A USER SURVEY OF THE EXPERIENCES OF BLIND AND VISUALLY IMPAIRED PEOPLE USING ELECTRONIC INFORMATION SERVICES

WITH REGARD TO

THE PRACTICAL IMPLEMENTATION OF THESE SERVICES IN PUBLIC LIBRARIES

BY

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Abstract

This report outlines research about blind and partially sighted people using electronic information services in real-life situations, and specifically how their experiences might inform the planning of these services in UK public libraries. This research does not aim to evaluate the extent or quality of individual services.

The reason for conducting this research was a perceived lack of evidence from users about the usefulness of real-life implementations of these services, including the interpretation of guidelines and standards.

Based upon a full literature review, a survey was conducted of blind and partially sighted people who have some experience of using electronic information services, suitable for, but not restricted to use in, public libraries. The methodology outlines the creation of two electronic survey formats, designed to be accessible and usable for blind and visually impaired people, and the related issues of delivery for the study sample. The data collected is included, and a full analysis of the findings is presented. Correlation was found with other wider surveys in the specific fields of blind and visually impaired people, and electronic information services.

The report concludes that the visually impaired and especially blind people surveyed feel that libraries are out of touch with their needs relating to electronic information services, that there is correlation between users' personal preferences and the usability of services, and that diverse and varying services act as a barrier to use. Evidence was also found to support the idea that computer access technologies aimed at blind and visually impaired people may attract very little use in libraries, without significant investment in staff training.

A case is made for greater investigation of remote access to electronic services that can be accessed by blind people with their own equipment. This is felt to have usability benefits such as users' familiarity with their own systems, and the reduction of unnecessary travel. It was also concluded that there is a need for specific consultation with people who are blind, separate from those who are partially sighted, and early involvement of both groups in testing of new services.

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Introduction

Background

Electronic delivery of information in public libraries has been increasing steadily in recent years, and the pace of change is accelerating reflecting the growing extent of use in society in general. The Internet has become established globally, as arguably the most pervasive information and communication infrastructure ever developed. The web in particular has become a hugely important medium for commerce, broadcasting and publishing, and there is now a national infrastructure of Internet access in public libraries established by the People's Network.

Despite the huge potential for developing electronic information services, there is little evidence to suggest that the needs of blind and partially sighted people are widely understood, and this risks excluding access. For example the web protocol HTTP was the development that made Internet use mainstream and as a result established a platform for almost unlimited amounts of information. Ironically for blind people, its popularity was due to its ability to add visual media, which also introduced an explosion of inaccessible content for people with limited sight.

Although guidelines have been developed, these have not always been followed, and even where they have, they have been interpreted in many different ways.

Staff in public libraries are currently in the position where they are having to develop new policies for stock and services in a hybrid world of print and electronic formats, where the quality and format of content, and the method of delivering it can vary enormously depending on the subject area.

Within the specific area of electronic access to information for people who are blind or partially sighted, public library staff have difficult choices to make. A significant proportion may be doing so with very limited or even no direct experience of implementing these services, or of the needs of visually impaired people in using them.

Rationale

This research sets out with the simple aim of asking blind and visually impaired people what they think about using available electronically delivered information services, of the type currently being introduced in UK public libraries. By gathering feedback directly from real users of real services, it is intended to increase understanding to help inform service development in this area.

Whilst there are useful guidelines and standards to help, these can be confusing without user feedback to give insight into the thinking that went into producing them, and to test that they are effective when put into practise. This is especially important for developing services, where attention to these issues now, is an investment in the future of access for many people.

However for staff trying to develop services, there are several factors that make it unlikely that they have access to sufficient user feedback.

The literature indicates that many visually impaired and especially blind people do not choose to use public libraries because they feel they do not provide for their needs. This is compounded by the fact that the developing electronic information services, including the access technologies provided for visually impaired people, are so new that there may be too few users locally to get sufficient breadth of opinion from feedback.

This research is an attempt to provide information that might go some way to helping public library staff understand what blind and visually impaired users think about typical electronic information services, based upon what they themselves say about accessing them. It aims to collect from a wider pool of user experience than is likely to be available to individual services, and to gather data that is as specific as possible about individual types of services. The questions have where possible been aligned with other existing studies so that data is comparable.

It is not an attempt to assess how good libraries are performing, but to get critical insight that might help.

Benefits

The research was intended to offer the following benefits:

- Provide feedback of the preferences for electronic delivery of information from blind and visually impaired people who have actually used them.

- Widen understanding of the issues so managers can assess the choices available to them, and make the best use of resources

- By doing so, enable public library service staff to positively influence the development of commercial and in-house services.

- Contribute to creating better services for blind and visually impaired people.

The Research Problem

Knowledge is based upon an ongoing cycle of theory and observation. Within the literature about electronic services for blind and visually impaired people, it was felt that there is considerably more theoretical benefits or claimed potential, than there was corresponding evidence of real impact for the end user, post-implementation.

Within the specific sphere of public libraries, there was even less. What evidence that exists was felt to be dated, due to the rapid pace of development. This research was intended to make a contribution towards redressing the balance.

The research required a qualitative methodology to collect testimonial evidence.

A case study was rejected. This was partly because it would be difficult to achieve impartially, as the sensitivity of the subject might make it politically risky for subjects to participate. It was also likely to have a limited use for a wider audience, because there was expected to be wide variation between individual library authorities' services in terms of extent of implementation, degree of development, and corresponding usage by blind and visually impaired people.

It was decided to conduct a survey of individual blind and partially sighted users of common electronic services currently in use in UK public libraries.

To understand what users felt about real services required identifying the ways in which electronic information can be delivered and accessed, that were commonly available at the time of research.

It was not practical to survey the diverse local provision in terms of extent of implementation, or quality. Rather, it was decided to establish a generic list of electronic information services that were in current use in public libraries, or available to them. This would be the core subject of the survey questions.

The survey required a sample of people who were not just blind or partially sighted, but also had used the services being studied. The evidence was that the sample group were not likely to use a public library frequently, if at all. For this reason, it would be counter-productive to require that users' experience had been in a public library. The key aim of the research was to gain users' opinion of services that were appropriate for the role of public libraries.

Because use of services for the subject group depends on assistive technology, the survey would also need to include questions about this, as well as demographic questions about users' circumstances, and level of visual ability.

To summarise, the above points suggested that a suitable methodology was to conduct a survey of blind and visually impaired people from the demographic base of the total UK population, about electronic information services relevant to UK public library services

Summary of objectives

- Literature review of the user needs of blind and visually impaired people, and available electronic information services that are suitable for UK public libraries.
- The design of an accessible survey instrument usable by blind and visually impaired people to gather testimonial data that is comparable with other research in the subject area.
- Identification of a representative sample that matched the research criteria
- To deliver of the survey instrument to this sample.
- Presentation and analysis of the findings, with conclusions showing recommendations and limitations, based upon this data.

Scope

This research is concerned with use of electronic information services suitable for use in UK public libraries, and is aimed at staff working within them, although its findings may be of use to other audiences. This research was undertaken towards a Masters degree in Information and Library Studies. The author felt strongly that the outcome be of direct practical use in a working environment, whilst acknowledging its limited scale.

The findings were based upon experienced users of these services, and should be treated as only directly representative of such users. However it is hoped that the benefits of their experience will be of benefit to designers, commissioning staff and future blind and visually impaired users of electronic information services.

Literature Review

Structure of the review

This literature review is organised into eight parts that were felt to cover the main themes of the research problem in a logical order.

- **The role and remit of UK public libraries**
  The consensus on their role and purpose, and services that public libraries should be providing.

- **The range of available electronic information services**
  The nature and availability of services available, to serve the specific service needs of the public library sector, as identified above.

- **The nature of visual impairment**
  In particular, its effect on people's information seeking behaviour and approaches to accessing information in general. This includes factors that act as barriers to access for people with sight problems.

- **The technology used to make information available to people with visual impairment**
  A review of what systems exist to assist by people with visual impairment when using electronic information services.

- **Information available to guide decision making when making information accessible**
  The published advice addressing the needs of visually impaired people that is available to library managers when implementing electronic information services.

- **The extent of implementation of access technologies by public libraries**
  How far public libraries practise is in line with the guidance, and the extent of implementation of available technological solutions.

- **The evidence for VIP users' experiences of access to electronically delivered information**
  What visually impaired people themselves say about using electronic information sources; their feelings about using assistive technologies for this purpose, and research into user behaviour and viewpoints.

- **Practical issues of surveying people with a visual impairment**
  A review of specific factors that affect research the needs of people with visual impairment.

The role and remit of UK public libraries

To understand the information needs of their users, it is necessary to review the purpose and scope of public libraries in the present day. In other words what is the remit of public libraries, now and in the immediate future, why they are there, and what is the consensus of their role is.

The users of public libraries are the general public, in other words anyone and everyone. Within the user group, there is a vast range and level of information needs. Information and cultural stimulation may be required on any subject and at almost any level.

Importantly this broad scope applies not just to the information that is provided, but to the way in which it is delivered - the library services themselves. These services need to be usable by people with very different needs, and cater for the range of physical and learning ability of the whole population.

There are legal requirements to enforce this. These result from the Disability Discrimination Act [1]. Historically the DDA was introduced at just the time when graphic interfaces were established as the dominant means of using a computer, and that have in some respects made them less accessible for people with visual impairment.

The needs of the general population therefore define both whom needs to be provided for, and in what ways services need to be delivered. Electronic government services have been championed by the Labour Government elected in 1997, and they chose libraries' unique national network of physical buildings to implement an infrastructure of public access to the Internet.

Tony Blair, in *New Britain: My vision of a Young Country*[2], stated "…just as books are available from public libraries, the benefits of the [Internet] must be there for everyone". This vision ultimately led to the People's Network[3], which when completed in 2002, delivered almost universal broadband Internet access across UK libraries.

In 2001, the Government published the first ever set of library standards[4]. There were three standards for electronic services. Two of these, access to an online catalogue (PLS5) and the number of electronic workstations (PLS 6) were only a measure of amount of provision. The third referred to visits to a library website (PLS10), and at least measured usage, but none measured impact of services.

The Government's current position on what libraries' service outputs should be achieving in terms of purpose and impact, were set out in *Framework for the Future*.[5] Published in 2003, this declares the aim of setting out an agenda for libraries – a ten year vision which states: "the following areas of activity should be at the heart of libraries' modern mission:"

- The promotion of reading and informal learning
- Access to digital skills and services including e-government
- Measures to tackle social exclusion, build community identity and develop citizenship.

Framework reflected a welcome and positive continued Government interest in libraries. However about electronic services, it paints an optimistic picture of the future based upon very limited evidence without critically considering the potentially huge changes that are likely to occur within ten years. It provides mostly conjecture about the role of digital citizenship, and electronic content creation, and makes some rather unsubstantiated claims such as that creating community web pages "increases democratic engagement".

There is similarly little specific detail about how to widening accessibility, beyond the odd reference to the need to be "focussing particularly on the needs of people who do not currently use libraries".

Although published before Framework for the future, CILIP's report Start with the Child[6] has crucial things to say about how services should be run. In particular that individuals nurtured

in literacy and information literacy will be better adapted to succeed. Its findings show that children are positive about books and reading and that they identify strongly with technology, viewing ICT as a normal channel of information.

As well as all the general information that libraries provide, and help with accessing and making use of it, they also provide information about their services themselves. Electronic delivery of this, especially the Internet, using has completely changed the way in which this can be delivered.

There are now no local authorities in the UK without a website[7], and the web is a primary source of information. These vary considerably, but there are some advanced experiments in web based library services to be found, such as Gateshead Libraries' website[8]. The web as a means of access to general and service information, and direct remote access to electronic services is discussed in detail below.

There is also a considerable amount of on-screen service information offered on library computers, such as terms and conditions of use, and disclaimers. Similarly display screen equipment is used as electronic notice boards in libraries.

No research was found into the implementation of this equipment in libraries or consultation with customers about this use. However from personal observation at libraries and shops using display screen equipment, these frequently feature scrolling or changing visual images. These are both features likely to cause problems for people with sight problems.

To summarise, the type of information that libraries should be delivering is defined by the dreams and aspirations of the general public: What they want to do, and what they need in order to achieve this. This may be culture, learning in the widest sense, or access to information for all. This includes published information and literature in a wide range of formats.

As important are the associated services required to be able to effectively use them. Providing technological support for users of services provided is one of part of library staff's essential modern duties.

Similarly the role of expert assistance in navigating information is just as important as it ever has been, and requires a wider staff knowledge and pro-active attitude, not least because the amount produced is simply too vast to manually classify and so diverse in format.

All of these are traditional missions of libraries, but the steadily growing range of electronic information and services is changing the way they are delivered. As Moyo[9] puts it there is:

> "a demand for a new breed of librarians who understand the entire electronic information scenario: procurement, organization, access and public services. All these come into play when making decisions and choices for meeting users' information needs."

The fact that hard copy printed media are no longer the dominant for in all areas has great potential to improve the accessibility of information for visually impaired people. There is great potential for efficient use of electronic information to widen accessibility, but this is dependent not just upon development of new services, but their commercial success, and availability. Libraries can only offer them if they are available.

The range of available electronic information services

The preceding section considered what it is generally agreed that libraries are there for. The scope of this research is to examine those services that use electronic information and related ICT services that support its use. To do this requires a definition:

Throughout this research the term "electronic information services" is used to denote two things:

- Any information that is in a digital format and can be stored or can be processed digitally.
- Any related services that work by allowing staff or users to process this information or require ICT communication technology to function, such as e-mail, chat, the provision of word processing, electronic conversion of information into or print or display, or vice versa, etc

These definitions are based upon use by others. Brophy and Craven[10] use the term information sources "*in its widest sense to include not only factual documents, but works of*

creative imagination...representations of museum or gallery objects and presentations". They go on to point out that "*these non-factual and non-textual resources present particular problems".* Examples of the problems they refer to would be how to make available the information conveyed purely by the spatial arrangement of navigation on a page, or the information within a photographic image, to someone who cannot see.

For the purpose of this research, a problem arises here about the wording of the data collection instrument. If the term information is used without qualification, then the data collected may not be valid, as it is arguably too subjective.

This includes computer files, but excludes digitally stored recordings of audio and video files. They make the distinction that these cannot be converted to and from text for example to output devices such as voice synthesisers

This research largely follows these definitions, but it is not intended to attempt to tie this down too tightly, and indeed this is an elusive goal. While this in practise means the scope is predominantly convertible digital text files text, it is not quite as simple as that. Visual elements of a website give information about navigation, that is either unavailable or difficult to use for visually impaired people

As identified above public libraries provide culture, learning support and information. This includes:

- General information on any subject, in a wide range of detail.
- Information at any intellectual level, and for any age.
- Information that is usable by people with a wide range of physical and mental ability
- Cultural reserves for stimulating creativity.

They also require staff skills for

- The development of reading, and literacy in the use of information and technology
- Supporting a wide range of learning from simple fact finding to detailed information.

And they have a community role:

- Providing a public space for cultural and non-measured (that is user controlled) learning.

To provide these things using electronic information or electronic methods of delivery requires that these to be available. At the present time, it is clear that they are not uniformly available for all aspects of libraries work. Content is not published in all fields to the same extent, and some fields are notably more advanced than others.

Garrod[11] points out reference may be more suitable for use on a computer than fiction, but this may be that the current technology is not usable enough. Developments in e-book readers such as the Sony/Philips Libre[12], may change this. More importantly for visually impaired people, research conducted by people such as Helen Petrie[13] at City University's Centre for Human Interaction into e-book usability and open source ebook standards may have an early influence. It is fair to say however that the potential for e-services remains underdeveloped in many areas.

There can also be a lack of implementation of standards for delivery of electronic information services. This applies between different services that may use widely varying solutions each to a different standard. This isn't helped because although it is not legal under the Disability Discrimination Act[1] to provide inaccessible services, there is no obligation for commercial suppliers to make their products accessible.

Delivery mechanisms vary hugely. There are some areas such as e-books where several competing proprietary solutions exist, none of which is established as the market leader. This is exacerbated by the lack of standardisation across platforms.

The ability to implement electronic services that are available is dependant on local conditions such as financial resources, management structure and ICT policy within a local authority. There are many active debates about these issues that can be found on public library discussion lists, such as LIS-PUB-LIS[14], PEOPLE-NETWORK[15] hosted by JISC.

Providing adequate security on public computers in libraries can lead to restrictions on their usability e.g. customising settings in Windows.

The nature of visual impairment

It is obviously essential to review the extent and practical implications of sight problems for people. This section does not attempt to describe eye conditions themselves in any detail. The literature on the subject is extensive, and there are many excellent sources. A good starting point is the RNIB[16] website.

This section is an attempt to summarise the relevant findings and views of others – about the issues that visually impaired people face when using electronic information services, related to how these either serve their needs or act as barriers.

Definitions of what is meant by blindness and visual impairment are as important as the above definitions of electronic information. Brophy and Craven[17] summarise these in detail, and quote the National Assistance Act's definition of blindness as: "so blind as to be unable to perform any work for which eyesight is essential", They state that there is no legal definition of partial sight.

Anyone registered blind or partially sighted has rights to services under the 1995 Disability Discrimination Act[18] The RNIB website[19] states: "From 14 April 2003, if you have been certified as blind or partially sighted by a consultant ophthalmologist, or if you are registered as blind or partially sighted with a local authority, you will automatically be regarded as disabled for the purposes of the act", and further goes on to say that even if a persons eyesight is not considered to adversely affect enough to register, minor defects may contribute to being eligible to be considered disabled for the purposes of the law.

