Library 2.0 or Library III: Returning to Leadership

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Abstract

With the advent of what has been referred to as 'Web 2.0' in 2004, libraries have been anxious to use interactive, social networking tools to create something many have called 'Library 2.0'. This paper posits that Web 2.0 and Library 2.0 are not radical departures from the past and that social networking tools have little relevancy or user take-up in the context of academic libraries. There was a revolutionary shift for libraries in the late 1960s when libraries pioneered enhanced services using computer technology. This shift the authors call 'Library II' to distinguish this new age of libraries from the old and in contradistinction to 'Library 2.0'. The Internet and libraries are now at a stage where the development of what Sir Tim Berners-Lee calls the Semantic Web, could lead to what could be 'Library III', where library leadership and resources can again be a key in developing and exploiting the resources of libraries and the digital world.

Purpose – Critical review of 'Web 2.0' and 'Library 2.0' applications and proposal of a redirection of resources towards Semantic Web developments.
Design/methodology/approach – Historical review of library development and new technology.
Findings – Acceptance by the public of 'Library 2.0' applications has been low. Social networking tools do not contribute to the core mission of libraries.
Originality/value –
Keywords: Web 2.0, Library 2.0, Library III, Semantic Web, Social Networks.

Category: Viewpoint

1. Web 2.0: Are we there yet?

In the beginning there was the Internet and it was good. Then came the World Wide Web and it was better. Then came the dot-com bubble. Tim O'Reilly and John Batelle looked at the survivors in 2004 and saw in them an evolutionary triumph that they identified as Web 2.0 (O'Reilly, 2005). The concept developed into a marketing conference, the conference became a bandwagon, and many jumped on board. The new Web is described as participatory, interactive, instantaneous, always on, and has developed 'Social Media' where people can connect and share the personal and day-to-

day details of their lives with old friends, new friends, and complete strangers. Corporations and institutions were urged to embrace the 'new Web' and interact with their customers and clients if they wanted to be as successful as Amazon or Google. But, was there really a new Web, one that was different from the old Web? According to Tim Berners-Lee, 'Web 1.0 was all about connecting people. It was an interactive space, and I think Web 2.0 is, of course, a piece of jargon.' (Berners-Lee, 2006). When Berners-Lee built the World Wide Web in 1991, he intended it to be read and written to but only his NeXT browser could do both. This did not stop early Internet and Web users from talking to each other: Before the Web, computer users relied on bulletin board systems (BBS) and Usenet, developed in 1980, to communicate with early communities of computer users. An early 'instant message' system, CompuServe CB Simulator was developed in the 1980s. People met and got married on it. Mick Jagger gave a conference on it. People without technical skills could put up their own Web pages on GeoCities. Started in 1995 and purchased in 1999 by Yahoo for $3.57 billion, GeoCities had over 38 million accounts and as many as 15 million visitors at its peak. Not able to find advertisers and unable to develop new applications to compete with Flickr, blogging, or Facebook, it closed in October 2009. Mosaic Netscape 0.9 was released in October 1994, followed by Windows Internet Explorer and the first wiki in 1995. Google went online in 1998 and a year later the news-pushing RSS feed and blogging began: blogger.com was developed in 1999 and was purchased by Google in 2003. What is now the Internet Movie Database (IMDb) began on Usenet's rec.arts.movies in 1989 with lists contributed by movie fans, expanding to the Web in 1992 before being purchased by Amazon in 1998. In 1999 Amazon applied to patent a 'method and system for conducting an electronic discussion relating to a topic', granted in 2003.

As Berners-Lee said, the Web has always been about interactivity. What is different between 'Web 1.0' and 'Web 2.0' is the scale and the speed: at the height of the dot-com bubble in March 2000 the number of Internet users worldwide was 304 million, just 5% of the world's population. When the first Web 2.0 Conference was held in San Francisco in October, 2004 the number of users had grown to 812 million, 12.7% of the world's population. In June, 2009 it had grown to over 1.6 billion, a quarter of the world's population (http://www.internetworldstats.com/marketing.htm). Speed and lower computer costs brought millions to the Web: Google has 3 billion searches a day, Facebook has 124 million monthly visitors, and Wikipedia has over 684 million visitors annually and 75,000 authors. By the middle of 2008 the number of broadband users had risen to over 382 million users worldwide, almost 6% of the world population (Vanier, 2009). Without broadband, YouTube (founded in 2005), Twitter, Facebook, Flickr (founded in 2004) and film and music downloads would be too slow to have become the popular entertainment that they are today. The Web before 2004 was limited to the technology adept users of the American and European middle-class. The Web of today is global, cheap, and consumer-based. Web-enabled smartphones like the iPhone, 3G and wi-fi service add another dimension of convenience: the Web is not only always on but always with you as well. EbscoHost and Summon™ have recently released applications for mobile telephones and JSTOR is developing an iPhone application. Most of the university catalogues in Hong Kong can be accessed by UPLA, the Universities and Public Libraries Assistant, an iPhone app developed by the Technology Transfer Office at the University of Hong Kong.

