Next Generation Catalogs

What Do They Do and Why Should We Care?

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Guest Columnist**

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Jenny Emanuel is passionate about the user search experience. She is young (well, younger than me) and her experience growing up with networked libraries informs her views. She doesn't rest on generalizing from herself or reading what Millennials want; she conducts usability studies and talks with a range of users to better understand which changes to library interfaces are improvements and which are just change. I asked her to set her views and research findings to paper after many conversations over our cubicle wall.—*Editor*

For the past several years, there has been much discussion about the future of libraries in the digital age. Most of this discussion involves librarians' fears that we are falling behind technologically in meeting our patrons' information needs. As a result we've begun work to transform libraries. We have built elaborate websites incorporating electronic resources, tutorials, and social media such as blogs. We have begun to digitize collections to make them more accessible to users at a distance. We have moved from print indexes and paper journals to a system of electronic resources, giving us instant access to a plethora of both scholarly and popular media with only a few mouse clicks. Although no one can argue that these systems are perfect and will not continue to evolve in the future, one library system has continued to remain relatively unchanged from the past decade: the Online Public Access Catalog (OPAC). Or to use the language of our library users: the catalog.

When I started library school seven years ago, no one questioned the library catalog and its status in the library; it was ubiquitous. I grew up with the catalog being networked in some capacity, and my visits to the library usually started with a text search on dumb terminal. There was no mouse and no navigating a fancy user interface; I navigated using a series of text commands to get to the proper menu to search for what I needed. Today that seems so simple, and as I look back, I liked how simple it was.

But information needs and expectations change, and by the end of high school I was online and searching for information in an entirely different manner. Websites such as Yahoo!, Amazon, and later Google, changed how I found information. Search engines replaced the reference librarians who previously seemed almost godlike at finding obscure pieces of information. I could find book summaries and tables of contents from Amazon that before I'd have to make a trip to the library to access. My information needs were evolving—because I both transitioned to college and spent an increasingly larger amount of my time on the Internet.

When I started library school, I knew I wanted to be a

librarian who focused on technology and how libraries will change as more of their resources go online. By then, most libraries had a Web-based catalog that basically displayed the same data in a similar manner to the earlier text-based online catalog. The difference was that this new online catalog allowed for hyperlinking between different records and had a shiny, colorful interface that made the library appear to be on par with the rest of the Internet world.

However, there were definitely grumblings about the online catalog in some library circles. It did not take long for librarians to realize that search engines such as Google and Amazon were getting better at meeting information needs while the library catalog remained static. Librarians assumed that the catalog could not change because of the underlying data; the complexity of a system that usually included acquisitions, catalog, and circulation modules; and the tangible and intangible costs associated with ongoing development. As an added bonus, library catalog vendors, knowing that they had no outside competition, continued implementing systems that were static at the time of installation and would remain static until the next major installation, which could be years in the future. Librarians did not like this system, but there was little that could be changed, since no library had the resources to develop its own online catalog. Nor did they have the resources to compete with the online retailers and search engines that were revolutionizing the way people searched and found information—leaving libraries behind.

THE NEXT GENERATION CATALOG ARRIVES

Then, in 2006, North Carolina State University announced a partnership with a commercial search corporation, Endeca, to develop a new catalog interface to overlay on top of their current catalog data. The Endeca project made libraries realize that yes, the current catalog systems are not user friendly, and yes, we can do something about it. It also made library vendors worry about outside competition and set them on a course to develop their own competing systems.

These systems were quickly dubbed "next-generation" or "nextgen" catalogs. They allowed the online catalog to break free of the rest of the library system and enabled libraries to make customizations to the catalog interface and make the search for library materials easier on users. However, these systems are not the end all to library catalogs. They are not Amazon, and libraries are still burdened by the template of the MARC record, which may not have all of the data patrons want to see about an item and may constrain the useful display of the data. Nextgen catalogs are a solution that libraries can use to make their materials easier to access and also to create some flexibility to improve the catalog in the future.

In the four years since NC State's Endeca Project, many major library vendors have come out with their own version of a nextgen catalog interface: SirsiDynix's Enterprise, Ex Libris's Primo, Innovative Interfaces' Encore, VTLS' Visualizer, and Serials Solutions' Aquabrowser. There are also several open-source initiatives as well, including VuFind, Scriblio,

Blacklight, and the eXtensible Catalog Project. OCLC also has developed WorldCat into a local catalog and is using WorldCatLocal as a launching point to a new integrated library system. Most of these interfaces used not only a new user interface, but bring in streams of data to supplement the MARC record information, as well as integrate social media functions.

LONG LIVE THE OPAC

These new products are simply catalog interfaces. They are not integrated systems and therefore rely on antiquated back-end systems for functions such as acquisitions and cataloging. Therefore they still have many of the same issues online catalogs have had for years, but display the data differently. I cannot help but be especially critical of the nextgen catalogs provided by the major OPAC vendors because they are distributed as an additional product that libraries must purchase on top of their current system. I believe that vendors should be supplying these new interfaces as an upgrade to their current systems. However, because nearly all libraries already have an integrated catalog system that works for them and are not in a position to adopt a new system, nextgen interfaces have become an income stream for vendors.

