OPAC 2.0: adding collaborative intelligence to OPAC

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Abstract
The widespread use of search engines such as Google, emergence of collaborative endeavors such as Wikipedia and the development of Wiki applications, development of digital open access repositories, social networking services such as MySpace, Flickr and YouTube have made the web as much of a social phenomenon as a medium for access to information. Web 2.0 was conceptualized as approaches and technologies that encourage user collaboration, includes Web services, peer-to-peer networking, blogs, podcasts, and online social networks. Web 2.0 concepts are now being applied in diverse fields including library applications. This paper is an attempt to conceptualize the functionalities and services that a Web 2.0 OPAC may expose. Suitable examples are provided including Open source Software for Opac 2.0 (OSO 2.0).

Key Words: Opac 2.0; Web 2.0; Open Source Software; OPAC; OPAC.

Introduction
Seventy years ago television brought about a revolution that changed the entire entertainment industry including news cast methods. Twenty-five years ago the Internet and the web and associated technologies brought about radical changes in the way:

• Information is searched for, accessed and communicated,
• Communities of practices developed and thrived,
• Repositories of scholarly information became accessible, and
• Bibliographic, image, multimedia and library catalogue databases became available.

In the first few years of this century, the web has assumed a new dimension as a social phenomenon where likeminded individuals can congregate and share their feelings, opinions, and knowledge on subjects that are dear to them and on issues that impact the way we live. Unlike the earlier closed communities of practice, present day social networks are much more generalist and open. Blogs and Wikis exemplified the new social spaces on the web. These developments have led specialists to conceptualize the Web 2.0.

Web 2.0
According to Wikipedia, Web 2.0 is a term, which describes the trend in the use of World Wide Web technology and web design that aims to enhance creativity, information sharing, and, most notably, collaboration among users. These concepts have led to the development and evolution of web-based communities and hosted services, such as social-networking sites, wikis, blogs, and folksonomies. The term became notable after the first O’Reilly Media Web 2.0 conference in 2004. Although the term suggests a new version of the World Wide Web, it does not refer to an update to any technical specifications, but to changes in the ways software developers and end-users utilize the Web. However, the term is ambiguous and as pointed out by Tim Berners-Lee, have many of the technology components of “Web 2.0” have existed since the early days of the Web.

According to McKinsey’s Second Global Survey Results on Web 2.0 “Companies are using more Web 2.0 tools and technologies than they were last year, sometimes for more complex business purposes. Companies that are satisfied with their use of these tools are starting to see changes throughout the enterprise.” The “2.0” has been suffixed to various application areas, e.g., Health 2.0, Medicine 2.0, Learning 2.0, etc., Librarians and vendors of library systems have also begun to use applications in the web 2.0 mould and we now have terminologies like Library 2.0 and Librarian 2.0.
Web 2.0 typically includes some of the following features/techniques (McKinsey, 2006):

- **Blogs (short for Web logs)** - online journals or diaries hosted on a Web site and often distributed to other sites or readers using RSS.
- **Collective intelligence** refers to any system that attempts to tap the expertise of a group rather than an individual. Technologies that contribute to collective intelligence include collaborative publishing and common database for sharing knowledge.
- **Mash-ups** are aggregations of the content from different online sources to create new services.
- **Peer-to-peer networking (called P2P)** is a technique for efficiently sharing files (music, videos, or text) either over the Internet or within a closed set of users.
- **Podcasts** are audio or video recordings – a multimedia form of a blog or other content. They are often distributed through an aggregator, such as iTunes.
- **RSS (Really Simple Syndication)** allows people to subscribe to online distributions of news, blogs, podcasts, or other information.
- **Social networking** refers to systems that allow members of a specific site to learn about other members’ skills, talents, knowledge, or preferences.
- **Web services** are software systems that make it easy for different systems to communicate with one another automatically in order to pass information or conduct transactions.
- **Wikis**, such as Wikipedia, are systems for collaborative publishing. They allow many authors to contribute to an online document or discussion.

Tools such as these have created new expectations from some librarians wishing to offer the best services to their users, starting a new trend called "Library 2.0" (Anderson, 2007).