2. Library 2.0 or Library II?

The term 'Library 2.0' was first used in 2005 by Michael Casey (Casey, 2007). Subtitled 'A Guide to Participatory Library Service', it is in large part a management guide that posits Library 2.0 as a concept that empowers the user, encourages constant

change, and reaches those who do not use libraries. Just as 'Web 2.0' implies that it is radically different from an earlier Web, 'Library 2.0' implies that it is also radically new. However, all of the 'Library 2.0' concepts of a participatory, 'client-centred', 'user-centred', 'patron-centred', or 'people-centred' library have always been a part of librarianship: one of the earliest issues of *Library Journal* in 1876 had an article on 'Personal Relations between Librarians and Readers' (Green, 1876). Even Michael Casey recognised this when he quoted a statement by John Cotton Dana, written in 1896, that encouraged librarians to make their libraries interesting to the people who used them and as attractive as the best retail shops in the community (cited in Crawford, 2006, p. 7). Dana (1856-1929) was a pioneering American librarian who opened library stacks to patrons, established the first children's library room and special collections for business people and for immigrants. Long before any '2.0' concept, libraries had already opened their doors to longer hours, their catalogues to the Web, their databases to remote access. They set up computer labs and information commons, group study rooms and cafés, took library instruction into the classrooms, set up booths at campus fairs, sent out e-mail and SMS alerts, hosted lectures and exhibits and were active participants in the campus and broader community. In *Library 2.0: Initiatives in Academic Libraries* editor Laura B. Cohen says that 'Library 2.0 is a response to Web 2.0, the revolution in the way people create, edit, search, evaluate, organize, and share information. In contrast to the surfing-based environment of Web 1.0, Web 2.0 is characterized by networked communities on which users contribute content, interact, and collaborate.' With Web 2.0, 'libraries become socialized institutions. Active participation on the part of users is seen as *essential* [our italics] to the process of research and learning' (Cohen, 2007). User participation is certainly essential in learning, which is why we advocate embedding information literary into course work rather than continuing static and one-sided sessions of what used to be called 'bibliographic instruction'. Whether students or faculty see the

library as a 'social institution' is questionable. They do value the library as a place, they honour it with gifts of money and books, they participate in 'Friends of the Library' and reading groups, but these are ancillary to the mission of the academic library as a place of research. To students it is a question of appropriateness: the most recent EDUCAUSE study of student computer use found that 94.6% of students use a university or library Website, 90.3% use social networking, 89.9% use course management systems, but only 27.8% use social networking for academic use (Smith, 2009). Libraries are many things, but they are not social networks. They may be important to faculty and to students and they may be highly valued, but they are no more part of user's social networks than are their academic department or scholarly association. People may add or become fans of libraries and bookshops and other institutions on Facebook, but they are still not part of the circle of friends – people, not institutions – that constitute a social network. It is simply inappropriate. A survey of students at the University of Michigan in 2007 found that less than a quarter would connect with the library via Facebook and 14% were adamant that social networks should be distinct from academic work (http://onlinesocialnetworks.blogspot.com/2008/01/data-students-facebook-library-outreach.html). An OCLC study of public attitudes towards social networking in libraries found even less interest, with fewer than 10% of respondents being interested in participating (*Sharing, Privacy and Trust,* 2007). Faculty needing answers to difficult questions or who need to share a new discovery turn to their academic electronic mailing lists or to online, peer-reviewed resources such as RePEc (Research Papers in Economics). Prominent email addresses for library contact, or the use of various chat programmes may facilitate faculty contact with librarians but would not be a replacement for the shared knowledge of the specialist community in an electronic mailing list.

The rush of academic libraries to put themselves onto Facebook or to purchase public catalogues that allow for tagging and user reviews has to be weighed against the

