O'Connell, J. (2012). Change has arrived at an iSchool library near you. In *Information literacy beyond library 2.0* (pp. 215-228). London : Facet.

Chapter 19

Change has arrived at an iSchool library near you

Judy O'Connell

Introduction

Since the start of the third millennium, the educational services of a good school library have become more important than ever – this at a time when school librarians or teacher librarians have been warned of their irrelevance, with some school libraries also having been closed. At the centre of this misguided scenario are the changes brought about by technology and the digitization of our lives, online, on devices, in a variety of formats and in a socially networked world. Our students have been born into a digital era that is significantly changing their literacy and information encounters and the ways in which they can learn. Participative new media tools have altered the shape and experience of learning and provided school librarians in the changing learning environment with new skills, new tools and new ways of working with literacy, information literacy and digital fluency in Library 2.0 (O'Connell, 2008). The iPad and other mobile devices have changed school libraries forever. While we are not yet quite sure what the implications of these changes will be over the long term, the era of the *iSchool library* has definitely arrived. In the 21st century information ecology, the school library is evolving into a school-wide, future-oriented library service, sometimes described as the iCentre (Hough, 2011) or Learning Commons (Loertscher and Marcoux, 2010). In this new library, both physical and virtual spaces are being changed. Many schools (Corbett, 2011; Subel, 2007) have transformed the library's physical space into collaborative work areas or spaces for relaxation, designed for reading; information gathering, analysis and sharing; and media creation. With improved delivery of digital content for use in new flexible learning spaces, libraries are being purposefully designed to become active agents of learning.

Our students now need help in navigating diverse information pathways within their personal and creative learning environments. They need a range of literature and information options, delivered to them via a variety of physical and virtual means - from books to all manner of media and digital objects - via a plethora of digital devices. They need to know how to juxtapose text, sound, media and social connections in real time, and how to filter, then mix and match what they see, hear and experience in order to build personal knowledge and understandings of the curriculum. For students, information literacy action happens wherever they read and interpret the world around them, not just in the classroom. Where once the bibliographic paradigm created textbook learning and school libraries, learning today requires that teachers and school librarians understand reading and information seeking in a connected world.

In this new library, the literature, magazines, information, technology, learning and teaching activities are designed to support the needs of the networked learning community, creating a partnership between teachers, students, school, home and the global community.

Meeting readers where they are

The role of the school librarian is to promote books and reading, in old ways and new ways (Gordon, 2010a). Young (2007) explains that books are *machines for reading*, in whatever form or on whatever device they come to us, allowing human conversation as both a reader and a writer. A book is an ideas machine, so reading, writing and publishing has simply moved into the digital environment.

The newest devices for reading and listening are beginning to provide options never before possible for fiction and non-fiction reading. School libraries are making use of audio and, digital literature and magazines for delivery via the iPad, Kindle and other mobile devices, from sources such as Google Books, Amazon and Overdrive (www.overdrive.com) services. Fiction print collections have also been reorganized by genre, to reflect interest groupings e.g. Fantasy and Science Fiction or Mystery and Suspense. Projects and activities are also devised to promote literacy through as many different avenues as there are school librarians with imagination (see Figure 19.1 for an example).

Reading, writing, creative activities, gaming, transmedia storytelling (integral elements of the story told through different media), immersive worlds (such as Quest Atlantis, http://atlantis.crlt.indiana.edu/) and digital storytelling applications can all be adapted and adopted to meet readers where they are,
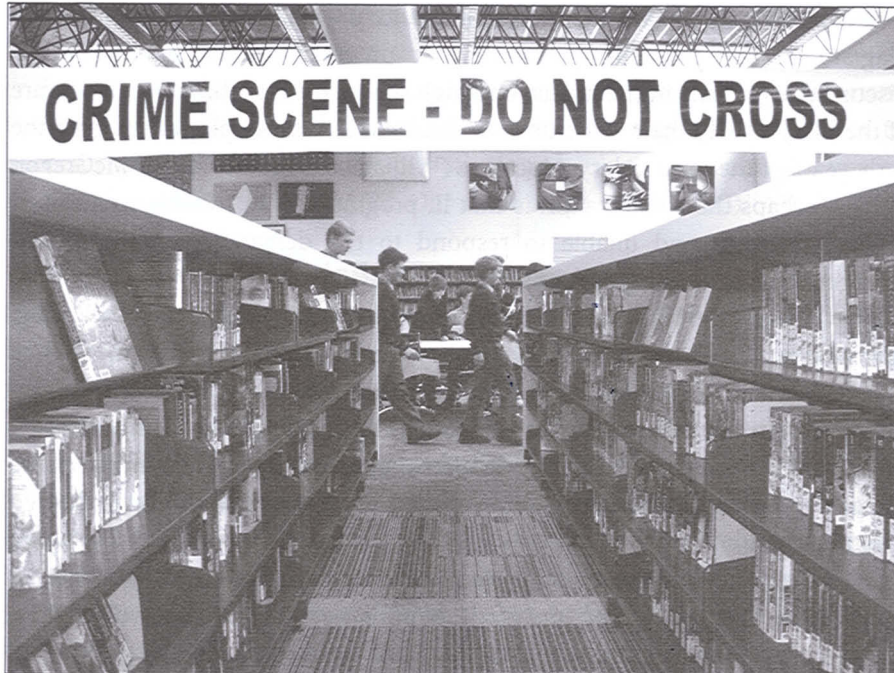
Figure 19.1 'Body in the Library': a cross-curriculum transliteracy project (Photograph: Judy O'Connell)

