchor point and information about organisation.

4.5 Suitable methodology to assess usability by staff.

The use of the walkthrough audit, with an understanding of the principles behind its development would enable staff to assess some aspects of usability. It is recommended that this be carried out alongside a task analysis by an external unfamiliar staff member, not involved in the design process, since designers become expert at the device they design and become unable to assess usability (Norman 2002, p. 156).

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APPENDIX

	Library A	Library B	Library C	Library D	Library E
Hanging signs?	No	Yes	No	Yes	No
Shelf guiding	Top shelves and loose on top	Top shelves	Top shelves and loose on top	Top shelves	Top shelves and loose on top
Directory?	Yes at entrance	Yes, on stairs doors	Yes, Entrance, top and bottom of stairs	No	No
Map?	Yes, at entrance	No	No	No	No
Leaflets with layout?	No	Yes, at counter	No	No	No
Marks start of fiction ?	No	No	No	No	No
Marks start of non-fiction?	No	No	No	No	No
Mark intervening areas fiction?	Letters on guides	Letters on guides	Letters on guides	No	Letters on shelved spine boxes.
Mark intervening areas non-fiction?	Topic guides only	Topic guides only	Topic guides only	No	No
Separate any areas out fiction?	No	Crime, Romance, SF, Westerns.	Crime, Westerns, Romance, Classics, Awards.	Romance, Westerns.	Crime Westerns, SF.
Separate any areas out non-fiction?	No	Biographies Local studies, Reference	Biographies, Local studies Family History Languages Reference, Careers, Childcare	Local studies, Reference.	Biographies
Paperbacks separated?	No	No	Yes	Yes	No
Browsing areas?	Yes	Yes	Yes	Yes	Yes
DVDs, videos organised?	Yes	No	Yes	No	No

Table A1: Summary of walkthrough audit checklists for new libraries.

	Library F	Library G	Library H	Library I	Library J
Hanging signs?	No	Yes	No	No	Yes
Shelf guiding	Top shelves	Top shelves and some others	Top shelves	Top shelves	Top shelves
Directory?	No	No	No	No	Yes, Entrance
Map?	No	No	No	No	No
Leaflets with layout?	No	No	No	No	No
Marks start of fiction?	No	No	No	No	No
Marks start of non-fiction?	No	No	No	No	Yes
Mark intervening areas fiction?	Yes, spine boxes	Yes, letters on top shelf	Yes, spine boxes and on guides	Yes, letters on top shelf	Yes, letters on shelved spine boxes.
Mark intervening areas non-fiction?	No	No	Yes, topic guides only	Yes, topic guides only	Yes, topic guides with numbers.
Separate any areas out fiction?	Crime, Romance.	SF, Crime, Westerns, Romance, Classics.	Crime, Romance. Westerns.	SF, Crime, Westerns, Romance, Classics.	Crime, Romance. SF
Separate any areas out non-fiction?	Biographies, Local studies	Reference Biographies Health	Biographies, Local studies, True Crime, Reference.	Local studies, Reference.	Biographies, Local studies, Reference
Paperbacks separated?	No	No	No	Yes	Yes
Browsing areas?	Yes	Yes	Yes	Yes	Yes
DVDs, videos organised?	No	No	No	None	Yes

Table A2: Summary of walkthrough audit checklists for old libraries.

	Bookshop 1	Bookshop 2	Bookshop 3	Bookshop 4
Hanging signs?	Yes	No	Yes	Yes
Shelf guiding	Yes top shelves and on some shelves	Yes top shelves and on some shelves	Yes top shelves and on some shelves	Yes top shelves and on some shelves
Directory?	Yes Entrance and near lift and stairs	No	Yes On stairs doors	No
Map?	No	No	No	No
Leaflets with layout?	No	No	No	No
Marks start of fiction?	No	No	No	No
Marks start of non-fiction?	No	No	No	No
Mark intervening areas fiction?	Yes, letters on guides and authors	Yes, authors	Yes, letters on guides	Yes, letters on top shelf
Separate any areas out fiction?	SF, Crime, Romance, Horror	Crime, Romance. Horror, SF.	Crime, Romance, SF, Westerns.	SF, Crime, Horror, Romance, Classics.
Separate any areas out non fiction?	True Crime, Humour	Travel, History, Health Poetry, Gardening.	True Crime, Humour	No
Paperbacks separated?	Yes	Yes	Yes	Yes
Browsing areas?	Yes	Yes	Yes	Yes

Table A3: Summary of walkthrough audit checklists for bookshops.

