

# Back to the Future: Augmenting Competencies for Library 2.0

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## Abstract

With the widespread use of web technologies and pervasiveness of handheld devices, libraries are grappling with the changing use patterns and expectations of its varied clientele. Debates about the uptake of new digital technologies reinforce old conclusions about the role and purpose of the library. The authors argue that technological developments in the fulfilment of library services should be critically assessed in terms of how they satisfy the library's purposes or use of its core competencies. The ubiquity of access and the emergence of unified communications pose huge challenges to traditional means and formats of content acquisition and delivery, however, not to its fundamental role in society. While customer expectations of libraries are somewhat influenced and shaped by their experience of content access on the Internet which some scholars conclude as having reached a strategic inflection point, the authors opine that the National Library Board's early exposure to user-centred services has reduced the impact of strategic shifts in the environment. The paper nevertheless calls for a redefinition of roles for librarians. This article is based on the conference paper presented at the LAS Conference in May 2008.

## Introduction

The Library of Alexandria established in 283 BC represented the first attempt at the institutionalisation of the library profession that has been practiced for some 2,500 years (Simard, 2007). The primary role of the profession was to capture and store the world's knowledge for access. Over the years, the library's scope has been redefined, and its importance, in our view, amplified with the advent of the knowledge economy. Some have argued

therefore that traditional librarian core competencies are no longer relevant because of the disintermediation of the Internet that represents the world's largest library, the irrelevance of traditional information gateways, the consequent localised context of knowledge creation as against gathering the world's knowledge and finally the empowered end-user who is both the creator and consumer of information.

In addressing core competencies it is important to make a distinction between the professional librarian core competencies and the institutional core competency. Even while they interrelate, institutional library core competencies have to be defined within the context of knowledge spaces or knowledge environments (KE) and librarian core competencies is a subset where the “specific range of skills, abilities or knowledge that enable or qualify someone to perform a particular function or carry out selected responsibilities”. (Fisher, 2001; Webber, 1999).

There are two fundamental approaches in management literature about conceiving institutional core competencies and how libraries as institutions create value – resource-based and dynamic capability building. The resource-based approach is one where the institution relies heavily on the selection of assets or resources that gives institutions a core competency that yields competitive advantage. Libraries have traditionally relied on this approach. The second approach is that of dynamic capability building where the institution constructs its services based on environmental changes, to enhance the access and use of the resources it has acquired or seeks to acquire. In this approach, the core competency is created through the dynamic interaction of the institution, its resources and the use environment. (Makadok, 2000).

The new knowledge environment (globalised, flattened world) enforces on its actors a notable shift from a supply-centred model to a user-centred model of service provision that leans towards the dynamic capability approach. The traditional resource-centred approach empha-

sizes collection development and preservation, while the new environment imposes the need for user-oriented services. From a knowledge gatekeeper, the librarian is increasingly referred to as being one of a “coach”, “adviser” or “partner”. The National Library, Singapore (NLS) at its very onset lagged behind many world-renowned libraries in the breadth and depth of collections due to its relatively short history. Consequentially, the NLS focused on user-centred services delivered via a connected network of libraries in Singapore and around the world. With national investment in broadband and wireless connectivity infrastructures, the push towards building connectivity rather than content was inevitable. The dynamic capability building approach had been embedded in the National Library Board’s (NLB) core competency development model since its inception in 1995. The following sections discuss the change elements of the knowledge environment that has impacted the development of the NLB’s core competency.

## Knowledge Environment

In discussing the knowledge environment, 3 knowledge spaces co-exist (Anklam, 2006) reinforcing each other, though libraries have traditionally focussed on the more explicit and tangible aspects of knowledge rather than the intangibles. (See Table 1).

The knowledge environment has several actors, namely the knowledge asset creators, distributors and preservers. Libraries have traditionally built expertise and competencies in knowledge preservation, the value chain of which is represented in Table 2.