For the purposes of information seeking behaviour, the RNIB's advice goes on to interpret the term "substantial adverse effect" as an "Inability to read ordinary newsprint. " This is a simple and obviously relevant criterion

In this research, the issue is not about whether someone is technically eligible to be registered, although the legal rights are obviously important and to be welcomed. Rather the spirit is to aim to make services more widely useable by anyone with any eyesight problem, even if slight.

Simpkins[20] distinguishes between a medical model and a social model of disability, and argues that much research into disability in the past has been flawed because it is wrongly focussed.

She gives the example of a disabled person who is not able to use a bus. In the medical model the problem lies with the person's condition preventing them using the bus, whereas in the social model the problem is that the design of the bus is the reason why the person cannot access it.

In providing electronic services it is easy to find comparable situations where access to a service is difficult, not because a person is blind, but because the design of the service failed to include their needs.

The MLA disability portfolio[21] makes the case that the concept of disability is changing. It is likely that most people will be disabled in their lives. A high proportion of people will experience sight problems at some point in their lives. For some people this is a lifelong factor in their lives. Their experience will help the many others of us, who may experience sight loss for a shorter part of our lives.

It is important to acknowledge that visual impairment is a range of ability, not a homogenous group. Westling et al[22] in discussion of the relationship between Braille and languages identify two poles in this range, "severe visual impairment" and "low vision". This affects how services should be tailored. What suits a person with some vision may be of no use at all to someone who is totally blind.

The mental process of navigating an environment for a person who is totally blind is affected by the fact that they are unable to scan their surroundings visually. In the physical world, navigating from one place to another means following a set of sequential steps. The significant factor here is that the process is serial. Each step follows the last.

This applies equally to electronic interfaces. Craven and Brophy[23] found the parallel design of websites to be a significant barrier to use by visually impaired people. For example they describe a website with over a hundred links organised on a single page, not displayed in any particular order, because there was an assumption that the user would scan it for the one they want.

This presumption of the ability to scan is likely to be because there is an assumption that the user can see, often because the designer puts aesthetic considerations first. There are other

studies such as the TOWEL project[24] investigate the methods visually impaired people use to navigate.

Studies such as these support the idea that usability is as important as accessibility. Because usability is specific to individual users' needs, then it is essential to understand that the ways which people find usable, who are visually impaired and especially blind, are not the same as those of sighted people. This means that getting an interface designed for sighted people, and reading it out is simply not addressing these needs, as Yesilada's study[25] of screen readers shows.

Oppenheim and Selby[26] list some interesting facts about vision impaired people, such as 1.7 million people are unable to read standard print, 36% of blind people can read large print, only 2% (approximately 19,000) of blind people are fluent Braille readers, and 30% of blind and partially sighted people use audiotape for their information needs.

Bosher et al[27] state: "Computer-related aids and equipment for people with disabilities…are not easy to learn or intuitive to use, the barriers facing those who need some extra equipment to access reading material or catalogues are considerable". Libraries besides providing equipment, may also therefore need to re-direct resources to lengthy induction for users to overcome the steeper initial learning curves, that may be faced by visually impaired people.

The ubiquitous web transformed the use of the Internet by providing a graphic interface. Ironically this visual element that has made it so popular is in itself likely to cause barriers for vision impaired people. The TOWEL[24] Project at the University of Manchester, looking at the concept of travel says: "Visually impaired users find mobility on the Web particularly difficult because of the reliance of hypermedia on visual layout" . Where sighted people visualise a map, vision impaired people follow pointers sequentially as a set of instructions.

This something that is also universal in desktop applications like Windows and Mac OS. As far back as 1987 Gralla[28] pointed out the potential for graphical interfaces as barriers to vision impaired people. Simple concepts such as icons and desktops are map-like, but if you can't see it the image of a bin is not a helpful shortcut to the deleted items folder

Designers of interfaces introduce barriers to use for blind and visually impaired people if they do not understand their needs. Kaufman-Scarborough[29] makes the general point that: "Advertising relies on colour to place the message in the right emotional Context…Faced with these colour choices designers get carried away." On the web, this is compounded by animation, pop-up windows and frames.

The technology used to make information available to people with visual impairment

There are many technological aids that can blind and visually impaired people use. JISC's Techdis database[30] claims to contain details of over 2,500 items of assistive technology alone. It is beyond the scope of this research to discuss these in detail, but as Bosher et al[27] point out, lo-tech and no-tech solutions should be considered as well as expensive hi-tech solutions.

Craven[10] classifies access technologies into three basic types, which are visually enhancing, audio–based, and touch-based. It can be easy to overlook the fact that input as well as output devices need to be accessible. For example having screen magnification for a visually impaired person is unlikely to usable if a keyboard does not have large print keys.

Apart from research such as discussed by Dendrinos[32], input for blind people is an area with room for technological development with little evidence to suggest widespread implementation. The 2003 Netbase[33] survey lists 15.8% of libraries with audio input technology compared to 88% with audio output. These figures, although not detailed to make firm conclusions, indicate an imbalance between input and output.

For technology to work efficiently requires standards to be in place. There are standards for web design such as the Web Accessibility Initiative (WAI)[34], and for electronically enhanced audio such as DAISY[35].

An issue for electronic formats is the control of unauthorised copying. The SEDEDOL project[36] highlights the fact that whilst electronic editions of documents may be available, they are open to copyright misuse. Producers understandably tend to favour strict control, which can affect the access to information. For example the physical nature of hard copies

in effect acts as a protection against copying. Ironically, whilst many sources of information, such as newspapers are commonly born digital, they are published in hard copy.

Screen readers can be used with more than one application. This makes them attractive, but their popularity may risk killing off dedicated audio browsers that read the html code itself. This would seem to be supported by cases such as the audio browser PW WebSpeak, which is no longer supported.

Something that is not unique to VIPs is that users have to learn how to use any solution. It may only be simple to use if there has been some investment by the user in doing. This is likely to be accepted for a frequently used service, but for occasional use this will act as a barrier.

This has been shown to be the case for the wider community for example in the uptake of e-government services, where people consistently prefer to have human contact rather than to take them up as self-service. In a survey about implementing e-government, Holdup[37] noted that 90% cited the telephone as preferred means of informing the council over e-mail, even with high technical knowledge amongst the respondents. For example 61% agreeing with the statement “I find it easy to use new technology”

Information available to guide decision making when making information accessible

This section reviews what is available to help guide staff in libraries when managing commissioning, or designing services for visually impaired people, specifically related to electronic information services.

These vary in detail from general help such as MLA’s Disability Portfolio[21], aimed at public sector managers, to the Tiresias[38] website which provides “information for professional working in the field of visual disabilities”

The best single source for libraries and technology is the NLB[39]. Their Visugate[40] portal collects research on blindness, they have an access technology primer[41], and their Manual of Best Practise for Libraries[42] is an invaluable resource.

The latter collates a great deal of information and has breadth of coverage with individual chapters written by experts in their field. This includes other guidelines such as the Share the Vision/Library Association guidelines dating from 1996[43]. As might be expected, these are dated in the specific area of electronic information services, with a few limited comments such as that information should be made available via "computer link between home and library". Likewise the section about electronic stock formats is largely speculative about likely future developments, including REVEAL[44], which is now available on the web, and not including other formats such as DAISY[35].

However the chapter by Bosher et al[27], about aids and assistive technology and cited above, is excellent, and contains a considerable amount of detailed information on approaches. This gives a thorough overview of the practicalities of using these technologies, from sizes of screens to different types of speech readers.

The chapter by Brophy and Craven[45] about designing web pages for accessibility reflects the established standards and guidelines that have developed with the web. There are some good basic accessibility tips, and references to other resources such as the automated checking tool, which can check websites against the Web Content Accessibility Guidelines[46].

Although a 2004 Disability Rights Commission report[47] suggested that these guidelines were not as good as they might be in practical terms, the reality is that lack of compliance with them causes far more problems for visually impaired people than any limitations that they may contain. They are still crucial for accessibility, and form the basis for standards such as the accessibility of local government websites. The report's finding that only 9% of designers test their websites using disabled people is far more significant.

It is clear that technical solutions often only make things accessible rather than useable. As Craven and Brophy[48] discuss, it is not enough to just magnify existing systems or use screen readers to read them out, the designers must understand users' habits and needs. Similarly Oppenheim[26] and Selby discuss options for making the web accessible such as "being

consistent, offer error prevention and simple error handling, permitting easy reversal of actions and reducing short-term memory load."

Start With The Child[6] makes a significant that services are fragmented, and vary geographically. This is particularly worrying given that it implies that if you are visually impaired and don't happen to be born in the right place, then you will be disadvantaged by the failure of the infrastructure to respond to your needs.

The extent of implementation of access technologies by public libraries

While there is a good deal of guidance for providing services to visually impaired people, there is less information about the extent of implementation of these services. MLA's annual NETbase Survey[49] started collecting data about access/assistive technologies in UK public libraries in 2003. Data from the NETbase sample of about half of UK libraries, shows just over three quarters of libraries have screen magnification, and nearly 90% with text to speech software[33].

In 2001, Davies, Wisdom and Creaser[50] found that of 581 blind or partially sighted people using libraries, "38% used speech software, 23% enlarged the text, 3% used a screen magnifier, 1% used a refreshable Braille display, 3% quoted "other" and 32% said they used more than one method, e.g. using both speech software and enlarging the display."

These two sources were about the only data the author found, and they are not directly comparable. It is likely that there is much local variation, a point made in the Audit Commission report *Building Better Library Services*[51].

Ashcroft and McIver[52] make the point that provision of equipment is often reliant on bidding for grants, and warns there are" implications for social exclusion where authorities do not succeed in attracting funds in this way."

All this makes the case that there is much to be learned from further study. McCaskill and Goulding[53] make the point that a "common way of discriminating against disabled people is making assumptions about their needs without consulting them".

The evidence for VIP users' experiences of access to electronically delivered information

This section looks at the testimonial evidence from visually impaired people themselves, as documented in the literature. The author found that it was easier to find discussion of theoretically guided good practise than evidence of the reality of users. It may be the case that the body of research is in a lag period following the introduction of services, and that many studies are in process, but not published, such as the work by Yesilada[54] at the University of Manchester.

If this is the case, given the vast number of web based services already developed and implemented, it would imply that little research into use by visually impaired people has been conducted in the design process of many of these. In 2004 the Disability Rights Commission[47] found that only 9% of web designers claimed any sort of expertise, and the same proportion had ever included disabled users in user testing.

There are a small number of excellent studies, notably Craven and Brophy's NoVA[55] project, already cited extensively here, and these are frequently cited in guidance such as the recent MLA accessibility portfolio[21]. A key point made here is that accessibility is only one aspect of good design and that usability is as important.

Craven and Brophy[55] studied the actions of controlled study samples (both sighted and those with visual impairment), when using of a number of real websites. They recorded not just their comments but also the actual keystrokes taken. Despite only studying 4 websites, the of the recording of the actions is very detailed and they were able to place accompanying user comments in precise context.

The key findings of NoVA were about the critical nature of the design structure of the interface in determining usability of a resource. They found several recurring issues that caused problems for people with limited sight.

Amongst the most significant of these was the widespread extent of parallel display of information and navigation on websites. That is that the information might be displayed anywhere on the screen. This is a fundamental issue as it assumes the ability to scan for relevant information.

People who cannot see must listen serially, in order of occurrence to the information, and this order has a profound impact on usability. They cite examples of web pages where the hyperlinks are literally not in order at all, but randomly scattered. They further found that even if navigation is organised into logical sections, the number and the position of these could still render a page tediously long-winded to use.

They also point out that because serial reading is always more time consuming than visual scanning, blind people tend to use search boxes. The make the observation that simply placing the search box near the top of the page can greatly improve usability.

There also comment on the use of language, about the use of language that

Davies et al's study of visually impaired users[50] is of significance because it targeted public library users, and compared their use with other major source of provision such as the RNIB[16], NLB[39], Calibre[56] and TNLUK[57]. They found that the age of the respondent was significant.

The biggest finding of relevance here is that the sample was consistently found to be unaware of services provided by public libraries. Respondents tended to have set views about what was meant by library services. This reflected poor marketing and promotion, so that even if services were being improved, a key factor must also be to make an active effort to make people aware of this. For visually impaired people, this requires specifically targeting them as non-users. This point was supported by the fact that several services appeared to have had increases after campaigns.

Others are recognising marketing as a major factor. CILIP advises: *"A lot of blind people think libraries are irrelevant to them so you must make sure that they know what is already available. In public libraries, for example, they may not know that music and spoken word are available for loan as well as books and that information can be found, and that staff are actively encouraged to help anyone who needs it."* [58]. The issue is that services themselves are not enough. The target audience needs to know they exist, and this seeking them out rather than assuming they will know or even bother to find you

From the specific perspective of electronic services, Davies et al's study[50] is limited. There are several references to electronic formats such as "computer disks", but these are not clearly defined. It is probably the case that these services were just not established enough to be widely used. This study preceded this dissertation by only three years, and it is likely that even now usage may not be widespread.

Connell's small but useful study[59] of 9 users' experience of using the well known screen reader JAWS to navigate web pages, found a strong consensus that the Internet had greatly increased the content available, and the speed of access compared to Braille. There was a similar agreement that speech readers were the best way to access the web, because they were generally cheaper, and that listening to speech was much easier and quicker than reading refreshable Braille output.

This was felt to justify the deliver of the survey by e-format only

Practical issues of surveying people with a visual impairment

This section looks at the issues that might impact upon the methodology.

Davies et al[50] make a number of important points relevant here about surveying people who are blind or have a visual impairment. Not least of these is the moral issue of identifying people by their conditions and cold calling them.

The most obvious challenge for a study of people who have reduced vision is ensuring that the method used to survey them is accessible. That is can the information be conveyed to them in a way that they are physically able to receive it, for example, by magnification, speech output or Braille. Equally important is whether they are they able to convey their responses back.

Accessibility though obviously important is not sufficient. It is also crucial that is simple to use. Nielson provides many thought-provoking articles on usability relevant to this research problem, notably that the length of a survey will affect the returns and results[60]. Elsewhere he also discusses the problem of "information pollution"[61] and that people feel to be drowning

in too much information with too little prioritisation. This has implication for the chances of any electronic survey getting being able to get through to its intended audience.

Nielson also found that most email people who receive them do not read them thoroughly, but only scan them for items of interest[60]. Usability is dependent upon to users' needs. Craven and Brophy[55] comment upon the inability of blind people to visually scan, highlighting the need to provide other means of allowing no non-sighted people to quickly assess any survey.

The order of questions in surveys will have an effect upon the perceived importance of the questions to the user, and must be worded in language that demonstrates either understanding of the issues, or recognition that the organiser is willing to learn.

Connell[59], and Davies et al[50] place demographic detail at the end of the survey. This is important because if placed at the beginning of a survey it might imply that the surveyor viewed the problem as the person's sight, and not services' inability to provide for them, a point made by Simpkins[1].

Methodology

For the reasons outlined in the introduction, the basic methodology chosen was to conduct a survey of blind and visually impaired people, to primarily gain qualitative data from end-users in the form of testimonial evidence about electronic information services, suitable for use in UK public libraries, but not necessarily used there. It was also decided to use the opportunity to consider the issues of consulting blind and visually impaired people.

The literature review identified various factors that guided the approach in terms of what data to collect, the most realistic way to collect sufficient data, and ensuring that the specific needs of the study population were addressed.

To gain a sufficient body of suitable data within the project timescale suggested a questionnaire asasas the most effective method. It had the benefit of targeting a wide range of people, across the UK, which meant that the data should not be based upon any one demographic area, or biased by a single local level of service provision.

Davis et al[50] had used guided interviews in person, and by telephone. Being oral techniques, these were very well suited for blind people. However, project resources were restricted to one individual's time, and this was felt to an unrealistic approach to collecting enough data and introduced an unacceptable risk to the project succeeding.

However the credibility of the research depended critically upon addressing issues for the target population, and reports such as "A Closed Book"[62] and "Out of Sight, But Not Out of Mind"[50] made it clear that blind people would be rightly critical of any method that did not accommodate their requirements to use it.

To address this it was decided to use a questionnaire so long as it was designed and conducted within acknowledged limitations. Firstly it was clearly essential that is was not just accessible, but readily usable by blind and partially sighted people. Craven and Brophy's usability findings in NoVA[55] about the barriers created by parallel interfaces and the importance of the structure and language of documents were a major influence.

As well as design issues, the means of delivery was also important. A deliberate choice was made to target blind people who had access to electronic information services, by only producing the questionnaire in electronic formats, and similarly mostly by promoting the questionnaire using electronic communication, such as direct email and distribution lists. It was decided only to offer telephone assistance to those if asked.

This decision meant that the data would not represent the overall population of blind or partially sighted people. However, the decision was felt to be justified, because the data required was by definition feedback from real users of electronic services. McCaskill and Goulding[53] cite lack of consultation as a form of discrimination. Data collected from people with a body of experience was therefore more likely to contain the required information about actual use, rather than general opinion about the subject from non-users.

Another deliberate design factor for conducting the survey using electronic formats was that they were examples of some of the services being surveyed. Comments about the questionnaire would be given as it was being used.

