

Ensuring the Net Generation Is Net Savvy

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Abstract

Although the current generation of students may have never known life without the Internet, they are not necessarily “net savvy.” Exposed to huge quantities of information on the Web—in text, audio, image and video formats—sorting valid information from misinformation is a constant challenge. Beyond the quantity and variety of information, students are now creating information, not just consuming it. This white paper explores the challenges of functioning in an information-rich environment where students must blend skills in finding information, using technology, and thinking critically.

Introduction

The Net Generation—today’s college students, who have never known life without the Internet—seem completely at home in the digital world. They adopt (and drop) technologies rapidly, never needing an instruction manual to understand how to run an application or operate a device. Their communication is increasingly digital, whether instant messaging, e-mailing photos, or sending geolocation information. Finding friends isn’t limited to meeting people in class; Facebook, MySpace, and other social networking tools let them learn a great deal before approaching anyone. Not only do they create the image they choose to portray using Facebook, avatars, and screen names, but students also download collections of music, movies, and ringtones to enhance that individualization.

Students are empowered. When they want information, they don’t ask an expert or go to the library. They use the Internet to find information for themselves. The iPod supplanted beer as the most “in” thing for undergraduates, and Facebook tied beer for second.¹ Whether through a search engine, a chat room, or a network of friends, abundant information is readily available. Students are not only consumers of information but also active information creators—including text, images, audio, and video. It would seem, then, that the Net Generation is net savvy.

Despite students’ skills and do-it-yourself confidence, however, concerns have arisen about their information gathering, technology use, and critical thinking approaches. When they download a resource, have they assessed the source quality? Do they understand the ethics surrounding use of others’ intellectual property? Did they conduct an effective search, or did they simply grab the first result from Google?

Other concerns have recently emerged, such as student understanding of privacy, security, and how the Internet works. Just as the Internet is a force for great good, it has also proven to be a vehicle for mischief and abuse. Students sometimes create Facebook personas that make themselves appear as party animals or daredevils, even if they are nothing like that. Others post information that might better be kept private, sometimes negatively impacting internship or job opportunities or leading to legal difficulties. Moreover, those who think posted information can easily be retracted or kept from friends, family, or employers sometimes find out the hard way that it cannot. Perhaps students aren’t as net savvy as we might have assumed.

Many of these concerns predate the Information Age. However, the volume of information being generated means no one will ever be “educated” for long—we will have to continually educate ourselves, searching, retrieving, and synthesizing information. It is no longer a college-going skill; it is a lifelong skill. Being net savvy is much more than being unafraid of all things digital.

Any discussion about today’s students’ use of information presumes that much of that information—and misinformation—is on the Internet. The number of information sources for the Net Generation is prodigious, as it is for those of us who grew up with the card catalog. Blogs, podcasts, Webinars, instant messages, online chats, discussion boards, e-mails, PowerPoints, listservs, RSS feeds, social software, online image archives, digitized scholarly journals, and, of course, search engine results from Google, Yahoo, MSN, and others present an endless array of options. The ways in which all this information is used have also expanded. Beyond search and retrieval, information is contextualized, analyzed, visualized, and synthesized—complex skills that require critical thinking. Two questions become particularly important to educators: “How can students become skilled at finding, evaluating, creating, and effectively using information from the rapidly expanding resources available to them?” and “How can these skills transfer to the workplace and personal lives of students once they leave campus?”

According to Thomas Friedman, “Never before in the history of the planet have so many people—on their own—had the ability to find so much information about so many things and about so many other people.”² The implications of all this free-flowing, easily accessible information are nothing short of revolutionary. In an age of abundant, networked information, faculty, librarians, and IT staff face new challenges helping students define the information needed, collect that information, organize and synthesize it, and determine its quality:

So complex have things become that the subject of information literacy has gained the attention of major accrediting agencies as they wrestle with the question of the place of libraries in gauging the effectiveness of colleges and universities in the twenty-first century.³

Whether the term used is *information literacy*, *fluency*, *competency*, *facility*, or *expertise*, all describe similar concepts. More important than the terminology is how an institution addresses the need. After all, with Web 2.0 emerging, notions of information, interfaces, and educational needs may morph yet again.

Terms and Concepts

The ability to know when information is needed, how to find it, how to discern good information from bad, and how to use it appropriately is a valuable skill commonly referred to as *information literacy*.⁴ In the past few years, however, what constitutes *information* has expanded, leading to the emergence of concepts such as visual literacy, new media literacy, information fluency, and information competency.