very low participation of their targeted users. Setting up a Facebook account or a wiki is simple and has little impact on resources even if they are not used by your target audience. Implementing community tagging in an OPAC requires more resources in acquisition and in moderating, and needs to be balanced against the benefits it might bring to users. In 2009, Tim O'Reilly and John Battelle released a new publication, *Web Squared: Web 2.0 Five Years On*. In it they noted that people assumed that 'Web 2.0' was a software metaphor for a new web, rather than a 'statement about the second coming of the Web after the dotcom bust.' They maintain that 'Web 2.0 is all about harnessing collective intelligence' but this is based not a few community tags but on 'managing, understanding, and responding to *massive amounts* [italics ours] of user-generated data in real time' (O'Reilly, 2005). The idea is to use that data to understand your users and respond to them. Libraries and ILS vendors that stop at tagging and blogs and user reviews are only at the surface of what O'Reilly would now consider to be 'Web 2.0': libraries that are not getting comments on their blogs and Facebook pages are not getting the data that they can use to improve or target services. And for academic libraries that have implemented tagging and user reviews, the miniscule number of tags or reviews bring added by their own users or the uncritical reviews bought in from LibraryThing, a social networking site for booklovers, add little if any benefit to the libraries or their users. Although the Library of Congress Working Group on the Future of Bibliographic Control advocated allowing users to tag entries, the results have been disappointing. Most user-supplied tags simply replicate title, author, or existing subject keywords. Other tags are idiosyncratic to the tagger and irrelevant to the content. Unique terms that could enhance access are rare and because of their rarity, lost in tag clouds. And, in many library implementation of tagging, the tags are not searchable. Library of Congress subject headings can be obscure, but they are logical and systematic. The existing studies on tagging find that while there are far more tags assigned to books in LibraryThing than

by the Library of Congress (45 vs. 10 keywords), the user-supplied tags are far more general and often overlap in concept, while at the same time they lack the specificity of dates, regions, and concepts that make the LCSH so useful (Rolla, 2009). And, as Rolla also points out, LibraryThing has lots of tags for popular books and few for rarer titles. The books in academic libraries have very few readers and their users would be better served by traditional methods of cataloguing and by the traditional methods of scholarship: bibliographies, citations, and knowledgeable reviews. The problem for a user lies not in the limitations of LC headings but in the lack of information in a bibliographic record, a problem that does not exist in full-text searchable journals and books.

3. The Tree in the Forest

The authors examined academic library Web sites in their home areas of New Jersey and Hong Kong to see the extent of adoption of 'Web 2.0' applications, and, where possible, the success of any implementations as measured by user numbers and interaction. The graph below shows the library specific implementation of various Web 2.0 technologies among the 52 New Jersey academic

libraries:

Web 2.0 Adoption in New Jersey Academic Libraries, January 2010
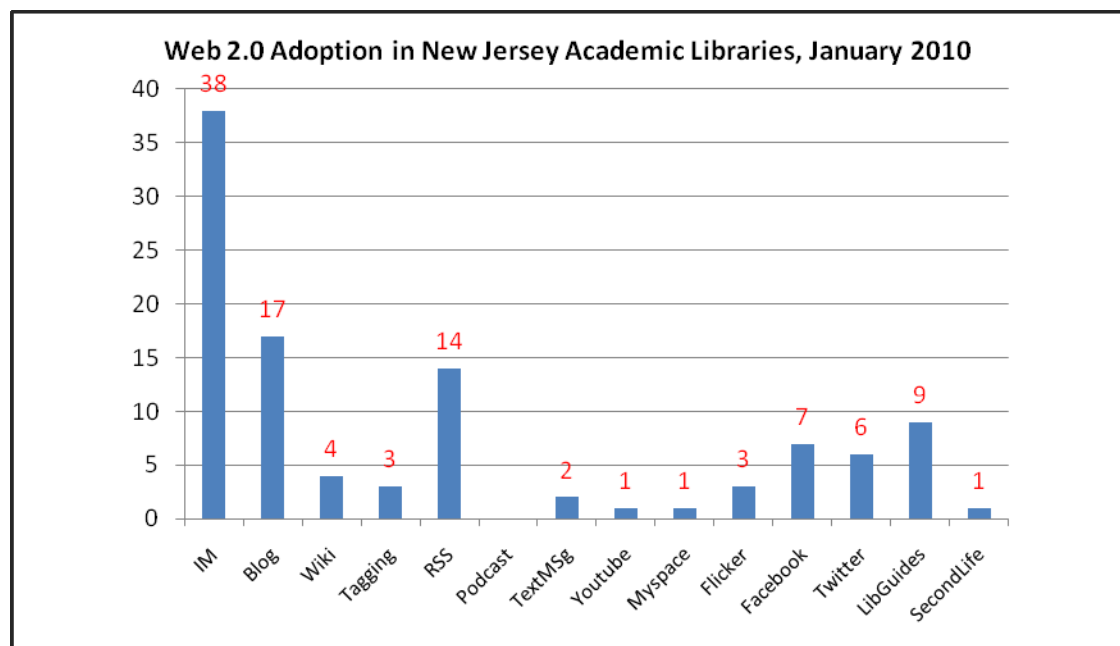
Instant messaging (IM) has been adopted by 38 libraries, either on its own or via Q&ANJ, a state-wide network service. Real time online reference service could actually aid students in the act of seeking information. Only 10 of the 38 libraries clearly show the chat widget/window at the library website. At the other libraries the chat widget/window is hidden, taking at least three clicks to get to it. Chat reference will be more effective if it is provided at the point of need. None of the libraries in New Jersey has integrated chat reference into the library catalogue page. In contrast, the Topeka & Shawnee County Public Library in Kansas has implemented chat reference widgets at the catalogue "no record found" page and "Search result page", giving users opportunities to ask questions when they could not find what they were looking for. Two New Jersey libraries provide 'Text librarian' services and one library has secondlife link but it is still under construction.

