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Making Websites and OPACS accessible

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Abstract:

Many people with a print-handicap prefer to get their reading matter through a regular instead of via a specialised service organisation like the libraries for the blind. Just making the materials in an alternative format available in the library is not sufficient. An on-line public catalogue (OPAC) is a must. The best strategy to guarantee accessibility of an on-line public catalogue (OPAC) is to make sure there is an accessible Web OPAC.

Many OPAC's today have a web interface. However in most cases these interfaces are not accessible for people with a print-handicap.

The conclusion is that if a library wants to serve all people who want to read it should make sure that the OPAC is accessible through a web-interface. The main issue is then the accessibility of the web. The benefits of an accessible web go far beyond having an accessible OPAC. A library OPAC that can be reached through the Internet with an accessible interface offers everybody, anywhere, anytime access to the information needed.

FNB started a project with three public libraries in the Netherlands. The main objective of the project is to create access to the Internet in public libraries for people with a print-handicap.

Introduction

In most countries the so-called "Libraries for the Blind" serve both as production centres and distributors of reading materials in alternative formats.   The main means of delivery of these materials to their print-handicapped clients is still through the mail (postage) and clients rarely visit the actual library buildings.

Where this model of service delivery might be a good solution for less mobile people, many people with a print-handicap prefer to get their reading matter through a regular library instead of a specialised service organisation.
This is even more so for people who become visually impaired at a later age and people with other kinds of print-handicaps like dyslexia. They simply don't find their way to specialist organisations like libraries for the blind. Also the psychological threshold for starting to use an organisation for "the blind" is high for partially sighted and dyslexic people.

Therefore in some countries a service delivery through the regular channel of public libraries is used to better reach the total group of people with a print-handicap. In particular, the delivery of audio-books in Daisy format shows a high potential for addressing the reading needs of elderly partially sighted people and dyslexics.

But just having the materials in an alternative format available in the library is not sufficient. Some other conditions have to be met before a service to print-handicapped people by a public library can be successful. These conditions vary from accessible buildings, trained personnel to meet the needs of people with a print-handicap through to having an accessible catalogue.

Online Public Access Catalogues have been offered to clients via computer terminals located within library buildings. Clients can be shown how to use the catalogue and library staff are available to help if any problems are encountered. Clients who do not visit their library and who receive their material through the mail have not been able to search the library catalogue for themselves.

Now, libraries are more likely to be able to offer a web interface to their OPAC and allow access to it via the Internet. For public libraries a web interface offers the best opportunity to make their catalogue accessible to people with a print-handicap. For specialist organisations, the ability to offer an accessible catalogue via the Internet may mean that their clients are able to have independent access to up-to-date information for the first time.
General accessibility and usability issues for on-line public catalogues (OPACs).

Clients (whether print-handicapped or not) accessing OPACs via the Internet are likely to have experience of Internet search engines but not necessarily of library catalogues. They may not have the opportunity to be shown how to use the catalogue and cannot ask nearby library staff for help. In order for today's OPACs to be able to meet the needs of all clients the following additional requirements could be considered:
- They should be as intuitive to use as possible.
- Context sensitive help could improve the user experience.
- Guidelines for new users could be offered via the home page.
- Contact webmaster / contact librarian links could be offered throughout.
- Any terminology used should be meaningful to the general public and not just to library staff.
- Web accessibility standards should be applied throughout.

There are some accessibility issues that frequently occur with standard OPAC systems, for example:

- Use of repeated links such as "show record details". Users of screen readers may find it difficult to determine which record each occurrence of the link refers to.
- Multiple links to the same place. E.g. an author search may result in a list of several titles and links may be offered for each title to information about copies and their location and availability. Avoid having both a graphic link, such as an arrow, and a text link, such as the title itself, going through to the same page.
- Use of acronyms such as 'MARC' and 'ILL'. Screen readers may read these out as words. Either write them out in full e.g. Inter library Loan rather than ILL, or put a space between each letter e.g. M A R C rather than MARC.
- Security 'time out' is often set at a very low level, e.g. 30 seconds, for use in public libraries. It is important that if a client leaves an OPAC terminal without logging off, their personal details do not remain visible to the next user. However, screen readers users need more time to access the information on the page. Whilst the access technology is reading the information the user is likely to be inactive and the 'time out' may cut in and automatically log the user off.

Understanding accessibility Issues.
The devlopment of new web technologies introduces more barriers to access technology users. E.g. complex graphics and multimedia applications that access technology cannot yet handle. Creating a web site that is accessible is relatively easy as long as the web developer follows some basic guidelines.

