Placing Information Literacy Skills at the Core of Instruction to Promote Critical Thinking

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Abstract  
This article considers students’ perceptions of the academic research process so as to guide librarians and classroom faculty to enhance students’ ability to find and evaluate research sources and thus develop students’ information literacy capabilities. Instructional design for information literacy should begin by examining how students approach research using the world wide web. While some students may feel qualified to find research information, the authors contend that every student can benefit from using information literacy skills to improve the way they glean information from the Internet. The content for the article is gathered from student interviews and faculty insights on students’ research behaviors as observed in the library and also in classroom computer labs in introductory through advanced college composition classes. It concludes that Librarians can partner with composition faculty to change traditional curriculum by adding specific learning goals that help students understand how to rethink the Internet as their only research resource and to value the instruction that librarians can provide in helping learners to evaluate and manage the avalanche of information now available online.

The article contains the insights and conclusions of an LIS professor and a professor of composition, each with over thirty years of field experience of teaching research skills to students.

Keywords: Information Literacy Skills, IL Obstacles and Challenges, Reliability of Information, Librarian-Faculty Collaboration, Libraries and Google, Effective Instruction.

The Challenge  
The future of libraries is in the hands of library users. Unfortunately, the end-users have fallen in the hands of commercial database providers and search engines like Google. The Net Generation thinks that Google has answer to all their queries. That is not true, and at stake is the quality of information and future of libraries. There is an immediate need to turn the rote learners into independent learners and critical thinkers. Mitch Kapor, the founder of Lotus Development Corporation, noted that “Getting information off the Internet is like taking a drink from a fire hydrant [that provides a powerful blast of water]” (http://wwwsgi.nu/). A localized translation of this might be to say that finding information on the Internet is like finding a bald man in Tirupati. Information is now in over abundance. There is an information deluge that researchers have to carefully navigate to find the specific information they need. It is harder than ever to be a good researcher because there is such a large mix of reliable and unreliable data available. Searching and retrieving reliable information along with browsing and serendipity are critical challenges.

The challenge for today’s teachers, including academic librarians, is to effectively educate students on how to strategically gather information from the Internet and other sources in ways that yield the best sources in a minimal amount of time. To matriculate into professional information managers, students must learn lifelong skills for effective searching. Students need to move beyond their academic assignments into being able to complete research for the world of work. If universities are to prepare graduates to be world-class professionals, then the academy must place information literacy skills at the core of instruction in every discipline. This can best be accomplished when librarians in collaboration with classroom faculty infuse information literacy instruction into and across the curriculum. "Librarians, librarianship and libraries have always a leading role in the advancement of knowledge and the pursuit of learning. It has been the extremely close symbiotic collaboration between school teachers and school librarians that led to the information literacy idea in the first place” (Horton Jr., 2009, 119) Way back, Peter Drucker (1980) observed that “Information is the manager’s main tool, indeed the manager’s ‘capital,’ and it is he who must decide what information he needs and how to use it. This axiom is even truer today.
This year’s class of in-coming college freshmen was born in 1980, the same year that the World Wide Web made its debut. That means, for this group of students there has always been a fast, free, convenient, and virtual way to get information. They most likely did not grow up with a bound set of the Encyclopedia Britannica in their homes because the Internet was quickly replacing print sources as the primary provider of instant and supposedly reliable information. The problem with replacing the encyclopedia with the wikipedia is in “supposing” the reliability the reliability of information that comes from the World Wide Web (WWW).

The implications using research that is gleaned only from the WWW without the filter of information literacy skills are immediately apparent to anyone who teaches research-based writing. As a professor of composition who has spent the last thirty years watching students complete research essays and the last fifteen years standing behind them in the computer lab as they explained how they gathered information for their reports, the naiveté is obvious with which students trust the reliability of information they find on the Internet. Ten years ago students would surf for sources using Yahoo! While students’ technological skills have advanced, the only change in their critical thinking skills for website evaluation is that most of them have switched to Google because they recognize it as the most powerful search engine. Schools have invested in teaching students how to use the newest software; however, they need to also invest in teaching information literacy skills.

Increasingly librarians see students enter the library, turn away from the books stacks and settle into a computer station and to soar beyond the bounds of the library databases to the endless horizons of information on the Internet. This new generation knows how to blog, create websites, download, text and post to YouTube, but any academic who has watched college freshmen would attest to the reality that many students need instruction on how to skillfully use the Internet as a research tool and resource.