Visual Literacy

Information comes in a variety of formats, such as text or images. Information literacy demands competence in dealing with visual images—visual literacy. Images can have enormous power in all aspects of our lives. Images provide insight into art, culture, molecular structures, or the anatomy of the human body. Digital photography, along with audio and video “casts,” allow anyone to self-publish on the Web, potentially reaching a global audience: “Screen time—with its nonlinear clickability and elements of image, color, sequence, and motion—has been added to the once privileged paper space as a primary organizing format for expressing and exchanging knowledge.”⁵

However, a problem with digital images—on television, in print, or on a Web site—is that images can be manipulated to display falsehoods masked as truths. Sophisticated and relatively inexpensive image-editing software puts the power of professional image manipulation into the hands of many. News and media organizations can easily crop, enhance, or alter images to influence perceptions.

Our increasingly visual and digitized world demands that higher education “prepare visually literate students to look critically at images and graphic representations and ask the following questions: “Does this image tell the truth?” “How representative is this image?” “What is the source of this image?” “Are we responding to emotional issues or content?”⁶ In addition, institutions should ask “What are the copyright issues?”

Visual literacy is “fueling new applications for learning, and spawning discussions of more effective uses of new media forms,”⁷ leading educators to suggest that undergraduates demonstrate skills in visual expression. Information technology units provide commons and labs where students and

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faculty learn more about how to use new media; instructional technology units help faculty incorporate graphics and visuals into their teaching and research.⁸

New Media Literacy

New media literacy is another term associated with information literacy or being net savvy. New media literacy, which includes visual literacy, centers on “cultural practices, with the computer playing a central role as the medium for production, storage, and distribution.”⁹ New media literacy also refers to communication media including mass media (newspapers, TV, radio), popular media (film, books), and digital media (computer games, social software, virtual reality, Web sites, CD-ROMs, DVDs, streaming audio and video):

Media products entertain us, inform us, and help us stay connected to our community and the world. But not all is positive. Public relations spin, hyper-commercialization, violence packaged as “entertainment,” news bias, digital photo manipulation and other issues provide many reasons why both children and adults need media literacy education.¹⁰

Research on college students’ perceptions of information reveals that online sources were rated almost equal in credibility to magazines, television, books, and radio. College students rank newspapers the highest, with Web-based information second in perceived media credibility.

Not surprisingly, the criteria needed to determine the quality and credibility of online information are identical to those required for evaluating information found in other forms of communication: accuracy, authority, objectivity, currency, and coverage or scope¹¹ (see “Information Literacy and Critical Thinking Skills” below for more about evaluation criteria).

Information Fluency

Information fluency is perhaps the most commonly used term (after *information literacy*) to describe our ability—or lack thereof—to understand today’s information environment. Information fluency is similar to information literacy, though it adds stronger technology/computer literacy and critical thinking skills into the mix of desired capabilities.

The term *information fluency* grew out of a 1999 National Research Council (NRC) report, “Being Fluent with Information Technology.” The report acknowledged the importance and ubiquity of information technology—computers, communications, digital information, and software—and addressed the question of how we can use information technology more effectively. The study affirmed that having information fluency goes beyond competence with basic computer applications such as word processing and e-mail:

People fluent with information technology (FIT persons) are able to express themselves creatively, to reformulate knowledge, and to synthesize new information. Fluency with information technology (i.e., what the report calls FITness) entails a process of lifelong learning in which individuals continually apply what they know to adapt to change and acquire more knowledge to be more effective at applying information technology to their work and personal lives.¹²

The NRC study formulated three sets of skills that students should learn: intellectual capabilities, information technology concepts, and information technology skills.

- Intellectual capabilities include being able to manage complexity, collaborate using information technology, and recognize the faulty use of information.
- Information technology concepts include understanding the fundamentals of computers, the organization of information systems, and algorithmic thinking and programming.
- Information technology skills include the ability to use the Internet to locate information, use a database to access information, and use a word processor to create a document.¹³

The University of Central Florida (UCF) focused on information fluency as its Quality Enhancement Plan (QEP) for a Commission on Colleges of the Southern Association of Colleges and Schools reaffirmation of accreditation. As noted by UCF,

The ability to function effectively in an information-rich environment demands fluency in technology and information, mediated by critical thinking. Information fluency is the ability to know when information is needed and to be able to effectively locate and communicate that information—in other words, to gather, evaluate, and use information.¹⁴