Access technology is a piece of equipment or software that will assist users with disabilities and help to remove barriers faced when using computers.

Visually impaired users may change the appearance of the web page using the accessibility options of their browser software, or use screen enlargement software to control the magnification of the web page (e.g. 32 times larger for both text and graphics). Screen reader software can be used to interpret the coding of the web page and interact with the browser to output the content as synthetic speech or to a refreshable braille display. This means that the users cannot scan the whole page and quickly skip over or ignore any content they are not interested in. All the information on every page is presented in a linear fashion as it occurs in the markup language. The screen reader will want to read everything out and although users can use keys and commands to move through information in different ways they will not get the same immediate overall impression of a web page that sighted users get.

Developing accessible on-line public catalogues (OPACs).

Several European Union funded projects like EXLIB, TESTLAB and ACCELERATE, in which FNB participated, surveyed, piloted and evaluated library access by visually handicapped readers. With a lot of research and development of accessible on-line public catalogues (OPACs).

Not surprisingly the TESTLAB project reported in 1998 that in most libraries, public or academic, without taking specific actions the OPACs will not be accessible for visually impaired people. It did prove that with the installation of accessible workstations and the creation of

accessible interfaces of the catalogues the OPACs could be made accessible for visually impaired people.

The accessibility of the workstation was realised by the use of access technology such as braille displays, speech synthesiser, enlargement software and screen reading software. The OPAC could be made accessible in different ways:
1. The interface of the existing OPAC was made accessible
2. In the design of the OPAC accessibility was one of the specifications
3. A generic accessible interface was developed by FNB specifically meeting the demands of visually impaired people
4. The OPAC was made accessible by making an accessible web interface by the University of Linz

The first strategy, making the interface of the existing OPAC accessible, is the most difficult and least efficient solution. A lot of time and effort will be spent and probably lost with a new release of the software.

To include accessibility in the design of the OPAC following the "design for all" principle is the best solution from an idealistic point of view, but can be considered as the least feasible.

The generic accessible interface of FNB was built into a straightforward search engine that was capable of searching in Z39.50 compliant catalogues. This interface was developed during the TESTLAB project. Because in those years (1996-1998) the adaptive solutions for Windows were not satisfactory most visually handicapped people used DOS-oriented software. The generic interface was therefore DOS-oriented. A big advantage of this solution was that it also offered remote access to the catalogue and it was simple to install. Another advantage was that the system requirements were very limited. Today this solution is outdated.

A similar kind of solution, but based on Web Access, was developed by the University of Linz. Of course this also offered remote access. Maybe in 1998 not the most accessible solution, but since the adaptive technology to make platforms like Windows accessible has improved that much, it looks like this is the most favourable, efficient and accessible strategy.

The project Accelerate was set up as a follow up of Testlab. In this project FNB conducted the survey among the users of the adaptive workstations in the academic libraries of the University of Macedonia (Thessaloniki, Greece) and the University of Cyprus (Nicosia, Cyprus.

The direct priority of the project was to give visually impaired library users, as far as possible, the same level of access to catalogues and documents as sighted people.

Installing the adaptive workstations in the libraries was one step, training the visually impaired users using the workstation with the adaptive equipment (software magnification, a braille display and speech synthesis) and getting them acquainted with the library's databases and OPAC was another.

Since the installation of the workstations a majority of respondents in both countries started to read a larger variety of books, magazines and other publications. Most of the respondents were satisfied with the interfaces of the libraries' information sources (e.g. OPAC, databases, website) when using the workstation. During the project a text format of the web OPAC of the University of Macedonia (UOM) was made in order to give visually impaired users the opportunity to easily

access the OPAC at their homes. Currently the UOM is developing a new version of the library system and they are trying to implement all the necessary tools to make it accessible for all, right from the beginning.

Developing on accessible OPAC at NLB.

The National Library for the Blind in the UK (NLB) implemented a new Geac library management system in 1999. The new system included a web OPAC facility and work was carried out during 2000 to make the OPAC accessible to NLB users.

In order to avoid having to repeat the accessibility work at NLB with every new release of software, and also to be able to offer the benefits of this work to other Geac system users, NLB worked with Geac to develop the OPAC.

The first stage of the work was to make the catalogue search functionality accessible and this was launched in March 2001. Work has continued on the accessibility of the client functions and soon users will be able to view their own records and make reservations online.

The accessible OPAC will be the interface for 'Reveal: a database of accessible resources' which brings together the catalogues of over one hundred service providers and producers in the UK and will be launched in September 2003.

