



The 21st Century Library

Reading 23

Before we begin this section visit this web site <http://msdewey.com/>, and then resume reading.

Okay so now resume reading keeping Ms Dewey in mind. The role of the school library in the School v2.0 model for schools is at a crossroads. Whether libraries will increase in significance or decrease into obscurity is a source of concern and debate amongst librarians, library organisations, schools and Ministries/Departments of Education, all of whom are struggling to identify the role of the library in this radically and exponentially changing information and communication landscape. One of the central issues here is that school libraries have traditionally been structured around a scarce information landscape which needed to be managed so it could be equitably accessed. Historically, the main task of a librarian was to manage the information “diet” of each learner, providing equitable access to a limited resource. The diet consisted of two books every two weeks to be consumed carefully and slowly.

The librarian and the services of the library are now facing up to a raft of new challenges and librarians have a distinctively different role where they are now opening the information valve and increasing the information flow rate while at the same time there is an immeasurably greater demand for them to manage the information conduit so that it is safe, academically appropriate, media appropriate and more easily searched to find appropriate information. At the moment the internet is like a giant library except some madman has ripped off all the covers of the books and thrown all the books into a pile in the middle of the virtual floor. There is a need now for a new management ecology based on this emerging tidal wave of information, and librarians, if they can adapt within this expanding environment, have a highly significant role to play.

“More simply, an information ecology is a system of people, practices, values, and technologies in a particular environment. The word ecology is important here because it conveys the sense of urgency about the need to take control of information systems—as Nardi and O’Day explain, “to inject our own values and needs into them so that we are not overwhelmed by some of our technological tools.”¹ Educause

The types of information, resource and communication tools which a school encourages learners to use is bound up in the attitudes and values of the community which that school services. This suggests that both the role and the significance of libraries and librarians will increase accordingly. In order for learners to become lifelong learners they must:

- Be able to articulate a moral and ethical framework around their information gathering and its application.
- Learn to manage information effectively and efficiently.
- Be aware of the various formats that information comes in, and know which one(s) is/are the most effective and efficient for each situation.
- Have a wide range of literacy’s that reflect the cultural trends of the 21st century.
- Be able to search information resources effectively and efficiently.
- Be able to synthesise and construct understanding from a wide variety of resources.
- Display and demonstrate their new knowledge and understanding in a wide variety of formats ranging from oral through to multimedia.
- Be able to access a wide range of information resource and knowledge providers.

¹ Gandel, Paul; Katz, Richard; Metros, Susan; “The Weariness of the Flesh: Reflections on the Life of the Mind in The Era of Abundance”; Educause <http://www.educause.edu/pub/er/erm04/erm0423.asp> Accessed May 2007

- Be able to access appropriate virtual libraries of information and resources and be able to communicate with local/national and international experts and to be able to obtain assistance in the construction of their information and communication networks.

These skills will need to be taught, encouraged and applied within the school context.

Who will:

- Review, organise and screen the wide variety of information formats to ensure that the information is appropriate and then archived so that can be searched easily?
- Develop and apply the knowledge of the range of new and emerging literacy's which are required in order to allow potential lifelong learners to manage their online lives successfully?
- Monitor the internet landscape and ensure that young learners are provided with guidance in relation to emerging internet based social applications and their advantages and disadvantages i.e. MySpace/BeBo/PageFlakes etc.?
- Build awareness of the authentication and validity of knowledge stores in "encyclopaedic" web sites such as Wikipedia?

To a degree everyone within the school structure must be able to carry out these tasks. However somebody, somewhere must have the responsibility for managing the overall capability of the school to ensure that this information is appropriate, well managed, readily available/accessible, as well as acting as a reference point when new information management systems, procedures and technologies become available (electronic or physical).

The 21st century librarian, who already has the necessary understanding of how information is managed, would be the most obvious and eminently suitable person to undertake this responsibility within the school. It is quite common to see new labels attached to historical positions, and librarians are no exception. When visiting schools it is not unusual to see the erstwhile librarian described as an information manager, a media specialist, the knowledge domain manager, the media and technology team, the knowledge flow coordinator . . . the list is almost endless. Sometimes the labels become somewhat meaningless, but nonetheless the role of the librarian is already changing.