That means the academy must revise its curriculum to include information literacy. Instructional design theory calls teachers to begin curriculum revisions by first considering the obstacles to learning and then eliminating those before creating the instructional delivery. If this step is not taken, the learning will be built on a shaky foundation. Effective instruction also carefully considers students’ incoming aptitudes and attitudes. Given what we know about students’ misplaced confidence in their ability to use the Internet for academic purposes, faculty must build into their instruction an awareness in the learners of the lifelong value of sophisticated information literacy skills. But librarians also have a pivotal role to play. “If, as all available evidence indicates, students and faculty are increasingly relying on Internet sources, then it is vital that what they rely on be of good quality and readily accessible. This is of importance not only for library patrons but also for librarians themselves.” (Proctor, 2009, 435).

The Obstacles
Real learning cannot take place unless students value the learning they receive. Thus, universities must change students’ attitudes toward the Internet. Faced with a generation of learners who believe books are an obsolete tool of learning and that libraries are merely book repositories, librarians and faculty must persuade young researchers to recognize the perils of using the Internet without a filter of critical thinking to determine the reliability and validity of the information they gather from the World Wide Web. “The basic purpose of information literacy is to develop sense-making ability among the stakeholders” (Jagtar, 2009, 122). We must help novice researchers to understand that the library is an excellent portal and gateway to effective searching - both on the Web and in subscription databases. Libraries must promote innovation in their resources and services. The information seeker should not be asked to go to a physical place only to get access to the electronic resources. Librarians must equip the end-users with information literacy skills, and also help them in getting access to quality information resources and services. Faculty can begin this process by alerting students to what the powerful search engine Google really is. Google has turned information into a commodity that it purveys. The current value of Google, Inc is 100 billion US dollars (Manjoo, 2008). Google’s value is not in the information it owns, but the information that is can access for researchers. Google is thus an information portal that is earning record profits because 97% of its revenue is from online ads (Manjoo, p. 39). Students need to recognize the commercial, advertiser-centered motives of a search engine like Google and balance that with the patron-centered, instructional motives of libraries.

The challenge for libraries, even the ones with the most digitally advanced equipment, is that no library is worth 100 billion US dollars. Libraries are undervalued because their most valuable resource is something upon which we cannot place a price. It is the professional services the library provides. Librarians provide the economy of time by providing fast, effective search and evaluation strategies that save their patrons’ time.

Novice researchers may not recognize the real value of libraries. Because of the enormity of information on the Web, students may not think that library can be the best gateway to information. Students have to see libraries as more than a computer lab. Too often libraries are seen as places with walls providing limited access to subscription-based database and password protected information. In contrast, the library really is a place of possibilities and not a circumscribed, place-
bound repository of information. Google, which is only eleven years old, has been able to cultivate the image that it is a dynamic utility that is constantly morphing to become more powerful so that it has the capacity to access an infinite number of information sources. How does a library compete with Google if the library is seen primarily as a building with four walls and someone sitting at a desk to answer questions? Libraries need to market a new image of themselves as information service centers. In fact, we are required to tell the library users that in most of the cases Google provides seamless access to unlimited and unreliable information, whereas in libraries every bit of information is selection-based and ordered with the best professional practices.

Libraries and Google

Libraries should not compete with Google. People need to understand the difference between a computing tool that a search engine is and the professional services of a person who can think, talk, question, and interact with patrons to personalize and power a search in ways that a computer cannot. Making this message clear will be a difficult task for libraries to accomplish because they are facing aggressive marketing campaigns by Google and now Microsoft’s Bing that send the message that these search engines are all people need to tap into unlimited information from diverse sources. For example, Google’s commitment to “constant improvement pays off: two-thirds of all searches in the U.S. are now conducted through Google – about 7 billion a month. Yahoo! Has less than 20% of the market and Microsoft less than 10%.” (Manjoo, 39).

No library can handle 7 billion searches a month, but librarians can educate students to launch searches on Google that are well aimed and therefore more productive. Thus, one goal of libraries should be not to replace Google, but to teach people how to conduct Boolean searches. Internet users need to understand the difference between finding 31,000,000 Google “hits” for the phrase “global warming” and the 279,000 hits for the more exact and scientific phrase “trophosheric ozone.” As Stephen Turbek (2008) points out, even using a simple tool such as “advanced search” on Google is confusing for most web users (http://www.boxesandarrows.com/view/advancing-advanced). Library and classroom faculty can easily clear up that confusion and demonstrate the simple techniques for smart searching that students will quickly appreciate.

Even the most well-informed library users may consider the library to be a finite set of subscription databases and a collection of holdings rather than a service and a personalized professional support network. Librarians need to make clear to patrons the difference between the do-it-yourself search engine and the professional service center that libraries offer. There is human touch and interaction in libraries. Books have their own beauty. One can read the printed book at one’s own speed and convenience. But in case of the web-based information, the information seeker gets carried away with the plethora of internal and external links in a digital document.