according to their 21st-century literacy needs. School libraries that adapt to the digital needs of their students not only continue to build a reading culture in the school but provide the divergence and convergence of media needed to provide the materials for motivation, differentiation, collaboration and connections necessary for 21st-century learning (Lamb and Johnson, 2010; Hay and Foley, 2009).

The new information environment

Print materials are no longer at the core of the reference collection, the non-fiction collection or the information search process. Students use technology to research online, anytime, anywhere. Yet, despite teachers often being critical of students' information literacy (IL) online, paradoxically, they still maintain that their students know more than they do when operating in online environments (Ladbrook and Probert, 2011). According to Herring (2011), popular assumptions about the success of IL knowledge and skills transfer are inaccurate, leading to problems in instruction.

Internet resources are easily available and present an open invitation to plagiarism. The problem, particularly at university level, is now widely discussed, especially in the media, and high school teachers have become aware of the need to help their students to understand and avoid plagiarism from the early years of their secondary education (Williamson, Archibald and McGregor, 2010). Perhaps the complication is that IL programmes in schools are trapped in past practices and unable to respond to the demands of existing and emerging digital learning environments.

Now students are involved in five interwoven, integrated kinds of learning: curriculum content, information literacy, learning how to learn, literacy competence and social skills (Kuhlthau and Maniotes, 2010). We are nurturing informed learning (Bruce, Hughes and Somerville, 2011) by refocusing attention on using information to learn, while also supporting the development of the learners' growing awareness of their experiences of information use as they go about learning.

We have a new information environment that demands more extensive IL capabilities. The purpose of, and underpinning need for, IL has evolved. The 21st-Century Fluency Project (21CFP)[1] identifies critical thinking skills as essential to living in a multimedia world and introduces *information fluency* as the ability to unconsciously and intuitively interpret information in all forms and formats in order to extract the essential knowledge, authenticate it and perceive its significance.

More recently *transliteracy* has captured the interest of school librarians as a term to explain being literate in the 21st century, where the relationship between people, technology and the social meaning of literacy is recognized in past, present and future modalities (Ipri, 2010). The emergence of social media and collaborative online communities has also led to the reframing of information literacy as *metaliteracy*, because information takes many forms online and is produced and communicated through multiple modalities (Mackey and Jacobson, 2011).

School librarians are involved with and responding to an information *renaissance* that is rewriting the world as we know it: knowledge; information bias; distributed social and personal information; public and private data; global marketing; clashing cultures; a million voices commenting on a billion issues in blogs, wikis and podcasts. Information technology has become a participatory medium, giving rise to an environment that is constantly being changed and reshaped by the participation itself, changing the flow of news, affecting tacit as

well as explicit knowledge and embedding a new culture of learning (Thomas and Brown, 2011).

So now, more than ever, collaboration between teachers and school librarians is core business as students benefit from team teaching - helping them to deepen their levels of knowledge of both IL and subject content (Williamson, Archibald and McGregor, 2010, 27; Ohio Media Spectrum, 2008).

Making learning visible

Our students in primary and secondary schools need to be nurtured in *how to learn* from the multiplicity of resources at their disposal, using the best information-organization and critical-thinking strategies that we can show them.

We need to build a culture of enquiry at the heart of each of our schools. As Gordon (2010b, 79) explains, a culture of enquiry emerges as teachers become learners, and learners are self- and peer-taught, and everyone becomes a researcher. Teaching and learning in school libraries has been shifting from tool-based and skills-based instruction to constructivist user- and learner-centric approaches, and evidence-based practice has become the essential tool for improvement of practice (Bates, McClure and Spinks, 2010).