Table 1: Knowledge Environment (KE)

Knowledge Carrier	Knowledge Space	Implications
Artefacts	Explicit	Infrastructure for acquiring, organising, sharing and re-using knowledge
Individuals	Tacit	Individual behaviour, capturing and exchanging/ sharing knowledge
Networks	Emergent	Network connectivity, group collaboration and synergy

(Adapted from Anklam, 2007)

Table 2: Knowledge Preservation Competencies

<b>Role:</b>	<i>Codifier</i>	<i>Specialist</i>	<i>Custodian</i>	<i>Provider</i>	<i>Manager</i>
<b>Competency:</b>	Capture	Organise	Store	Retrieve	Maintain
<b>Outcome:</b>	Inventory	Map	Capacity	Access	Continuity

(Simard, 2007)

## Impact of Internet on the World of Libraries and Librarians

One of the more significant implications of the Internet is that it has offered a platform for multi-channel and unified communication (multiple content formats and delivery channels on a single platform) previously impossible. With Internet and handheld devices, both access and delivery channels for content have reached a broader audience. Time and space are no longer barriers to access to libraries and library content. With a mobile phone, users can contact libraries and download content anytime. They can also receive responses from experts and friends, byte sized and in megabytes through their mobile phones and blackberries that allows them to transfer multimedia content across geographical boundaries.

For the first time in history, services anytime anywhere is a new reality. Outside libraries, this has already taken place for some time now, with Internet search engines and social networking tools such as Facebook, Friendster, Myspace, Twitter and blogs. In these spaces, users interact, ask questions, and get answers from each other and form communities around special interests or knowledge that they are interested in sharing. The local and locality constraints are not barriers to gathering the world's knowledge. Significantly, knowledge preservation assumed the existence of verified and validated content which librarians could capture, organise, store, retrieve and maintain. The Internet world however is dynamic as content creation as well as consumption is somewhat converged with the value chain compressed and automated.

Unlike the distant past when physical libraries were the only places where users could find free information and books, the library as a physical space today is no longer a first stop for information. Given that NLB had never fully subscribed to the resource-based approach to its core competency development, its relevance to the new environment is blended and in fact enhanced. The Internet space has created a larger space for the intangibles by using tangibles – people and content. More importantly, for NLB, its adherence to three user-centred service development directions has enabled the transition into the Web 2.0 environment without the need for major mind or resource shifts.

**a. Build services where the users are**

This is more than just building more physical libraries in shopping malls. It is about making the NLS services available as part

of the lifestyle of users, whether they choose to spend their time in cyberspace, at the MRT stations, shopping malls, cafes or use their mobile phones. Embedding NLS's services in the lifestyles and daily processes of average Singaporeans creates better "bandwidth" and mileage for services. Users can access the library's content and services wherever and whenever they are, in their preferred spaces, using their preferred mobile devices.

**b. Build capability to influence the spaces, and not be influenced by these spaces**

Many librarians have traditionally resisted operating within existing Internet spaces, as they are "open" and unauthenticated environments and outside the content filtering mechanisms of the library. There is however tremendous need for users to be able to identify authoritative content online and therefore the role of the librarian online is all the more important. Librarians can prevent users from indiscriminate use of Internet content and educate them on the fact validation processes. Information literacy can be extended to the online space to achieve the same outcomes for end-users, except that this happens now on the web, and the librarians use the space frequented by their users to teach them information literacy skills.

**c. Build services to connect people to knowledge**

Libraries are not content creators per se, even though it nurtures creative minds and encourage new content development. Libraries however play a pivotal role in being a concierge and an arbitrageur. They level the playing field and equalise access to information, thereby bridging the haves from the have-nots. Librarians help users

to navigate through the world of knowledge and extract what is relevant and useful to each information seeker. Librarians are indeed partners in the learning and discovery journey of its citizens. Building library services in this new context requires an augmented set of competencies. Apart from traditional competencies, librarians need the capacity for:

- i Info-pattern recognition in e-spaces
- ii Empowering the knowledge environment
- iii “Connectivism” (Siemens, 2006)