Currently, 17 libraries have adopted library blogs. Fourteen of them are used for general informational purposes, providing news, introducing new services or announcing library hours change in the library. Very few have comments from readers.

Two libraries created blogs with a specific purpose: one uses a blog for course assignment help and the other one uses it for their EndNote User Group.

In order for a blog to be successful, content is important but if interaction is the key to Web 2.0, the comments left by users are vital if they library wants to understand its users. Library blogs that simply repeat mundane library news do not encourage interaction. Blogs that provide a definite service attract readers and interaction. One good example is UMDNJ's Endnote Users' Group Blog (http://umdendnote.wordpress.com/). Not only has the blog has formed a community, but also it has attracted many users outside of UMDNJ. Since June 2008, the blog has received over 40,000 hits. Blogs are a communication tool, not just a technology application and should be useful, engaging and interesting.

RSS (Really Simple Syndication) automated feeds, if properly implemented, are a marketing tool that can promote the use of a library's collection by keeping subscribers informed of library news and new acquisitions. According to Marshall Breeding, "RSS ranks as one of the top technologies for distributing content" (Breeding, 2009). He made the point that providing the feed which represent special interests to users is an important marketing way to attract the users back each time the library adds new content. He also mentioned that "Think of RSS as a syndication service to distribute content as well as an advertising ploy to entice potential users to visit your website."

There are 18 libraries in New Jersey that use RSS feeds. Thirteen used the feeds for library news. Some of the RSS feeds are taken from the library blogs, which combined everything, such as changes in library hours, events, library instruction announcements and new resources. Only three libraries used it as library new resources (books, videos) feeds. Two libraries provided RSS feeds to outside sources, one for the *New York Time* and one for the *Chronicle of Higher Education*. The number of subscribers to the library RSS feeds is unknown. One could imagine that while some users would want

to be kept informed of new acquisitions, few would probably want daily library news updates, and those wanting *New York Times* or *Chronicle* news would probably obtain the links at those Web sites.

The main purpose of Facebook and Twitter is to connect friends with friends on a regular basis. An increasing number of libraries have established Facebook pages hoping to leverage this social media to increase their online presence and be part of the Web 2.0 world. In New Jersey, 11 of the 52 libraries have Facebook pages. There is almost no interaction in the form of comments or 'liking' on the library pages. The number of fans ranged from 11 to 326. To give some idea of scale, the academic library with the most fans is Princeton's, but the separate Princeton University Facebook page has over 10,000 fans. The Rutgers library page has 154 fans while there are over 7,000 on the University page and another 5,000 on the Rutgers alumni page, numbers that are still small compared to Rutgers annual enrolment of over 54,000.

The commercial world has lately come to Facebook with much more success. Lands' End, the American mail order clothing company, has 254,000 fans. Every status update they post has a hundred or more 'likes' and dozens of comments. Their 'outside story' page lets fans post photos and stories about themselves. The 'outside story' is also a Facebook application that provides Lands' End more contact information, as those who post to it must open their list of friends to Lands' End. See's Candies, an American confectioner, has almost 30,000 fans. A post on their page on 19 January asking if anyone had a favourite chocolate received more than 300 comments within a day. As a marketing tool, Facebook can provide a savvy firm with feedback, serving as a free, daily focus group that must be immensely valuable to the firms. If you scan the fan photographs on See's or Land's End you see that they are older, not younger, adults, reflecting the aging demographics of Facebook members. On the academic side, one of the most popular library databases is JSTOR. JSTOR is searchable by Google and

perhaps that is one reason it has over 44,000 Facebook fans, many of whom post comments asking for access to the articles they found via Google. JSTOR, to its credit, responds to those comments, seemingly at all hours of the night, directing scholars in the developing world to local libraries with JSTOR access or helping students find out how to use their local campus proxy server to access JSTOR from off campus. The JSTOR support group on Facebook provides much the same kind of assistance that librarians provide face to face in the physical world and perhaps it is because library users can work face to face with their own librarians on a daily basis that makes social networking and virtual reference less attractive to them.