The UCF QEP titled “What if? A Foundation for Information Fluency” is a \$4 million effort involving representatives from all UCF constituencies. Its overarching goal is to infuse information fluency across UCF over a decade or more.¹⁵ The initiative focuses on five broad student learning outcomes based on *Information Literacy Competency Standards for Higher Education* (for more on these standards, see “Information Literacy from the Perspective of Librarians” below). An information fluent student should be able to

- determine the nature and extent of the information that is needed;
- access the needed information effectively and efficiently;
- evaluate information and its sources critically and incorporate selected information into his or her knowledge base and value system;
- use information to accomplish a specific purpose; and
- understand many of the economic, legal, ethical, and social issues surrounding the use of information.¹⁶

Information Competency

In the 1990s, the California State University (CSU) system embarked on an information literacy program to promote and develop what it referred to as *information competence*. In 1995, a CSU Information Competence Work Group, composed of university and library administrators and faculty, was formed at the request of a CSU system-wide Commission on Learning Resources and Instructional Technology. One of the work group’s first tasks was to define information competence:

[I]nformation competence, at heart, is the ability to find, evaluate, use, and communicate information in all of its various formats.... A definition...recommended by the Work Group is that information competence is the fusing or the integration of library literacy, computer literacy, media literacy, technological literacy, ethics, critical thinking, and communication skills.¹⁷

The group developed a strategy for bringing a program of information competence to CSU’s 23 campuses, organized around a four-pronged approach, to

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- encourage information competence programs, outside what was customarily accomplished through academic libraries, by offering annual grants to faculty for developing projects geared toward helping students master information competency skills;
- transfer knowledge about information competence between members of the CSU academic community;
- have the system-wide academic senate and the local faculty senates endorse a resolution in support of information competence; and
- create opportunities for faculty to enhance their skills in information competence.¹⁸

The most successful approach was the establishment of an annual grant program that is still in effect today. These grants have supported a wide variety of information competence projects throughout CSU.¹⁹ In 2006, the information competence grant projects—averaging \$5,000 to \$15,000 each—are made available to library and discipline faculty in three areas:

- For exploring in instructional programs the use of the newly developed Information and Communication Technology (ICT) Literacy Assessment, created by the Educational Testing Service in collaboration with the CSU system and other universities. This includes pre- and post-assessment of information or computer literacy programs and/or a correlation of performance on the ICT Literacy Assessment with student performance in IT-related coursework.
- For longitudinal studies assessing the effectiveness of information literacy instruction in program areas such as general education, service learning, and first-year experience.
- For developing a library outreach and information literacy or ICT literacy instructional program to be integrated with general education requirements and/or for first-year students.²⁰

The primary goal of the CSU information competence initiative is to enhance student learning through the development of information literacy skills. Program effectiveness hinges on information competence being written into the learning outcomes of courses and on faculty being committed to teaching toward the outcomes. Faculty awareness and commitment are critical elements of any successful implementation.

CSU learned that sponsoring a massive advertising campaign to promote awareness of the growing importance of building information literacy skills is essential. The awareness campaign should be launched along with a sophisticated assessment of students' information competency needs prior to introducing a full-blown information literacy program. In addition, institutions thinking about creating a campus-wide information literacy initiative need to build adoption strategies around their campus culture.

Information Literacy from the Perspective of Librarians

Academic and school librarians are responsible for the initial rationale and principles behind information literacy. Librarians, although not alone in the effort to align information literacy more closely with educational practice, have been concentrating on this issue for more than three decades. Today, the information literacy recommendations of librarians are being adopted by higher education faculty, students, administrators, and staff, all of whom face voluminous information—and misinformation—daily. Information literacy as a higher education issue dates back to the late 1970s

when computer literacy courses, emphasizing programming skills, took root in colleges and universities. By the early 1980s, the broader issue of information literacy emerged, stressing the role of libraries in helping to meet the growing needs of an information society.²¹

In 1989, the American Library Association (ALA) Presidential Committee on Information Literacy published its final report establishing the importance of information literacy to individuals, business, and citizens. For individuals, being information literate can empower them to become independent seekers of knowledge, less dependent on prepackaged information, and better prepared for lifelong learning. For businesses, the lack of timely and accurate information can be costly. For example, manufacturing companies rely on accurate literature reviews before expending time and money on possible patentable inventions. Lastly, citizens should be well-informed on public policy and community issues.²²