**i. Info-pattern recognition in e-spaces**

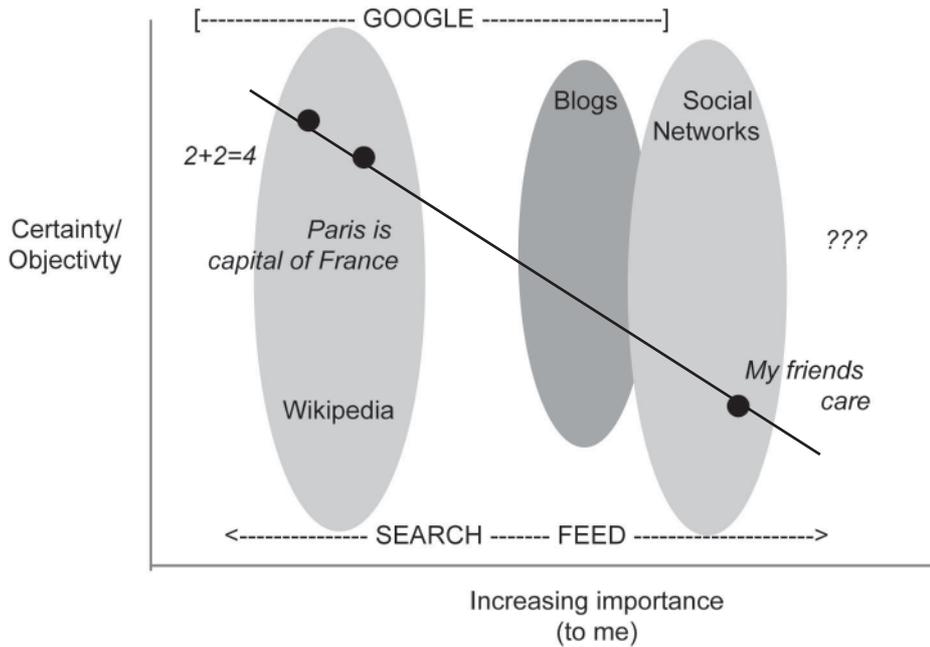
With the proliferation of social network spaces over the worldwide web, libraries have the opportunity to expand and embrace these new spaces. Librarians however need to know the e-spaces that they can meaningfully participate and influence. Every new space offers a different set of opportunities for content and services. Familiarity with the online e-space technology is critical for librarians to determine what services would be useful and relevant for netizens. While e-space owners have vested interest to have rich, fun and useful features to attract its users and keep them there, it is the libraries’ duty to exploit the features available and design means of exporting the library’s content to the e-users. Existing e-spaces with mass user subscribers offer opportunities for collaboration with libraries that can offer information and learning support. Libraries need not invest heavily into online marketing, as space owners like MSN and Yahoo would have invested in that cost.

By studying and understanding the service features of each e-space and the netizens in the network, libraries would gain a head start in offering appropriate information services. Libraries and librarians can focus on innovating services, leveraging on the service features of each e-space to add value to users as an information concierge. NLB for instance had transplanted the NL’s picture database into Flickr, and invited users to use these photographs or to add to the online collection. Similarly “Infopedia Talk” was exposed to the Google search engine, inviting users to comment or contribute to the articles or resources listed for each topic. This has received encouraging responses.

**ii. Empowering the Knowledge Environment**

Librarians need to establish their role and show their value in the network as a partner and facilitator. Information literacy has always been a core activity of librarians in traditional environments. Librarians train users on how to navigate through heaps of information so that they search less and find more. In a peer-to-peer Internet environment, users accord different values to the notion of “trusted” information. Beyond search engines, information in blogs is as useful as information in peer-reviewed journals. This is because there is an inverse relationship between certainty and existential importance. Table 3 demonstrates that the rise of subjectivity on the web adds to the value of objective information available in the search environment in libraries, Google Books or Google Scholar. The co-existence of both subjective and objective information adds greater richness to the “informing” phenomenon on the net and the distinction is less conspicuous to information seekers.

Table 3: Rise of Subjectivity on the Web and What is Important for you



Source: [http://wanderingstan.com/2007-09-21/the\\_rise\\_of\\_subjectivity\\_on\\_the\\_web\\_whats\\_important\\_to\\_you](http://wanderingstan.com/2007-09-21/the_rise_of_subjectivity_on_the_web_whats_important_to_you)

As librarians enter into spaces outside their traditional strongholds, librarians no longer hold the monopoly of search skill sets. Nevertheless they can impart the skill of asking the right questions (reference interview) and refining search strategies online to enable users to acquire greater precision in retrieval. Also with the wealth of institutional repositories and databases subscriptions, librarians can help users validate their discovery, if not lead them to alternative directions in their search for information. Librarians can help refine community “folksonomies” and help users manage and share their own knowledge repositories. Librarians could provide the tools to define relationships and integrate different knowledge domains, create taxonomies and assist communities to ingest and then harvest and map content for their particular needs. Librarians are increasingly involved in the “personalisation” process for end-users and through active empowerment of end-users, the knowledge environment is further enhanced when communities come into contact with librarians.

### iii. Connectivism

Since ancient times, libraries have been connecting people to knowledge and people to people. The development of research guides, resources guides, pathfinders, bibliographies, and reference enquiries are age-old examples of connecting people to knowledge. What has changed however is the networked and globalised approach towards providing this level of connectivity.