Emerging devices, tools, media and virtual environments offer opportunities for creating new types of learning communities for students and teachers. Dede (2005) described the interrelated matrix of the learning styles of neo-millennials as being marked by active learning (real and simulated), co-designed, and personalized to individual needs and preferences, based on diverse, tacit, situated experiences, all centred on fluency in multiple media, chosen for the types of communication, activities, experiences and expressions they empower. *The NMC Horizon Report: 2011 K-12 Edition* (Johnson, Adams and Haywood, 2011) (issued annually since 2009) has identified and described emerging technologies that are having a significant impact on K-12 education, reiterating the diversity of influences in the learning spaces of our schools. For school librarians, the report directs attention simultaneously to information use and to learning, and highlights the fact that 21st-century technologies are unlikely to be empowering unless they are in the hands of an informed learner.

Content

Beyond physical resources, content that was difficult to access has become accessible and searchable, such as entire historical collections of news media and photos. Libraries and museums are providing open access to a treasure

trove of cultural and historical resources, providing unprecedented access for students and scholars around the world. The millions of digitized books and articles are changing scholarship and the tactics of learning. Federated search, linked-data, EZproxy, and OpenURL resolvers are all, potentially, supporting the needs of the learner by making it possible to engage in information search strategies that are automatically tailored to the task at hand.

For example, by showing our students how to connect to a database information repository (such as EBSCO, Gale or JSTOR) or to a local library service via Google Scholar, we are helping them to broaden the scope of their information seeking, while at the same time refining the quality of the information response. Alternatively, federated searching (where a query is sent to various databases in real time, using services such as Follett One Search), which best serves novice searchers with little exposure to IL training, may have a place in many schools that are still developing strong IL programmes (Abercrombie, 2008).

New developments in searching, such as Google Instant (which shows results as you type), have both enhanced and hindered the information-seeking habits of students by responding quickly to input search terms, so making the refining of searches by altering the keywords seem less relevant. Wikipedia provides instant answers. On the other hand, the computational search engine, Wolfram Alpha, allows teachers to explore complex mathematical problems without students having to calculate complex data problems for themselves, so that they can make the leap directly to the analysis and synthesis of results (Harris, 2011).

Such new search modalities require a more sophisticated response from IL programmes, where we need to teach how important it is to evaluate every information source, even those traditionally considered reliable, because of the interconnectedness of information sources and socially networked tagged repositories (Gunnels and Sisson, 2009). There is a great deal of rich content available to students and teachers that is collaboratively built and shared, including blogs, wikis, images, videos, places, events, music, books and more. Searching for content requires wise IL strategies and the embedding of tools into curriculum learning processes, in order to avoid becoming lost in the information labyrinth. Finding answers to an information query would be easy if computers could understand and collate all the information 'out there'. Finding solutions to an information problem will, however, always require metacognitive engagement with the content being found.

For educators, the promise of the Semantic Web, or Web 3.0, where meaningful connections can be established among any online pieces of information (Feigenbaum et al., 2007), will be simply to change information discovery by allowing us to ask questions rather than perform searches - no more than that.

In discussing the power and peril of Web 3.0 and the Semantic Web, Ohler (2010) suggests that knowledge construction via internet search will become much more effective in this shift from data to semantically connected resources. For example, when a student searches for *causes of the [American] Civil War*, rather than receiving a list of pages that merely contain the words *causes* and *Civil War*, they would receive information in which the word *causes* is specifically related to the causes of the Civil War. The Semantic Web (Feigenbaum et al., 2007) and RDA (Resource Description and Access) metadata standards (Oliver, 2010) for intelligent resource discovery mean that school librarians have an increasingly important role to play in nurturing information-literate engagement with content. This is because the intelligence of the connections will not help our students to learn better unless the IL strategies that we introduce them to actually ensure critical thinking and problem solving.

Content exploration and learning demands a mix-and-match approach:

- search strategies
- evaluation strategies
- critical thinking and problem solving
- networked conversation and collaboration
- cloud computing environments
- ethical use and production of information
- information curation of personal and distributed knowledge.

IL beyond Library 2.0 is an area of pivotal importance for the school librarian in terms of understanding it, becoming involved with it and presenting new methods and new information strategies for educators working within the curriculum.

Information strategy

Web 2.0 revolutionized the means at our disposal for filtering and sharing information. Whether by managing information by means of social bookmarking or RSS reads and feeds, or communicating with our school

community via blogs, wikis, podcasts, YouTube or Facebook, students, teachers and school librarians have entered into digital conversations. Widgets, portals, apps, feeds, aggregators and more now provide us with our 'tools of the trade' for information curation. Global school library leader and blogger Dr Joyce Valenza of Springfield Township High School library and the School Library Journal[2] regularly provides new professional tools and strategies for school library collections, instruction, services and programmes. Valenza (2010) has published a manifesto for 21st-century school librarians, prompting deep discussion about the evolving role of the school librarian. She regularly identifies engaging new strategies for use with learners in order to promote reading, information fluency, digital citizenship, communication and creativity, providing supporting information via the school's Spartan Guides (Figure 19.2) - created using the library information organization tool LibGuides.[3]

The importance of the school librarian is intrinsically linked to effective and responsive information curation and dissemination in distributed environments within and beyond the school. Use of Web 2.0 tools has become embedded in good practice, and information curation has extended beyond the library catalogue, to library and school information management systems for bibliographic and media resources, and various organizational tools that reside beyond the school in web environments such as LibGuides, Diigo, Live Binders, wiki, Delicious, Google tools, RSS, Media Tools, Netvibes, iGoogle and many more.