From accessible OPAC's to Web-accessiblity.

The best strategy to guarantee accessibility of an OPAC is to make sure there is an accessible Web OPAC.
The advantages are clear:
- Adaptive devices and software enable print impaired people to access the Web,
- Remote access creates independence from other possible constraining factors like mobility, accessibility of the building,
- Guidelines for accessibility of Web pages are very clear and standardised by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C).

Many OPAC's today have a web interface. However in most cases these interfaces are not accessible for people with a print-handicap.
The conclusion is that if a library wants to serve all people who want to read, it should make sure that the OPAC is accessible. It is the responsibility of the libraries together with the developers of library systems.

FNB has taken this responsibility and the catalogue of the collection of materials in alternative formats will be made accessible through a web-interface. Because FNB uses a common library-system all libraries using the same system can offer also their clients an OPAC that is accessible for all readers.

Using the Internet to provide information services to print impaired people.

The main issue is, then, the accessibility of the web. The benefits of an accessible web go far beyond having an accessible OPAC.

Publishers distribute their content more and more through the web. At the moment this is mainly professional literature and newspapers, but also other types of publications are distributed more frequently via the web. Authorities, public transport and other institutions publish their information in this way. And although e-commerce is in most organisations never more than a few percent of the total trade, it is still growing. More important it makes people with a visual impairment more independent. Ideally they can shop, book flight tickets and make reservations for a hotel on-line.

Imagine, all this information would be immediately available for people with a print impairment. However most of these sites are not accessible and the documents that are made available are presented in a graphical format like PDF, which is not accessible for most print-handicapped people.

As described above websites can be made accessible, as long as they conform to the accessibility guidelines of the WAI. The publications which are distributed can be made accessible in an easy way by the use of XML (eXtensible Markup Language). This is a structured document format that enables easy navigation in the document. And, of crucial importance, it can be made accessible by the use of adaptive techniques like braille display and speech synthesis.

The webportal 'Anderslezen.nl', accessing information of a library for the blind.

Given the opportunities of the web for providing information on the one hand and the inaccessibility of most web pages and services on the other FNB decided to build its own webportal. The objectives for the creation of this webportal Anderslezen.nl are not that different from the ones of Testlab and Accelerate. With it FNB wants to provide its clients a full service and most of all an accessible portal to all available information offered by the library itself. Clients can download and read daily newspapers, magazines, study material, brochures from the government and other organisations. All documents are made up in XML (eXtensible Markup Language) and are encrypted. This language has a structure enabling people to navigate through large and complex blocks of text. The documents in XML format are encrypted to meet the publishers' demands. In this way people without a reading impairment are prevented from mis-using these files. Documents can only be downloaded and opened with another special key and this encryption is necessary to comply with the relevant IPR issues.

The actual reading of documents is done with the aid of a specially developed reading programme which is to be found on the website. The documents are downloaded from, or sent by, Anderslezen.nl and saved on the computer's hard disc. The documents can then be read off line. The reading program also gives the reader the possibility to have a number of features to make reading the documents more user-friendly, e.g. search possibility, placing bookmarks and making notes in a specific text.

Another feature of the Internet is that it, like no other medium, offers people the opportunity to meet one another virtually without being hampered by physical obstacles. Therefore the website provides two other Internet features besides transaction of documents: communication and information.

Communication between members of the target group is stimulated by offering them the possibility to set up and maintain their own communities on specific themes. The Anderslezen.nl editors will offer editorial support when necessary. These communities unite people who,

because of their reading impairment, share similar circumstances. They can exchange knowledge and firsthand information in a wholly new way.

An accessible website is not solely built by adhering to guidelines, like the ones of W3C: a good on-screen layout for one person could well be unusable for another. For this reason the user interface of Anderslezen.nl is designed according to the 'design for all' principle. Users can 'personalise' the interface according to their specific wishes regarding the presentation and arrangement of information. Nonetheless, every screen contains four basic components: navigation tool bar, menu, text and position bar. Each component can then be adjusted with its own colour palette. The position of the components on the page can be selected from four schemata: standard, narrow, muted and plain. These four themes reflect our ideas on good design combinations for different user groups and software applications, but they can be further adjusted by the individual user. For visitors who are not logged into the website to alter the interface, the home page has an option to choose from a couple of pre-set alternative interfaces.

Accessibility in public libraries

In December 2002 FNB started a project with three public libraries in the Netherlands. The main objective of the project is to create access to the Internet in public libraries for people with a print-handicap. It should contribute to taking away the information gap and stimulate the independent participation in this information-based society. A related objective is the possibility to access the webportal Anderslezen.nl in order to read for example a daily newspaper or a magazine in an accessible format.