*“Connectivism is the application of network principles to define both knowledge and the process of learning. Knowledge is defined as a particular pattern of relationships and learning is defined as the creation of new connections and patterns as well as the ability to manoeuvre around existing networks/patterns.”*  
<http://www.connectivism.ca/blog/>

Hence the NLS developed a collaborative reference service in the last 18 months, enabling librarians in Singapore and from all over the world to share and create the most appropriate response to an enquiry using Email 2020, a web-based tool. The service is extensible and can be extended to include information seekers and their communities of friends, subject experts or fellow researchers.

The multi-tier Internet platform allows connectivity to be extended to mobile channels and global netizens. The NLS created a “hyperlinked library” with its SMS and GYM (Google, Yahoo, MSN) service. The library experimented on interactive responses to reference enquiries via SMS and a content push strategy

to the GYM space, enabling the library to reach new levels of connectivity and new users. As for the SMS service, the challenge of 160 characters on the mobile phone was too small for reference librarians to deliver a full response to the enquirer. Instead a URL link was appended as answers to SMS enquiries where users can access their answers through a website retrieved through mobiles. The webbing of enquiries delivered via SMSs enabled a personalised archive of answers, which can be time limited for access and mined for re-use.

Pushing Singapore content to the GYM space was a bigger challenge. Having had low access rates of about 200-400 page views a month for the NLS’ encyclopaedic content of 1,000 articles and pathfinders, called Singapore Infopedia available at NLS’ website, the reference team designed a content structure for it to be easily retrieved in the GYM space. Singapore Infopedia was re-packaged as a no-frills website in two years and made accessible to the Google indexing engine for it to crawl, index and allow users to search this content via the usual Google search. At its inception in November 2006, the website registered 30,000 page views. In July 2008, the usage was 180,000 page views a month, or a 450-fold increase in the use of the same content. Since its launch, the content has also grown, with access predominantly from the United States, Australia and Singapore.

## Augmenting Competencies

The first principles of librarianship have remained a constant. Embodied in Ranganathan's Five Laws of Library Science:

1. Books are for use.
2. Every reader his or her book.
3. Every book its reader.
4. Save the time of the reader.
5. The library is a growing organism.

Transposed to the digital environment: information is for use; every reader his or her information; every information its reader; save the time of the reader and the library as a growing organism. The Librarian's core competencies in the era of unified communications are built around Ranganathan's first principles, though its core asset (the book) is no longer a dominant asset in the new knowledge environment. The shift from managing tangible to intangible assets have rewired how users and providers conceive of library and information services and the value they derive from the provision of such services. The next section outlines some of the competency shifts that libraries need to embrace.

## Discovery with Less Dewey

The Dewey styled universal self-discovery architecture that libraries have embraced runs against the webbed discovery paradigm. Knowledge discovery on the web, unlike the hierarchical Dewey Decimal does not follow a linear path. The networked and hyperlinked discovery patterns of users have shifted age-old structured thesaurus to serendipitous discovery. The

web is not a destination but a journey where information seekers follow different pathways to discover a whole new set of related or unrelated knowledge. The search on the web, unlike the search on the shelves, grows on the user, leading him from knowledge to more knowledge. The way users choose to learn is driven by their likes, habits and preferences, rather than a structured process.

Physical libraries on the other hand are destinations that offer catalogues as an aid to self-discovery, often throwing the user into confusion when deciphering Dewey Decimals. The Internet exposed users to content, not catalogues, keywords rather than subject headings. Instant information gratification is the way of life for the Google generation users. The likes of Google have accelerated the speed of knowledge discovery with auto-indexing, concept mapping and avatar-assisted searches. Librarians need to look for new ways to organise both digital and print content with new tools that can reduce the users' information search and processing cycle time.

The American Heritage Dictionary defines taxonomy as "the classification of organisms in an ordered system that indicates natural relationships." The keywords "*classification*", "*ordered and relationship*" needs no further emphasis. In any taxonomy, knowledge is classified, ordered and relationships on a subject matter described. It is imperative that librarians develop sound knowledge of taxonomy building skills for different knowledge domains. Unlike the universal Dewey classification, taxonomies are domain specific with its own web of affiliated, proximate and adjacent meanings. Librarians require sub-

stantive subject knowledge to understand the vocabulary in the domain and map the relationship. To a large extent this can be induced from practising communities with minimal effort on the part of librarians. Artificial intelligence mapping tools facilitate classification of frequently used terminologies into search clusters when these communities are interacting online with content and with each other. Librarians can enable and tool communities with common practices and standards so that distinct knowledge communities can be “interoperable”. Instead of creating the dots (knowledge communities), librarians can link the dots with a strong advocacy role that shares standards and communication protocols.