One complication that has to be considered in “marketing the library” is that often students will lose access to a library once they graduate from the sponsoring institution. If the library has not given patrons the skills and understanding to be information literate in any environment, especially those information tools outside the purview of the library, then the student is not fully prepared to be an effective information manager. Novice researchers should learn to operate within a library as well as in other information mediums.

Authorship Uncertainty

Information literacy instruction also needs to consider how to help students overcome the of uncertain authorship presents on the Internet. With many websites, blogs, wikis, and video clips there is no clear attribution of authorship. This tempts students into disregarding intellectual property and taking information without crediting the source. The blurred or absent authorship on many popular websites such as Wikipedia contributes to the sense that “common knowledge” or “obliteration by incorporation” refers to any bit of information the searcher finds on the Internet. Too many students will conclude that if they can find the information they seek in a quick sweep of the Internet, then they need not document the source from which they took the information because the information is ubiquitous and therefore common knowledge. An information literate researcher not only notes but also demands authorship clarification so the source can be scrutinized for reliability, bias, currency, or authenticity.

Disintermediation

What also complicates the authorship question is that web surfers can easily go to an original source to gather information. For example, they can go directly to companies such as Nike or Gap to get information about their social responsibility policies and practices. These corporate websites are so ripe with information that novice researchers may be satiated at one site alone. They may not understand the need to use a subscription database like Gale Research or Lexis Nexus to read an outsider’s opinion or analysis of Nike’s social practices. Without the second source checking, readers lose the value of outsider objectivity. While primary sources are important, secondary sources provide a much needed perspective that offers a more complete picture of information. Often on the Internet, novice researchers will check only one site because there is so much information in that one place. But information seekers must learn to differentiate between fact and opinion, because ‘fact is a sacred cow and comment is free.’ They must not
get carried away with the biased opinion. They must learn to evaluate information for credibility and reliability.

Additionally, researchers now can be overwhelmed with information because the Internet provides a global perspective on information. It is not enough to see issues from one’s own political or social perspective or based on what is happening in one’s own geographical region. Full spectrum research now requires information seekers to consider ideas as they compare to the world’s view. With the advent of cable communications and amateur media outlets like YouTube, viewers can watch news as it happens as reported by Al Jazeera, the BBC, the US mainstream media, independent news sources, and actual cell phone video on YouTube and other video clip platforms. Any person with a cell phone camera can become a news reporter or social commentator. The most recent Iranian election is but one example of how government media outlets clashed with international outlets and how citizens on the street can post to YouTube and shape world opinion.

Multiple perspectives on a subject are very helpful, but also require researchers to examine validity on a closer level than the information they may find in news sources that follow the journalistic standard for truth in publishing. Blogs complicate information gathering because they are open access and often anonymous. Readers need to be taught to authenticate authorship and consider how the author’s bias shapes the information. Libraries can promote the value of informed, reliable, and edited authorship that comes to patrons through databases, print materials, and other holdings within the library. However, well-prepared researchers need to learn how to determine authorship in any setting, medium, or information delivery system.

Credibility Challenge

The attitude that authorship is unimportant also cultivates a growth in plagiarism with novice researchers not citing sources. They become “information pirates” who might believe “if I find it, it belongs to me.” Students also may not understand that if they can find the information, so can a well trained teacher who knows how to do an advanced search. Often students believe that there is so much information on the Internet that a teacher would not be able to track down a source. Students need to know is that it is easier than ever for teachers to find the source of information that is plagiarized.

The nature of the Internet discounts the importance of attribution. To illustrate, the American comedian Jon Stewart is claimed to have observed that “the Internet is just a world passing around notes in a classroom.” The problem is that in the “note passing” of the Internet, the verification of authorship is lost. One can, for example, find this quote attributed to Jon Stewart on the many quotation websites using a simple Google search; however, none of the sites offers the original source of quote. Thus, even if one wanted to give attribution, one does not have a source to attribute. If a researcher wanted to check the validity of the quotation, there is no way to track it because the quotation has become a widely circulated one on the Internet. This plethora of repetition reinforces in novice researchers that they do not have to credit a source because there is no specific source to credit.

When they expand this concept to “borrowing” whole sections of text from websites and not crediting the source, then they open themselves to the most serious charges of academic dishonesty. The reality is that for some students, copying sources without citing them is more of a matter of not knowing what the academic standards for intellectual property and academic honesty are. Librarians could play a key role in helping to educate students to these two importance practices.

