

# Into the User Environment Now!

**How libraries and other organisations can adept to changing user expectations**

Brekel, GUUS van den,  
Central Medical Library, University Medical Center Groningen, Groningen,  
the Netherlands.

[a.i.p.van.den.brekel@med.umcg.nl](mailto:a.i.p.van.den.brekel@med.umcg.nl)  
<http://digicmb.blogspot.com>

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## **Abstract**

This presentation provides an overview of causes why library and information services are fading out of sight for most user groups and how these users and their expectations have changed without us realizing.

It contains a strong plea for a focus shift for librarians, but in fact also for companies and organizations. A focus into the environments where the users are, instead of expecting them to come to us, or our resources. Exploration of all relevant user environments for your organization, the use of new web-based technologies with Web 2.0 elements and certainly a more structural technical re-design of (library) information systems is required to deliver your services and resources at the place of need.

A simple short-term solution like a QuickSearch Library Toolbar is explained, several other tools to enrich the user's personal search environment, as well as the more long-term ongoing work at the Libraries of the University of Groningen and the Central Medical Library of the University Medical Center Groningen.

## **Keywords**

**User environment, Web 2.0, Library 2.0, Library Information Systems, Browser extensions, Mash-up, Toolbars, Metalib, Workflow**

## **The problem: library disconnects**

### *Fragmentation of information*

As a large medical library connected to a University Medical Center and University Library, we have a large collection of resources and databases our users can use. In order to inform and educate our users, like most other libraries, we are involved in the medical curricula, we present news items using several platforms and give free courses to the medical staff.

University-wide, over 250 databases and more than 26.000 electronic journals of all disciplines, not just medicine. Unfortunately, this very rich information concentration is diverted over numerous different kinds of platforms, interfaces and access options.

The user has to spend a lot of time:

- To find them
- To evaluate them
- To learn to use them separately
- To keep up with all individual changes
- To search them separately
- To repeat the above, constantly

### *Visibility, lack of presence*

While medical library resources keep growing and expanding in number and quality, the “open access” to full text journals keeps expanding, websites, portals, large repositories, metalib systems are developed and being launched, the user is more and more shifting his attention and his workflow towards the Internet.

Despite all educational efforts towards students and staff about finding and using the library resources, they hardly use them. The digital presence of library websites, resources and services is often unnoticed by the users. They simply do not have enough visibility or presence inside the tools the user is heavily using in his daily routine, the so-called workflow or flow.

The expectations of availability of publications have shifted towards “All is included in Google and freely accessible by all”, completely ignoring library efforts and expenses.

The awareness of our quality resources and ways to find them is not present, or being pushed aside, even swept away by the simplicity of search via Google and others.

## **How did (we let) this happen?**

### *The World Changed*

The major success of large web search engines like Google can be explained by the fact that they give the searcher the feeling he is always going to find something relevant. You will always find a number of relevant hits and fast. The new generation users like this feature very much. In library systems, the *success ratio* is a lot lower/less.

The main thoughts of users are: “For finding information, you use the Internet. For keeping up with your study you use your electronic learning environment,

on Internet, to do research you check PubMed, it is free on the Internet and all articles that have publisher's icons are freely available".

The new possibilities are practically unlimited. Everything is connected with everything (or can be), live. It is all about online collaboration, seeing and sharing what others are doing. Some call this Web 2.0.

Users are creating their own personal start pages and web-based CMS and bypass that way all kinds of on-site navigation your organisation is offering. Self-assembled digital workflow tools like Netvibes, MySpace, and Google Home shifts network activities towards the web.

#### *Sticking to traditional library systems too long*

Traditionally, libraries focus on the "resources" like licensed collection, cataloguing, the digital collection, repositories and aggregation, while the users are mainly neglecting these resources because the lack of consistency in functioning and interoperability.

We have large collections of resources of different origin, of different interface, web- or client- or server based. The focus is still on "our" products, and not user-oriented.