Facebook in New Jersey Academic Libraries, January 2010
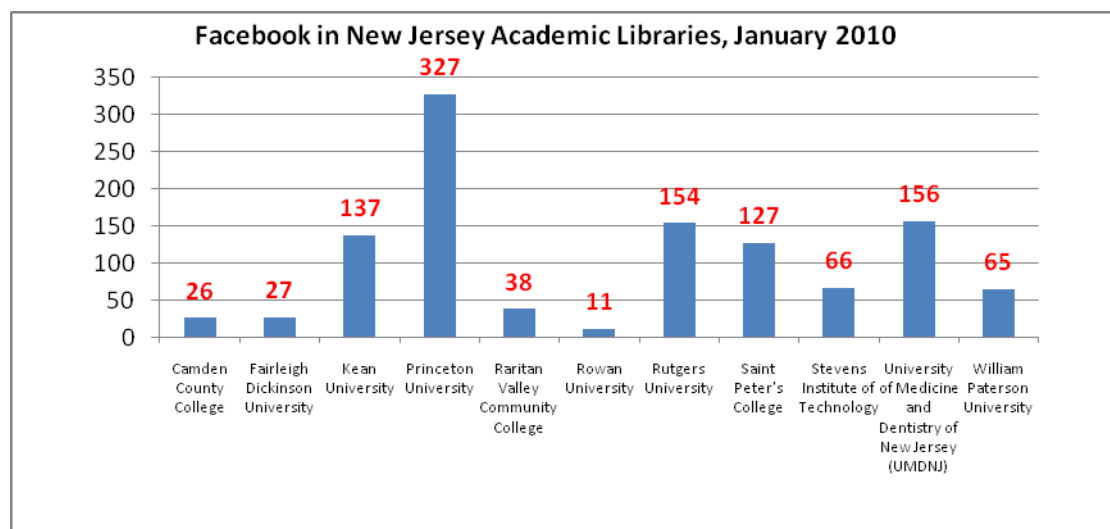
It makes little sense to create another page where your users can get the same information they can from your web site or RSS feed. Some libraries have even eliminated the Wall and the Discussion Board, turning Facebook into a one-way communication.

Twitter sometimes goes hand in hand with blogs and Facebook. Among New Jersey libraries, there are six libraries currently using Twitter. Twitter is a two-way conversation tool. Its purpose is to replying to those who tweet you, to find out if the friend you're are going to meet for lunch is in the library, not to read library news. The number of followers at New Jersey academic libraries ranged from 39 to 341. The lack of

followers of library tweets demonstrates, again, the inappropriate use of a social tool for an institutional purpose. Even JSTOR, with its successful Facebook page, has only a thousand Twitter followers, its tweets offering occasional links to free JSTOR articles apparent not sufficient to attract followers.

There are eleven academic libraries in Hong Kong, eight funded by the government and three independent. Ten of the libraries uses Innovative Interfaces for their catalogue and three of those use Innovative's 'Web 2.0' Encore interface, with two of them using '2.0' as part of the designation for the new interface. Encore allows tagging and comments but the tags are not searchable. One library uses Scriblio, another 'Web 2.0' catalogue as its interface. The Scriblio implementation allows for comments but not for tags. The most recent comments appear on the initial Scriblio results search page. In a recent search in January 2010 there were only five comment headings displayed and most dated from 2008. All but one were comments on the implementation of the catalogue. There were very few tags or comments in any of Encore implementations. The Harry Potter series is as popular in Hong Kong and in academic libraries as it is in the rest of the world, so a brief examination of Harry Potter titles was used for a sample. Only a few Harry Potter books were tagged, some with 'hermione' and one with random letters, as if in a test of the system. Several of the library catalogue entries feature book cover images and links to Amazon. One Encore library has reviews pulled in from LibraryThing and other sources, including many from public libraries. Appropriateness is an obvious problem here: gushing reviews by pre-teens of *Harry Potter and the Deathly Hallows* from LibraryThing or a public library catalogue may be useful in a study of readers and reception but less useful for someone looking for academic guidance.All of the libraries have an 'Ask a Librarian' form for submission but chat or IM reference was not available at any of the Hong Kong libraries, perhaps because there is less observed use of IM by Hong Kong students. One did provide a 'Text a Librarian'

number and SMS is commonly used for library notices in Hong Kong. One library has a link to its Second Life site, but when one of the authors teleported there the space was empty of buildings or people. The video preview of the Second Life site provided far less of an experience of that library itself than a YouTube video, with the real library and real people, would have done.