Librarians traditionally have required ongoing upskilling to enable them to adapt to new information environments and if schools are serious about learners becoming lifelong learners then the role of the librarian and the functionality of the library must evolve to meet the challenges that the 21st century information landscape presents.

We have already discussed the new definition of the term "being literate" in the 21st century. The critical literacy's of the 21st century are ever evolving and will in time include skills such as:

- **Basic Literacy:** Language proficiencies using conventional literacy²
- **Information Literacy:** The ability to search for and access appropriate information across a range of genre, formats and systems. The ability to sift, scan and sort information.
- **Technological Literacy:** The innate ability to discover how a new or evolved technology operates; recognising its limitations and benefits. The ability to choose the most appropriate tool to access and process information, and present new knowledge & understanding.
- **Media Literacy:** The ability to synthesise a wide range of viewpoints/interpretations from a variety of media, and build a concise model of understanding of those ideas.
- **Cultural Literacy & Global Awareness:** The ability to manage information in the "global village".
- **Critical Literacy:** The ability to identify key aspects of information validity such as accuracy, objectivity, authority, currency and coverage.

² Originally sourced from NCREL but due to a reorganization of the site the site is no longer available <http://www.ncrel.org/engage/skills/indepth.htm> Accessed August 2006

- **Scientific Literacy:** Knowledge of scientific concepts and processes.
- **Cognitive Literacy:** The capacity to build cognitive models/frameworks of understanding

If we are going to have schools without walls, extending the concept of school beyond the physical buildings, then we will require libraries without walls, where learners, educators and “distance” learners can access information simply and easily from any location. In order to do this, learners will need additional skill sets and capabilities, and schools will require new systems that will not only allow remote access but encourage it. Consequently schools will need to equip their libraries with new technologies (these technologies will be constructed from products, systems and environments that meet the needs and opportunities of the school). To be effective the new systems must meet three criteria:

- The technology must be intuitive (requiring minimal/no manuals)
- The technology must provide obvious benefits to all users
- The technology must be cost-effective.

The technologies which school libraries will require must allow for information resources in a wide variety of formats to be added to a searchable database that can be searched effectively and efficiently from any location via the Online Learning Environment or school portal. To achieve this outcome schools have open to them three alternatives for hosting:

- Host the information off-site in a internet based format on a remote web server
- Provide all users with remote access software
- Have a static IP address and host the information in a internet based format on the school web server

It will be an absolute necessity that learners are able to access most of their resources remotely. We are not just referring here to senior secondary learners, but rather all learners at all levels. With increasing penetration of computer devices into homes and the rise of game stations having internet access, learners should/could be able to access all the information resources, including the ones that they have produced themselves, from any computing device anywhere. Many school library catalogue systems already offer some of these services, and if schools are looking at purchasing such systems it is important to ensure that they allow for remote access from within as well as from outside the school, via the internet or some similar technology.

Once schools are able to offer a service such as this they become information access providers to entire communities, and the library walls begin to crumble. Sometimes it is those who are most removed from classrooms which see the issues the most clearly.

To quote Pink Floyd in their song "Another Brick in the Wall"

*We don't need no education
We don't need no thought control
No dark sarcasm in the classroom
Teachers leave them kids alone
Hey teacher, leave them kids alone
All in all it's just another brick in the wall
All in all you're just another brick in the wall.³*

Our job and is to make sure that we remove the bricks and dismantle the walls, allowing schools to become a 24/7 learning experience and that libraries provide a managed gateway for all learners. However, the library is increasingly becoming the virtual library for most information and resource needs. The demise of the traditional library over time comes about due to plastic computing and the arrival of the virtual book and in the interim the iPhone + laser keyboard, or a larger screen derivative of the iPhone will provide a degree of functionality that will reduce the requirement for the nonfiction section of the library.

Virtual Libraries, Virtual Books & Pod/Vod-Casts

³ Pink Floyd Lyrics; “Another Brick in the wall”
<http://www.pink-floyd-lyrics.com/html/another-brick-2-wall.html> last Accessed April 2007

More than 1 million volumes from the libraries of the University of Texas will be made available on the internet under an agreement between the university and Google Inc.⁴. The initiative is part of a project by the search engine giant, based in Mountain View, California, to put books from major libraries on its web site. The New York Public Library, the University of California, the University of Michigan, Harvard University, Stanford University and Oxford University are among the participants. UT is the 11th library to partner with Google.