This added to the other descriptions of services based upon recollection. This was likely to provide data about very specific features, such as whether a text box was pre-filled with text or blank, to complement. If more than one user commented upon one aspect of the questionnaire, this method would allow direct comparison between users, and give clues about factors such as use of different technologies, or use with different visual ability.

Design of question content and structure

Information to be gathered fell naturally into a number of areas. The primary reason for conducting the survey was to collect information about the use of electronic information services provided by public libraries.

It was also important for comparison and evaluation of the sample, to collect personal standard demographic information, and information about visual ability that might effect upon use of electronic services.

It was felt that it would be good practise to further include a short section about the survey itself, to give the respondents a chance to point out any weaknesses in the methodology as users, and help inform future consultation of blind and visually impaired people by others.

Alignment with other surveys

There are comparatively few user-studies in this area. NoVA[55] was user based, although it used a more rigorous experimental framework involving observation. Although only a few years old, both Out of Sight[50], and A Closed Book[62] were felt not to cover the range of electronic services available in libraries.

It was felt to be very important to collect data that would be as comparable as possible with data from the limited evidence available.

The questions relating to personal details here were closely based on Out of Sight[50] in which the questions were felt to be clear and covered most of what was required with some minor differences.

As the standard survey instrument for public libraries' users, the Institute of Public Finance's PLUS survey[63] was also reviewed. The definitions for ethnicity from this were used.

From other PLUS questions standardised terminology was used with modifications, for example terms for frequency of use were the same, but referred to use of electronic services, rather that frequency of visit to a public library. It should also be noted that the methodology of PLUS is different being a staff assisted form rather than a self-service questionnaire

The 2003 Oxford Institute's Internet user survey OXIS[64] was used as the basis for questions about why people use the web. This was because it contained simple broad categories that were easy to understand and was recent, being published during the early stages of the research. This was felt to make it more comparable. The web was the only service for which users were asked to say what they used it for, as it was judged to be the most general, and commonly used service.

Language

The use of lengthy descriptions was kept to a minimum. However ensuring that users knew what was meant was more difficult for some services than others. For a commonly encountered service such as using the web, a simple title was almost sufficient as people are familiar with the terminology. For uncommon or unfamiliar service, such as virtual enquiry services, a more detailed description of the service was felt necessary.

Defining electronic services

Trying to create a comprehensive list representative of all electronic services that could be encountered, could only practically be achieved by producing a set of generic types of service to keep the number of questions manageable, to avoid an unworkably long questionnaire. It was therefore necessary to ask people questions about generic types of services such as email. This allowed a general comparison of patterns of usage across all libraries.

A draft list of electronic services was produced. This was comprised of known services that are in use public libraries in the UK. This was posted onto JISC electronic discussion lists[14, 15] used by professional public library staff. Some amendments and additions arose from this, and the list was refined.

Even a list of generic types produced over twenty questions. It was decided to include as many questions as possible, but this required balancing usability against comprehensive coverage as several of the sources referred to above made the point that reading using speech readers takes longer than by eye.

The questions were designed to allow the type of scanning referred to in guidelines such as the RNIB's See It Right[65] scheme and the WAI guidelines[46]. These suggest using consistent heading structures so that the user could listen to the heading to see if they needed to answer the particular question, and move on if they did not. This was justified because it was unlikely that each individual user would have used all of the services listed, and as long as the questions had clear headings, they could be skipped if irrelevant.

To further ease the job for users, for each service three questions were asked using a common recurring format. Users were asked if they had ever used the service in a public library, followed by a multiple choice question about how usable each service was, with

regard to the individual's visual. This was complemented with a question asking if they used a similar service elsewhere that was better, and what it was that made it so. This was felt to be very important because of the evidence of low use of libraries such as Davis et al[50].

Information about the use of assistive technologies

It was important to ask about technologies used in libraries to access electronic services. It was again not considered to be practical to attempt to list all possible types. The TechDis[30] website lists over 2500. The questions were based instead on Craven's three standard types of visual, audio, and tactile aids[31], although this was expanded to differentiate between input and output methods. Respondents were also asked what technologies they used to complete the survey itself.

Personal information about demographics and visual ability

Apart from standard demographic information it was also clearly required to get detail about the particular visual ability, causes of reduced ability to see, and related data. A question about what users thought about electronic services was also included to gauge the effect of positive or negative attitudes.

Information about the survey itself

It was felt to be essential to check that the very act of surveying the sample was a barrier in itself. Users were asked if the survey was easy to use and understand. They were also asked if the questionnaire caused their specific access technologies any problems.

Design of survey formats

The brief for the survey format design was to produce an electronic questionnaire that was usable and accessible.

The question format outlined above had been designed with blind people in mind, not to require any visual information to use it, beyond text, with a serial structure designed for listening to, rather than viewing. This made the job of designing the format fairly straightforward matter. It meant ensuring that it was clear for visually impaired people, many of whom can read, as pointed out in guidance such as the RNIB's See it Right[65] scheme.

Also as the RNIB website[16] points out, a wide range of visual abilities was likely to be encountered, so it needed to be readily adjustable by the user to suit. It also needed to be in a standard file format usable by any technology.

Choice of formats

Initially it was decided to produce a web questionnaire in standard html. However, it was decided to offer more the survey in plain text email too, to give a choice of formats.

This was also for usability reasons. Most guidance suggests that blind people are unlikely to have up to date technology and for this using only a web format might exclude people who do not have easy access to the Internet for prolonged periods. Also a web form is required to be undertaken by the user in one sitting, and cannot be left and returned to. An email form could be done offline at leisure, and this was felt to be better for any users who found reading or concentrating difficult for more than short periods.

Design of the web format questionnaire.

The simplest way to create a web questionnaire is to use a specialist web hosting survey service. These allow one to create ones own surveys, using standard templates. The advantage of these is that they require no coding knowledge and are cheap and easy top use. They also include built in automated data analysis tools.

After looking at a small number of these, it quickly became apparent that these services were not suitable. All the services looked at failed the WC3 accessibility guidelines[46] in several significant ways such as producing non-standard coding, or using client-side scripts, and clearly were not designed with visually impaired people's needs in mind.

These guidelines indicate that web pages are likely to be accessible to the widest audience if they use standard web coding with content separated from style. It was decided to create the web version by writing all the coding from scratch, using a specialist server-side script service was used to process the output from the forms.

It was felt that the questionnaire was required to be accessible to the highest standard to ensure it did not invalidate its own purpose by excluding any users. The web form was

written in strict xhtml 1.0 with formatting in CSS2, written to WCAG AAA standard. Using this method and not including any graphics, also produces very small file sizes to reduce download time. Again this was important for people with lower specification dial-up Internet connections.

Checking web questionnaire compliance with standards

This was carried out using the following validation tools:

1. Bobby[66] – probably the most famous accessibility checking tool, Bobby checks web pages for compliance with the WC3 Web Accessibility Content guidelines[46].
2. WAVE[67] – a very easy to use checker, which also checks against WC3 WAI, WAVE is much simpler to use, ironically using visual icons to outline features that both do and don't comply. It does this by producing an annotated version of the submitted page. It conveniently can upload local files as well as live web pages on a server, making it easier to work with files.
3. The WC3 XHTML validation service[68], to ensure the code was strict XHTML1.0
4. WC3 CSS validation service[69], to ensure the style sheet conformed to the standard (CSS2)

Bobby is much more comprehensive that WAVE, but requires a fairly considerable amount of interpretation. Bobby reports will indicate how to correct some errors, and includes example of html code for addressing individual points. However the author found these examples frequently gave code that was not strict html, and certainly not strict xhtml. There was some further investigation required to ensure xhtml compliance.

Design of the email format questionnaire

Unlike web standards, there was found to be very little comparable guidance for email. ASCII plain text was chosen as the widest standard, and does not depend on proprietary software to read it, but no was discovered.

The closest to a general accessible email standard was the TEN standard[70] developed by Headstar, for their free e-Access Bulletin[71], published with RNIB. Although this standard was designed specifically for newsletters rather than surveys, it was felt to have value as it gives guidance on using plain text to in defined ways, for example to identify headers and sections with characters.

Comments from the piloting of the survey form were fed back to Headstar, and were reflected by changes made in a revised version, such as changing the headings from all capitals, as these were not liked.

Testing with access technologies.

During design, both web and email survey forms were tested using Dolphin SuperNova in document reader mode, to see what they sounded like, and how long it took to listen to the form. This helped to reduce confusion caused by the speech reader's interpretation of document text. Characters were sometimes not correct in the context they were intended. For example a dash (–) was read out as minus.

It also became clear that punctuation needed to be much stricter for use with a screen reader. For example failure to use a full stop at the end of a heading meant the heading and the following sentence was read as one passage without a pause.

PW WebSpeak, a speech browser, was also used to test the web form. Although now discontinued, it was still possibly in use by some people. It worked well with the form, and was felt to be easier than using a standard browser with and added screen reader.

Delivery

Identifying people for the survey sample

The participants required to undertake this survey were required to fit the following criteria:

1. They were blind, or considered they had a visual impairment, regardless of whether they were registered or not.
2. They had experience of using electronic information services suitable for UK public libraries, whether provided by a library or not.

There are ethical and practical problems associated with trying to directly target people who are blind or have partial sight. As Davies et al[50] mention, as a social group, blind people could be considered to be vulnerable. Furthermore the information that would allow selection is by its nature confidential, and therefore protected from public view.

Fortunately a major source of potential participants was established early on in the project, in the form of the RNIB research department's database of people who have volunteered to take part in research. In response to a request for people matching the research criteria, a list of 257 people was received. As part of the decision contact people by electronic means, the number with email addresses listed reduced this to 151.

As these were volunteers, a fairly high return was expected, likely to provide most if not all that would be required in terms of numbers of returns. A further advantage of this source was that these people was not associated with libraries as such, and likely to be more representative of the general population of blind and visually impaired people than if found by sampling existing library users. Again as discussed earlier, surveys such as A Closed Book[62] made it clear library use was not high amongst the target population.

This list provided a degree of project security. However, selecting a sample from a single organisation could introduce bias towards the mission of that organisation, and exclude people who do not feel it represents them. It was therefore necessary to find other sources.

The second largest source of potential subjects was created by searching the web for organisations run by or helping blind and visually impaired people, including libraries that had support-groups. A further 80 or so email contacts were found using this method.

Other sources are listed in more detail in the results under the summary of response rates.

Piloting the survey formats.

The two versions of the survey form were sent out to a number of people who had various degrees of visual impairment, until at least four responses had been received for each format. Overall most people seemed to find the pilot questionnaires easy to use and understand, although a number of points were identified that were fed back into the design of the survey forms.

One person commented that the email should be in larger print, although as this was possible to adjust this by the user, it was decided not to increase this. Another comment expressed concern that the web survey may not be usable if not using a mouse. This was from someone who occasionally used a mouse. However there was another positive

comment from someone who had successfully used the web form without using a mouse. This indicated an individual issue, rather than the form not working.

One person assumed that the survey was not for them, as they don't use the library. To address this some wording was added to the final form, and to accompanying emails to indicate that use in a library was not essential

Interestingly, comments from users themselves seemed to be able to use it, but there were a few comments expressing concern that others might not be able to use it.

There was also some unintended formatting automatically added to the pilot plain text questionnaire, due to copying and pasting into web mail. This was addressed in the final version by careful checking and manual correction.

The pilot survey is contained in Appendix E.

Results

The results listed in this section are listed according to responses to specific questions. Free comments were also invited, and these are listed in categories in appendix C.

The use of Electronic Information Services

About self-service electronic catalogues whilst physically in a library.

Usage of self-service electronic catalogues whilst physically in a library.

Of 22 people who indicated answered this question. Of these 6 (27.3%) people said they had used an electronic catalogue whilst in a public library. 16 (72.7%) people said that they had not used

Of these, the ease of use varied considerably.

- One person said that they could use it unassisted, and could adjust it themselves to suit their needs.
- Three people said they could use it themselves once it had been set up to suit their needs.
- One person said they required frequent help to use it, because it was not well suited to their needs.
- One person said that they were could not use it at all because use it was not suited to their needs.

Comments about self-service electronic catalogues in a library

The following comments about how the service could be made better were given:

- I have used the National Library for the Blind, Calibre cassette Library and the reveal database. What made them better was that they were designed for use by sight-impaired people and available in my own home. I have no need to use the local public

library as they have few services for the sight-impaired. They do have a speaking computer but it uses different software to my own.

- Only speech and text are important to me, but to anyone with partial sight, many library catalogues have poor contrast, poor colour selection, very small fonts that aren't easy to see etc, I have been on some public libraries, namely the one at Chesterfield that has all these features taken into account as well as text and speech, along with Braille.
- Ability to re-size text made the service easier to use.
- Large pointer
- The services I have used are web-based, so can be accessed more conveniently, e.g., from home or work.

About self-service electronic catalogues accessed remotely

Usage of self-service electronic catalogues remotely

22 people answered this question. Of these, 8 people (36.3%) said they had used a catalogue remotely. 14 (63.6%) said that they had not used them. In contrast to use in a library, those who said they had used a catalogue remotely could do so with ease. This reflects the fact they would all be using their own equipment at home.

- 6 said they could use the service unassisted and could adjust it to suit themselves.
- 2 people said they could use the service themselves once it had been adjusted to suit their needs.

Comments about self-service electronic catalogues used remotely

The only comment given about improving this service was:

- It was designed for use by sight-impaired people and I did not have to work out what anything meant - it was clear and unambiguous to me. (NLB)

There were two other comments by respondents that said they preferred web-based services.

About electronic reference material on a computer in a library

Usage of electronic reference material on a computer in a library

24 people answered this question. Of these, 3 people (12.5%)said they had used this service. 21 (87.5%) said they had not used this service.

Of these,

- 2 people said that they could use it themselves once it had been adjusted to suit their needs
- One person said they needed frequent help because it was not suited to their needs

Comments about electronic reference material on a computer in a library

There was only one comment about how to improve this service:

- The RNIB public library in Peterborough offers a CD-ROM and other services, which aren't accessible to non-members and is totally accessible.

About electronic reference material remotely

Usage of electronic reference material remotely

23 people answered this question. Of these, 7 (30.4%) said they had used this service, and 16 (69.6%) said they had not. Of those who had:

- 3 People said they could use it unassisted, and could adjust it yourself to suit their needs.
- 2 people said they could use it unassisted once it had been adjusted to suit their needs.
- 2 people said they required occasional help because it was not well suited for their needs

Comments about electronic reference material used remotely

The following comments were made about improving this service:

- I didn't know such access was possible from a public library so use my own university's library
- I have occasionally used the reference material made available [remotely] through the National Library for the Blind
- I use talking newspaper £90 per year for CD ROMs, £30 for online access but not archived so can't find the old things to re-listen to them
- Large pointer and slow control of curser

About electronic stock that is borrowed by physically visiting the library.

Usage of electronic stock that is borrowed by physically visiting the library

24 people answered this question. Of these, one person (4.2%) said they had used the service. 23 people (95.8%) said they had not.

- One person indicated that they required occasional help because it was not well suited to their needs.

Comments about electronic stock that is borrowed by physically visiting the library

The following comments were made about improving this service, both referring to remote access:

- I haven't seen any that could bester my use at a library, only remotely.

- RNIB, sent to home, Braille copy or phone

About electronic stock that is borrowed remotely

Usage of electronic stock that is borrowed remotely

23 people answered this question. Of these, 3 people (13.0%) said they had used this service. 20 people (87.0%) said they had not. Of the 3 people who had used this service:

- One person said they could use it unassisted, and could adjust it yourself to suit their needs
- 2 people said they required occasional help because it was not well suited to their needs.

Comments about electronic stock that is borrowed remotely

The following comments were made about improving this service:

- Services offered by specialist companies that know all the requirements of a blind person are better such as RNIB, TNAUK, dolphin Access, Sight and Sound, Technovision Systems, Moving-Mountains offer a far superior service by offering audio-described DVD's of films, have additional text in the software and hardware such as better help by providing text tags for graphics, sounds for use with games etc.
- I subscribe to www.audible.com for spoken word files, and might well like to use this facility if it was available from the Library.
- Have download Zoomtext from RNIB site - useful service
- Very much [better] at home
- yes CD-ROMs from TNAUK as above

About accessing the World Wide Web in general

Usage of the World Wide Web from a computer in a library

As predicted, use of the web was the service that had the greatest number of respondents indicating they had used it in a public library.

23 people answered this question. Of these, 9 (39.1%) people said they had used or tried to use the service. 14 (60.9%) people said they had not.
People who had used the service gave the following responses to ease of use:

- 2 people said they could use it unassisted, and could adjust it themselves to suit their needs.

- One person said they could use it unassisted, once it had been set up to suit their needs.
- 3 people said they required occasional help because it was not well suited for their needs.
- Two people said they could not use it at all because it was not suited for their needs.