Librarians can also facilitate the documentation and externalisation of tacit knowledge and actively promote knowledge reuse. Additionally, the role of content validation is becoming more important for librarians as users want to ascertain their subjective knowledge with what is accessible in the “objective” realm. Hence authenticated, reviewed content must continue to be identified, selected and subscribed. Content syndication and development will require good judgement and multiple source verification would be a necessary offering for library users.

As a corollary, good content retrieval design skills would be an added advantage. Knowledge pathing or digital curation (Thibodeau, 2007) is an enhanced competency for librarians. Librarians need to be able to design discovery tools that are intuitive and efficient, seamless in terms of connectivity and personalised in presentation. Librarians would have to immerse into

the psyche of the users in their respective spaces and emotionally connect with them online.

## Participatory Spheres in the Digital Collective

The walled library environments have given way to an open access environment of use, copy, study and remix with participation, sharing, collaboration and volunteerism as key principles. The guarded gateways of traditional libraries have been forced open by the democratisation of information and the open access movement. The challenge for librarians is therefore the ability to transform their gateway environments into participative and collaborative spheres. In allowing users to plug into the library value chain, the growth of the knowledge can be catalytic. The digital collective is a participatory space where the functions of capturing, organising, storing, retrieving and maintaining can be collaboratively and simultaneously performed by library practitioners, end-users, external communities or subject experts. The many-to-many interactions will weave a participatory process that will be difficult to disentangle, building collective intelligence into the library system.

## Portability

The Taipei Public library has built two small self-service libraries in MRT stations where content is ported through mobile devices. Beyond virtualisation, libraries need to become portable. Both the virtual and portable adaptations of libraries are

responses to the rapidly changing lifestyle of end-users and the pervasiveness of portable mobile devices. Whilst library services are desirable, they need not be delivered from physical premises whether physical or digital. Portability has manifested itself even in downloadable libraries, particularly in remote areas, where satellite or GPRS connectivity allows for libraries to transmit gigabytes of digital content into structured repositories of its recipients periodically. Portability also requires librarians to plug and play content on-demand. Librarians therefore need to be familiar with intellectual property laws, creative commons licenses and open sources to be able to facilitate use, copy and remix.

## New Roles?

The above discussion calls for a re-definition of roles for librarians broadly referred to as professional specialism.

### *a. e-Knowledge Architect*

With exponential growth in digital content, new media and overlapping of disciplines, classification is no longer as neat as Dewey and Library of Congress Subject Headings (LCSH). While it is true that such systems are also evolving to adapt themselves to the changing world, many users are relying more and more on social tagging. As long as they and their circle of “friends” are comfortable with the tags, they are not concerned with the structure and rigour used by libraries and librarians. Trusted source is giving way to good enough (OCLC Report, 2005). Librarians can offer space-wide web of taxonomies to enable users to operate efficiently within

their communities. Librarians will be in demand to architect new information spaces for content re-use or to connect new communities.

### *b. e-Knowledge Concierge*

The knowledge concierge bridges the information seeker and the defined information space. It is not sufficient for librarians to be knowledgeable about the information space (who offers what, where) but to be able to contextualise the users’ information needs. Contextualisation of information must lead to the provision of actionable information, which can easily be translated to knowledge when the user chooses to act on it.

### *c. e-Knowledge Mentor*

Netizens in the e-space environment would want to define and own the knowledge assets and the architecture of knowledge within that space. In a self-empowered knowledge environment, librarians can mentor and educate users using their information organization and retrieval skills to catalyse self-created digital collectives. Librarians as mentors bring with themselves their network and experience, and as they plug into the mentees information space, they expand the capacity of the total knowledge community, not just the capacity of the individual information seeker.

## Conclusion

It is of paramount importance for librarians to examine and strengthen their core skills, keep track of the information seeking and sharing environment, and adapt

continuously to the changing environment to remain relevant to the people that libraries seek to serve. The paper has argued that the changing knowledge environment augments librarian competencies rather than decimate its relevance. Unique contemporary cultural shifts are leading to a new form of librarianship where professional specialism will be dominant but will subsist with traditional competencies. (Joint, 2006). Even while the evolution of modern information technologies has spawned a new lexicon for librarians as cybrarians and navigators in the knowledge economy, the future of the profession is dependent on how librarians exploit the opportunities or risk marginalisation in this prevailing world. As discussed above, a user-centred perspective enables libraries and librarians to dynamically evolve their core competencies and remain relevant to their stakeholders and users.

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