But when a technology focus subverts students' conversation and their development of critical thinking skills (and their ability to evaluate and analyse the information at hand), the mental processes that change knowledge from information to concept are not learned (Bomar, 2010). With the maturation of Web 2.0 tools, nurturing IL skills and strategies has necessitated a shift towards a meta-literate approach. School librarians are rethinking what 'collection' of information means, thereby supporting personalized and collaborative information seeking. The new core *information research tools* available for students, teachers and school librarians adopting IL beyond Library 2.0 include:

- microblogging tools for information sharing by teachers, students, classes and the school community in primary and secondary schools, e.g. Edmodo, Yammer, Google+, or Twitter
- social bookmarking and tagged collections, e.g. Diigo, Flickr, Vodpod
- collaborative writing, editing, mind-mapping and presentation tools, e.g.

Figure 19.2 LibGuides as 'tools of trade' (Reproduced by permission of Joyce Valenza)

Google Docs, Exploratree, VoiceThread, MindMeister, Wikispaces

- research tools for online information management, writing and collaboration, e.g. Zotero, EndNote, EasyBib, BibMe, Mendeley, RefWorks
- information capture in multiple platforms and on multiple devices, e.g. Evernote, scrible.com
- library catalogues, databases, and open access repositories – all used for information collection, RSS topic and journal alerts, and compatible with research organization tools
- aggregators, news readers and start pages, e.g. iGoogle, Netvibes, Symbaloo, Feedly

- online storage, file sharing and content management across multiple platforms and computers, e.g. Dropbox, Box.net, SkyDrive.

These tools have allowed us to reframe information collection as highly flexible and collaborative information and knowledge conversations, while also facilitating information organization. Technology and online integration can facilitate critical thinking and knowledgeable actions, rather than merely permitting the access to and transformation of information as part of the IL skills set. The point is to engage our students in multiple conversations and research pathways that reflect the changing nature of scholarship in multimodal environments. As Lankes (2011) explains, at last we have a departure from information, access and artefacts as the focus. In the lens of conversation, artefacts and access are useful only in that they are used to build knowledge through active learning.

Leadership strategy

Becoming a model for lifelong learning has been the goal of every school librarian, because school libraries are in the knowledge business. By building a future-ready personal learning network, a school librarian can engage in new and emerging media to assist in promoting creative and authentic knowledge work in their schools (Cox, 2010; Harlan, 2009).

This leadership strategy allows a school librarian to be proactive within the school community and participate in many and varied learning conversations, such as:

- curriculum conversation and innovation
- project-based learning (Boss and Krauss, 2007)
- guided enquiry (Todd, 2010)
- virtual and gaming environments (O'Connell and Groom, 2010)
- digital divide, and credibility of online information
- contemporary media and open online access
- participatory evaluation of information (Flanagin and Metzger, 2008)
- digital citizenship
- internet safety
- responsible use of information (Ribble and Bailey, 2007)
- global sharing of leading practice and resources to support the 21st-century learner

- contribution to scholarly research through participatory communication and publications
- the American Association of School Librarians' (AASL) Standards for the 21st-Century Learner Lesson Plan Database (http://aasl.jesandco.org)
- Teacher Librarian Ning (http://teacherlibrarian.ning.com/)
- community entrepreneur
- bring together conversations and resources to build knowledge
- staff development to enhance student and staff learning in collaborative environments
- community outreach, supporting and motivating the evolution of the core learning mission of the school.

The future

IL beyond Library 2.0 is a story about transition to future learning – a new kind of lifelong learning that has adaptability at its core. It is a responsibility to prepare students to move from the world of school to the world of adulthood, employment, further education, vocational training and community participation. It is a responsibility to work with these students of ours, who are already immersed in creative, collaborative and socially networked environments. How we harness these environments and how we teach our students to be literate, information literate and knowledgeable in these 21st-century environments will determine our success *and* the future relevance and importance of our school libraries.

Notes

1   www.committedsardine.com/fluencies.cfm.
2   http://blog.schoollibraryjournal.com/neverendingsearch/.
3   http://sdst.libguides.com/librarians; http://sdst.libguides.com/newtools; http://sdst.libguides.com/researchtools.

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