Comments about accessing the web on a computer in a public library

The following comments were made about improving this service:

- My home system [is better], as I can configure the software for optimum use with the screenreader, not have a one size fits all system, as would be the case on public machines when they are accessible.
- It used the same screen reader as I do at home [answered that they required occasional help because not well suited to their needs]
- I regularly use the web both on my pc and my Braillenote with very few if any problems. This is because it has speech and Braille - one or the other brings all the accessibility I need. Where sometimes the Braille has problems accessing a site, the speech sorts things out. Some sites are difficult to navigate because of graphics - the Channel Five website is graphic orientated, but it does offer a text alternative. These are the things that public companies need to be aware of as well as contrast, colour, font size and the need to keep their sites uncomplicated
- The public library either does not have access technology on its PC or, if it does, it is not the access technology that I am used to; therefore I use my own PC with my own access technology. I don't want to have to learn yet another set of skills!!!"
- I have the Internet at home and I think it was the way the libraries are set up with the people's network, which made it harder at the library.
- A more familiar Screenreader.
- It is more convenient to be able to access the web from home or work, rather than having to visit a specific building, with the associated time and transport implications.
- Large font
- Home - familiarity with own computer set-up
- Because it is available from home or work

What respondents use the web for

This question was the only one where respondents were asked about how they used a service. It was included because the web was felt to be likely to be the only one that would have a high usage amongst most people. This proved to be the case as all people who responded in detail had used it either at home or at work.

The questions are based upon the 2003 OXIS survey.

Using the web for finding out specific facts or Information

23 people answered this question, of which all 23 (100%) said yes.

Using the web for general browsing

22 people answered this question. Of these, 14 people (63.6%) said yes, and 8 people (36.4%) said no.

Using the web for email

22 people answered this question. Of these, 16 people (72.7%) said yes. 6 people (27.3%) said no.

Using the web for online shopping

22 people answered this question. Of these, 14 people (63.6%) said yes. 8 people (36.4%) said no.

Using the web for looking for work

20 people answered this question. Of these, 7 people (35.0%) said yes. 13 people (65.0%) said no.

The following two questions varied from the OXIS survey, which did not differentiate between study towards a qualification, and personal study.

Using the web for study or learning towards a qualification

22 people answered this question. Of these, 8 people (36.4%) said yes. 14 people (63.6%) said no.

Using the web for study not towards a qualification (that is personal study).

22 people answered this question. Of these, 13 people (59.1%) said yes. 9 people (40.9%) said no.

Overall use of the web for study

22 people answered either one or other of the preceding two questions. Of these, 16 people (72.7%) said yes to EITHER question about studying. 6 people (27.3%) answered no to BOTH questions.

Using the web for chat rooms.

22 people answered this question. Of these, 3 people (13.6%) said yes. 19 people (86.4%) said no.

Using the web for music.

22 people answered this question. Of these, 11 people (50%) said yes. 11 people (50%) said no.

Using the web for public services

23 people answered this question. Of these, 19 (83.6%) said yes. 4 people (17.4%) said no.

Using the web for news.

22 people answered this question. Of these, 9 people (40.9%) said yes. 13 people (59.1%) said no.

Using the web for banking

22 people answered this question. Of these, 6 people (27.2%) said yes. 16 said no (63.6%).

The answers to this question were slightly complicated because 2 people who said no also said they had tried, but indicated that they found the websites inaccessible to use. In contrast, 4 of the people who said yes were totally blind. This may be down to different banks having different services.

Using the web for entertainment.

21 people answered this question. Of these, 10 people (47.6%) said yes. 11 people (52.4%) said no.

Using the web for instant messaging

22 People answered this question. Of these, 4 people (18.2%) said yes. 18 people (81.8%) said no.

Using the web for information about visual impairment.

23 people answered this question. Of these, 18 (78.3%) said yes. 5 people (21.7%) said no.

About using Library Web Pages

Usage of library web pages using Library Web Pages

24 people answered this question. Of these, 8 people (33.3%) said yes. 16 people (66.7%) said no.
Of people who had used this service:

- 3 people said they could use it unassisted, and could adjust it themselves to suit their needs.
- 4 people said they could use it unassisted, once it had been set up to suit their needs.
- One person said were unable to use the service at all because it did not suit their needs

Comments about using library web pages

The following comments were made about improving this service:

- Edit boxes are a pain – I can't use them with a screen reader
- I've used similar services provided by the National Library for the Blind. I'm not aware that my public library offers any such services, or, if they do, how relevant/accessible they are.
- Better colour combinations, pretty isn't always practical.

About using email on a computer provided by a public library

Usage of email on a computer provided by a public library.

23 people answered this question. Of these, 4 people (17.4%) said yes. 19 people (82.6%) said no.

Of people who had used this service:

- 2 people said they could use it unassisted, and could adjust it themselves to suit their needs
- One person said they could use it unassisted, once it had been set up to suit their needs
- One person said they required occasional help because it was not well suited for their needs

Comments about email on a computer provided by a public library.

The following comments were made about improving this service:

- too much hassle due to their security systems and on screen graphics.
- It was available from home or work.
- on my own PC I use my own access technology
- I use a system specifically tailored to my needs at work, and have received relevant training in its use.
- prefer general online services.
- access at home to internet

About using software on a computer provided by a public library.

Usage of software on a computer provided by a public library.

23 people answered this question. Of these, 4 people (17.4%) said yes. 19 people (82.6%) said no.

All 4 people who had used the service said they had used one or other Microsoft Office product, including Word, Excel, Access. No other software was mentioned by name, but the generic terms Internet, word processing, and spreadsheets were used.

Of people who had used this service,

- 3 people said they could use it unassisted, and could adjust it themselves to suit their needs
- One person did not indicate how easy it was to use.

Comments about software on a computer provided by a public library.

The following comments were made about improving this service:

- It was at available from home.
- My own pc in my own environment with my own software, configured to suit me and with my own access technology.
- I have used these packages at home and they were better because I am more familiar with home based packages.
- Well, at home you can configure stuff exactly how you need it, obviously.
- bigger font

About using virtual reference services provided by a public library.

Usage of virtual reference services provided by a public library.

24 people answered this question. Of these, one person said yes (4.2%). 23 people (95.8%) said no.
Of the people who said no, one person indicated that this was because it was not available.

- One person said that they could use it unassisted, and could adjust it themselves to suit their needs.

Comments about virtual reference services provided by a public library.

There were no comments made about improving this service.

About using self-operated automated services provided by a public library.

Usage of self-operated automated services provided by a public library.

22 people answered this question. Of these, 21 people (95.5%) said no, and one person said yes. Of the people who said no, one person indicated that this was because it was not available.

- One person said that they required occasional help because it was not well suited for their needs

Comments about self-operated automated services provided by a public library.

The following comment was made about improving this service:

- Horrible - can't get hold of a person (automated phone systems)

About using electronic signs or display equipment provided by a public library.

Usage of electronic signs or display equipment provided by a public library.

23 people answered this question. Of these, all 23 people (100%) said they had not used this service.

Comments about using electronic signs or display equipment provided by a public library.

The following comments were made about improving this service:

- I find the electronic signs in the post office very annoying, because they say "cashier number six" but you can't see where that is!
- How when you cannot see well enough?
- not aware they exist

The lack of use of these services was expected for this question.

About using scanning services provided by a public library.

This was described as meaning scanning for any reason, and included scanning to input text for use with a screen reader, or Kurtweil reader.

Usage of scanning services provided by a public library

23 people answered this question. Of these, 4 people (17.4%) said yes. 19 people (82.6%) said no.
Of the people who said no, one person indicated that this was because the service was not available. Of the people who had used this service:

- One person said they could use it unassisted, and could adjust it themselves to suit their needs
- One person said they required occasional help because it was not well suited for their needs
- One person said they required frequent help because it was not well suited for their needs.
- One person did not say how easy they found the service.

Comments about using scanning services provided by a public library

The following comments were made about improving this service:

- Once again, I do it here at home, but the main failing of all this is that the people providing the software never quite cope with the font changes well enough!
- I have the necessary equipment at home and in my office. Location would appear to be everything.
- Some libraries only have OCRs with cameras, which I found I couldn't use on my own. Other libraries have speech OCR's which I have few difficulties with.
- my own pc with my own software & access technology
- got own scanner.
- Can use the scanner at work - Use this at work for indexing

About contacting a public library using electronic communication.

Usage of contacting a public library using electronic communication.

23 people answered this question. Of these, 6 people (26.1 %) said they had used or tried to use this service. 17 people (73.9%) said no.
Of the people who had used this service:

- 4 people said they could use it unassisted, and could adjust it themselves to suit their needs.
- One person said they could use it unassisted, once it had been set up to suit their needs
- One person said they were unable to use the service at all because it did not suit their needs.

The answers to this question were expected to say this service was easy to use by those who had tried, because it was most likely to be used from people's own equipment at home. For the one person who could not use it, this was because the library provided a webform, rather than email

Comments about contacting a public library using electronic communication.

The following comment were made about improving this service:

- hopeless web forms

About being contacted by a public library using electronic communication.

Usage of electronic communication from a public library.

23 people answered this question. Of these, 7 people (30.4%) said yes. 16 people (69.6%) said no.
Of the people who had used this service:

- 6 people said they could use it unassisted, and could adjust it themselves to suit their needs.

- One person did not say how easy they found the service.

Comments about receiving electronic communication from a public library.

There were no comments made about improving this service.

About staff support for electronic information services.

Usage of staff support for electronic information services.

22 people answered this question. Of these, 8 people (26.3%) said yes. 14 people (63.6%) said no.

This question was slightly different in format to others, in that ease of use was not asked for. Instead respondents were asked how helpful staff assistance was.

The following comments were made about staff helpfulness:

- As stated, it wasn't very useful
- This was specifically arranged so that we could test a leaflet for the use of other Library staff who might need to help a Visually Impaired member of the community
- Very
- Varies from being very helpful to having no real understanding of the problems I face
- very helpful
- Guided through use of service and how to make adjustments to text, screen colours etc.
- Essential.

Comments about staff support for electronic information services.

The following comments were made about improving staff helpfulness:

- I have talked to many library staff. They are willing and want to provide access but are often frustrated by lack of time, lack of training and the electronic stuff not working.
- Most Librarians know little if anything about their technology.

- …informed, helpful staff with enough time

About using electronic equipment loaned by a public library

Usage of electronic equipment loaned by a public library

23 people answered this question. Of these, one person (4.4%) said yes. 22 people (95.6%) said no.

- One person said they could use it unassisted, and could adjust it themselves to suit their needs

Comments about using electronic equipment loaned by a public library

One comment was made about improving this service, which was that is was available elsewhere at the RNIB.

About using ones own electronic equipment in a public library

Usage of ones own electronic equipment in a public library

23 people answered this question. Of these, all 23 people (100%) said no.

Comments about using ones own electronic equipment in a public library

No comments were made about improving this service:

About self-operated electronic payment services provided by a public library

Usage of self-operated electronic payment services provided by a public library

23 people answered this question. Of these, one person (4.4%) said yes. 22 people (95.6%) said no.

- One person said they could use it unassisted, and could adjust it themselves to suit their needs

Comments about using self-operated electronic payment services provided by a public library

The following comments were made about improving this service:

- Do you mean as in shopping on the Web? Via Amazon as they have a text only site.
- Prefer to use web from home/work.
- Credit card by phone elsewhere - convenient service

About other electronic information services not listed in the survey

Usage of other electronic information services not listed in the survey

16 people answered this question. Of these, 2 people (12.5%) said yes. 14 people (87.5%) said no.

Of the people who had used other services:

- One person said they had used computer for reading newspapers from a CD-ROM, and said they could use it unassisted, and could adjust it themselves to suit their needs.
- One person said they had used a library catalogue to try to listen to webwords, and said they required frequent help because it was not well suited for their needs.

Comments about using other electronic information services not listed in the survey

No comments were made about improving these services.

Access technology used in public libraries

About using visually enhancing output technology provided by a public library

Usage of visually enhancing output technology provided by a public library

15 people answered this question. Of these, 4 people (26.7%) said yes. 11 people (73.3%) said no.

Of the people who had used this type of service:

- 2 People said they could use it unassisted, and could adjust it themselves to suit their needs.

These services were described as:

- Magnification
- Use of large monitors, changing text/colour settings and physical magnifiers.

- One person said they could use it unassisted, once it had been set up to suit their needs.

This service was described as

- screen magnification software and large print software

- One person said they required frequent help because it was not well suited for their needs.

This service was described as:

- screen magnification

Comments about using visually enhancing output technology provided by a public library.

The following comment was made about improving this service:

- Because it is set up for me [elsewhere] with my own magnification settings and contrast / colour setups.

About using visually enhancing input technology provided by a public library

Usage of visually enhancing input technology provided by a public library

14 people answered this question. Of these, one person (7.2%) said yes. 13 people (92.8%) said no.

One person used this type of service, but did not indicate what system it was or how easy to use it was.

Comments about using visually enhancing input technology provided by a public library

The following comments were made about improving this service:

- Keyboard overlays are irrelevant since I can touch type. Large icons/menus are usually never large enough
- I found these useful - large key keyboard, and standard keyboard with overlay keys

About using audio output technology provided by a public library

Usage of audio output technology provided by a public library

20 people answered this question. Of these, 4 people (20%) said yes. 16 people (80%) said no. Of the people who had used this type of service:

- 2 people said they could use it unassisted, and could adjust it themselves to suit their needs.

These services were:

- Dolphin HAL
- Windows Eyes screen reader

- One person did not comment on the ease of use of the service they use.

This service was:

- a Kurzweil scanner

- One person said they required frequent help because it was not well suited for their needs

This service was:

- Dolphin Supernova

Comments about audio output technology provided by a public library

The following comments were made about improving this service:

- I find the voice used in Jaws much easier to understand [than Dolphin Supernova]
- I am used to using JAWS which is available to me at home and in my office.
- Because its on my own pc and I know how to use it.
- Edit boxes are difficult - can't tell how to use - screen reader not understood
- Use equipment provided by employer, supplied under Access to Work Scheme, or self-funded.

About using audio input technology provided by a public library

Usage of audio input technology provided by a public library

20 people answered this question. Of these, one person (5%) said yes. 19 people (95%) said no.
The one person who had used this type of service may have misunderstood the question, as they indicated they had used Dolphin SuperNova, and preferred Outspoken for Mac. Both of these are speech output devices.

Comments about using audio input technology provided by a public library

The following comments were made about improving this service:

- waste of time if you type
- Never used because it is irrelevant when you can touch type

About using tactile output technology provided by a public library

Usage of tactile output technology provided by a public library

19 people answered this question. Of these, all 19 people (100%) said no.

Comments about using tactile output technology provided by a public library

No comments were made about improving this service:

About using tactile input technology provided by a public library

Usage of tactile input technology provided by a public library

18 people answered this question. Of these, all 18 people (100%) said no.

Comments about using tactile input technology provided by a public library

No comments were made about improving this service:

About the survey.

Summary of response rates

The survey was distributed in a number of staggered waves for reasons discussed in the methodology, mostly by email. Where contacts were known these were sent directly to individuals, and in these cases the responses can be measured directly.

Invitations were also sent to organisations, which it was hoped would distribute further. There were also postings to email distribution lists, blogs and a mention on national radio. In these cases, it was not possible to measure response rates specifically, because there was no way of telling for sure where respondents had learned of the survey.

Responses from first wave of direct emails to individuals

The first invitations were sent to volunteers whose details were provided by the RNIB. Of 150 individual emails sent, only 102 were successfully delivered. 46 were returned as failed due to not being recognised as valid or current, and two were returned because the mailbox was full.

Of the 102 people who were successfully contacted, 18 people undertook the survey, a response rate of just under 18%. These 17 respondents made up 67% of all responses to the survey.

The fact that 30% of volunteers supplied email addresses that could not be contacted was not followed up, and may simply be down to the currency of the RNIB research database. It is also possible however that those volunteers who had email, did not use it frequently. While this cannot be said to represent the general population, further study of the use of email as a means of communication might be worthwhile when contacting visually blind and visually impaired people.

Response from second wave of direct emails

The next set of invitations was sent to 54 email addresses published on the web as involved in work with blind and visually impaired people. Some of these were to individuals, and some were to generic email addresses.

There were only 2 identifiable responses from these invitations

Response from third wave of direct emails

A further set of 21 invitations was made to top up the final numbers of responses. This yielded one definite response.

Unidentifiable responses

As well as targeting people individually by email, the survey was posted onto a number of electronic distribution lists, which were JISC's People's Network List[14] and Peter Scott's Library Blog[72] published by Xrefer used by public library staff, and BECTA's On the Nail newsletter, that accompanies the Help Is At Hand[73] website disability magazine. The survey was also featured on Radio 4's popular In Touch[74] programme.

7 responses could not be attributed to direct email. It is not possible to say if these were received as a result of these promotional methods, or whether they were achieved though word of mouth through others, but it is clear that direct contact by email was the most successful method.

Breakdown of responses

The total number of number of surveys returned was 27. Of these 22 (81.5%) used either the web or the email form with just their usual access technology settings. Of these exactly half used each method. One person (3.7%) used the email version with manual changes they made themselves. To do this, they used the email form but first pasted into Word to enlarge the text to 16 point.

3 (11.1%) people requested further help from the author before they undertook the survey. Of these, one person required a large print version. This was supplied as a 16 point large print rich text format to use in Word. The other two people requested the survey be undertaken by telephone.

For this the author used the questions from the survey with as little prompting as possible, to try to ensure that the data was comparable to that returned by others.
Any comments that were raised by these two respondents that were not based directly on the questions were included as free comments. These were treated in the same way as comments arising from others from the further comments form, or from email communications.

There was one person who did not complete the survey, but who responded with specific comments about it. This was the email version in the TEN format, and they commented that they felt it was too confusing to use with the system of symbols used to mark up headings.

Equipment used to undertake the survey

Hardware and software access technologies as reported by the respondents

The data for what access technology was being used came from a direct question on the email version, although not all people gave this information. This question was not included on the webform version, although most supplied this information on request. Further information was also retrieved from users of the webform, which was set up to capture the details of the browser that had been used to access it.