Several of the Hong Kong libraries make use of blogs and wikis as easy alternatives for posting library news and video links. The authors did not observe any comments on blogs and wikis that allowed for comments. In terms of viewing, one university library has very successful blogs, particularly for its reviews of resources of interest to faculty in music, medicine, and education, the number of views running from 200 to over a thousand. Three libraries have Facebook pages, with between 100 to 700 fans on their Facebook page, but very little interaction in terms of wall posts or 'likeing'. In comparison, there were student-initiated Facebook pages for six of the universities, with 2,000 to 11,000 fans and considerable interaction. As a method for libraries to reach students with news, putting up Facebook pages may be less effective than campus email: Facebook changes its default display with an annoying frequency, but at present (January 2010) only 'Status' updates from friends appear on the default Facebook page. To see new entries from 'Pages' the user has to click on 'News' and to see entries from 'Groups' the user has to go to the 'Group' page.

Obviously, libraries want to be where their users are and for many libraries those users are young adults and university students, who, we are told, are comfortable with social networking and virtual reality (Bell, 2008). The most active library in the virtual reality world of Second Life is the Alliance Library Systems, now Alliance Virtual Library, of Illinois. Their Facebook page had just under 200 fans in January 2010 and most appeared to be older than the target group and affiliated with libraries or library schools. Tracing some of the fans led us to a Flickr page for the Renaissance Island Second Life

where there were lots of photos but only 13 members and the last post was 22 months ago. Floating about libraries in Second Life, the authors did not find any other visitors and often found the sites contained nothing more than signs that simply linked back to the sponsoring library's Web site. The Topeka and Shawnee County Public Library cited above for its proper use of IM help in its catalogue is also noted for their use of Web 2.0 tools. They have Facebook, MySpace, Twitter, and Second Life links, but their Facebook fans number just over a thousand from an area that has over 167,000 residents and a circulation of over two million volumes. Certainly, in the lack of user participation in Web 2.0/Library 2.0 interfaces what we have seen is failure on a massive scale rather than the stunning success that its advocates predicted. Steven Bell in his article "Design Thinking" stated that many libraries are employing new technologies without due consideration of the costs, benefits, and appropriateness:

> Whether it is owing to a lack of time, a desire to quickly implement new technologies, or allowing bandwagon mentality to rule, rarely do most of us allow sufficient time to carefully design a strategy for technology innovation. Not only do we likely fail to conduct an analysis to first determine the feasibility of a new technology application, but we rarely take the time to adequately determine if our users would value the new service. In a nutshell, our approach is to identify a solution before we fully understand the problem. (Bell, 2008)

4. 'Library 2.0' vs. 'Library II'

If there is contention about the existence of 'Web 2.0' there is also some about the concept of 'Library 2.0'. Walt Crawford, who has about the same depth of historical perspective that Adam and Eve would have if they were alive today, was one of the first critics of the concept and his arguments bear reading (Crawford, 2006, 2009). Crawford makes a distinction between what he calls Library 2.0, without quotes, and 'Library 2.0'

within quotes, the former being a concept of constant improvement, something that most libraries are committed to, while 'Library 2.0' he sees as a confrontational movement with no real substance (Crawford, 2006, 1-2). Crawford's 2006 article is a lengthy critique of 'Library 2.0' in which he examines the various statements and blogs of Casey, Farkas, Talis, and other 'Library 2.0' proponents, exposing flaws and inconsistencies. Like 'Web 2.0', 'Library 2.0' is a slogan without substance. Crawford updated his article in 2009, finding little had changed in terms of user acceptance of 'Library 2.0': public library blogs that he examined had few comments and academic library blogs even fewer, with a median number of zero for both (Crawford, 2009). Crawford also notes the lack of empirical research on 'Library 2.0' initiatives, both on their need and on their effectiveness. Xu, Ouyang, and Chou studied the adoption of 'Web 2.0' in academic libraries in New York but what is really needed is a study of the effectiveness of those implementations (Xu, C., Ouyang, F., and Chu, H. 2009).

Our contention is that 'Library 2.0' is ahistorical and ignores the development of libraries in the 20th century. There is a division between libraries as they existed up until the late 1960s and the libraries of today. Earlier libraries concentrated on service and on users but lacked the technology to provide the kind of service expected today. Having to do original cataloguing for every book acquired, typing catalogue cards or purchasing sets of cards from the Library of Congress limited the number of discovery points libraries could provide to patrons. After the introduction of MARC and the spread of computer technology, libraries became driven to exploit that technology and change the depth and breadth of service they could offer. To differentiate our concept of the changes we see, we shall use Roman numerals to distinguish our definition of library eras from that of 'Library 2.0'. There was a 'Library I', an era that lasted from antiquity until the late 1960s. It was user-centred and service-focused even then: remember that the Melvil Dewey called the first American library school, founded in 1887 at Columbia University,