#### *The People Changed*

The user environment has changed rapidly (and keeps on moving). The "Information-Age Mindset" has several elements that cause this "library disconnect" according to Thomas and McDonald <sup>(1)</sup>. This affects the way users approach the library and library systems.

Many key elements about the new way of learning can also be found in the EduCause report about "Educating the Net-generation" <sup>(2)</sup> and in the OCLC report "Perceptions of Libraries and Information Resources (2005)" <sup>(3)</sup>.

There is a new mindset that we *have* to make our own or at least study in detail to adept.

We have to be aware that the new generation of students act on the following:

- they are more fascinated by new technologies
- Multitasking is a way of life;
- Staying connected is essential;
- Interactive, not isolation
- Zero tolerance for delay;
- Actions are more important than knowledge; Learning by doing, not by being told
- Nintendo trial-and-error approach to improvement is a viable model for learning
- Cut-and-Paste Culture

Work- and learning routines have changed much quicker than expected.

In relation to staff-concepts, you can predict that the medical student of today will be your new medical staff member in a couple of years. Also part of contemporary medical staff is said to have different characteristics.

In research Beck & Wade show that the so-called "Gamers Generation" which grew up with videogames, have special characteristics that are important for learning and information seeking behaviour, adding new concepts that libraries and other organizations should bare in mind. <sup>(4)(5)</sup>

Members of the Gamers Generation:

- Are suggested to have little respect for traditional authority and training.
- They want to win, think competition is "part of the game" and believe you should be rewarded for achievements.
- Their cognitive skills are bigger, as well as the spatial perception and divided visual attention.
- They like taking risks, think failure costs nothing, because you just can start over again.
- Gamers think of more ways to solve problems, always think there is a solution for any problem and they are endlessly trying to find it, because every game has a solution build into it.

Library disconnects are caused by actions of users, forced by changing digital environments and perspectives on information, and indirectly by libraries failing to react in a proper way. McDonald and Thomas discuss the problem in more detail and divide these disconnects into three categories: technology, policy and opportunity disconnects. <sup>(6)</sup>

## How can we change this?

*Dig into User-environments and –concepts: From product oriented to user-oriented*

We can try to turn this around by making the shift from “This is what we offer to you. Come and get it if you want to use it!” to “You choose the services you need, when and where you need them”.

We should stop **telling** them “You can get what you don’t see!” and start working on making all things visible.

*Outwards versus inwards*

The library has to (re)-visualize in the user environment. Do show up in the tools the students like and use. Be available in staff-applications, by choice, on the right place at the right time.

The personal learning landscape of staff and students should become the primary target for librarians wanting to materialize in the user environment.

We should identify and map our user’s environments, analyse it, prioritise and target their “resources”.

- Lorcan Dempsey, OCLC, calls this in numerous presentations: the “library in the user environment, not the user in the library environment”.<sup>(7)</sup>