The dramatic rise of libraries being digitised and made available online is challenging some aspects of traditional libraries but this is not the death knell of libraries but merely signifies their increasing rate of metamorphosis. There are certain elements of the traditional library that will give way to digital media and this is set to increase over the next ten years, However, the role of the library is changing from an evolutionary one into a revolutionary one and those libraries and librarians that evolve to meet the challenges of the new information landscape will see their role becoming more and more critical while those that do not evolve will see their species become increasingly irrelevant and eventually they will become extinct.

The nonfiction section of the library is in for some radical changes and this is due to four key reasons:

- It is already almost impossible for the traditional book format to iterate and republish in order to keep an updated record of new knowledge and understanding (in an exponentially increasing knowledge environment) and make this knowledge available to learners.
- Nouvelle Compréhension is going to accelerate the development of new knowledge and understanding exponentially and make it even harder for the nonfiction section to record and present this information in a timely and cost effective manner.
- The desire to teach for understanding means that the inquiry process will demand a far richer nonfiction section both in format and in volume.
- The book format cannot record and make use of the multimedia formats which greatly improves the ability of learners to develop understanding.

The immediate changes will be mostly but not limited to the non-fiction realm where the information can be presented online and be updated regularly. Nonfiction books which reflect changing trends and fashion will remain viable for longer but will gradually move into the online world and appear increasing not as text based books but rather as via pod/vod-casts which can be watched and listened to rather than only read. While some books will continue to be required resources within libraries they will be increasingly augmented by online resources and after a time iterative online works will become increasingly prevalent.

Likewise magazines that continue to publish physical copies will remain relevant for a while longer but these too will increasingly be sold as pod/vod-casts as they are often reporting on emerging trends and technologies which are transient and learners need to keep up with trends and changes in the most efficient way possible. The relative low cost of magazines coupled with their immediate social and intellectual value to the reader will ensure their survival in the short term. Fiction books will continue to be popular as the technology of the book with its portability and ease of use will ensure their survival in the short term but once again increasingly emerging products such as the Sony "Reader"⁵ (\$US279) and the Amazon/Google "Kindle"⁶ (\$US399) are closing in on this market also.

Reading for pleasure will always remain and those that predict there will be no books have much to learn from history and the socialisation of technology. What is assured though is that increasingly learning from text based resources is going to be largely replaced by pod/vod-casts and multimedia online resources as this technology is so much more efficient and successful as a learning medium.

⁴ "Google Book Search and UC Library Partnership" Aug 9 2006

http://www.google.com/intl/en/press/annc/books_uclibrary.html last Accessed April 2007

⁵ Sony Learning Center; <http://www.learningcenter.sony.us/assets/itpd/reader/> Accessed December 2007

⁶ Amazon.com; The Kindle: Welcome to Digital Text Platform <http://dtp.amazon.com/mn/signin> Accessed December 2007

The development of the virtual book⁷ which we introduced earlier in the text will be able to access the internet and download “books”, magazines, blogs, podcasts and any digital information onto its pages and is set to make significant inroads into the domain of the “librarian” over the next 3-5 years. Virtual books will possibly have three to five “pages” (with each page being a flexible plastic liquid crystal display), in each book and once the person reading came to the last page in this small book they would simply return to the front cover and touch the menu for the next section to be downloaded from the Internet. The touch screen format of this virtual book allows the reader to select from a front page menu the book they wish to read and that book will be wirelessly downloaded to the flash memory in the books spine and made available for reading.

The interim period before the development and cost effective production of virtual books will see the nonfiction section of the library indexing electronic information from the internet, CDs/DVDs (for a while longer), the knowledge held within the schools Online Learning Environment (OLE) as well as the traditional book resources. Conceptually we will increasingly view libraries more as electronic gateways and access tools, rather than physical buildings.

All this has profound implications for librarians and school libraries. Visiting the library will increasingly be virtual and hence our request for you to visit Ms Dewey at the beginning of this section. Ms Dewey is the beginning of a pathway towards an increasing trend of desiring to access information Just In Time. Taking time to visit a library in a town or school can be a time consuming process. Visiting an online digital library is quicker and in many cases more successful as its ‘catalogue’ will dwarf any conventional catalogue.