the 'School of Library Service', a designation also adopted in 1960 by the University of California in Los Angeles for its school of librarianship. Library II could be said to have begun in 1968 when Henreitte D. Avram of the Library of Congress and others developed the MARC standard and made possible the automated, connected library of today, something that we could more properly call 'Library Now' as well as 'Library II'. Unlike 'Library 2.0', Library II did not copy, it innovated. It had all of the user-centred attributes of Library I but with the addition of automation, databases, and later, the Internet. It has changed the way librarians and users process, access, and acquire information. It has given everyone greater reach and has enhanced the ways in which libraries provide service. Libraries were pioneers in the Web: librarian Louise Addis of the Stanford Linear Accelerator started the first Web server outside of CERN in 1991 (Berners-Lee, 1999). One of the first 'Web Classics' was the Vatican exhibit put online by the Library of Congress in 1993. Shortly after her appointment as University Librarian at Columbia in 1978, Patricia Battin recounted that after discussing the 'library of the future' with the Search Committee, and talking to them about on-line bibliographic databases, print-on-demand, and other computer applications, she was asked if the future library would have books, she answered with an emphatic 'Yes' (Battin, 1978). These were the early years of the modern library, when libraries shifted from printed catalogues and citation indexes to online catalogues, full-text indexing, and the provision of digital media. Talis, a British library systems vendor, published a paper in 2006 to promote their new library system in which they declared that 'Library 2.0 is a concept of a very different library service, geared towards the needs and expectations of today's library users. In this vision, the library makes information available wherever and whenever the user requires it, and seeks to ensure that barriers to use and reuse are removed (Miller, 2006). Although their claim that the 'Library 2.0 label reflects revolution more than evolution' (Miller, 2006), using a blog or a Facebook page to respond to user questions or market

the library is hardly as revolutionary as the introduction of the Online Public Access Catalogue, off-campus access to full-text databases, or unmediated inter-library loan, the 'empowerment' that spread in the mid-1990s as the costs of computers and database searching went down and the services no longer required arcane commands for searching and the personal intervention of a librarian.

Google's threat to academic libraries is not in its interface but in the sheer volume of its holdings: an unknown but immense number of pages, keyword indexed, to government documents, research reports, scanned books, images, patents, videos, discussion lists, and institutional repositories. The ten million books it has scanned may not quite compete with the holdings of the British Library (150 million items), the Library of Congress (130 million items), or New York Public Library (43 million items), but Google's books and documents and images are keyword searchable and most are instantly available. Because of unresolved copyright questions, keyword indexing and searching of books in library collections is still not possible but keyword searching of journal articles has become the norm. With keyword searching, library users can chose their own terminology, bypassing the limitations of citation indexing that confined them in the past. Google can not match what academic libraries can offer: access to the "hidden Web" of data with its intensive indexing that serious research depends upon.

Libraries are vital institutions – but not to everyone, everyday. Most of the information found on Google can NOT be found in the Library. Most of the information found in the library can NOT be found on Google -- at least not now. Libraries are not necessarily part of faculties' academic networks. The information needs of most users are often better served outside of libraries (Mi and Nesta, 2006, p. 413). Library information is selective, not exhaustive. The low use of social networking features initiated by libraries compared to the high use of similar features in social networking, e.g., LibraryThing, shows that there is a difference in how library users

separate libraries from their social networks while they still value the position of libraries as an adjunct in their academic pursuits.

5. Library III

Is there room or even reason for the library to re-invent itself? Will there be a Library III? We do not have a crystal ball to show us the future. The best we have at hand is a snow globe and snow globes can not predict the future, except to say: 'It will be all be different when it's all turned upside down' and it certainly seems that there is a major revolution occurring in the production and acquisition of information. We will risk saying that if there is a Library III it will still be user- and service-focused, just like Library I, and it will make effective use of technology just as Library II does. It will continue to move beyond its walls to take service to its clients and to partner with other libraries and institutions. Access will continue to become more important than ownership. Scale and speed will have an impact even greater than what we see today. There will be more information and users will be in ever more places.

Library III must lead rather than follow and it must innovate, rather than copy. Library III must find ways to index and connect to all the new information that the Web enables us to access. Library III will be an integral part of the Semantic Web which Berners-Lee sees as the next step in the development of the Web, with computers talking to computers, libraries talking to libraries, OPACs talking to OPACs. This is, after all, what libraries do and where libraries can be leaders, employing the scale of many libraries and institutions to advantage.