This suggests one more obstacle for using the Internet as one’s sole research tool. As noted above, information is viral on the Internet with multiple websites confirming information that may not be true at all. The filter of editorial truth is being replaced by the popularity of ideas being the indicator of truth. Corporate marketing departments are fully aware of the power of viral marketing. Blendtec, a commercial blender company (http://www.blendtec.com/) is a model of what viral marketing can accomplish. This small company has become a YouTube phenomenon because of its “Will it blend” videos (http://www.willitblend.com/) and has created a cult following with its most recent I-phone blending ad getting 7,174,233 views since its launch just months ago (http://www.youtube.com/watch?v=qg1ckCkm8YI ). That means over seven million people visited this website in the last few months based on word of mouth alone.

A novice researcher might conclude with that quantity of viewings that the validity or reliability is confirmed by popular support. The same holds true with most information that is found on the World Wide Web. Confusing validity and truth with the popularity of a belief is enough of a problem that there exists a plethora of websites devoted to debunking urban legends. Websites such as http://www.snopes.com/ have a huge archive of popular Internet born myths that they prove to be fallacious. For researchers who have not learned to differentiate between primary and secondary sources, separating the truth from fiction is a real challenge that is complicated by the Internet.

Librarians can help researchers to become truth seekers by teaching students basic information literacy skills that they can use to evaluate sources.

Validity of Information

For those who teach information literacy skills, it is vital to help students use a rubric for checking the validity of information. These rubrics exist on the
tutorial sections of most research library websites. Typing "website reliability" into Google will produce 28,400,000 "hits." The challenge for librarians is to motivate students to read and learn how to employ these guidelines. While a librarian may not have the license to assign and grade such a learning task, classroom faculty should build this type of critical thinking skill into any assignment that asks students to use the Internet as a research tool.

Another factor that complicates research for everyone of every age is that the public is confusing presentation and content so that the validity of information is based increasingly on the context in which it is placed. The reality is that for the average person, flashy, well designed websites look more believable than a plain websites. While readers have long been warned that they should not judge a book by its cover, that same warning should be translated into not judging the reliability of a website based on the flash of its homepage.

Web critics such as Vincent Flanders (http://www.webpagesthattsu.com/) and usability expert Jakob Nielsen (http://www.useit.com/) have extensive tutorials on website design standards as they relates to the reliability of information. However, too often visual literacy is not understood to be a facet of information literacy. Website evaluation should include considering graphics, layout and page design as clues to the reliability of content.

**Timeliness of Information**

With instant publishing in electronic media, society has redefined what it means by the timeliness or currency of information. Increasingly people see information published before 2000 as outdated. The dynamic nature of the Internet can lure people away from a value of timeless facts. Too often libraries are seen as the bastion of books that lock information into place with the printed word. Novice researchers might confuse currency with validity. Novice researchers need to understand that the editorial delay that insures accuracy of information also risks that the information may be out of date by the time it reaches the reader. The filter of peer review and publishing guidelines that provide quality of information can also be a deterrent to new voices from outside the mainstream of information. While the library can easily represent the status quo and archival information, it often is not perceived to have the advantage of being a learning resource centre and a repository for emerging and diverse voices that self-publishing affords on the Internet.

**Faculty-librarian Partnership**

Recognizing the challenges that face novice researchers, librarians and classroom faculty can help students to tap into the info-glut that exists on the Internet. Rather than being overwhelmed by a torrent of information, students can learn how to carefully navigate the Internet. These skills are not intuitive. They must be taught in a systematic and cumulative way in the classroom and in the library and any place where research is conducted. This is a task that is best accomplished by classroom faculty who partner with librarians so that students learn to see librarians as the information service professionals that they are educated to be. Having a collaborative approach to teaching information literacy skills reinforces the notion that library and therefore research skills are integral to any education that seeks to prepare students to be lifelong learners who are continually using research to keep current in their professions and in the issues they face in their personal development. Our information society needs to revise its perception of the library as a repository and redefine it as a service center staffed by information professionals who are educated in effectively using the entire medium by which information is created, shared, stored, managed, and used.

The challenge to librarians is how to partner with classroom faculty to share the responsibility of teaching students the value of the library. Another challenge is to liberate the information seekers from the clutches of junk mail, Google and Wikipedia. We recommend that librarians approach the faculty for understanding the full set of obstacles that students face when they sit down in front of computer for searching and browsing the web-based information. This can be done only by placing the information literacy skills at the core of instruction, and faculty-librarian partnership to develop critical thinking skills in students.

**References**