A year after the ALA report was published, the National Forum on Information Literacy (NFIL) was founded as a response to the document. The NFIL stated that

[O]ut of the overabundance of available information, people need to be able to find and use a variety of information to meet a wide range of personal and business needs. The manner in which our country deals with the realities of the Information Age will have enormous impact on our democratic way of life and on our nation's ability to compete in an international marketplace. Within America's information society, the potential also exists to address many long-standing social and economic inequities. To reap such benefits, people—as individuals and as a nation—must be information literate.²³

Eight years later, another document played a major role in furthering information literacy as an important education issue. In 1998, the American Association of School Libraries (AASL) and the Association of Educational Communications and Technology (AECT) published *Information Literacy Standards for Student Learning*, which formulated nine information literacy standards for K–12 students.²⁴

The AASL/AECT standards were expanded into *Information Literacy Competency Standards for Higher Education*, published in 2000 by the Association of College and Research Libraries (ACRL). The standards have become the basic, most referenced framework for higher education institutions formulating information literacy initiatives and programs. The document consists of five primary standards, 22 performance indicators, and 87 outcomes for assessing student progress toward information literacy:²⁵

- Standard one entails students knowing the nature and extent of the information needed.
- Standard two requires that students be able to access the needed information effectively and efficiently.
- Standard three deals with evaluating information. Students need to look at sources critically and incorporate information into their knowledge base and value system.
- Standard four is about using information as an individual or a group to achieve a specific purpose.
- Standard five addresses the issue of ethics. Students should understand economic, legal, and social issues that surround the use of information and how to access and use information ethically and legally.²⁶

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Meanwhile, AASL and ACRL have teamed up to form an Interdivisional Committee on Information Literacy. This committee focuses on how to prepare K–20 students to be information literate and is a forum for sharing ideas on information literacy in K–20 as well as a source of professional development opportunities.

The librarian-created standards were meant to encompass information literacy skills needed “from kindergarten through life.” These skills support the ongoing need to prepare for the next level of education or career advancement. Large corporations and small businesses alike suggest that higher education has not adequately prepared students as knowledge workers in an information-based economy. The real issue, however, is whether information literacy is being taught in a relevant and meaningful way in which people, at any level of learning, retain and utilize information literacy skills.²⁷

Today’s Student Body

An academic librarian summed up the information literacy skills found in today’s student body:

We typically now find ourselves dealing with “digital natives”—students who have grown up surrounded by technology and therefore expect to learn and conduct research through digitized sources. Moreover, these students have a common perception and understandable confidence in the notion that everything they need to conduct and complete an assignment can be found online through freely available Internet resources. Until we show them contrary evidence—through demonstrations based on both print and digitized collections that our universities have secured access to through library development collection efforts—they will continue to rely on the inferior tools and resources that have hitherto offered them “success” in locating and using “relevant” resources in the past.²⁸

Descriptions of student information literacy skills constantly refer to how today’s learners are “awash in information,” with more access to valid information than ever before, yet they are woefully lacking in their understanding of how to find, evaluate, use, and present information.²⁹ Many observations support this view:

Neither all of this information, nor their ease with computers and the Internet that bring much of it to them (students), are translating into better-educated and informed college graduates or more competent and efficient workers.... It has become one of education’s greatest challenges to teach students the skills needed to test the reliability, currency, and relevance of the information they find.³⁰

Virtually 100 percent of students use word processors and utilize the Internet for coursework. But the impression of broad competence flips when percentages are revealed for use of other applications, such as those for presentation development (65%), spreadsheets (63%), graphics (49%), or creating Web pages (25%).³¹

Some students know more about the Web than I do, but many others are only users. As I talk to my students, a few are very sophisticated, but many have little understanding of what goes on behind their screen (and couldn’t care less)! Faculty and staff have an important role to play in helping students understand this Brave New World that they will inherit. Do not let anyone tell you that the adult perspective is not needed. Our typical student is not a geek!³²

Studies that examine students attending UCF categorize young, newly arriving students just out of high school as Millennials who grew up with the Internet and are multi-taskers and proficient users of technology who can navigate complicated software with such ease that they intimidate members of previous generations...but employers report that their basic skill levels, critical thinking ability, and initiative are developmentally lacking.³³

Even students support this point of view:

We don't pick up dictionaries anymore—we go to Dictionary.com. We don't walk to the library—we search online journal databases. We wouldn't know an archive if we stumbled into it on the way to the fax machine. Though the Internet is attempting to phase out these standard methods of research, they are important, nonetheless. The average college student, however, has no clue how to navigate or investigate the modern library. Instead, students increasingly rely on Web sites and Internet archives for information—increasing the likelihood that they will stumble across and cite false or incorrect information. For those reasons, modern classrooms, faculty, and libraries must still teach and demonstrate basic research skills such as finding journals, evaluating primary sources, digging through archives, or even perusing library shelves. Today's students may believe they can learn solely on the Internet, but they cannot.³⁴

Information Literacy and Critical Thinking

How much one learns is strongly correlated with one's ability to think critically. Having strong critical thinking skills is an important element of being information literate. Of course, the importance of critical thinking is not new. With an overabundance of untrustworthy information at our fingertips today, critical thinking is essential. To help people judge whether the information they have discovered is sound, the University of Oregon Libraries published a list of questions for evaluating information sources.

- **Authority:** What are the author's credentials and reputation? Is the publisher, author, or association reputable?
- **Objectivity:** Are the author's goals clearly stated, and does he or she exhibit a particular bias? Does the information appear to be well researched?
- **Quality:** Is the information well organized, complete, and accurate? Are the graphics—images, tables, charts, diagrams—appropriate and clearly presented?
- **Coverage:** Does the information substantiate other materials you have read, or does it add new information? Have you found enough information to support your arguments?
- **Currency:** Is the topic one that requires current information? When was the information published? Has the course been revised, updated, or expanded in a subsequent edition?
- **Relevance:** Does the work address your research question or meet the requirements of your assignment?³⁵

When placing the critical thinking skills of incoming students within the context of information literacy, general education writing courses are often the early testing ground for discovering a student's critical thinking skills. The skills associated with being an effective problem solver are similar to the skills of a mature writer: “[B]oth must think creatively, critically, and strategically to accomplish goals.”³⁶

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While many entering students are familiar with some technological elements, few demonstrate the critical ability to evaluate online resources. Students need to form questioning habits when they are reading, and this is especially true of the material found on the Internet.³⁷

Collaboration between writing instructors and librarians can help students develop effective “questioning habits inside their research writing assignments, thereby enhancing their lifelong learning skills.”³⁸

Information Literacy Assessments and Tutorials

A number of assessments, tutorials, and self-paced courses on information literacy have been created.³⁹ Some examples include:

- **BeneFIT: Fluency with Information Technology:** The chair of the NRC study developed a five-credit “FIT100” course at the University of Washington in 1999, which led to the creation of a textbook, *Fluency with Information Technology: Skills, Concepts, and Capabilities*. A number of institutions have adopted this textbook since its first publication. The goal is “to help users more fully exploit IT.”⁴⁰
- **The Texas Information Literacy Tutorial (TILT):** A free, online tutorial open to the public, TILT was designed to introduce first-year students to research sources and skills. TILT, designed primarily for undergraduate students at University of Texas System institutions,⁴¹ is a self-paced educational Web site focused on fundamental research skills.
- **The Bay Area Community Colleges Information Competency Assessment Project:** A collaborative project among faculty librarians in the San Francisco Bay area, this program has developed and field-tested an information competency assessment instrument based on specific performance outcomes and criterion-referenced to national standards. The instrument consists of 47 multiple-choice, matching, and short-answer items, along with 12 performance-based exercises. Librarians and faculty can fill out an online form requesting copies of the two-part assessment instrument.⁴²
- **Project SAILS (Standardized Assessment of Information Literacy Skills):** A fee-based Web tool created and developed by Kent State University, modeled on ACRL standards, SAILS allows libraries to document information literacy skill levels for groups of students and to pinpoint areas for improvement. In January 2003, the Association of Research Libraries (ARL) endorsed Project SAILS. ARL is now responsible for coordinating and managing the processes involved with Project SAILS participating institutions, as well as handling marketing and public relations for the project.⁴³
- **James Madison University (JMU):** Two exams are required of all freshmen and incoming transfer students at JMU. One is a Tech Level 1 exam that measures basic computing and information-handling skills, and the other is an Information Seeking Skills Test focused on student skills for finding valid information.⁴⁴
- **The Educational Testing Service (ETS) Information and Communications Technologies (ICT) Literacy Assessment:** This initiative began in 2001 with the formation of an international panel of educators representing government and nongovernmental organizations, labor, and the private sector that studied the growing importance of existing and emerging information and ICT and their relationship to literacy. The goal is to build assessments and research that will “ultimately inform efforts to better understand and address real issues surrounding ICT literacy in its role in contributing to the development of human capital.”⁴⁵