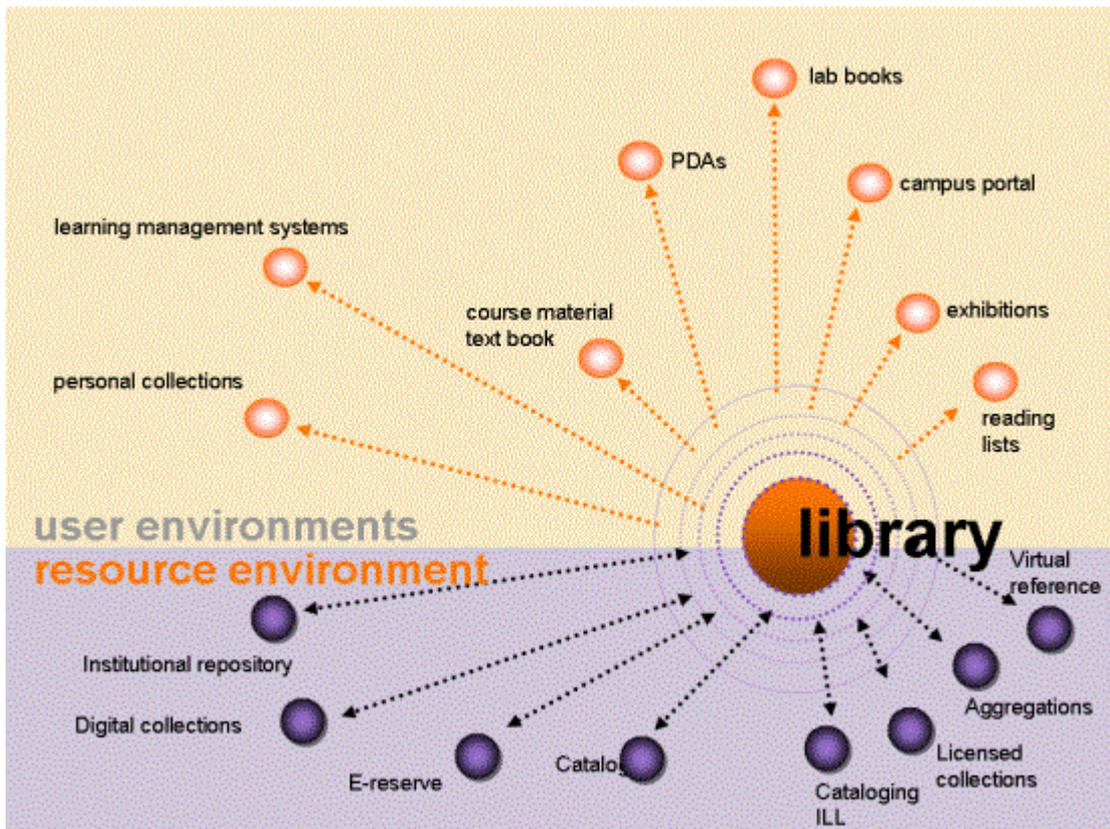


Fig. 1: User & resource environment.

The library must build its services around user workflow. Instead of just appearing in the user environment, library services should be integrated inside the workflow of the user.

Organisations should conduct a survey to check to what extent their users are using “web 2.0” technology, identify user environments in detail, and make a short-term and a long-term policy plan to adapt.

### The Short term: quick and easy:

The short-term plan can focus on the three “tools” most used by your staff:

- **The Desktop** (not the network =just a transport thing):  
advise your organization to choose one Desktop Search Application to improve search facilities and make sure you put in you library resources. Not only libraries will benefit from this implementation. Findability and disclosure of documents, knowledge and skills within the organisation will improve and save time
- **The Office applications**  
Convince your management and IT department that doing a little programming on the Research Task Pane in Microsoft Office 2003 can improve the use of not only your resources, but also all kinds of databases using the Research Task. Again, this will focus employees more on internal information resources. It will bring them closer into the workflow.
- **The Browser:** used by everyone all day  
Windows applications are being replaced by Web-based tools, even in

Intranets. Browser extensions, add-ons, plug-in's etc. are relatively easy to realize and can be of great service to the users. Examples: RSS-feeds, bookmarklets, widgets, desktop sidebars, browser toolbars. <sup>(8)(9)</sup>

## **The Long Term: Changing the system, shifting the focus**

Rather than *only* concentrating on the above, a more structural approach should be developed to build more user-centered and interactive services. Instead of building all kinds of separate tools and gadgets this needs to be done in a structural way, also integrated in the network. <sup>(10)</sup>

The Library 2.0 discussion –together with Web 2.0- lists several elements for change:

- a new configuration and infrastructure for our library databases and servers has to be developed to become the central information system; component-based software, no monolithic ILS
- The right standards and protocols must be used to make interoperability possible. Open standards: OAIster, Open Archive Initiative, OpenDOAR, Open URL - SFX, Unicode, XML
- modular web-based library services can be delivered to the user
- in more ways than one, content for more than one device and platform independent
- use of Web 2.0 social software, apps and services to get back in
- use logs stats, evaluate and re-use them to make systems learn and interact with user while searching
- “Make the data work harder”. Combinations of data sets can be used to create new services.