The access to the electronic library will be via the search tool within the Online Learning Environment. Alongside indexing resources, the librarian’s main role will be to mentor and assist educators and learners in accessing the resources they require. Librarians who opt for this role will increasingly be teaching more often than they will be assigning Dewey numbers. Librarians specialise in the organisation and distribution of information as well as training learners/educators to efficiently locate and manage information and this is an essential competency in a rich information environment. The management of information is undergoing a considerable upheaval in libraries throughout the world as schools start implementing electronic systems for both indexing the material that is available, and also managing the loan and return of physical resources. If librarians wish to develop their role then they will require significant professional learning and their training will need a considerable update to include these new expectations and skill sets.

As libraries increase the range of resources that they have on offer and substantially increase their electronic collections it becomes more and more important that indexing and cataloguing systems are consistent, effective and simple to search. It became obvious some years ago that a global standard for indexing and cataloguing would become essential, with the increase in electronic documents and their increasingly global nature. The generally accepted standard has become what is known as “Dublin Core”⁸ (Dublin, Ohio, USA, not Ireland). Librarians with an interest in this subject can avail themselves of a number of online resources⁹.

Essentially the Dublin core initiative details how each document should be described. The Dublin Core Element Set is a set of data that classifies each resource. It consists of 15 descriptive data elements relating to content, intellectual property and instantiation. The elements include title, creator, publisher, subject, description, source, language, relation, coverage, date, type, format, identifier, contributor and rights, all of which are to be supplied by the producer of the resource.

⁷ See the “plastic computing” section in reading 18 for more detail on the background surrounding the development of virtual books.

⁸ Dublin Core Metadata Initiative <http://dublincore.org/> Accessed June 2007

⁹ Dublin Core Metadata Initiative <http://dublincore.org/resources/training/> Accessed June 2007

Recently however, we have noted a growing trend in reducing the amount of data in any given metatag to the point where web sites are now shifting towards a simple "tagging" system using non specific, author inspired keywords. The reason for this shift is that administrators noted the fact that although many web sites had metatagging capability it simply took too long to fill out the necessary online form and they largely went unused or underutilised. Once again usefulness is replacing "technically correct" but time consuming processes. Tags are key words that are "tagged" to the document, image or file and each sector is increasingly using the same group of tags to provide search consistency across the sector. Learning knows no boundaries and crosses almost every sector and as a result education does not yet have a set group of tags established and there is no established international body with the mandate to do this; it will probably "just happen".

Web pages, documents or resources can have either of these data sets or tags attached to each document electronically, and this collection of information about the document can travel with it, making use of XML (eXtensible Markup Language). If documents are XML enabled, and your school has the capacity to read this attached information, then this data about the information resource can be moved directly into a database and will be automatically searched when learners carry out a search. This means that educators and librarians do not need to re-enter this data set about the information or document resource they have downloaded or received (if they have an indexing agent that can read the XML data). This may seem trivial until you start collecting tens of thousands of electronic documents that you wish to be able to search effectively. In the electronic world of the internet it is quite easy to gather together huge numbers of web site reviews, links and resources. Unless these are correctly organised and catalogued the information may as well not be there as it will become progressively harder to find. The Dublin core global standard and simple "tagging" allows users of the system to access/transmit "tagged" information and resources much more effectively.

Many countries around the world are now engaged in developing Digital Learning Object repositories, complete with tags, which enable the resource to be easily searched when using the Online Learning Environment. Each of these learning elements will be tagged with XML data using the Dublin Core (DC) or tags. You can then search for just images, images dealing with fire stations, or images dealing with firemen, and get back elements/objects which much more precisely fit your search requirements.

With innovations such as these it is going to be important that librarians and educators responsible for information management are upskilled in this area, and are aware of the appropriate technologies and how they can be administered within the school to allow information, learning elements, units of work, learner resources and data to be effectively managed.

Learner access to Library Based Information Systems can be facilitated from computers based in classrooms or the library, but it is also possible for them to be accessible via PDAs, Laptops and Tablets if they are web based. These technologies could also allow remote access, possibly via wireless systems, to the learners Online Learning Environment. Increasingly there will need to be a level of interoperability between library indexing systems and the OLE and increasingly library systems will need to be hosted online. Librarians in this instance will not necessarily need to be technology experts but rather they need to have an in-depth knowledge of what the possibilities are in terms of how a variety of technologies can simplify and improve information management within a school.