There were 24 people who used the survey without direct assistance. Of these, 18 people gave details about the technology they were using when actually undertaking the survey. Those used ranged considerably. There were also comments about other systems that were used in some situations, even though they were not being used at the time.

Access software

- The most commonly used system was JAWS, with 10 people using it. However of people using JAWS there were four different release versions being used, ranging from version 4.02 to 5.0. One person also said they were using JAWS in Form Mode. This was using the webform. Another said that they find “using JAWS to fill in forms on the web quite hard! I much prefer email”. Several JAWS users did not specify which version they were using, and one person said they also used HAL, a component of Supernova.
- 2 people were using Dolphin Supernova, one using version 4.5, and one using version 5.0 professional. One person said they had “more or less lost the ability to use the magnification part”.
- One person was using Windows Eyes, version 4.1.
- One was using LookOUT screen reader version 4.14.
- One person was using TalkBack, described as: “a screen reader for passages which have been highlighted.”
- Two people specifically mentioned that using the webform with its enlarged text size and contrast was sufficient. However one of these said that they were using Apple Mac’s CloseView to invert text to compose a follow up email.

- Two people completed the email form by transferring to Word and enlarging the font size, and one other person mentioned that they use any combination of enlargement that they can
- One person reported using Zoomtext, although they were not using it to do the survey.

Access Hardware

- One person was using Braillenote BT, described as: “a sort of specially adapted Notebook PC which has a 32 cell Braille display and uses Keysoft 5.0 operating system.”
- Two people were using Focus Braille display. One was a Focus 44, the other not specified
- One person was using VideoLight, “a CCTV for use with a standard TV set”, with a screen reader (TalkBack as above)
- One person also reported that they use an oversized monitor.
- One person reported that use a Kurtzweil reader, but that they were not using it to complete the survey.

There were a few comments about not making assumptions about what people would be using. These were summed up by one respondent:

> “Many users will always be out of date with computers and access software, so never assume when designing web sites, that they all have the latest software to be able to read content like flash or suchlike. Most do not use special browsers, especially if on library equipment, just using IE on a standard system with jaws or supernova. At home its the cost of being up to date that is the killer.”

Standard software used

Most of the access technologies used were systems that work with other standard equipment and software, such as operating systems, browsers, and the like. As with the access technology, the standard technology also ranged widely.

Information about the operating system was available for 15 people. Of these 8 people were using Windows 98, 3 people were using Windows XP, 2 people person were using Windows 2000, one person Windows Me, and one person Mac OS9.

The most important point here is that most were using an old version of Windows (Windows 98), which was superceded by Windows 2000, 4 years before this survey was conducted. At the time of the survey the most recent version of Windows was Windows XP. Given that operating systems usually come installed onto computers when bought, this suggests a significant number of users may have used old equipment.

Information available about browsers was available for 12 people. By contrast to operating systems, browsers are available for free download over the web, and this is reflected by the data. At the time of the survey, the most recent version of Internet Explorer was version 6. Used by the majority of people for which this was known.

Of these, 8 were using Internet Explorer 6.0, 2 people were using Internet Explorer 5.5, and one person was using Internet Explorer 5.16 on a Mac.

Use of and access to electronic information services in general

Awareness of electronic information services

While use of services provided by public libraries was low, and although not always in the answers to specific questions, the free comments (Appendix C) show that respondents were aware of recent advances in technologies.

There were examples of this from specialist organisations. These included the NLB, whose free access to e-ref such as Xreferplus and Know UK was mentioned, as was their specially adapted version of WhichBook, as was REVEALWEB. The RNIB was also mentioned as a source of information in various contexts, as was the TNAUK.

In general terms there were a number of comments about using the web, or trying to. Mention was also made of using banking services, satellite positioning systems, talking household appliances, and

Attitudes to electronic information services

21 people answered a specific question about whether they thought computers and electronic information services in general, make things easier or harder to use for people who have a visual impairment.

Most people gave a positive response:

11 people (52.4%) said that electronic information services have made things easier to use or more accessible.

6 people said that electronic information services tend to make things more difficult to use, or less accessible

2 people said that electronic information services tend to make things more difficult to use, or less accessible.
One person did choose an option, but made the following comment:

- SOME THINGS EASIER - COMPUTERS EASY - for example trekker BPS [a satelitte navigation system], and colour reader. However [music] synthesisers use text menus - on screen with no way of getting this to an audio output.

Computer use at home

Of 23 people who indicated whether they had a computer at home, all 23 (100%) said yes.

Internet access at home

Of 23 people who indicated whether they had Internet access at home, 21 people (91.3%) said yes. 2 people (8.7%) said no.

Use of the mouse

Of 23 people who indicated whether they normally use a mouse, 10 people (39.1%) said yes. All of these people had some visual ability, although one person said they only used a mouse if they had to.
13 people (60.9%) said no. All of these people described themselves as totally blind or having very poor vision.

Frequency of use of electronic services

Of 23 people who indicated how frequently they used electronic information services, 22 people (95.7%) indicated more than once a week. This was the highest category available, and 5 people (21.7%) commented further that they use them daily.

One person (4.3%) said they used electronic information services about once a fortnight.

Demographic spread of respondents

Gender

Of 27 respondents, 18 were male, and 9 female. This gives a ratio of 67% men to 33% women.

Age

4 people declined to give their age. The average age of the remaining 23 participants was just under 54 years old, with ages ranging from 31 to 80.
The spread was fairly even between these two, with 2 people in their thirties, 5 in their forties, 10 in their fifties, 4 in their sixties, one in their seventies, and one in their eighties.

Location

23 people gave a geographic location, and these were dispersed widely across the UK. 19 were fairly evenly dispersed across England, with the North, Midlands, South and West as far as Bath being represented. All places listed had only one representative except Reading, Brighton and Watford, who all had two. There were three people from Scotland, and one from Northern Ireland, but none from Wales.

Ethnicity and Preferred Language

23 people indicated their ethnicity. Of these, 22 people (95.6%) selected “White British”, except one who selected “Asian or Asian British Indian”.

The same 23 indicated a preferred language. Of these English was the choice of 21, people, with one person indicating English/Welsh, and one Indicating Gujerati/English. Of those who indicated English, one indicated “Received English pronunciation”, and one indicated “English, excluding gobbledegoop and political correctness”

Employment

23 people indicated whether they were in employment. Of these 13 people (56.5%) were not in work, and 10 people were (43.5%), with one of these being self-employed.

Study

23 people indicated whether they were studying. Of these 4 were in formal education. Of these 3 were part-time and one full-time. Two of the part-time students were also working. One other person indicated that they were studying, but were not in formal education.

10 people out of 23 were neither working, nor studying. These people were all in the upper age range 54 to 80, apart from one person aged 36.

Visual Ability

There were 3 questions about respondents' visual ability. These asked for their own description of their ability to see, the cause of their reduced vision, and the length of time they had experienced reduced vision.

A further question asked if they were registered blind or partially sighted. This was not intended to give information about their ability to see, but rather to give a means by which the sample might be identified more closely with existing statistics.

Respondents' description of their ability to see

23 people gave specific details of their ability to see. 18 respondents were permanently unable to see in any distinguishing way, with 5 people who could see enough to distinguish text and objects with difficulty.

Of these 11 people said they were totally blind with no light perception.

6 people indicated that their eyesight was severely limited to the extent that they were unable to distinguish between light and dark, or only able to make out large contrasting objects.

- Some ability to see

- I can see the difference between light and darkness and blurred images without any description.
- large shapes only, and then only in contrasting situations
- Poor. Very considerable interference effects, no detailed central vision, blotches of blind spots, cataract in one eye, a version of RP. Progressive since birth, worse since age 49.
- poor
- "Some guiding vision. Not able to see to read print."

6 people indicated that they could use print or recognise small detail, but that it was difficult. Two of these people also indicated that their sight varied so that they were not continuously able to see to this extent.

- Partially sighted due to macular degeneration of the centre of the retina hence difficulty with small print and recognizing faces.
- Very near sighted
- Short-sighted.
- PARTIALLY SIGHTED
- Varies from good (2 lines on an eye chart) to bad (practically blind)
- limited to clear central vision allowing moderate use of normal print, limited by eye strain/migraine if used continuously

Registered status

24 people indicated whether they were registered as blind or partially sighted. Of these 19 were registered blind, and 4 registered partially sighted.

Length of time respondents experienced reduced vision

- 23 people indicated the length of time they had experienced reduced vision. This varied from 3 years to 64 years. Most had experienced reduced vision for a significant length of time. For 18 people this was 20 years or more.
- For 2 people the length of time was 60 years or more.
- For 7 people the length of time was between 50 and 59 years.
- For 4 people the length of time was between 40 and 49 years.
- For one person the length of time was between 30 and 39 years.
- For 4 people the length of time was between 20 and 29 years.
- For 2 people the length of time was between 10 and 19 years.
- For 2 people the length of time was between 0 and 9 years.

Cause of visual impairment

23 people gave the cause of their visual impairment. These included some of the common causes amongst the general population.

- 6 people gave Retinitis Pigmentosa as the cause.
- 2 people gave macular degeneration as the cause. On was the wet type, the other not specified.

The other 15 gave a number of reasons listed here:

- Genetic cock up
- Retinal detachment
- Glaucoma and accidents
- Rod cone dystrophy
- Unknown but possibly something to do with the retina.
- Right eye Microthalmus, left eye Coloboma
- Choroiditis
- Congenital Cataracts plus complications.

- scars, nongential cataracts, nystagmus
- Micro-ophthalmia
- Bomb explosion
- Rare disease
- Karataconus (Mishaped corneas).
- Albinism.
- Optical atrophy

Other Disabilities

A number of questions were asked about conditions other than reduced vision that might require adaptations to services. This was to identify, as far as possible, whether it was people's visual ability alone that was not matched by services, or whether it was a complex of needs that was not being met.

Mobility difficulties that make it difficult to get out independently

23 people indicated whether they had any mobility difficulties. Of these 7 people (30.4%) said they did.

Although this question was not intended to include mobility due to reduced vision, answers to other questions mention that just getting to a library can be difficult, so it is possible that this question was interpreted as meaning this.

3 people indicated a cause. One person gave the cause as multiple sclerosis. The other 2 people both indicated cases specifically related to vision. One person said that "visual disturbances make it hard to walk straight".
Another person commented that

"Total blindness impacts effective mobility, through lack of information and use of equipment through unsuitable interfaces"

Physical Difficulties that make using equipment difficult

22 people indicated whether they had a physical difficulty that affect using equipment. Of these, 3 said yes and 18 said no. Of the 3 people who said yes, the causes given were amputation of an arm, Thoracic Inlet Syndrome, causing loss of use of an arm, and Multiple sclerosis, causing difficulty in using a hand.

One person interpreted this question as meaning that their physical mobility was made difficult because of their sight.

Hearing Problems

22 people indicated whether they had a hearing problem. Of these, 5 said yes and 17 said no. Of the 5 people who said yes, 2 people indicated that this did not affect them because they used hearing aids. One person said they had tinnitus.

2 people said that they had hearing loss that made hearing speech difficult in situations where there was background noise. Of these, one person said that they managed this by reducing the speed setting of their speech reader. One person said that they "need it quite loud"

Dyslexia

21 people indicated whether they had dyslexia. Of these people all 21 people said no. One person who was blind also commented, "how can blind people have dyslexia". Dyslexia may be an additional factor for people with visual impairment using screen magnification.

Other disabilities

Only 9 people gave any answer to this question, and of these, all said that they did not have any other disabilities.

About whether the survey was easy to understand

21 people answered this question. Of these, 19 people (90.5%) said yes, and 2 people (9.5%) said no.

About whether the survey was easy to use.

22 people answered this question. Of these, 17 people (77.3%) said yes, and 5 people (22.7%) said no.

About whether the survey caused access problems for users' equipment.

16 people answered this question. Of these, 2 people (12.5%) said it no, and 14 people (87.5%) said no.

Analysis of the Results

The analysis presented here is based upon answers to specific questions, as listed in the results section, and free comments listed in Appendix C.

Experience of the respondents

The decision to target experienced users of electronic services was successfully reflected in the results. The majority of respondents said they used electronic information services frequently, with over 95% selecting the highest category of more than once a week. Where they indicated, all had their own computer, and almost all had home Internet access.

They also view these services positively with over 80% agreeing that these services either have made, or tend to make, life easier for people who are blind or have a visual impairment.

The choice of format and delivery of the survey clearly reached experienced users.

Use of electronic services in public libraries

Although all experienced users, the respondents did not have experience of a wide range of electronic services in public libraries. This is perhaps not surprising given that the users all had their own equipment, and in most cases Internet access. This was supported by frequent mention of the preference for using equipment at home, because of the fact that the settings were personalised.

As one person put it:

- “I have only once visited my local library to use their 'blind computer'. It was not particularly difficult to use it just had HAL instead of JAWS. All normal services were available and would have been as easy or difficult to use as my own equipment at home. But why go to the library. I use the facilities of the various libraries catering for the sight-impaired including the National Library for the Blind and Calibre cassette library. The reveal database is also very good.”

Where respondents had used a service provided by a public library and had used the same service provided elsewhere, these services were generally felt to be better elsewhere. There were detailed comments about why this was. These tended to fall into two categories.

Many related to issues about the convenience of not having to travel, the importance of having their own personalised settings at home, the difficulty of having to learn a different system in the library, and the difficulty in adjusting equipment in the library, for example because of security settings preventing standard changes.

There were also comments about services being better elsewhere because they were specifically aimed at blind and visually impaired people. The RNIB and NLB both featured a number of times.

Opinions of libraries in general were not particularly encouraging. These tended to be either that libraries did not provide appropriate services, or that they were redundant because better services were available elsewhere. A few people were highly sceptical of libraries' even wanting to try:

> "We get so much crap from spin doctors in the Libraries service, we tend to take it with a pinch of salt."

Internet based services had by far the widest use, both inside a library and in general, and the service with the highest use was the web. Everyone who responded indicated that they used it, but only 39% of people said they had ever done so in a public library. Library web pages had been used by 33% of respondents.

Although there was no direct question about general use of email, all respondents had email addresses that they used to correspond about the survey. Only 17.4% had used email from a computer in a public library. 26.1% of people had used email to contact a library, and 30.4% had received email from a library.

For all services remote use outside a library was higher than use of the same services physically in a library. For example, library catalogue use was the second most widely used service in a library at 27.3%, but 36.3% people had used it from outside the library. For electronic reference material, more than twice as many people had used the service remotely

from a library than had used it in a library. For electronic stock that can be borrowed only 1 person had done so in a library, but 3 people had done so remotely.

Software had been used by 17.4% of people in libraries. This tended to be Office software. This is in line with common provision in public libraries as shown by the annual NETbase survey of ICT in public libraries.

There was very little use of library self-services. This may have been lack of awareness. There were comments that supported this, but probably too few to have any real meaning. One person said that they use credit card payments at home, but these services may not have been available in the library they use.

One person did specifically say that they find automated cashier calling systems in post offices impossible to use because she could not see where the cashiers were when numbers were called, and there was a comment that electronic display equipment would be of no use to a blind person.

The view of staff in public libraries tended to be polarised between those who thought staff were kind and helpful, and those who thought that staff were not much help, because they didn't know anything about the technology provided. There was an acknowledgement from some people that staff wanted to help, but did not have sufficient training or time to help.

Use of access technologies in public libraries

The questions about use of access technologies were not answered fully by many people. It was not clear why, although the length of the survey may have started to take its toll by the time they reached these questions. However subsequent questions were answered so it may be that they chose only to answer if they had used the services.

In general, few people who had used a particular access technology at home also indicated that using the same system elsewhere was often difficult because they had to change the settings before use. Using a system that was not familiar was even more of a barrier. There were several comments about security settings on public computers making life difficult.

Magnification and speech output were the most commonly cited technologies used in libraries, although few people indicated that they had used any system in a library. The makes of magnification systems were not specified, although the methods included magnification software, Windows settings, oversize monitors and Kurtweil CCTV type enlargers. One person also commented that they found large print overlay keys useful.

Only two makes of screen reader were specified as having been used in libraries. These were Dolphin and Window Eyes. The commonest screen reader at home was Jaws. No respondents had used Braille devices in libraries.

The low use of these technologies in libraries is likely to be due to a mixture of factors. Firstly it is not possible to say that all respondent's had access to them in their local library. However according to the 2003 NETbase survey, the deployment is fairly widespread. Where respondents had used them they indicated in general that they were better elsewhere. As with the general use of the electronic services they provide access to, the reasons given were that convenience and familiarity of home systems were preferable. There were several comments about the importance of staff training.

This indicates that is not just enough to provide access technology, but that it needs to be readily adjustable by the users themselves. Staff support for access technologies, and user induction and training are also likely to be essential if these services are to be used.

Use of the Internet

Prior to conducting the survey, the Internet was the only service that had been expected to have wide enough use to be in any comparable in terms of level of use. For this reason, it was the only service where reason for use was asked, and was aligned with the 2003 OXIS Internet survey.

The OXIS survey differed in that it asked if people used the Internet to do tasks for more than one hour per week . The survey question in this research asked what people used the web for as opposed to Internet. It did not ask frequency of use, although given that 95% of people were frequent users, the comparison is similar. It should be noted that these comparisons were not seen in any way as reliable evidence of alignment or otherwise, but rather as offering clues to potential trends that may warrant further investigation.