**OPAC 2.0**

Enabling Web 2.0 paradigms and approaches into an OPAC is so called Opac 2.0 (Furner, 2007). This is the generalized definition in the library arena. Far from the old-fashioned library catalogues, LibraryThing and Amazon are pioneers in providing several Web 2.0 features. For instance, Amazon allows readers to discuss books of their interest in a forum, rate books and provide tags or free keywords to describe the content they contribute. Further, the user can see reviews of the book contributed by others who have read the book. APIs (Application Program Interfaces) of Amazon.com allows other applications to take information from Amazon.com and use it within their own applications, e.g., a library management system. These functionalities have helped Amazon to draw more customers than its competitors and to survive the dot-com bubble (O’Reilly, 2004).

A library’s OPAC has the objective of making a library’s resources (real and virtual) accessible to its users. This is done primarily through the search, browse and display functionality including access to content such as full text, contents page, and image of the cover. Until recently, the vendor of an Integrated Library Management Systems (ILS) usually provided the OPAC and this was what was used by default by a library that licensed the ILS. The trend now is for libraries to decouple the OPAC from the ILS and to use third party (commercial and/or open source) applications that make the OPAC more intuitive (Chalon, 2007). Commercial software like AquaBrowser has already made its presence felt in the market and has brought Web 2.0 features to the OPAC. Some of the Open source – Integrated Library Management Systems (OS-ILS) already posses some Web 2.0 features. There are some Open Source Software OPAC products like Scriblio and VuFind bring new features to the OPAC.

This paper is an attempt to conceptualize how an OPAC 2.0 might be from the different perspectives of the different stakeholders of a library. However, these perspectives are not mutually exclusive. The results of some surveys of users, librarians and ILS vendors have also been used in the present conceptualization.
Librarian’s perspectives

- **Customization** – The OPAC should allow the use of third party add-on services via the use of service-oriented architecture (SOA) applications and/or local developer intervention. In fact SOA is now considered to be a key technology of Web 2.0 applications.

- **Better Intuitiveness** – Users of present day OPACs do not consider them to be friendly as discovery tools. The older generation OPACs used librarian-driven designs. Web 2.0 OPACs are seen as providing a simple interface that not only allows Google-like searching but also vertical search (providing results of both print and electronic resources). Some of the third party OPACs that are cutting new ground provide tag clouds (semantic network of entered search terms) to help a user to enhance his search in more meaningful ways than possible with older OPACs.

- **Integration with other Institutional systems** – There is pressure from the managements of institutions for libraries to integrate access to resources from other systems, e.g., a learning management system with library resources. This feature is applicable not only to an OPAC but also to the ILS as a whole.

- **Personalization** – to allow the OPAC interface and experience to be personalized by users. For instance, a user should be able to see only those links and/or resources that are of his interest as soon as he logs-in to the OPAC.

- **Allowing mash-ups** - to mix and match information from different sources, e.g., along with the display of search results. For instance, if reviews or recommendations (e.g., by a teacher) are provided then the search results are likely to be more valued than that of the results of a generic engine such as Google Book Search or Scholar.

User perspectives

- **Allow access to reviews and recommendations of others.** A good example of this approach is seen in LibraryThing.com

- **Result displays** - Results should display items in different formats and not only print formats.

- **Terminology** – The OPAC should use terminologies that are better understood by lay users rather than those that are librarian oriented.

- **Multilingual capabilities** - option to allow users to enter search terms in preferred language of the user. The OPAC should be able to translate an entered term into the index language used by the search system. This requirement may be more appropriate in multilingual databases.

- **Export** - options to download the search results in different formats and also to mobile phones.

- **Allow tagging** – Users should be allowed to tag their contributions to OPAC records and also see those contributed by other users.

- **Allow spell‘check and ‘Did you mean’ features** – Spelling mistakes and typographical errors of users should be detected and users should be allowed to correct their search terms.