Because libraries must pay to adopt a nextgen interface, not all library users have access to a catalog that is user friendly. I am beginning to see nextgen interfaces as a new digital divide between libraries. Ten years ago this divide was between automated and nonautomated libraries, and five years ago the divide was between online graphical OPACs and text-based OPACs. In the next several years, there will be a bigger divide between libraries with usable online catalogs and catalogs with outdated, clunky interfaces. Open-source nextgen catalogs may appear on the surface to bridge this widening divide, but it is important to note that open-source does not mean free; rather, open-source implementations can involve many personnel and large amounts of hardware that could near the cost of purchasing a commercial product.

CHARACTERISTICS OF NEXTGEN CATALOGS

Nextgen catalogs are more useful as discovery tools than a mechanism to search for something specific. They are arranged to conduct broad keyword searches without limiting until after the results are displayed. There also is less of an emphasis placed upon locating a specific item and more emphasis on discovery using a broad search that is then refined until the user finds an item that suits their information need. Nextgen catalogs, in some respects, are about the search experience rather than locating a specific item.

The first major difference that a nextgen catalog has from the traditional catalog is the interface. It is usually much simpler and displays the catalog data in a format that is easier on the eyes. The color palette usually has subdued, Web 2.0 feel with shading and a lot of graphics. Many catalogs use icons to indicate item aspects of format, search ranking results,

and circulation status. They also are more likely to pull in visual data from an outside source, such as cover images and a graphical rating from Amazon or LibraryThing.

Pulling in outside data is a cornerstone of the nextgen experience. Amazon presents a wide range of information about a book to give a user a large amount of data to determine if the book is worth purchasing. In turn, library users have demanded that the catalog give them similar data within an item display so that they can determine if an item is worth checking out. Simply put, Amazon has allowed media consumers to become picky consumers, which in turn has made them a popular media source. Libraries, to compete with Amazon, have found that adding additional information about an item helps users make a better decision as to what items they want to check out. Fortunately, Amazon, Google Books, and other services have allowed their data to be licensed through an application programming interface, or API, and libraries in turn have added this outside data to the catalog. As a result, a characteristic of a nextgen catalog is the ability to either contain or link to such elements as reviews, tables of contents, and item summaries.

Nextgen catalogs also change the terminology that has been part of searching for library materials since the print card catalog. Users do not necessarily understand awkward terms such as record, OPAC, audiovisual, and Library of Congress Subject Heading. As a result, the nextgen catalogs often use terms such as description, item locator, specific media formats (DVD, CD, etc.), and subject. There also is an emphasis placed on keyword searches as the default, as users tend to understand "keyword" to mean an "all word anywhere" or a search for items about a particular topic. Additionally, less emphasis is placed on number searches such as ISBNs or call numbers because most users do not understand how these numbers work.

What I consider to be the most exciting aspect of nextgen catalogs is their ability to search like a user searches, not search like a librarian. As we know, librarians develop a search strategy before actually searching. This can take many forms, including limiting a search to a particular format, to an author, or to a specific title, which is done by using limiters on the main search screen of a catalog. We also may compose a more complicated search using a Boolean search or searching for a specific subject heading. However, users do not search like librarians. They are accustomed to entering a keyword in a single search box, seeing what comes up, and then limiting on the basis of the results. Nextgen catalogs let users search in this manner usually by displaying a sidebar on the results screen that allows users to limit simply by clicking on such options as format, subject, date, author, or title. The ability to search first and refine later is perhaps the most controversial element of the nextgen catalog because it is a major departure from traditional searching techniques. But from my observations I see that it is the feature users most appreciate.

Finally, nextgen catalogs are utilizing social media features such as tagging, user generated reviews, links to similar items, and the ability to create lists. All of these features are

LIBRARIES AND 2.0: THE TWITTER–FACEBOOK SHOWDOWN

Twitter: Last week I found out via a Twitter announcement (a tweet) that a local restaurant had halibut as the nightly special. It got me into a restaurant that I had not been into for awhile. The 140 character messages via Twitter are a great way to reach a network of people that have chosen to follow a person, business, or library. Announcements about events are an obvious application. New books, resources related to current events, and even community news are a few other things that libraries are tweeting about. A Twitter feed can be directed to post to a blog, webpage, or Facebook so that even people (such as myself) who do not have Twitter accounts can view a library's tweets.

Facebook: Good for keeping track of people you know, playing games, and taking quizzes on your personality as defined by the type of underwear you sport. Some people (myself included) visit Facebook daily. Some visit obsessively. But what they are doing there doesn't seem to mesh well with the ways libraries have tried to use it. There are Facebook apps for searching library catalogs and for contacting your librarian, but Facebook is about fun and connections, not about research. The best match seems to be using Facebook in the same way as Twitter: to announce library events, new books, and community news through status updates.