In this survey 91% of people had Internet access at home, and nearly a third had accessed the Internet in a public library, even if they generally choose not to. OXIS found that 89% access of people who use the Internet do so at home, and only 5% in a library.

This research targeted people with a high level of experience. Respondents' ages ranged from 31-80, and Internet use was 100%. In OXIS, Internet use for the same age range was between 67% (people of working age) and 22% (retired people).

Despite this the patterns of web use general followed that of OXIS, but with an average 80% higher use for each. Information was the top use in both surveys, and other services tailed off in approximately the same order.

There were a few notable differences between this sample group of blind and visually impaired people and OXIS's general sample. The use of public services in this survey was far higher at 83.6% compared to 11% in OXIS (660% higher). Looking for work was also considerably higher.

By contrast the proportion of people who said they used the web for browsing was almost identical in both surveys. Adjusting for the higher general use amongst blind and visually impaired users in this survey, this indicates that they browse less than the general population. This correlates with the literature that indicates navigating the web is harder for blind people, and therefore browsing is less likely than searching for specific information.

For tabulated and graphic data see Appendix D

Diversity of the study sample

The responses showed a wide general demographic dispersal. The ratio of men to women was two to one, higher than the national average. Ethnicity was given as White British by all but one people, who described herself as Asian Indian. The employment rate was lower than average in alignment with statistics for employment rate amongst blind and visually impaired people employment. The age of respondents ranged fairly evenly from 31 to 80. The lack of children was expected because this age group was deliberately not targeted due to the concerns about contacting younger people using email.

Visual ability ranged widely from totally blind to some ability to read large print. Respondents also had various other disabilities. This confirmed the general point made across the literature that it is important to understand that person's needs are uniquely different. A term such as "blind and partially sighted people" can be seen as unhelpful as it wrongly implies a homogenous group.

In particular the data showed clear differences between the needs of people who are blind and those who are partially sighted. This provides support for testing new services carefully with people with a range of visual abilities. Especially important is not to assume that services that work for partially sighted people will for blind people.

The wide range of technologies used to access the forms further confirmed the complexity of the problem of service design for this target group. Whilst most people were able to complete the form without any major accessibility problems, 7 different assistive software programs were used, 5 different standard operating systems, and 5 different types of hardware. 4 other people required some type of further modification and one person felt unable to use the email format at all.

Issue arising from the survey methods

The choice of using two methods was felt to be vindicated by the equal number of people who used each. The people who used the web version appeared to be more experienced or confident users. Some people who used the email version said they could not easily use the web version. Because a number of totally blind people with quite different systems used the

web form and commented that it was easy to use, this was not felt to be due to the accessibility of the form.

One person commented that they **“get confused with all the links and edit boxes”.** Another said **“the field should be empty for me to fill in my answer. I shouldn't have to delete words in order to fill in your form”.** This is in contradiction of the WAI guidelines, which state that they should be pre-filled. This is a good example of the difficulties of implementing guidelines.

The fact that several people mentioned difficulty with web forms in general, implies that using them as the only contact method on websites may create a usability barrier for blind people. Also providing a separate email address may be better practise. This was supported by the fact that all respondents were email users.

Overall respondents indicated that the survey was easy to understand, with specific mention of the fact that the repeated question structure helped. There were some complaints that the questions were too restricting. One person pointed out that there was **“no option to describe the plus/minus issues associated with the systems at the public libraries”.** This was felt to be a fair point. However the deliberate decision to invite comment on why services were better elsewhere was felt to have provided more useful definite ideas for improvement, than might have been the case if general criticism had been invited.

Most users also said they found the survey easy to use, with positive comments about the repeated question structure supporting this design strategy for usability. This technique of controlled language and a strictly serial structure of the survey forms were influenced by comments in NoVA.

The weakest area of the survey was that many people thought it was too long. This may have led to lower returns. This had been a concern in design, but the original decision to risk lower returns, but aim for more specific data was felt to have been justified.

Apart from length, there were some comments about difficulties related to the formatting of the TEN standard. Comments included that **“the questionaire as it is highly confusing with the ++++'s and so on**” , and that the plus signs were **“terrible inhibitions”** . Other

comments about TEN included one person saying they **“copied this survey into a Word processor in order to…make use of the '+' markup system”**

Issues arising from distribution of the survey

The initial distribution caused unexpected problems with trying to process the results of email responses fast enough so that the mail server did not become full. This required a fairly frantic period of transcribing the results, deleting returned emails, and archiving mail.

The responses from emails sent directly to known volunteers can be measured fairly directly. However the responses to organisations is more fuzzy. In some cases the people being targeted were staff working on behalf of the target group, who then had to be relied upon to pass the survey onto potentially interested groups. This included staff in public libraries, and staff and volunteers in support groups.

This extra layer of communication necessarily reduces the likely rate of returns. It is dependent upon individuals’ feelings about the issues, about being surveyed and the reasons they believed the survey would be used. Any survey is time consuming, and the only payback for this one was the potential to help blind and visually impaired people. This required that the recipients of the survey felt it was likely to have real benefit.

One other factor hinted at by one correspondent, was that they nearly deleted the email because the subject line was too generic, saying request for help with research. It was possible that it was mistaken for virus spam.

Conclusions

Validity of the results

The study sample consisted of blind and visually impaired adults, who were experienced users of electronic information services. For the following reasons the findings are offered as likely to be broadly representative of these people. Clearly the relatively small total number of participants means that the findings cannot be scaled to represent the make up of the general population of people who are blind or partially sighted people. However, there is much to suggest that even the experiences of this relatively small number of people can provide much to learn from, for staff aiming to make these services truly usable.

The qualitative evidence collected here was very much in tune with the literature. For example, sceptical views amongst users in this survey about public library services for blind people echoed those in “A close Book” and “Out of Sight”. The users comments about using electronic services also reflected findings in NoVA, Reviel, and the NLB’s guide to providing library services for visually impaired people, such as the importance of staff training and confidence in helping blind and visually impaired people.

It was also felt that the limited quantitative data about collected here use of the web showed correlation with the OXIS Internet survey, as well as reflecting use typical of blind and visually impaired people.

It was also hoped that the design of the user survey to high accessibility standards, with the specific usability needs of its target sample in mind, was felt to be inclusive by the blind and visually impaired people, and therefore to reflect their true views.

All the objectives and benefits outlined in the introduction were felt to be met, within the scope of the research problem.
It should be noted however , that the scope of the actual findings may not represent additional specific needs and circumstances of blind or visually impaired children.

Summary of Conclusions

The following conclusions can be drawn from the findings of this research:

- There was a strongly positive view of the potential for electronic information services to improve the lives of blind and visually impaired people in general.
- There was generally a more sceptical view of electronic information services provided in public libraries for blind and visually impaired people, with a feeling that better services are available elsewhere.
- The sample did not see the added value of visiting a library to use a computer compared to use at home. This is likely to be the case in the general population, but there is a stronger disincentive for blind and visually impaired people as travel is more difficult, and the familiarity of ones own personalised equipment makes use much easier.
- Using unfamiliar electronic equipment without training, and often without any direct means of adjusting it, was consistently cited as a barrier to use. It is unlikely that providing assistive technology in public libraries for blind and visually impaired people will increase their use of electronic information services in public libraries, without corresponding staff support based upon awareness of users' needs and the technology they use.
- The diversity of blind and visually impaired people may require offering a choice of ways to access information.
- There was support for the strict use of standards for services, and for early inclusion of real blind users in their development, in the form of recurring comments about the need for consistency, and because of the wide diversity of user needs, and of the equipment they use.
- The development of accessible remote services that can be delivered to the users' own personalised equipment may better serve the needs of some blind people, than providing access to the same services physically in libraries, even with assistive technology aids.
- These findings lend support to the idea of developing a national remote information service delivered electronically. This concept suggested by Brophy and Craven may

be closer technologically to realisation now than when REVIEL was published. This should be co-ordinated with other national grant schemes such as Access to Work [95].

- That adherence to accessibility guidelines is not sufficient to make services useable for blind and visually impaired people. Feedback from real users of services is essential to test that guidelines are current and relevant.

Limitations of the conclusions

The study sample consisted of blind and visually impaired adults, who were experienced users of electronic information services. The conclusions made in this report are aimed at improving services for the increasing number of users of these services. However, the relatively small total number of participants means that the findings cannot be scaled to represent the make up of the general population of people who are blind or partially sighted people.

The findings do not represent the specific needs and circumstances of children.

Recommendations

The findings of this study suggest blind and visually impaired people to be largely excluded from the use of electronic information services by poor usability, and a lack of any major value added service from libraries beyond what home Internet access provides. The following recommendations are offered as ways to counter these issues.

Local Issues

Locally, public libraries should:

- Conduct user profiling to identify the needs of the local population
- Consult with users on the services provided, agree ways in which these could be improved, and involve them in service development.
- Look at issues of staff training and support for access technologies in libraries, to support use by blind and visually impaired people.
- Investigate remote means of providing information and services that can be used by blind and visually impaired people at home on their own equipment.
- Put commercial pressure upon suppliers to create more usable accessible products by making positive suggestions based upon users feedback, by including usability in electronic services commissioning policy, and by insisting that products are demonstrated working by people who are blind.

National Issues

The evidence suggests that globally available specialist networked services, such as the NLB, reach people more effectively than access technology added as an extra to existing services not designed with blind users in mind . The greater use of these as remote access relies upon greater availability of suitable services. The development of these may be more viable by development on a national scale.

- It is recommended that a national funding stream be established for developing electronic information services for blind and visually impaired people that are common across public libraries, to be based upon collaboration between organisations representing blind and visually impaired people, and libraries.

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Appendix A – Final e-mail questionnaire

Survey of the experiences of visually impaired or blind people, using electronic information services provided by public libraries.

+++Start of brief overview of this survey.

++Who should take part in this survey?

You are invited to take part in this survey, if any of the following apply to you:

1. You are blind or have any visual impairment, whether you are registered or not.
2. You have used any electronic information service provided by a third party, especially a public library.
3. You would like to share your experience to help others understand your needs when using electronic information services.

++Format of this survey.

This survey is in plain text, which is designed to be amended by you, saved and sent by email to Andrew Lewis at the Robert Gordon University, Aberdeen. The email address you used to send this survey will not be published in the research, or passed to third parties.

The email address to send your completed to is 0106801@rgu.ac.uk

If you were sent this survey by email this is simply the reply address.

Each main section starts with +++. For each section, the start and end are indicated.

Headings within each section start with ++.

Individual questions start with +. They are grouped by subject and follow a common pattern.

There follows a full introduction that explains the background to this survey, who is conducting it and why, and gives more detailed instructions about how to use it.

If you wish to skip this, you may key down to the survey start, which is indicated by +++Start of survey.

End of brief overview of this survey.

+++Start of Main Introduction and Instructions.

++Who should take part in this survey?

This survey is part of a research project designed to help understand whether the electronic information services that public libraries provide, are services that people who have reduced vision can actually use.

It is hoped your experience will help inform decision making by providers of electronic information services in public libraries.

The findings will be made available free to all who may benefit from it. This will be done by publication on the web, and by submission to the library community and organisations working for people with reduced vision. No details identifying you as an individual will be included in the published research or passed to third parties.

++The meaning of words used in this form.

In this survey, the expression electronic information services is used loosely to mean any of the following:
1. A service you use to obtain information that is processed or controlled in a digital format. such as access to information via the web.
2. Services provided to help you use information in this way, such as word processors or technology to access computers.
3. Support for these services such as assistance or guidelines.

Do not worry too much about the precise meaning of this term.

++Structure of this survey form.

The survey is in four sections, which look at:
1. Your experience in using electronic information services in public libraries.
2. Your experience in using access technology.
3. You and your individual circumstances.
4. Your views of this survey.

++How to complete this survey.

The following tips will help you complete the survey:
1. You should work through the questions as much as you can without stopping.
2. For each question type your answers as indicated.
2. If you do not understand a question do not worry about answering it, just carry on with the next question. It is more important to finish all sections of the form
3. If, as you answering the questions, you have any comments about the survey itself, you should include these in section four. This is especially important if you have any difficulty in completing it for any reason.

++What to do with your form once you have finished.

Make sure you have saved your answers, and send by email to Andrew Lewis at the Robert Gordon University, Aberdeen.

The email address is 0106801@rgu.ac.uk

If you were sent this survey by email, this is simply the reply address.

End of Start of Main Introduction and Instructions.

+++Start of Survey.

Important. Before you start, it is very helpful to know the type of access technology you are using to do this survey, and exactly what it is.

+Please give the name and type of any special access hardware or software you are using, that is designed for people who are blind or have a visual impairment, including the version number where known.

+++Start of Section One of the survey. About Electronic Information Services provided by public libraries.

In this section you are asked about your experiences in using electronic information services in public libraries.

A number of electronic information services are listed that are commonly provided by public libraries. For each service, there is a short description of the service to make it clear exactly what is meant.

For each service you are asked if you have used that service provided by a public library, and if you have, you are invited to comment on anything you thought that was good or bad about it.You are also asked if you have used the same service elsewhere, and if so, whether you thought it was better or worse than when provided by a public library and why.

You should only answer questions about services you have used yourself.

++Electronic library catalogues.

This mean computer based catalogues which allows you to search for books and other items, to place your own holds on these items, to check what you have on loan from the library, or to directly renew items yourself.

Question One. About using self service electronic catalogues in the library.

+Have you ever used a self service electronic library catalogue while you were physically in a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.

2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question two. About remotely accessed electronic catalogues.

+Have you ever tried to use an electronic library catalogue provided by a public library, but accessed remotely from outside the library? For example over the web. Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Electronic Reference stock.

Electronic reference means information provided in various ways on a computer, that is paid for by the library, and that allows you as a library user, to access information that you could not otherwise use without paying.

This typically includes the use of CD ROMS and access to databases or subscriber only websites. It does not mean freely available information found on the web which is covered later.

Question three.
About electronic reference on a computer in a public library.

+Have you ever used electronic reference material on a computer when physically in a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question four.
About accessing electronic stock from outside the library.

+Have you ever used electronic reference material provided by a public library, but accessed from outside the library? For example over the web? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Electronic stock that can be borrowed.

This means any type of electronic file that can be used on a computer or similar digital device, that can be borrowed or shared in a similar way to borrowing a book. Typically this means CD and DVD ROMs, ebooks, MP3 audio and other files containing information. These may be loaned by loading onto a portable device, or downloaded over the web. It includes computer games, but does not include CDs for use on standard audio equipment such as spoken word CDs.

Question five.
About electronic stock that is borrowed by visiting the library.

This where you have to physically visit the library to borrow it. This can either be by borrowing a disc such as a CD or can be temporarily loaded onto a portable device owned by you or by the library.

+Have you ever used electronic stock that is borrowed by visiting the library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question six.
About electronic stock borrowed remotely.

This means electronic stock that is provided by a public library, but is borrowed or downloaded remotely from outside the library. For example by downloading from a website.

+Have you ever remotely borrowed or downloaded electronic stock, provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Accessing the world wide web in general.

Question seven.

+Have you ever used accessed the web from a computer provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question eight.
What you use the web for.

+When you access the web, do you use it to do any of the things in the following list? Please say yes or no for each.

Finding out specific facts or information.

General browsing.

Email.

Online Shopping.

Looking for Work.

Study or learning towards a qualification.

Study or learning not towards a qualification. That is, personal study to learn how to do something.

Chat rooms.

Music.

Public Services. For example Council services or government information.

News.

Banking.

Entertainment.

Instant Messaging.

Information about visual impairment.

++Library web pages.

Question nine.
About using library web pages.

This means web pages provided and maintained by a public library. These typically provide library information such as opening hours, useful websites or news. It also includes direct online services such as catalogue access, chatrooms and email lists for group discussion of books and so on.

+Have you ever used web pages provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Email.

Question ten.
About using email.

This means any method of using email provided by a public library either as a dedicated service which gives you a library web address, or by access to commercial email services like Yahoo or Hotmail using the web.

+Have you ever accessed email on a computer provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Software.

Question eleven.
About using software.

This means any programs or applications that you can use on a library computer. Typically this includes word processors, self learning programs that guide you through tutorials, web authoring and graphics tools, and common officee software for spreadsheets, database creation and presentations.

+Have you ever used software provided by a public library? Please say yes or no.

+If yes, please tell us what programs you have used.

+If yes, please indicate which of these 5 options best describes how easy they were was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Virtual reference.

This means being able to talk to a librarian remotely, usually via the web, to ask questions and make enquiries about information you need. This can be a simple web form or an email address for enquiries, but may include web chat, instant messaging and web cams.

Question twelve.

About using virtual reference services.

+Have you ever used a virtual reference service provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Electronic Self service equipment.

This means any automated service which you operate yourself rather than being served by library staff. This includes automated touch tone or voice operated telephone systems, self issue terminals to issue books, and touch screen information terminals or kiosks.

Question thirteen.
About using self service equipment.

+Have you ever used self operated automated services provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Electronic signs and display equipment.

This means text or graphic presentations on a video screen or computer monitor, for general information or as part of a special event or training session.

Question fourteen.
About electronic signs and display equipment.

+Have you ever used electronic signs or display equipment provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Scanning Services.

This means using a computer or other equipment to scan text documents or pictures, and convert them into electronic format. This includes text recognition software or a Kurtzweil type reader that reads out the text to you.