By 2003, the ETS ICT Literacy Assessment helped form the National Higher Education Information and Communication Technology Initiative, composed of seven leading institutions in the United States (California Community College System, California State University System, UCLA, the University of Louisville, the University of North Alabama, the University of Texas System, and the University of Washington). The National Higher Education ICT Initiative is “focused on what it means to be literate in a technology-driven world.” Its assessment program is based on yet another definition of information literacy:

ICT proficiency is the ability to use digital technology, communication tools, and/or networks appropriately to solve information problems in order to function in an information society. This includes the ability to use technology as a tool to research, organize, evaluate, and communicate information and the possession of a fundamental understanding of the ethical/legal issues surrounding the access and use of information.⁴⁶

In February 2006, ETS announced that a new version of its ICT Literacy Assessment, called the Core Level, was undergoing pilot testing at 25 community colleges, four-year institutions, and high schools nationwide. The assessment “measures not only knowledge of technology, but the ability to use critical thinking to define, access, manage, integrate, evaluate, create, and communicate information in a technological environment.”⁴⁷

Information literacy assessment has supporters and skeptics for these various testing measures, tutorials, and self-paced courses. Some educators believe that the best approach is a combination of strategies that test different aspects of information literacy skills, including diagnostic testing, formative and summative feedback, and quality assurance evaluations based on student reflections.⁴⁸

Integration into the Curriculum

Developing information literacy entails rethinking course and pedagogical design. Improving information literacy in higher education will involve pedagogical change that gives students more opportunities to enhance their search, evaluation, and communication skills: “Information literacy is fundamentally a learning issue.”⁴⁹

Ilene F. Rockman, an information literacy advocate, wrote extensively on the importance of integrating information literacy throughout the curriculum:

Students need to encounter information literacy opportunities throughout the curriculum, both vertically (within the major) and horizontally (across the curriculum), in both lower- and upper-division general education, elective, prerequisite, pre-professional, and major courses, culminating in a senior capstone experience in which such information literacy skills can be demonstrated in the classroom, the laboratory, the field, the performing arts center, or elsewhere through creative or research activities.⁵⁰

In addition, Rockman described what an information literacy curriculum should look like:

It is campus-wide, problem-based, inquiry-based, and resources-based (that is it uses a variety of information resources); makes effective use of instructional pedagogies and technologies; is learner-centered; and is integrated and articulated with a discipline’s learning outcomes. It enhances and expands student learning

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through a coherent, systematic approach that facilitates the transfer of learning across the curriculum.⁵¹

Building a campus-wide information literacy initiative requires embedding information literacy in general education requirements. In addition, specific information literacy outcomes need to be integrated within each discipline by collaborating and connecting with faculty and administrators department by department.⁵² Understanding the standards and terms related to information literacy, keeping abreast of what the academic librarians and academic community at large are saying and doing about information literacy, using proper assessment techniques and tutorials, and teaching critical thinking skills are all key elements for a successful information literacy initiative. Implementing all or part of these elements depends on collaborating and connecting.

Many are already putting information literacy to work in their day-to-day academic lives. For example, faculty consistently help students manage information to meet course learning objectives. Librarians reinforce faculty instruction by supplying information resources to both instructors and students, as well as helping them discover and use those resources. Students learn and experience the value of information processing. Administrators ensure that the necessary resources are available and promote collaboration among faculty, librarians, and students.⁵³

Once faculty buy into the idea that they are already involved, we can point them to those who can help, including librarians. Students and administrators need to understand that information literacy, for the most part, has little to do with formal research—in their minds meaning research papers and library work. Instead, it is an integral part of everything academic, co-curricular, administrative, and non-academic that they do.⁵⁴

Information Literacy and Accreditation

Information literacy has become a component of the accreditation process as well:

Information literacy certainly characterizes every step in the process of periodic self-evaluation that all accrediting organizations require. Even without realizing that they are invoking the principles of information literacy, administrative personnel use it in some form during the self-study process to conduct the inquiry that extracts and critically analyzes data on student learning and institutional effectiveness; to guide students, faculty, and staff toward improvement; to present its findings and conclusions in a self-study report for evaluation teams; and to communicate its progress to both internal and external constituencies.⁵⁵