New Libraries	A	B	C	D	E
Initial areas visible	Directory, Map, Selfserve machines, baskets, counter. Wall signs 'Children', 'Teenage' 'Audio-visual'	Counter. Hanging signs for 'Children's library', and hanging directory 'CDs', 'DVDs' and 'books'. Guiding clear	Self service machines. Childrens and teenage areas. Distinctive CD, DVD and browsing areas.	Counter. Wall signs 'Young Adults', 'Local studies', 'Computers'. Guiding 'Fiction' and 'Non-Fiction'	Counter, promotional areas highlighted by blue light boxes. Guiding 'Bestseller', 'Crime', 'Non-Fiction'.
Initial task orientation	Map, Directory	Hanging directory signs and different shelving layout and heights.	Directory and visually via distinctive CD, DVD shelving.	Two levels and types of shelving. Guiding 'Fiction' and 'Non-Fiction'	Different shelving types, height. Guiding
Audiovisual task orientation	Wall sign, stock well subdivided	Hanging sign and different shelving type	Initially visible, different shelving	Not visible initially, browsing	Not visible initially, browsing
Fiction task orientation	Browsing as map incorrect. Guiding and layout poor	Initial guiding Letters added to guiding to orientate	Directory. Visual. Clear guiding with letters	Initial guiding only.	Not visible initially, 'Fiction' guiding only.
Crime orientation	Browsing as no separate area	Genre area near entrance and guiding	Directory. Genre areas on higher wall shelves with clear guiding.	Visible by guiding on special spinner	Visible initially, highlighted by blue light
Non Fiction orientation	Directory, guides on shelf ends	Clear subject area guiding, on higher wall shelves of different orientation.	Directory. Clear subject area guiding	Initial 'Non-Fiction' guiding but no further orientation information	Visible initially by on wall guiding, but 'Non- Fiction' guiding only
Usability Assessment	Difficult fiction but improves in non-fiction	Easy to use overall	Easy to use overall	Difficult to use	Quite difficult to use given small size

Table A4: A summary of the orientation devices and techniques used in the task analysis at new library sites.

Old Libraries	F	G	H	I	J
Initial areas visible	Counter, children's area, reshelving, promotional displays. Guiding 'Fiction' and 'Crime'	Counter, DVDs, CDs and videos. Children's areas.	Counter, videos. Guiding 'Large Print', 'Westerns'	Counter, Exhibition area, Children's area. New Stock. Non-fiction topic guiding. Large area not visible	Counter, directory list.
Initial task orientation	Guiding and shelf layout	Visual and via shelf layout as small library	Initial guiding and shelf orientation identifies broad layout	Visible areas only.	Clear sub areas with large guides to right and left
Audiovisual task orientation	Not visible initially, browsing	Initially visible, different shelving	Initially visible, different shelving	None	In sub area with large guides to left
Fiction task orientation	Initial guiding. Layout as expected with alphabetical spine boxes	Different shelf orientation. End of shelf guiding	Guiding. Lower shelving.	In non-visible area by elimination. Large wall sign. Poorly arranged	In sub area with large guides to right
Crime orientation	Initial guiding	Guiding when in fiction area	Not visible. Browsing	Browsing as no separate area	Visible in sub areas with large guides to right via 'Crime' tape
Non Fiction orientation	Guiding clear. Subject guides though some browsing	Different shelf orientation with subject list at end. Poor guiding	Shelf orientation on wall. Clear guiding	Initial view Non-fiction subject area guiding	Some elimination necessary in large rear sub area. Well guided, with topic and Dewey
Usability Assessment	Easy to use overall	Quite easy to use as small	Quite easy to use as small	Quite easy to use as small	Easy to use

Table A5: A summary of the orientation devices and techniques used in the task analysis at old library sites.

Bookshop	1	2	3	4
Initial areas visible	Promotions and display tables with colourful guiding. Directory. Hanging signs 'Lift', 'Stairs'. Crime area visible and 'Fiction' Guiding.	Promotions and display tables with colourful guiding. Hanging signs for 'Children's', 'Information', 'Travel', 'Crime', 'Romance' and 'Reference'.	Counter. Graphic Novels. Guiding for non-fiction subjects and fiction. Promotions and display tables	Promotions. Walkway with shelves at right angles.
Initial task orientation	Directory, Signs, Guiding.	Signs and different shelving layout and heights.	Guiding and different shelving layout and heights.	Some browsing necessary using walkway and higher shelving.
Fiction task orientation	Initial guiding with letters and organisational information added to orientate. Shelf talkers mark location of popular authors, helped by *face-on* display.	Signs and layout. Guiding with letters added to orientate. Shelf talkers mark location of popular authors, helped by *face-on* display.	Guiding on higher shelving. Shelf talkers mark location of popular authors, helped by *face-on* display.	First area. Guiding, boxes with letters and organisational information and shelf shouters added to orientate. Fewer shelf talkers and top guides hard to see.
Crime orientation	Initially visible. Again using author shelf talkers and *face-on* display.	Signs. Again using guiding with letters added to orientate, author shelf talkers and *face-on* display.	Some browsing but near fiction using guiding, author shelf talkers and *face-on* display.	On higher shelving. Clear cross shelf guiding.
Non Fiction orientation	Directory. Guiding with subject areas and relevant displays. Shelf talkers mark sub-areas.	Signs. Guiding with subject areas and relevant displays. Shelf talkers mark sub-areas.	Guiding with subject areas and relevant displays. Shelf talkers mark sub-areas.	Guiding with subject areas though hard to see.
Usability Assessment	Easy to use	Easy to use	Easy to use	Quite easy to use

Table A6: A summary of the orientation devices and techniques used in the task analysis at bookshops.