Question fifteen.
About using scanning services.

+Have you ever used scanning services provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Electronic communication.

This means any electronic method that allows you to contact a public library, or a library to contact you. This includes web forms, email, and text, but not the telephone.

Question sixteen.
About you contacting the library using electronic communication.

This could be for general enquiries, or more specific purposes such as electronic web voting for promotions and events like the BBC Big Read.

+Have you ever contacted a public library using electronic communication? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.

4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question seventeen.
About electronic communication from the library to you.

This might mean to let you know a book is waiting, or you have items overdue, or as a general distribution lists for events. It could include email alerts, SMS text alerts, automated telephone voice messages.

+Has a public library ever contacted you using electronic communication? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Staff support.

This means the knowledge and help given to you by public library staff, when you are using any of the services discussed in this survey. This includes general help, as well as specific training in the use of equipment or services. For example using software, or how to use the web to trace your family history.

Question eighteen.
About staff support for electronic information services.

+Have you ever received help or gained knowledge from public library staff when using electronic information services? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

+Loan of electronic equipment.

This means any electronic equipment or technological device, that is loaned or hired to you, by a public library for your personal use. For example laptop computers, adaptive technology, personal digital assistants - PDAs, games consoles or other similar devices that are used for storing or using electronic information.

Question nineteen.
About using electronic equipment loaned to you.

+Have you ever used a computer or similar equipment loaned or hired to you by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Support for your own electronic equipment.

This means any service provided to allow you to use your own equipment. This includes mains electricity to power your own laptop or connecting it to the Internet in the library. It also includes being able to plug in your own hardware such as a Braille keyboard,

Question twenty.
About support for your own equipment.

+Have you ever used your own electronic equipment, supported by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Electronic self service payments.

This means any automated means of making electronic payments that does not involve staff helping you. This includes payment by credit, debit or smart card over the web, and cash or card operated self service terminals.

Question twenty one.
About self service electronic payments.

+Have you ever used a self operated electronic payment service provided by a public library? Please say yes or no.

+If yes, please indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Other services.

Please use this question to tell us about any other electronic information service you have used.

Question twenty two.
About other electronic information services.

+Have you ever used any other electronic information service provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

End of section one of the survey.

+++Section Two. Access technology you have used.

++Introduction to section two, about access technology.

Important. In this section you are asked about your experiences of access technology that you do not own, but is provided by public libraries to make electronic information services useable for people who have a visual impairment or are blind.

It is useful to know if you have used any such technology, and what you thought of it.

It is not practical to try to list everything that is available. Instead, to make things simpler these have been grouped into three broad types which are:

1. Visually enhancing devices to assist people who have some vision, such as magnifiers.
2. Audio devices, such as speech readers.
3. Tactile devices, such as braille keyboards.

You only need to answer questions about each type if you have used that type. Please give any details you think would be useful to know.

++Visually enhancing devices.

These devices are designed to help people with some vision. If you are completely blind, you do not need to answer question twenty three or twenty four, unless you have used such a device in the past.

Question twenty three.
About devices that visually enhance output.

This could include anything that makes output easier to see. For example screen magnification software, changing contrast settings, physical magnifiers and large monitors.

+Have you ever used a visually enhancing output device, provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question twenty four.
About visually enhancing input devices.

This mean any input devices designed to be easier to see when you use them. This might be keyboards with big buttons, or high visibility overlay sheets on an existing keyboard. It

could also include special designed touch screen displays that have large easier to use menus or other means of using them.

+Have you ever used a visually enhancing input device, provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

++Audio devices.

This means any way that sound is used to enable you to use electronic information services.

Question twenty five. About audio output devices.

This includes synthetic voice output, that speaks the text and information that would otherwise be displayed visually. Examples are general purpose screen readers such as Dolphin Supernova and Jaws that read out whatever is on the screen, and audio browsers like PW Webspeak and BrookesTalk that are used to surf the web.

+Have you ever used an audio or speech output device, provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question twenty six.
About audio input devices.

This means any way that your voice is used to control an electronic information service or input to a computer. Examples include voice activated menu systems as used in automated telephone services, and voice recognition software that converts your voice to electronic text.

+Have you ever used an audio input device, provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Tactile devices.

This means any way that touch is used to enable you to use electronic information services.

Question twenty seven.
About tactile output devices.

This means any device that converts text or information from a computer to a tactile output that can be read by touch. This includes refreshable Braille output, or Braille printing from electronic documents.

+Have you ever used a tactile output device, provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

Question twenty eight.

About tactile input devices.

This means any device that allows you to input or control a computer more easily using touch. This includes Braille or overlay keyboards that enable you to feel characters and touch tablets.

Have you ever used a tactile input device, provided by a public library? Please say yes or no.

+If yes, please say what this was.

+Please also indicate which of these 5 options best describes how easy it was to use?

1. You could use it unassisted, and you could adjust it yourself to suit your needs.
2. You could use it unassisted, once it had been set up to suit your needs.
3. You required occasional help because it was not well suited for your needs.
4. You required frequent help because it was not well suited for your needs.
5. You could not use it at all because it was not suited for your needs.

+If you have ever used the same service, or a similar service elsewhere that suited your needs better, please tell us what was it that made it better?

End of section two of the survey.

+++Section Three of the survey. About you.

Because everyone is different, the questions in this section ask you about both your individual circumstances, and your sight.

This will enable information to be compared in a way that will make it easier to understand what specifically will help some people and not others. Solutions that you tell us have worked for you, are likely to work for other people who have similar circumstances.

No details identifying you as an individual will be included in the published research, nor shared with any third parties.

++General Infomation about you.

Question twenty nine. Your gender.

+Are you male or female

Question thirty. Your age.

+Please give your date of birth.

Question thirty one. Where you live.

+Please give your your post code if you know it. If not give the name of the town you live in

Question thirty two. Ethnicity.

+Please indicate which of the following options best describes your ethnicity.

1. White British.
2. White Irish.
3. Other White background.
4. Black or Black British Caribbean.
5. Black or Black British African.
6. Other Black background.
7. Asian or Asian British Indian.
8. Asian or Asian British Pakistani.
9. Asian British Bangladeshi.
10. Other Asian background.
11. Mixed White and Black Caribbean.
12. Mixed White and Black African.
13. Mixed White and Asian.
14. Other mixed background.
15. Chinese.
16. Other ethnic group not listed.

Question thirty three. Language.

+What is your preferred language?

Question thirty four. Employment.

+Are you in paid employment? Please say yes or no.

Question thirty five. Studying.

+Are you in formal education? Please say yes or no.

+If yes are you studying full time or part time.

++Questions about your sight.

Question thirty six.

+How would you describe your ability to see?

Question thirty seven.

+Please indicate which of the following applies to you:

1. Registered blind.
2. Registered partially sighted.
3. Not registered, but consider yourself to be partially sighted.

Question thirty eight.

+How long have you experienced reduced vision to the nearest year?

Question thirty nine.

+What is the cause of your reduced vision?

++Questions about other disabilities.

It is important to know if you have other disabilities that may affect how you prefer to use electronic information services. The following questions will help to better understand why you choose to use services in a particular way.

Question forty.

+Do you have any mobility difficulties that make it difficult for you to get out and about independently? Please say yes or no.

Question forty one.

+Do you have any physical conditions that make using standard equipment difficult? Please say yes or no.

+If yes, please also say how this specifically affects your use of electronic information services. For example: arthritis of hands affecting use of a mouse.

Question forty two.

Do you have any hearing problems? Please say yes or no.

+If yes, please also say how much you can hear and how this specifically affects your use of electronic information services. For example: tinnitus makes hearing speech reader harder in a noisy environment.

Question forty three.

+Do you have dyslexia? Please say yes or no.

+If yes, please also say how this specifically affects your use of electronic information services.

Question forty four.

+Please say if you have any other disability that affects your use of electronic information services.

++Questions about electronic information services in general.

Question forty five.

+Do you own a computer? Please say yes or no.

Question forty six.

+Do you have Internet access at home? Please say yes or no.

Question forty seven.

+Do you normally use a mouse? Please say yes or no.

Question forty eight.

+Please indicate which of the following best describes how often you use computers or other electronic information services? This does not necessarily have to be in a library.

1. More than once a week.
2. About once a week.
3. About once a fortnight.
4. About once every three weeks.
5. About once every four weeks.
6. Less frequently than once every four weeks.

Question forty nine.

+Do you think computers and electronic information services in general make things easier or harder to use, for people who have a visual impairment?. Please indicate which of the following you most agree with.

1. Electronic information services have made things easier to use or more accessible.
2. Electronic information services tend to make things easier to use or more accessible.
3. Electronic information services do not make things easier or more difficult.
4. Electronic information services tend to make things more difficult to use or less accessible.

5. Electronic information services have made things harder for people to use or less accessible.

Question fifty.

+Is there anything else you would like to tell us about yourself, or your circumstances, that you think a designer or provider of electronic information services would need to know to make them easier for you to use?

End of section three of the survey.

+++Section Four. Your views of this survey.

This survey was intended to be useable by as many people as possible using a wide range of access technologies.

It is based on a plain text email standard called TEN.
This section is a chance for you to comment on how effectively this worked for you!

++Some short questions about this survey.

Question fifty one.

+Did you find this survey easy to use? Please say yes or no.

+If no, please say why not.

Question fifty two.

+Did you find this survey easy to understand? Please say yes or no.

+If no, please say why not.

Question fifty three.

+Was there anything about this survey that you found difficult to use with the access technology you normally use? Please say yes or no.

+If yes, please explain what this was.

Question fifty four.

+If there anything you think would have made this survey better?

End of section four of the survey.

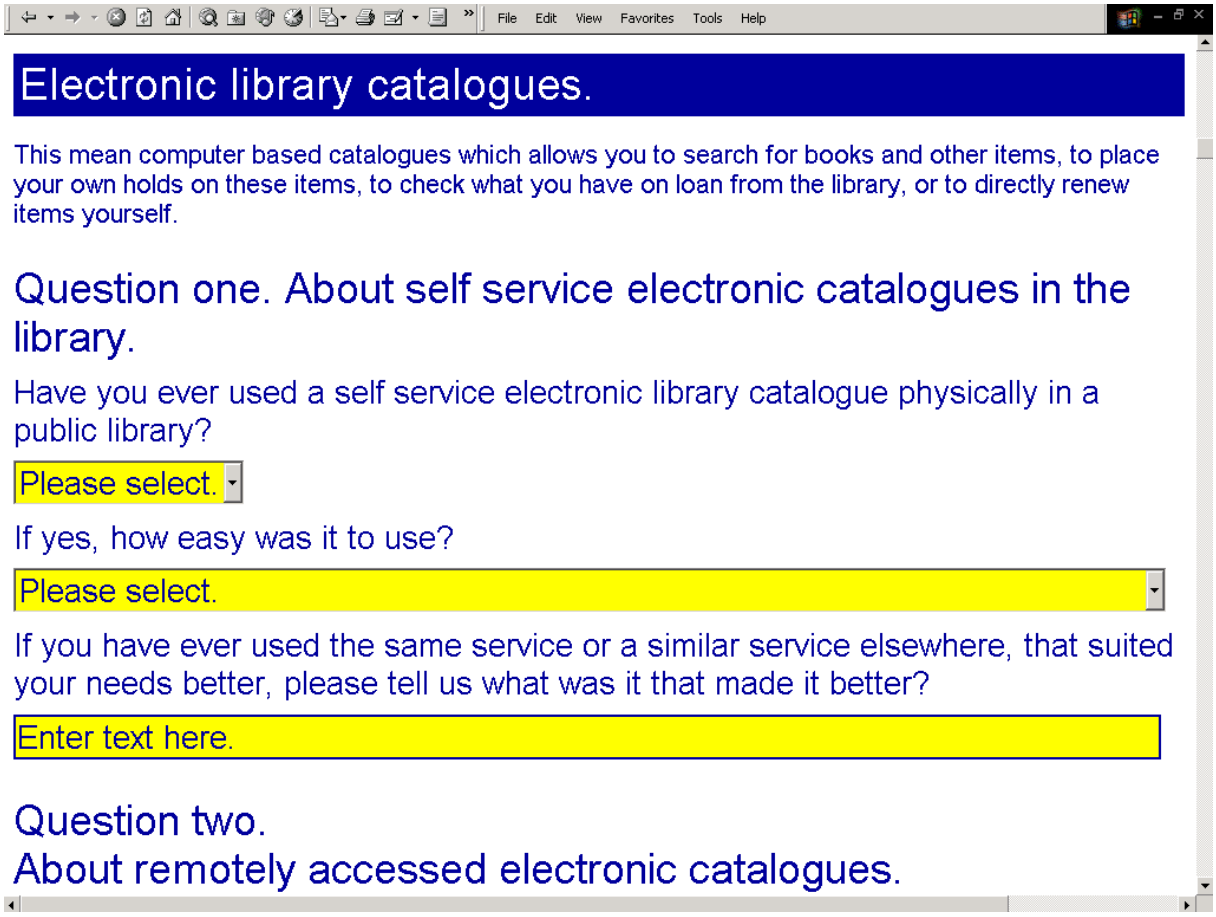
You have now finished all the questions. Please remember to save your answers and email to 0106801@rgu.ac.uk

This survey is being conducted by Andrew Lewis at The Robert Gordon University.
Thank you very much for your time.

End of the survey.

Appendix A – web questionnaire

The following screen dump shows the formatting applied to the web version of the survey.



Appendix C – User comments from the survey

Free comments about electronic information services from respondents

Free comments were invited in two places on the survey form.

There was a question inviting respondents to indicate individual circumstances, that a designer or provider of electronic information services would need to know to make them easier for you to use.

For people undertaking the web survey, there was also a free comments form that was on the page confirming that surveys had been successfully sent.

People undertaking the email survey tended to comment freely as they went through.

There were also some comments from follow up emails from respondents.

Some comments from people who did not undertake the survey have also been included.

General comments about electronic information services:

- [I would like] speech that tells you everything that goes on and does not leave you in the dark at the crucial moment
- I would wish for more technology that is easy to use Voice Recognition software - for example this only works with Jaws - Window-eyes is my screen-reader which isn't compatible with speech recognition software.
- There are two main problems that I think might be of use:
    1. The type and quality of accessible IT equipment are so variable, and information so scarce, that it is very difficult to know what I might find useful.
    2. It really depends entirely on where you live as to what is available for VI people. There is no consistency of provision or guidelines.

Part of my job within the Library Service, is to assist Librarians to make their services more accessible to the Visually Impaired community, and to make sure those people know what is available. I believe that this job is fairly unique, and that [name of authority] is possibly the only Council offering our particular service.

- I suppose the long term future of such services would require the adoption of portal based services such as those described my Dr Mike townsend, I could put you in touch.
- Web pages must be accessible and user friendly.
- convenience is a priority for technology
- make them accessable with speech or Braille
- It is the cost of access software, and the training required to use it properly which is the problem, and the fact that hand held equipment is seldom accessible at all.
- Never ever use security systems that require a person to have to type things in from a graphic box, as many banks, email providers now do.
- Make websites textual wherever possible, as graphics take time to load and are just a problem. Never use PDF files for on line information, as Adobe Acrobat, though claiming accessibility, is crap at it.
- Many users will always be out of date with computers and access software so never assume when designing web sites, that they all have the latest software to be able to read content like flash or suchlike. Most do not use special browsers, especially if on library equipment, just using IE on a standard system with jaws or supernova.
- At home it's the cost of being up to date that is the killer.
- Computers or CCTVs are not normally designed in accordance with the needs of the blind or visually impaired people, ie, availability of facilities to change the colour of the screens in accordance with every different person, availability of facilities to enlarge the screen suited to every different visually impaired service user, facilities on changing voice activated programmes for the blind in whatever tone/pitch that every person finds best suited to them and all other relevant facilites which actually HELP making these electronic services become ACCESSIBLE to the blind or visually impaired people.

- A point I would like to make is the problem of keeping track with the cursor.when i had a lesson at the HSBP they had a means of telling you where the cursor was. You pressed a key plus a number that brought up an ever increasing circle and showed where the cursor was and that saved a lot of time trying to find it
- I use the net for some reference some browsing listening to some radio programmes and 1 chat room for the trekker group. I am a trekker owner. I am totally blind and other electronic equipment I use are Talking watches Talking clock radios Talking timers Talking Microwave Talking calculater Talking Colour definer Trekker a talking GPS system and hopefully in the next couple of days a talking mobile phone which will allow text messaging
- Speaking for myself I rarely use the Internet as I find that having to wade through large amounts of small text is tedious (if enlarged it is difficult to navigate).
- [What] I have found is on quite a lot of sites is we have to spend so much more time sorting through the links to find what we require. I had to do some guessing on some pages before I found a post code checker link, this can be very tiring & tedious.

Comments about awareness and training

- Training is, in my view, often necessary to enable someone to use something effectively. There is no mention of training in the survey and I'm not sure "assistance" is enough.
- The vital thing, is staff training.
- I think it is very difficult for someone who can take in a screenful of information at a time to appreciate how difficult it is for a blind person to understand the whole picture. It has often occurred to me that some kind of inbuilt description or explanation at the beginning - possibly an optional introduction - would be very helpful.
- blind OR deafblind OR disability training/awareness for ALL staff of the public libraries must be funded, as these minority population have been excluded from enjoying the electronic services, alongside their non-disabled fellow people

Comments about public libraries in general

- Our local library is still taking its first tentative steps and many of us feel its a gimmick rather than any real attempt at inclusiveness here. Its just covering up for the lack of commitment as it cannot even afford to pay the subs for the RNIB talking book library

for blind folk, and only has a handful of talking books of any kind on its lists, which are not accessible.