## **More problems (or challenges)?**

However, decisions about changing to other systems are not made easily. Library organisations are not the most flexible bodies. Additionally library collaboration on a regional or national level makes decisions about a large system change difficult to take.

A lot of them are not designed to cope with or adapt to the new developments. The focus is on “our” products, and not user-oriented. The same applies to large (hospital) organizations. The choices made in the past of hard- and software, infrastructural solutions are under a lot of pressure by the technological developments of the recent years. The need and demand for “connecting” a great number of applications involved in patient care and research is huge.

While students were moving into electronic learning environments, libraries focussed on building electronic/digital libraries but the two were not always connected or even able to communicate with each other.

While medical staff are forced to work with digital hospital information systems and preparing for electronic patient records and further digitization, many of the medical libraries were (are) not even involved with the development/implementation of these systems and therefore are not visible.

I also would like to point out some longer identified and ongoing challenges we should keep working on very hard and of which I believe these could indeed be improved IF we act a focus and technical shift too. The image of your library and the role/position in your organisation can be improved -in my opinion- by suggested change accompanied by a good marketing/pr strategy.

### ***Further needs for Libraries***

- There is a urgent need for educating library staff to cope with technological changes
- Libraries have to deliver tools -hardware or software- and the support for staff and students (Thomas and McDonald)
- Efforts within organizations have to be made to realize infrastructural changes
- It-departments have to adapt and change their IT-policies to deliver the needed services by the libraries.

### **A Short Term example: the QuickSearch Library Toolbar**

The QuickSearch Library Toolbar of the Central Medical Library of the University Medical Center Groningen is a browser extension the user can choose to install and use for Internet Explorer or Mozilla Firefox. It appears at the top of the browser window when activated via "View; Toolbars" in a minimized and normal format. At the moment we offer the Toolbar to UMCG hospital staff and medical students via network installation or Internet download.

The content of the Toolbar is focussed at our Library resources and services and it makes these immediately visible for everybody and ready to use. A few tools we offer now:

**QuickSearch box** to search in all major relevant medical databases and resources, such as PubMed, UpToDate, Metalib, E-Journals & E-Books collection, OPAC, Medical Dictionary, Translation Dutch-English, English-Dutch and many more.

Search Terms only have to be entered once in the query box. For switching databases, a simple click is enough. Results can be highlighted.

**Off-campus access** is integrated in all included resources and links. People can access them from anywhere with just Internet access and a browser.

**E-Books overview** by subject and types. These publication were difficult to find and therefore hardly used. Now easy selection is possible.

**Electronic Reference Desk** (Just Ask!) one click away

**RSS Feeds directories** for Library or Hospital **News**, Alerts on Tables of Content of major medical journals and published articles of UMCG staff.

**Podcast/radio** with automatic delivery of NEJM This Week audio summaries, Nature podcast and Instant Anatomy.

### ***Improvements & Ideas***

Not every functionality that is offered and content that is now embedded in the Toolbar is relevant to all users and many have already asked to be able to

personalize the Toolbar. Although Conduit has a large group of users with an active Forum, not all requests for new functionality can be realized. We have launched a special Toolbar completely focussed on medical students at the start of the new academic year. Several departments of the hospital have asked to develop a Toolbar centered on their speciality combined with local content.

#### *Problems to be solved*

The realization of the network installation via IT-department can cause some resistance, depending on how networks are implemented in the organization. For some staff members it is –at this moment- not possible to install the Toolbar on their desktop. The fear for interference with other applications concerning i.e. patient care does prevent this. There are however, with current use no such cases reported. Further studies are needed to invalidate these fears.

#### *Usage Reports*

Included in the Toolbar-software is a report module that shows the amount of downloads, the number of clicks on Toolbar-elements. On special request, further details are available about the number of search-actions via the QuickSearch box. The total amount of downloads has reached the 1000 mark and numbers are still rising, while daily concurrent use exceeds the average of 140 since last June 2006.