So what will a library look like? Libraries are urgently required to re-invent their spaces in order to remain relevant. One of the key changes is that the librarian is no longer a passive element within the library hiding in their workroom taping Dewey numbers on to books or fixing the spines of aging volumes. This is low level work and the librarian's knowledge and skills are too valuable for them to be doing this. The librarian's role is now required to be far more active and they need to be out there teaching the educators (librarians may need upskilling to become more effective educators) and the learners how to become better able to access rich multimedia resources from across the world, how to be critically literate within the vast information resource bases that are now available and how to synthesise this vast repository of data.

I would suggest that the librarian takes on the role as a learning resource broker providing access to relevant resources to learners as and when they need them.

- Increasingly, groups of learners will require a location/connection where they can work with a librarian to find relevant resources to support their inquiry learning focus. To do that libraries will require spaces where research groups can scan resources and view them on medium sized LCD/plasma screens with headsets.
- A series of large screens with wireless headsets constantly showing podcasts and videos as a “micro television service” whose broadcast schedule will be available from the schools Online Learning Environment.
- A global communications centre Skype; full VC services, phone etc.
- Access to the librarians skills in using internet search tools and their Online Learning Environment resources

In a podcast by Alan November¹⁰ he cites the increasingly common fact that the idea of learners sitting in classes taking notes like mechanical clones is going to disappear as learners will be able to download podcasts of the lesson (and of course this is available as can be seen from Diagram 23.1). If learners can access podcasts why would they or should they attend the classes? This question was featured in a New York Times article entitled “What Did the Professor Say? Check Your iPod”¹¹. The article highlights software that universities are installing to capture the notes and video of the lectures and package them into podcasts that can be accessed from the universities server. Quoting from the article:

“Limor Raz, a Ph.D. candidate at the Medical College of Georgia in Augusta, reviews lectures in her neuroscience class by computer. “I can’t stress enough how much it helped me prepare for exams,” she said. “There’s a tremendous difference between viewing the lecture once and seeing it again. It’s not exactly easy, neuroscience. Trust me, it’s very tough.” New York Times

In some cases the podcast is equivalent to attending the class and there is simply no justifiable reason to attend the class! BUT we pay for expensive tickets to attend music concerts when we have the CD, we go to movies when the DVD will be in the store next week, we listen to notable speakers at conferences when their notes are online because there are additional elements at the “live” session that are simply absent from the recorded session. Most importantly these are social context for learning.



Diagram 23.1

If we look at iTunes¹² we start to grasp the 21st century library concept. A library is now a multimedia repository of resources that needs to be effectively managed so that relevant information resources can be found and “read” using appropriate technologies and learning skills.

¹⁰ Alan November Weblog; “Rethinking Libraries of Today”
<http://nlcommunities.com/communities/alannovember/archive/2007/02/12/118272.aspx> Accessed June 2007

¹¹ Eisenberg, Anne; New York Times; “What Did the Professor Say? Check Your iPod”
http://www.nytimes.com/2007/12/09/business/09novel.html?_r=1&oref=slogin Accessed December 2007

¹² A fee download from <http://www.apple.com/iTunes/> Accessed June 2007

The focus of librarianship will still be on expanding the critical literacy throughout the school along with the management and accessibility of information, and ensuring that the information being accessed by educators and learners is appropriate in terms of level, media formats, context and content. When we put dishes in the dishwasher we are not expected to know how the dishwasher works, just where to place the dishes so they can be washed in the most efficient manner and the same principle applies to information management. It is not important to know how every piece of technology or software works but rather how to use the system to extract the best possible results.

This is probably the most exciting time to be a librarian or in charge of information management within a school. The demands on schools to supply both high quality and large quantities of information resource to both educators and learners, and make them easily searchable, will considerably enhance the role of the librarian/information manager. This dramatic change in the information landscape, coupled with the capacity to easily access these resources underpins the emerging new education paradigm, and if this change is not brought about quickly, or managed well, the framework for 21st century thinking, teaching and learning will fail. Our inevitable conclusion is that the role of the librarian/information manager has never been more critical.



Diagram 23.2