- We get so much crap from spin doctors in the Libraries service, we tend to take it with a pinch of salt. We recently got an admission from them that the training of staff was not done, and they would launch the blind access in March, but one of our spies found out that none of the staff were aware they were going to be trained.
- I have only once visited my local library to use their 'blind computer'. It was not particularly difficult to use it just had HAL instead of JAWS. All normal services were available and would have been as easy or difficult to use as my own equipment at home. But why go to the library. I use the facilities of the various libraries catering for the sight-impaired including the National Library for the Blind and Calibre cassette library. The reveal database is also very good.
- My reasons for not using the public electronic services are:

  1 I have no knowledge on how to use these facilities, as I have never used them before, unless they are similar to the system which I use at home.

  2 I would require a staff member to sit with me patiently, spending some of his/her time with me, even though they may be busy at their work. This specific service is NOT available at libraries.

  3 The library staff MUST be fully sympathetic and understanding about the special needs of blind or visually impaired, and also about those people who may have additional problems as well as blindness such as hearing or whatever else.
- I have experience in using public library catalogues and facilities on their computer and remotely from the web. Most public libraries now have their catalogues so that you can change, contrast, colour, font size, etc. Some remote services are still not text or speech friendly. most public and remote services only provide subject, title or author listings. The best ones (look at www.nlb-online.org.uk for example .which is by far the best I've seen!) offer sophisticated search engines whereby you can insert words such as: ""some fiction, more romance, lots of blood . . ."" When you press the submit button, a list of books with your listed criteria is displayed. You then have the option to select either one or more of the books shown, choose different criteria or a whole host of other options.
- I have made little or no use of electronic equipment in the public library (although I have taken an interest in it as I am the secretary of [a group of] the Macular Society).

- I am totally blind, use JAWS and have never used any electronic service in a public library.
- Because i feel that these electronic services are not accessible for me, and not designed for my specific needs, therefore, i have been withholding from using such services, which have always been too easy for sighted and able bodies people, and because there is lack of awareness of the specific needs of the blind or deafblind people understanding and awareness of what it is like to be blind or deafblind and what needs to be done to help people affected by these sensory problems, is very important.
- I have occasionally used a CCTVs to enlarge a magazine article. They are comparatively easy to use and the staff give assistance if asked. The only criticism I have is that they are not all sited in positions of privacy for people bringing in private letters to read.
- Sorry, although an experienced computer user, I've never tried electronic systems in libraries! Talking Books has been my limit to date. That's because I don't find the time and energy to do such things.
- Sorry I could not compare my researches with library services, as I have not used them.

Free comments about the survey

- No I didn't (try the webform) , I find using JAWS to fill in forms on the web quite hard! I much prefer e mail
- " Hi, I will complete your survey when you take all this rubbish out of some of the fields where it says ""please enter…"". The field should be empty for me to fill in my answer. I shouldn't have to delete words in order to fill in your form.
- Help to fill in a form is nice and sometimes essential, but your talking to some of us who have vast amounts of pc and electronic experience. This seems to be implying we have no knowledge of filling out forms at and appears, in both the email and html versions
- The text in the email of the survey is better but not as good as it should be and I find forms and surveys on sites not specifically for visually impaired people but which are accessible enough in my opinion better than your survey layout

- I did try the plain text version on the last mail as I always find that easier than HTML as I get confused with all the links and edit boxes.
- in the e-mail format it didn't seem very easy when I can only see a small part of the text on the screen at any one time.
- On the instructions for both the web page survey and the plain text version, it is stated that you are given the opportunity to write about the benefits and disadvantages of the systems you have used in public libraries. Not so. You are asked if you have ever used this type of system in a public library and are given the option of yes or no. Then you are asked to state whether you have used a better system outwith a public library. Again Yes or No. Then you are asked how and why the systems outwith the public library were better, there is no option to describe the plus/minus issues associated with the systems at the public libraries themselves.
- I find it is very long survey, I would prefer to do this by phone
- I have accessed and looked at the web page questionnaire but as I did not realise how long the questionnaire was, I could not/did not complete it online as I experience difficulties in looking at a monitor for long periods of time, so I will take some time during the next few days to complete the plain text format questionnaire that is attached to your original e-mail.
- I am having difficulty again in filling out the plain text version of the questionaire as it is highly confusing with the ++++'s and so on […] the fomat of the questions is so confusing that it makes little sense to me. Would it be all right if I copy and paste the survey into Microsoft Word so I can reformat it and so that I can fill it out properly and so that it's actually readable.
- The fixed scales overlap two distinct issues - ease of use and appropriate content - thus, I find speech synthesiser software in libraries impossible to use without help (demanding to learn to use) - but they are nevertheless exactly suited to my needs in terms of end benefit. I think a supplementary user sample (if you can draw one as a follow-up exercise) using a qualitative method might be helpful, in differentiating responses over and above the categories yielding by the scales.
- in many cases I needed to qualify things a lot.
- Sometimes I found it difficult to distinguish between work and personal use because of my job.

- The wording very clear, the boxes extend inconveniently beyond the right margin of the screen, some responses extend beyond the box so that they can only be fully read by selecting them. Conceptual clarity - I'm not sure.
- too long
- Not difficult, but I wasn't really sure how to indicate my selected choice of answer.
- Easy to use but not really relevant as I do not use library facilities.
- computer would not allow typing into te text email or document - not sure why - believe to be local problem
- FAR TOO MUCH TO READ
- It seems unnecessarily long –winded. Perhaps one or two more general questions at the beginning would have eliminated the need to read through every question. After all reading is what partially sighted people find difficult
- Although saying yes, some of your captions within the combo boxes were too long and so didn't read in their entirety using JAWS
- the question wording, (and print size and contrast use) work very well for me, - I've just checked in reverse video and that displays very well, too
- was too long, so preferred to do over the phone
- It was irritating that the text fields were pre-filled. This is ok when tabbing into the field as it is then highlighted and is thus deleted when new text is typed, but when switching to "forms mode" with JAWS by pressing <enter>, the text is not highlighted, and so this first has to be done manually.
- Selection boxes too long to fit on screen unless text size reduced.
- It is rather long and tedious for speech users.
- I'd have put the computer equip bit at the top so you knew what the exterior gear was being compared with. I Use Win 98, by the way.
- One problem with the TEN standard is that some email programs, notably Outlook Express do not have a text search facility. This makes much of the TEN standard irrelevant in email. I copied this survey into a Word processor in order to complete it. I could then make use of the '+' markup system

- I thought it was very well designed. There were a lot of questions, but I got to the end without too much trouble, which is unusual for me, I usually give up halfway because either the questions or the answers don't seem appropriate. Congratulations!
- no
- (My comment: no matter whether you are conforming to accessibility or what, it's very annoying to have all these plus signs and you will see I have deleted them - they look blind and I want to be as near to a sighted person as possible - speech doesn't need them whatsoever - I can understand they might be essential for a person with a bit of sight, but at least have an option to turn off or on these terrible inhibitions.
- It has taken me longer to complete than perhaps necessary due to the amount of blank lines I encountered. Apart from those necessary for answers, the others were unhelpful for someone, like me, using the arrow keys. I have altered section 4 as an example of the way I would have found the survey more user-friendly. Hope this is helpful.
- shorter because reading is more long winded
- When using a screen audio reader it can only read words separated by spaces. When spaces are omitted, it cannot (at least mine cant!) recognize the words and reads them as letters. Hence: ++++Question (etc) becomes + , + ,+ , +, Q , u , e , s , t , i , o , n . merely because there was no space between the ++++ and Question!"
- It could have done with being shorter! :-)
- Perhaps you could take the default submit off, so goons like me wouldn't fall over by inadvertently hitting enter on completing text.
- fewer questions
- Maybe an open-ended question or two on existing library use by frequency and type of use, and an open-ended question on any particular use of electronic media which is already of positive interest to the respondent
- I thought it was a good survey but because it is quite long I have had enough now. thanks.

Appendix D - Data about use of the web

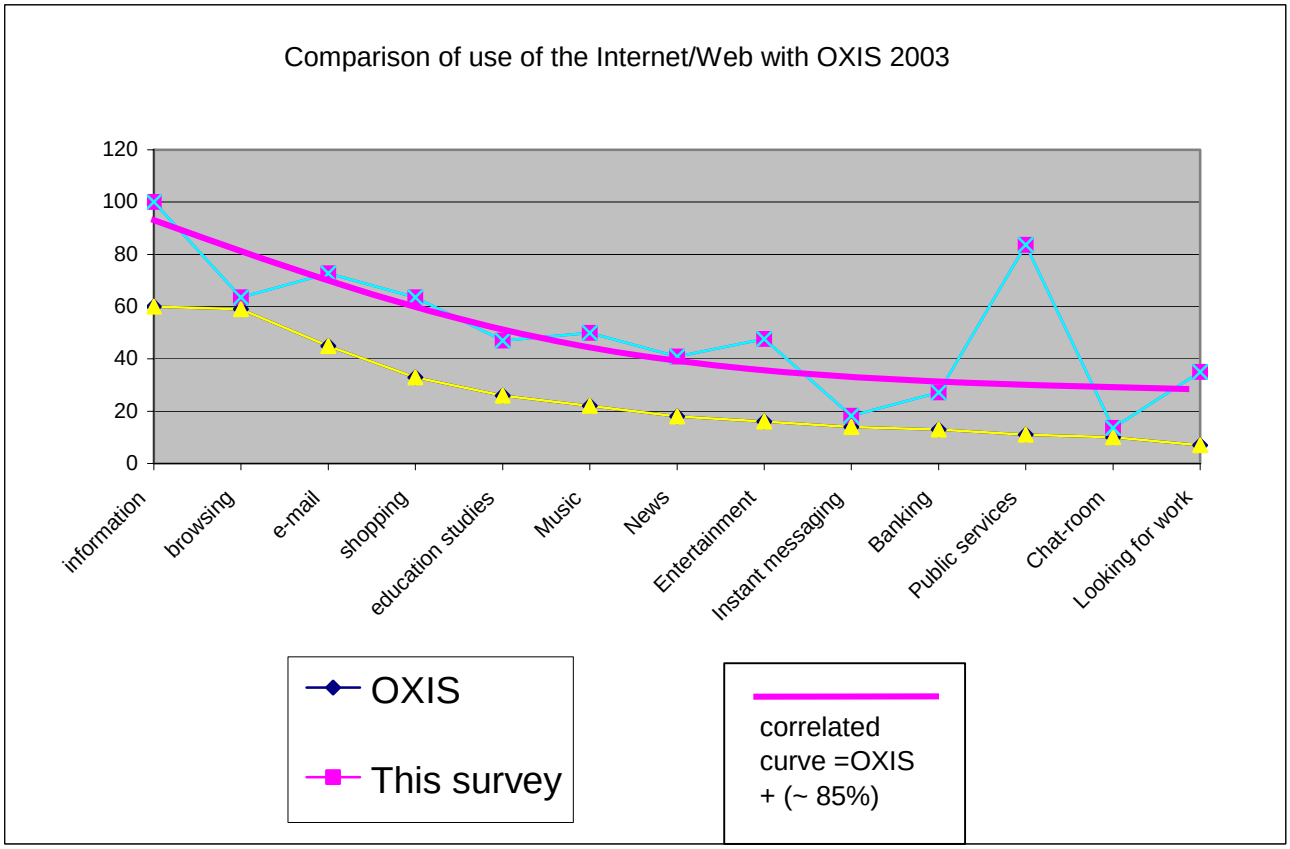
Comparison of the use of the web/Internet between 2003 OXIS Internet survey and this research

Tabulated data

Type of use	OXIS (use of Internet)	This survey (use of the web)	% differences
information	60%,	100%	+66.7%
browsing	59%,	63.6%	+7.8%
e-mail	45%	72.7%	+61.6%
shopping	33%	63.6%	+92.7%
education studies	26%	47% (averaged)	+80.8%
Music	22%	50%	+127.3%
News	18%	40.9%	+127.2%
Entertainment	16%	47.6%	+197.5%
Instant messaging	14%	18.2%	+30.0%
Banking	13%	27.2%	+109.2%
Public services	11%	83.6%	+660.0%
Chat-room	10%	13.6%	+36.0%
Looking for work	7%	35.0%	+400.0%
Information about Visual impairment	Not applicable	78.3%	-

47% figure for use of the internet for studying was averaged between 36.4% (towards a qualification) and 59.1% (general study not towards a qualification.)

Graphic Representation


Comparison of use of the Internet/Web with OXIS 2003
120
100
80
60
40
20
0
information
browsing
e-mail
shopping
education studies
Music
News
Entertainment
Instant messaging
Banking
Public services
Chat-room
Looking for work
OXIS
This survey
correlated curve =OXIS + (~ 85%)

Appendix E – Pilot survey and invitation

Dear XXX,
My name is Andrew Lewis.
I have been given your email address by the RNIB research section, as someone who has agreed to take part in research to help people with sight problems.

I am a librarian conducting research for a Masters degree in Library and Information Studies, at The Robert Gordon University in Aberdeen. I am looking at the use of electronic information services in public libraries, by people who are blind or have a visual impairment. For this I am conducting a survey.

The survey will be for anyone who has a visual impairment, who has some experience of using computers, the Internet, automated self service systems, or similar technology. This can be either in a library or elsewhere, or both. It is not necessary to be an expert user, just someone who has actually used or tried to use these services.

The survey form will be available in two electronic formats. There is a web form version, and a plain text email version. I believe that these forms can both be used easily on a computer by someone who has a visual impairment using their usual method of accessing email or the web.
However, I do not have a visual impairment, and I feel it is important to ask someone who does have a visual impairment to test them out. I would therefore like to invite you to try out a short pilot version of both these forms. These should not take more than a few minutes to complete.

To take part you will need an Internet connection.
The web survey form is available on the Robert Gordon University website at the following web address:
http://www.rgu.ac.uk/files/ACF8B6B.htm

The email survey form starts at the end of this email.

I hope you will be able to help me in my research. If you have any questions about it, please ask by replying to this email.

Kind Regards,
Andrew Lewis.
MSc Library and Information Studies.
Aberdeen Business School, The Robert Gordon University.
February 2004.

+++EMAIL PILOT SURVEY STARTS HERE.
++INTRODUCTION.
The following text is a pilot plain text email survey form. It is one of a number of pilots for the final user survey. The questions on it are to test if it is suitable for people who are blind or partially sighted using access technology. The final user survey will be longer and the questions asked will be different, but if this pilot is successful, they will be asked in a similar way.

[introduction ends.]
++CONTACT DETAILS.
It is helpful if you give your name and email address. This information will not be passed to third parties.
+QUESTION ONE.
Please give your name.
+QUESTION TWO
Please give your email address.
[contact detail section ends.]
++QUESTIONS ABOUT INSTRUCTIONS FOR COMPLETING THIS SURVEY.
The following text is designed to explain how to complete the survey. Please read through it and then answer the questions that follow it.
+INSTRUCTIONS.
Please read these instructions before proceeding.
To use this email survey form, you need to work through answering all the questions you can. You must then save the email before sending to Andrew Lewis at 0106801@rgu.ac.uk. The simplest way to do this is by replying to the email that was sent to you.
You should work through the questions as much as you can without stopping.
If you do not understand a question do not worry about answering it. It is more important to finish all sections of the form.

If you have any comments on this survey, you should include these in section four. This is especially important if you have any difficulty in completing it for any reason.
[end of instructions text]

+QUESTION FIVE.
Did you feel the above wording was clear about what you are being asked to do, by taking part in this survey?

+Question SIX.
If you did not think the wording was clear, why was this?

++QUESTIONS ABOUT HOW YOU ARE USING THIS SURVEY FORM.
+QUESTION SEVEN.
Are you using any of the following access technologies?
A screen reader or other audio device.
Screen magnification or other visual enhancement device.
Braille output or other tactile device.
+QUESTION EIGHT.
Are you using a mouse?

+QUESTION NINE.
If there is any part of this form that you were unable to use, please say what this was.

+QUESTION TEN.
Is there any way in which this form would be easier for you to use?
[end of questions about using the form.]
++QUESTIONS ABOUT THE FORMAT OF THIS SURVEY.
This text is formatted according to a standard called TEN. This standard is designed to ease navigation of plain text email newsletters by all readers, including those using screen readers and other special access technologies.
The home page of the TEN Standard is:
http://www.headstar.com/ten.
The standard was developed by E-Access Bulletin, a free email newsletter on access to technology by visually impaired people published by Headstar with RNIB.
+QUESTION ELEVEN.

Do you find this format easy to use with your normal means of reading email?

+QUESTION TWELVE.

If you do not find this format easy to use, please say why this is, and include any way that would make it easier for you to use.

[end of questions about the format of this form.]

++QUESTIONS ABOUT YOUR SIGHT.

+QUESTION THIRTEEN.

Please indicate which of the following three options applies to you.

Are you registered blind?

Are you registered partially sighted?

Are you not registered, but consider yourself to be partially sighted?

[end of questions about your sight.]

You have now finished the pilot survey!

Thank you for your time.

This pilot is important to help make the final survey form accessible to other people with sight difficulties.

Please save this survey and email to Andrew Lewis at 0106801@rgu.ac.uk