Showdown winner: Twitter. But don't abandon Facebook—send your Twitter feed to post to your Facebook status update.

common to users of Amazon and many other online retailers, and all help users determine if an item is appropriate to their information need. These features are also dependent on actual use by individuals, though, because they have been used elsewhere for several years, there is optimism use will carry over to the library.

THE USABILITY OF THE NEXTGEN CATALOG

Now that nextgen catalogs are becoming increasingly commonplace among libraries, librarians are beginning to look at their usability to determine future directions of the catalog. The usability testing that I have seen reveals that library users are generally excited about any changes to the online catalog to make it more user friendly, but there is also evidence that they want librarians to continue to develop and transform the catalog.

I've recently conducted some intensive usability testing on two nextgen catalogs, VuFind and WorldCatLocal. VuFind

is an open-source catalog interface developed by Villanova University. It overlays current catalog data and redisplays it similar to what I described above and includes a sidebar called "facets." The Consortium for Academic Libraries in Illinois installed VuFind and offered it to interested institutions, and the University of Illinois is looking at it on a trial basis. WorldCatLocal is a product by OCLC that uses WorldCat data instead of catalog data. It is being looked at as a pilot project throughout Illinois, but the University of Illinois has opted to not yet make it publically available. I asked users typical of a large university library, including faculty, staff, and graduate and undergraduate students, to perform a variety of searches in each interface and to let me know what they thought.

Overall, users were very excited and were willing to accept anything other than the traditional catalog. They appreciated the new interfaces as being more streamlined, easier to read, and more graphical. Users were most appreciative of the features that allowed them to simply search by a keyword and then limit the results after their initial search, though they were often confused by the search limiting options, which showed that the catalogs still use jargon only librarians understand. Users that did not have extensive searching skills were more likely to appreciate the search first, limit later approach, while faculty members were faster to get frustrated with this technique. However, only two users out of fifty specified that they would prefer the traditional catalog to either VuFind or WorldCatLocal.

The undergraduates generally had the least comfort with searching library catalogs, and they had the most fascinating responses. Although they appeared more tolerant of limitations within the nextgen catalog, they spent less time looking for what they wanted and also had less of an understanding of keyword searching. These searchers were less likely to spend time just browsing for an item, especially if it meant using more than one limiting term or looking on more than one results page. It was apparent that they were used to putting in a text string and getting what they wanted, as they do with a Google search. If they did not get what they wanted, they quickly assumed the library did not have what they were looking for.

Another aspect of nextgen catalogs, the social media functions, also was included in the usability testing. VuFind has a simple function for individuals to create lists as well as tagging and reviews of individual items. WorldCatLocal also includes tagging, reviews, a complex system of user-created lists, and a "browse similar items" feature. Users really like the create-lists function, especially within WorldCatLocal, because users can create multiple lists and share them with other users. Similarly, the browse similar items proved useful to nearly all users. However, results were mixed about tagging and reviews. Only about half of those asked even knew what tagging was, and while most thought it is a useful addition to the catalog, they also admitted that they probably would not tag individual items. As for reviews, most users appreciated that they were available and that they could leave reviews, but there were many concerns about the authority and thoroughness of the reviews themselves.

It looks to me as if the nextgen catalogs are better for those who already had a basic understanding of library catalogs, but not for those who currently find most of their information with Google. During the testing, users were generally happy with the results when they searched for a broad term, but they were not happy with results for more specific searches because often they had to further limit to find what they wanted in the first screen of results. Nextgen catalogs do not currently have a search algorithm that is robust enough to pull up perfect results every time. This shows that commercial search engines are more advanced than library search engines. It also probably means there are problems with the back-end data. Much more research will have to be done to improve searching, and I am not sure libraries have the resources available to complete such research. Additionally, such research could potentially revolutionize libraries, searching, and metadata in the future, and I am not sure the profession is ready for another momentous shift in our culture.

The nextgen catalog movement is another aspect of how libraries are changing in the digital era. Online catalogs were slow to change because of their complex nature, but now that changes are being made that are perceived as useful to patrons, they should only continue to improve. I feel that the current nextgen systems are only the beginning and they will lead to larger changes on the horizon, such as OCLC's recent announcement that WorldCatLocal will be the cornerstone of a new integrated library system and the eXtensible Catalog Project's goal of uniting library digital resources under one interface and integrated into existing information delivery mechanisms.

SOURCES FOR NEXTGEN CATALOGS

Vendor Products

Aquabrowser, Serials Solutions (www.aquabrowser.com)
Encore, Innovative Interfaces Inc. (www.encoreforlibraries.com)
Endeca and NCState Project (www.lib.ncsu.edu/endeca)
Enterprise, SirsiDynix (www.sirsidynix.com/Solutions/Products/portalsearch.php)
Primo, Ex Libris (www.exlibrisgroup.com/category/PrimoOverview)
Visualizer, VTLS (www.vtls.com/products/visualizer)
WorldCatLocal (www.oclc.org/worldcatlocal)

Open-Source Products

Blacklight (http://projectblacklight.org)
eXtensible Catalog Project (www.extensiblecatalog.org)
Scriblio (http://about.scriblio.net)
VUFind (www.vufind.org)