In 2004, O'Reilly did a table of 'Brainstorming Web 2.0' in which he contrasted DoubleClick with Google's AdSense, the Britannica Online with Wikipedia, personal Websites with blogging, taxonomy with 'folksonomy'. We propose a similar brainstorming for Library II:

Library II		Library III
Proprietary OPACS	→	Open OPACS
WorldCat	→	Google Search
NetLibrary	→	Library publishing
Google Books	→	Hathi Trust, Gallica
Text Scanning	→	'Smart' digital texts
'e-book readers'	→	Smart phones
Independent OPACS	→	Linked, Active OPACS
PDF	→	POD (print on demand)
LC Subjects	→	Full-text Indexing
Call Numbers	→	Look-up Tables, Descriptive Text
Web Browsing	→	Web Archiving
Stand-alone repositories	→	Linked and shared repositories
Popularity Stars	→	Citation counts
Facebook links	→	Course Management Software links

Like the Semantic Web, Library III will take time to build and, as expected, libraries and vendors are already working towards it. In March 2008 Talis added podcasts from their 'Semantic Web Gang' to their 'Library 2.0 Gang' podcasts. The December podcast of the Library Gang 2.0 group featured Meredith Farkas, author of *Social Software in Libraries* (2007), where she and some of the other discussants had arrived at some realisation that institutional goals do not necessarily apply in social settings and the lack of scale in most libraries does not provide the richness of content that can be achieved by Amazon or The LibraryThing

(http://librarygang.talis.com/2009/12/15/library-2-0-gang-1209-social-software-in-libraries/). Talis now seems to see their Talis Platform in the context of the Semantic Web and has made it available to host Linked Data that is held in the public domain. Their Semantic Web Gang site has to provide a dictionary of terms as the technology to achieve the linking and sharing of data is far more complex than adding a blog or wiki to a site.

Social networking software has been useful to libraries in making communication easier: it is easier to update library news using wiki or blogging software than in writing HTML code or designing PHP templates. Allowing users to add links from library catalogues to Facebook or Delicious.Com or any of the 222 other sharing options offered on some library catalogues somehow misses the point of how those networks are used. Search for 'library' or 'book' in Delicious and the results are not links back to library catalogues but to Amazon, to digitised full-text, or to programming libraries, Delicious being particularly popular with people associated with the profession of information technology. There are over 30,000 tags for 'University Library' in Delicious, some leading to the library catalogue, many to library subject guides or videos, but none that we could find that linked to books in a library catalogue. A search for 'Hong Kong and University' turned up six hits, four of which linked to books on programming in the catalogue of the Chinese University.

If copyright prohibits cataloguing agencies from adding full-text indexing, then adding more text to the bibliographic record with searchable table of contents, or even searchable reviews, would provide more access points. In Rolla's previously cited article, he criticises the Library of Congress for only providing only one subject entry, 'Cookery, American', to Eric Schlosser's 2001 book, *Fast Food Nation: The Dark Side of the All-American Meal.* A recent visit to the Library of Congress catalogue showed that the entry now had subject entries for fast food restaurants, food industry and trade, and

convenience foods, along with links to the book's table of contents, a sample chapter, author biography, publisher's description, and a book review (http://lccn.loc.gov/00053886). These are enhancements that go beyond the traditional catalogue and give far more benefit to users than simple tagging or comments. Adding a look-up table to Library of Congress Classification would provide more searchable access points and could be included in algorithms to increase relevancy rankings. The Library of Congress classification 'GV1785.D8' expressed as 'Dancing- Theatrical dance-Isadora Duncan' would make the classification and relationships more understandable to users. The walls of digital isolation, incompatible systems, locked databases, differing practices, and world languages that separate research collections from each other can and must be removed. A Semantic Web search would provide a way to link a search for a subject entry in the New York Public Library catalogue for 'Poor -- England – London' with a link to a subject entry in the Project Gallica catalogue of the Bibliothèque nationale de France for 'Pauvres en milieu urbain -- Grande-Bretagne -- 19e siècle', a search that would allow one to download a PDF copy of George Booth's *Life and Labour of the People in London...*(1892-1903) from Gallica – or allow another library to forgo scanning the same work.

6. Conclusion

Libraries are research networks, not social networks and the proper relationship of academic libraries to their users is professional and collegial. In looking towards the future, libraries must return to leadership in the development of new tools for intellectual discovery and access. Google may have the money but libraries have the books, journals, archives, photographs, audio recordings, manuscripts, and ephemera that need to be made discoverable and available to students and scholars. Libraries also know how scholars use material, how to index it, and how best to display it. Libraries also know about linking, cooperation, and resource sharing. It is this professional networking, not

social networking, that best serves the mission of libraries and their users. Libraries must

drive technology, not be driven by it, and marketing hype must not be construed as fact.

Libraries that are truly focused on their users must survey, quantify, question, and

measure anticipated impacts and results before expending limited resources of time,

money and people on projects that are not wanted, not needed, or not used.

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