#### *Development*

The Toolbar is created with free software available via Conduit and is (almost) completely adjustable via a web-based interface. The initial design and creating of the Toolbar can be done in a very short time. Maintenance is also very easy and not time-consuming.

The current Toolbar is a show- and test case of all functions that can be offered at this moment within its technical options. Further tests and studies into Toolbar creation may prove that the software used may not offer all required functionality in the way we need it.

Floating Web Components and gadgets can be added to enrich the content. Special search items, video and even TV can be shown from within the Toolbar.

Tailor-made search modules can be made to be placed on Intranets re-using Toolbar configuration.

Creation of gadgets or widgets for use within personal homepage-tool like Netvibes, Google IG and Live is possible.

<http://search.conduit.com/Results.aspx?q=inforum+2007&ctid=CT142118>  
<http://eco.netvibes.com/?type=all&q=digicmb>

## A Long Term example: Ongoing work in Groningen

The long-term vision in Groningen is starting to become visible. The Libraries of the University of Groningen are in a transitional phase. The traditional library system LBS of OCLC/Pica is in development, but in addition SFX and Metalib from Ex-Libris are used to develop new web-based services. A Central Information System is being created to serve as base for these new services. Library presence is created via RUGLinks (SFX in all resources). One of the most exciting developments in the recent years is the open url-enabled context-sensitive linking. We are using Ex-Libris SFX and Metalib instruments for this.

Before SFX, there were insufficient ways to offer users extra information about availability and they were primitive, based on fixed files imported in the server environment without interactive connection. SFX is the first real attempt to get “a presence” in the databases the users are still using, including:

- **PubMed:** the LinkOut & Outside Tool connect to the SFX-server; by using one entrance url including the institutional share function of the MyNCBI filters
- **Google Scholar**  
By supplying Google Scholar our collection holdings and activating “Library Links” we can offer automatic display of our SFX-link within our organization. Everybody outside this Ip-range can choose to add the Library links via the “Scholar preferences”
- **Bookmarklets:** Firefox users can use Bookmarklets to see RUGLinks

(In addition, most search engines will find RuG-publications by making Open Access repositories accessible for indexing spiderbots)

### *From statistics to new services*

A custom-built software program analyses the log files of our SFX-, Metalib and Proxy-server. The program shows for the first time detailed information on how users are working with our resources. Wrong use of database combinations, inadequate search terms or operators, spelling errors etc are made visible. The numbers show that more than 50% of the entered searches resulted in zero hits, false results or error messages. The results are used to build a new system for federated searching [LiveTrix](#), based on MetaLib’s X-Server and other APIs. This system already includes:

- Resources discovery/suggestion tool (based on user statistics)  
Spell-check/adviser
- Query Analysis
- Related strings info
- Term translation
- Inline- SFX & lending info with OPAC records
- Impact factor info with Journals
- Relevant help at point of need
- Alert service (RSS & Email)
- Relation Databases
- Workbench & Bookmarks
- TinyUrl creation

<http://livetrix.ub.rug.nl>

## What are the Benefits of all this?

Efforts to (re)connect the Library, its services and resources in the user environment will increase usage, improve the awareness of library services in general, and, will most certainly boost unknown valuable resources in particular.

Recent experiences with the introduction of the QuickSearch Library showed more interaction between user & library. The user can more easily find, use and get access to library resources, even off campus.

The introduction of RUGLinks (SFX) in PubMed caused a substantial rise in usage of electronic journal collections.

From a marketing and PR perspective, executing short and long-term plan to improve a greater visibility of the library within the organization, will also benefit the position of the Library within the organization.

“Ambient Findability” as described by Peter Morville is exceedingly created by all web 2.0 developments for all types of content. We have to make sure library services and resources get in there as well. “Information that’s hard to find, remain information that’s hardly found”<sup>11</sup>

(Re)Building library systems with Open standards focussed on modular web-based services will prepare the organization for the future. Analysing log files and statistics will create unique insight of user search patterns and offer more opportunities to improve and develop “user services”.

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