Web 2.0 OPAC examples

Web 2.0 is about creating richer user experiences through interactive tools and services, which sit on top of static Web sites. Web sites that utilize aspects of Web 2.0 are often personalizable, dynamically driven, and rich in community tools and sharing functions. OPACs have been designed with librarians rather than users in mind, resulting in interfaces that are not intuitive or attractive to users. Web 2.0 technologies can be used to vastly improve the user experience when searching the Library OPAC (Stanley, 2008). We give below some examples of new OPACs which have the web 2.0 features described in this paper.
Blog and RSS Widgets

1. 100 habits of successful graphic designers: insider secrets on working smart and staying creative
   416 p. : ill. ; 24 cm. DDC 741.688 D24
   (Add to my list) - no reviews yet.

2. 30 minutes to write a marketing plan
   (Add to my list) - no reviews yet.

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46
Patrons are updated with latest arrivals such as a newly cataloged book, articles and may be a research paper in a precise format through this exciting feature.

Source: University of Huddersfield, http://webcat.hud.ac.uk

Tag-cloud based displays and search enhancement based on spell checking

Tag Cloud’s – semantic network of entered

OPACs should not produce a dead end page when there is a zero result list in any search strategy whereas Opac 2.0 should give an option to the user suggesting the terms by “Did you mean?” which is bridged by spell checker and serendipity.

Source – Oklahoma State University, http://boss.library.okstate.edu/
Exploration and Serendipity

Serendipity searches: Autobiography · Houston · Indira Gandhi · Langley Research Center · Paperback · Rockets · Tamil · Yeats
(view more) (what is this?)

Sorry, could not find anything matching wings of fire

OPAC should have the interactive capability by which it gives an option to patrons who accidentally discover something useful, especially while looking for something else entirely, which is termed as serendipity.

Programming Perl

Perl is an interpreted programming language that is widely used for a variety of tasks, including script writing, system administration, and web development. It was created by Larry Wall in 1987 and has since become a popular choice for many programmers due to its flexibility and ease of use.

The book "Programming Perl" by Larry Wall is a comprehensive guide to the language. It covers the basics of Perl programming, including syntax, data types, control structures, and modules. The book is known for its clear and concise explanations, as well as its examples, which make it accessible to both beginners and experienced programmers.

In summary, "Programming Perl" is an essential resource for anyone interested in learning or improving their skills in Perl programming. Its clear explanations and practical examples make it a valuable addition to any programmer's library.
Patrons should have the opinion to express their reviews or comments on the document available in the library. The expert comments or reviews have tremendous effect on the prospective readers of that book.

Source: University of Huddersfield, http://webcat.hud.ac.uk

Borrowing Suggestions

<table>
<thead>
<tr>
<th>Location</th>
<th>Collection</th>
<th>Class (Library) No</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oldham (NC)</td>
<td>Learning Resource Centre - 1st floor</td>
<td>668.0 XOB</td>
<td>Available</td>
</tr>
<tr>
<td>Oldham (NC)</td>
<td>Learning Resource Centre - 2nd floor</td>
<td>669.3 XOB</td>
<td>Available</td>
</tr>
<tr>
<td>Oldham (NC)</td>
<td>Reference Collection</td>
<td>698.3 XOB</td>
<td>In Cataloging</td>
</tr>
</tbody>
</table>

People who borrowed this item, also borrowed (show more or filter)
- Hypercharge: Why work? by Stacey, Nigel
- Managing people 2nd edition, 2001 by Wayman, Jane

Items with the same or similar subject headings

- Work and organizational behaviour understanding the workplace (2007) by Brandon, John
- Understanding organizations (4th ed., 1993) by Handy, Charles B.
- Organizational behavior (5th edition, international ed., 2002) by Luthans, Fred

Other editions for same titles and FRBR-based displays


Users will be happy to receive the suggestions given to them by Opac 2.0 like borrowing suggestion, which informs you about “person who borrowed this item, also borrowed”. This gives patron more references.

Source: University of Huddersfield, http://webcat.hud.ac.uk

Other editions for same titles and FRBR-based displays

Opac 2.0 should inform patrons about “Other Editions” and “Related Works” of records which are displayed. These features are generally spoken of using the Functional Requirements of Bibliographic Records (FRBR) standards.