In every pilot library an accessible computer workstation has been placed with access to the Internet. Library personnel are trained in using the computer and its adaptive equipment (software magnification Supernova, speech synthesiser Fluent Dutch and a head phone). Also demonstrations have been given in using Anderslezen.nl and the reading program. During the months to come (the project will run until the end of November 2003) the accessible workstations will be promoted and demonstrations of the workstation and Anderslezen.nl will be given in the libraries. During these months the use of the workstations will be evaluated in order to find out to what extend they contribute to a more accessible library.

The project is being part of a nationwide project called 'Drempels Weg' (lit. Barriers Away). FNB is an active participant in this project, which is an initiative of the Dutch Ministry of Public Health, Welfare and Sport. The aim is to promote easy Internet access for everyone, including people with a print-handicap. During the official start of the workstations it became clear that library management as well as the politicians involved underwrite the importance of accessible workstations for all in a public place like a library.

Awareness of the issues and willingness to act accordingly are the first steps to fully integrate people with a print impairment in this information age. It is clear that not only library systems like the OPAC in the libraries themselves should be well accessible and user friendly for all. People who are less mobile have to have the opportunity to access these at home too. A library OPAC that can be reached through the Internet with an accessible interface offers everybody, anywhere, anytime access to the information needed. The web OPAC FNB is working on will be doing just that.

Glossary.

EXLIB - Expansion of European Library Systems for the Visually Disadvantaged
>The overall objective of EXLIB has been to investigate and provide a range of user requirement specifications and standards to ensure compatible access to the European Unions information resources between normally sighted and visually disadvantaged Union citizens.
>http://www.cordis.lu/libraries/en/projects/exlib.html

TESTLAB - Testing Systems using Telematics for Library Access for Blind and Visually Handicapped Readers
>TESTLAB has established a series of practical trials in public and academic libraries whereby blind and visually handicapped readers can gain access to catalogues and digital documents in forms which they can read. These trials stem from the EXLIB (Expansion of European Library Services for the Visually Disadvantaged) project under FP3. TESTLAB links to several national activities.
>http://www.cordis.lu/libraries/en/projects/testlab.html

Accelerate.
>The ACCELERATE project aims at providing access to the modern Library services for the blind and partially sighted people.
>http://www.lib.uom.gr/accelerate/

W3C.
>The World Wide Web Consortium (W3C) develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential. W3C is a forum for information, commerce, communication, and collective understanding.
>http://www.w3.org/

WAI.
>The World Wide Web Consortium's (W3C) commitment to lead the Web to its full potential includes promoting a high degree of usability for people with disabilities. WAI, in coordination with organizations around the world, pursues accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development.
>http://www.w3.org/WAI/

Z39.50.
National Information Standards Organization Z39.50 Information Retrieval Protocol
(Z39.50/ISO 23950), a computer protocol that can be implemented on any platform, defines a standard way for two computers to communicate for the purpose of information retrieval. A Z39.50 implementation enables one interface to access multiple systems providing the end-user with nearly transparent access to other systems.
http://www.niso.org/standards/resources/Z3950_Resources.html

Further sources of information on accessibility.

FNB Netherlands.
http://www.fnb.nl/sub_home/
Online catalogue / portal: http://www.anderslezen.nl

Drempels Weg project Netherlands
http://www.drempelsweg.nl/

University of Linz Austria
http://www.uni-linz.ac.at/

NLB United Kingdom
http://www.nlb-online.org/mod.php?mod=userpage&page_id=29&menu=1702
Online catalogue: http://webcat.nlbuk.org:8000/

Resource Best Practice Manual United Kingdom
http://bpm.nlb-online.org/

CNIB Canada
http://www.cnib.ca/library/
Online catalogue: http://visucat.cnib.ca:8000/

RNIB United Kingdom
http://www.rnib.org.uk/digital/

IBM.
http://www-3.ibm.com/able/accessweb.html

Support4learning United Kingdom
http://www.support4learning.org.uk/reference/design.htm

CERLIM United Kingdom
http://www.cerlim.ac.uk/projects/nova.html

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2000 Brophy, P. and Craven, J. Accessible library websites: design for all. In Hopkins, L. ed. *Library services for visually impaired people: a manual of best practice.* Library and Information Commission Research Report 76. London: Resource: The Council for Museums, Archives and Libraries, 2000. ISSN: 1466 2949, STV/LIC Report 10, ISSN: 1470 9007.