The Middle States Commission on Higher Education (MSCHE) may be the leader in the development and promotion of information literacy guidelines and standards.⁵⁶ MSCHE has established at least four standards related to information literacy. In addition, in 2003 it published “Developing Research and Communication Skills: Guidelines for Information Literacy in the Curriculum,” which features information about how to plan an information literacy initiative, what kind of learning goals and teaching strategies are needed, and the process of information literacy assessment. It offers guidelines that “demonstrate how the concept of information literacy has relevance for faculty members, librarians, students, administrators, and the institution as a whole.”⁵⁷

Other regional accrediting bodies have also addressed information literacy in their standards. The Western Association of Schools and Colleges embedded information literacy in its standards as a core competency expected of all baccalaureate programs.⁵⁸ The New England Association of Schools

and Colleges specifies that institutions provide appropriate orientation and training for users of library information resources and instruction in basic information literacy. The Northwest Association of Schools, Colleges, and Universities specifies that “faculty in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.” The Southern Association of Colleges and Schools indicates that institutions must ensure that “users have access to regular and timely instruction in the use of library and other learning/information resources.”⁵⁹

A number of specialized accrediting agencies also emphasize information literacy in at least one of their standards, including the National Council for Accreditation of Teacher Education, the California Commission on Teacher Credentialing, the American Psychological Association, the American Chemical Society, the National Council of Teachers of English, the International Reading Association, and the Accrediting Council on Education in Journalism and Mass Communications.⁶⁰

Global Recognition of the Importance of Information Literacy

There is an important international perspective to information literacy that takes into account human rights, economic development, health and human services, citizenship, and governance. In recent years, a number of world summits have been held, including a 2003 Information Literacy Meeting of Experts in Prague, along with a 2005 follow-up meeting held at the Bibliotheca Alexandrina in Alexandria, Egypt. These two invitational events involving information literacy professionals from around the globe were organized by the U.S. National Commission on Library and Information Science and the National Forum on Information Literacy, with the support of UNESCO. They have catalyzed the sharing of thoughts, first-hand experiences, papers, presentations, and research about information literacy from a global perspective.⁶¹

In today’s complex world/environment, the participants [from the Alexandria meeting] affirmed that information literacy is not just a necessity, but a basic human right that promotes social inclusion in all nations. They urged governments and intergovernmental organizations to pursue policies and programs to promote information literacy and lifelong learning, as they are essential to the development of the Information Society.⁶²

The Alexandria meeting report, “High-Level Colloquium on Information Literacy and Lifelong Learning,”⁶³ included a proclamation titled “Beacons of the Information Society: The Alexandria Proclamation of Information Literacy and Lifelong Learning.” The report covered four primary sectors:

- **Education and Lifelong Learning:** Problems and best practices from various regions of the world were discussed. Some of the topics covered included SARS, the December 2004 tsunami in South and Southeast Asia, immigration and poverty in North America, HIV-AIDS in sub-Saharan Africa, and the effects of moving to a Knowledge Society in the Middle East and North Africa.
- **Health and Human Services:** Issues concerning health-care practitioners, managers, policy makers, patients, and the wider public were discussed. The group concluded that health-related information literacy requires more aggressive outreach than general information literacy efforts.
- **Economic Development:** The focus was on empowering small and medium businesses, including home-based workers. In environments where knowledge is equated with personal

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power, inequities in opportunities, access, and education exist, limiting an individual's ability to locate, evaluate, and use information effectively.

- **Governance and Citizenship:** Public policy hinges on information literacy. Discussions dealt with such topics as the need for nascent democracies to move from an information-controlled environment to a society where information is freely available.

In addition, UNESCO has continued to support information literacy through its Information for All Programme (IFAP), the only intergovernmental program exclusively dedicated to promoting universal access to information and knowledge for development.⁶⁴

Conclusion

Derek Bok wrote that “knowledge itself has splintered into a kaleidoscope of separate academic specialties with too little effort to integrate the fragments, let alone show students how they might connect.”⁶⁵ Could information literacy be that connector?