Source: University of Huddersfield, http://webcat.hud.ac.uk

Email Alerts

Opac 2.0 should be powerful enough to interact with users on its own. For instance, it should send mails to the users based on captured interests of users. Opac 2.0 should be able to point to similar items available in the catalogue/internet to users while searching. It will make the users to feel comfortable in identifying the information they are looking for.

Alternative searching strategies

Showing tag Cloud
Source - University of Huddersfield, http://webcat.hud.ac.uk/perl/colour.pl

Searching the catalogue by the cover colour


Narrow By Call Number Range:
- B - Philosophy, Psychology, Religion (2)
- D - History (General) and History of Europe (1)
- E - History: America (3)
- F - America: local history (1)
- H - Social sciences (6)
- K - Law in general. Comparative and uniform law. Jurisprudence (2)
- L - Education (4)

Subject: Topic
- Potter, Harry (Fictitious character) (17)
- History and criticism (15)
- Wizards (13)
- Rowling, J. K. (12)
- Magic (11)
- Show More ...

Format
- Book (78)
- Software and Multimedia (6)
- Online (4)
- Videos and DVDs (4)
- Journal, Magazine, or Serial (1)

Source - North Carolina State University, http://www.lib.ncsu.edu

Criteria to narrow down the search
Search facility of Opac 2.0 should have the capacity such that it finds the exact catalogue record by the color (of the cover page) of the book where the user is confident about the cover color. Users can also be provided with search visualizations where the users can be left free from the typing the phrases, that were searched most. Users should be made aware of the resources available in other libraries that we are member or in www. Narrowing the search is also a vital facility given to users in Opac 2.0 which includes narrowing by call no., Subject: Topic, Material Type, etc.

Open source Software for OPAC 2.0 (OSO 2.0)

Web 2.0 developments are underpinned by third party (both commercial and open source software and open standards). They often use widely available components such as RSS, blogging tools and social bookmarking services (Stanely, 2008). According to the survey conducted by Marshall Breeding, Director for Innovative Technologies and Research at Vanderbilt University Library says that ‘most libraries use solutions from third-party commercial vendors, paying up-front fees and yearly maintenance charges... Still, some libraries, fed up with software that doesn’t fully meet their needs, have decided to take matters, figuratively, into their own hands. With a bit of grant money and some eager developers, institutions have begun creating their own open-source solutions that are fully customizable, free for others to use and compatible with existing systems’. This would result a whole crop of projects that, when combined, could serve as a fully integrated, end-to-end open-source solution for academic libraries, covering the interface, search mechanism, database system, citations and even course management. Following are some of the open source OPACs, some with web 2.0 features.

Scriblio

URL - about.scriblio.net/
Download - about.scriblio.net/download
Supporting – Wordpress

Scriblio (formerly WPopac) is an award winning, free, open source CMS and OPAC with faceted searching and browsing features based on WordPress. Scriblio is a project of Plymouth State University, supported in part by the Andrew W. Mellon Foundation.

• Free and open source
• Represents bibliographic collections — library catalogs and such — in an easily searchable, highly remixable web-based format
• Leverages WordPress to offer rich content management features for all a library’s content

VuFind

URL - www.vufind.org
Download - www.vufind.org/downloads.php
Supporting software required – PHP, MySQL

VuFind is a library resource portal designed and developed for libraries by libraries. The goal of VuFind is to enable your users to search and browse through all of your library’s resources by replacing the traditional OPAC to include:

• Catalog Records
• Locally Cached Journals
• Digital Library Items
Other Open source software

- Solr
- Blacklight

Conclusion

In 2004, the O’Reilly Conference on Web 2.0 described Web 2.0 as the use of World Wide Web technology and web design that aims to boost ingenuity, information sharing, and, most markedly, collaboration among users, also called as Communities of Practices (COPs). The concepts mooted at the Conference have added on to the development and evolution of web-based communities and hosted service. With 2.0 librarians and ILS vendors now have several architectural and technical solutions to cater their services to their end-users. This has certainly increased the ability of the Open source 2.0 tools that can support both Librarians and ILS in terms of economy and future library development.

References