Teaching information literacy skills should start with young children and be a constant focus throughout formal education and life.⁶⁶

However, the reality is that in many countries there is a substantial disconnect between educators in the traditional three formal tiers of education (elementary, high school, and college). They work largely in isolation from each other and tend to fault the level below them for the learning and knowledge inadequacies of the students entering their level without taking the trouble to explore why this is so. This is a fundamental issue to which no one has yet found a solution. Information literacy, however, could be the common thread to link educational endeavors from preschool to university if vision and willingness to change prevail. Our democracies would be a lot safer if this were so.⁶⁷

As noted by Google CEO Eric Schmidt, finding information through an online search empowers “individuals to do what they think best with the information they want.”⁶⁸ Today's educators have been given the opportunity to ensure that their students understand the power of information to its fullest and to use that power in an enlightened and ethical manner so that the human condition improves.

For More Information

The Association of College and Research Libraries (ACRL) offers a range of resources for educators interested in learning more about information literacy. In addition to publishing *Information Literacy Competency Standards for Higher Education*, ACRL has created a Web-based Standards Toolkit that includes “tools, Web pages, and other resources” for working with the ACRL standards and performance indicators. ACRL also publishes a Resources and Ideas section, highlighting information literacy models and best practices under categories such as collaboration, curriculum and pedagogy, and assessment.

ACRL's Institute for Information Literacy assists “individuals and institutions in integrating information literacy throughout the full spectrum of the educational process.” An instruction section enhances “the ability of academic and research librarians to advance learning, teaching, and research with respect to information literacy in higher education.” ACRL also sponsors programs in professional

development, assessment, instructional development, and partnerships; a peer-consultants and speakers database; information about grants; and an information literacy listserv.

For more information about all of these ACRL services and programs, as well as information literacy, including links to scholarly papers and other important resources, go to <<http://www.ala.org/ala/acrl/acrlissues/acrlinfolit/informationliteracy.htm>>.

Appendix One: Interviewees

Paul Adalian, Dean of Libraries, California State University, Channel Islands

Susie Andretta, Senior Lecturer in Information Management, London Metropolitan University

Alan Bundy, President, Friends of Libraries Australia

Christine Bruce, Associate Professor and Director of Teaching and Learning in the Faculty of Information Technology, Queensland University of Technology Australia

Steven Bell, Director, Paul J. Gutman Library, Philadelphia University

Patricia Senn Breivik, Chair Emeritus, National Forum on Information Literacy

Susan C. Curzon, Dean, University Library, California State University, Northridge

Elizabeth A. Dupuis, Head of Instructional Services, University of California, Berkeley

Mike Eisenberg, Dean Emeritus and Professor, University of Washington

Steve Gilbert, President, TLT Group

Lisa Janicke Hinchliffe, Coordinator for Information Literacy Services and Instruction, University of Illinois at Urbana–Champaign Library

Patricia Ianuzzi, Dean of University Libraries, University of Nevada, Las Vegas

Mary MacDonald, Assistant Professor and Librarian, University Library, University of Rhode Island

Martha Marinara, Associate Professor, English Department, University of Central Florida

Susan E. Metros, Deputy CIO, Executive Director for eLearning, and Professor, Design Technology, The Ohio State University

Miriam J. Metzger, Associate Professor, Department of Communication, Associate Director, Center for Film, Television and New Media, University of California, Santa Barbara

George Otte, Director of Instructional Technology, CUNY

Anne Marie Perrault, Assistant Professor, School of Library and Information Science, University of South Carolina

Hannelore B. Rader, University Librarian and Dean, University of Louisville

Oswald M. T. Ratteray, Associate Director for Communication, Middle States Commission on Higher Education

Jim Rettig, University Librarian, Boatwright Memorial Library, University of Richmond

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Beth Secrist, Director, Technology Across the Curriculum, College of Arts and Sciences, George Mason University

Lawrence Snyder, Professor of Computer Science and Engineering, University of Washington

Gabriela Sonntag, Coordinator, Information Literacy Program and Reference Services, California State University, San Marcos

Dawn P. Vaughn, Advanced Placement Coordinator, Cherry Creek High School and former President of the American Association of School Librarians

Stanley Wilder, Associate Dean of the River Campus Libraries, University of Rochester

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The EDUCAUSE Learning Initiative (ELI) is a community of higher education institutions and organizations committed to advancing learning through IT innovation. To achieve this mission, ELI focuses on learners, learning principles and practices, and learning technologies. We believe that using IT to improve learning requires a solid understanding of learners and how they learn. It also requires effective practices enabled by learning technologies. We encourage institutions to use this report to broaden awareness and improve effective teaching and learning practice.
