Arna was about nineteen. She sat next to Babette, an older student who wanted to become a nurse. Babette, speaking in both French and English, explained her crisis of not knowing anything about computers. “Don’t worry, it is easy,” whispered Arna as Babette sighed, “Ah, c’est so facile pour you, mais pour moi, ahh!”

We were about to begin the 2005 Summer session of Internet Research Strategies (LRC 103) a one-credit course developed by the authors with assistance from the Library’s Coordinator of Instruction, Professor Louise Fluk, and the advice of the Chair of the College Curriculum Committee, Professor Cecilia Macheski. The course was designed to teach students to find reliable information on the free Web and in online subscription databases supported by the Library. Our intention was that the course could help students like Babette, who have little computer knowledge, as well as students like Arna, who are technically adept with computers, but undiscerning about information they find on the Web. We hoped the course would help students cross the border from uncertainty about their skills as researchers to well-founded confidence in their ability to navigate in the world of online information. We wanted to help stem the tide of information travel in the “Columbus mode” – land on the first thing you find and call it India. All members of the Library faculty teaching Internet Research Strategies had marshaled forces to support substantial exploration of online sources.

The two students in the summer class, Arna and Babette, had different reactions to computers, but they were both aware that most students today are regular users of technology. Based on the abundance of technological devices on college campuses, one might conclude that students are tech-savvy, and by association computer savvy. This assumption is supported by data collected on college campuses; for example, a Fall 2000 survey of more than four hundred thousand incoming first year students conducted by UCLA’s Higher Education Research Institute showed that 78.5 percent of respondents had used computers regularly during the year prior to their first year of college (Jenson 108).

LaGuardia students appear to be as computer literate as their counterparts on other campuses. In surveys given in the Library’s Internet Research Strategies classes during Spring and Fall 2005, and Spring 2006, 75 percent of respondents indicated that they used computers several times a week or more, and 90 percent indicated that they used a computer at least once a week. Not only do students use computers frequently, they consider themselves adept at using the Internet. In the Internet Research Strategies class surveys, 70 percent of respondents rated themselves as “comfortable” or “very confident” with using the Internet. These responses are mirrored in studies at the California State University Hayward where a survey taken in 2000 revealed that 90 percent of respondents claimed to be expert Web searchers (Manuel 199).

This data provokes a question: Given students’ familiarity with computers and their positive assessment of themselves as Internet users, shouldn’t they be conducting competent research using all of the electronic resources available to them? Conversations with classroom faculty and our Library teaching faculty’s classroom experiences indicate otherwise. In fact, students’ lack of ability to identify best resources, modify their search strategies, and evaluate materials for accuracy, bias, currency, and relevance are among the biggest roadblocks to more successful research.

These roadblocks emerge from student use of search engines. College-level research
requires searches in peer-reviewed or scholarly resources which are not available through most search engines. When the search engine students are in the habit of using yields millions of hits, they do not know how to find the most reliable and relevant among those results and resort to using the first one or two on the list. This habit indicates a lack of understanding about search engines – in particular, how search engines rank results and about how to modify a search, as well as how to test relevancy, accuracy and appropriateness using standard evaluation criteria.

To assess students’ understanding of online research before they received any instruction, and to establish a benchmark for development, the instructor in the 2005 Summer Internet Research class asked students to find information using a resource of their choice. Out of thirty-six students, only five used one of the Library’s subscription databases; the others used Google or another search engine, even though a subscription database might have yielded better results.

There is then an apparent gap between students’ assessment of themselves as researchers and their actual ability to find reliable information online. In a study conducted at the University of North Carolina, students scored surprisingly low on post-tests after receiving either traditional classroom or computer-aided instruction; however, two-thirds to three-fourths of the students expressed confidence in their research skills when surveyed (Holman 58). Jensen attributes the gap between perceived confidence and actual research ability to the fact that students “simply do not know how much it is that they do not know” (Jenson 108).

In the Internet Research Strategies classes taught by the authors, we address this gap. Early in our course we introduce the notion of Web evaluation. Students are invariably surprised to find that much of the information on the Web is not checked or verified in any way, and that anyone from a precocious fourth-grader to an opinionated adult with an axe to grind can put up a Web page. Students believe that Web sites undergo a filtering process, as indicated by the California State Hayward study, in which 28 percent agreed with the statement, “Central Internet Authority reviewed[ed] all Web information for its accuracy” (Manuel 199).

An important tool for Web evaluation is the “5W’s and the H.” Once a student locates a Web site or document, we have them consider “Who, What, When, Where, Why, and How.” This familiar guide to writing for the print news is an excellent way to get students to question the validity of a Web site:

Who wrote the piece? Provides idea of authorship and leads to investigation of signatures, bylines
What authority? Leads to investigation of Web sites and ownership and also credentials of author or of the site including domains and links
When was it written, and is that time frame appropriate to the research at hand? Currency and appropriateness to the topic can be investigated and questioned if no dates or updates are located
Why was it written? Leads to investigation of purpose and bias; sites selling products or promoting a political agenda can be questioned in terms of appropriateness for research
Where was it issued? Helps understand format and print information redistributed online, leading to exploration of host site
How was it transmitted? Helps to further identify format and nature of the online or print media in which the information appears

Instead of beginning the Web evaluation process with a checklist of criteria, some instructors ask students to compare two Web sites on a similar topic, one good and one questionable. For example, after looking at “The Smoking Section” (<www.smokingsection.com>), a pro-smoking commercial site whose author and/or sponsor are not apparent, and a government site sponsored by the Center for Dis-
ease Control (<www.cdc.gov/tobacco>) students can begin to list their own criteria for evaluating sources. Meola points out that “comparative thinking plays a key role in evaluative judgments” (340). Comparing the good and the bad on the Web helps students understand that Web sites are created for various purposes.

Another exercise moves students to a more extensive evaluation of a Web site’s purpose. Instructors ask students to evaluate a Web site from “different perspectives: as an information source; as a marketing tool; and from a usability viewpoint” (Johnston and Webber 346). This activity helps students understand the audience and purpose of a Web resource; it shows them that many sites are created solely for the purpose of selling a product or service and have no value in a college research paper. In researching sexual harassment on the Web, one student came across a site sponsored by Alliance Training and Consulting (<www.alliancetac.com>). She at first thought this site would help her research, but after considering audience and purpose, she realized that the site had very little information and was created primarily to sell its services to businesses.

As mentioned above, students in the Internet Research Strategies classes initially rate themselves highly as Internet users, but very few of them make use of or even know about the electronic subscription services available through the Library. In a study of student research papers in two English classes at Shelton State Community College, none of the students took advantage of the subscription databases provided by the Library, although they did use sources from the free Web extensively (Grimes and Boening 21). Students, then, need to be guided to the wealth of information available through subscription services accessible through the Library’s homepage.

In the Internet Research Strategies class, we encourage students to note characteristics that separate information located through subscription services from information found on the free Web. In some Internet Research Strategies classes students are offered Wikipedia, a resource with which many are familiar. Since students have already had some instruction in Web evaluation, they quickly see that Wikipedia articles lack authors, dates, and sources, and one student pointed out with surprise the subtitle of Wikipedia, “the free encyclopedia that anyone can edit.” Students then look up the same topic, for example global warming, in one of the Library’s online encyclopedias, such as World Book Online Reference Center, noting that articles include names of contributors, their degrees, and affiliations. At the end of this activity, one student commented that she would use Wikipedia only for her own personal information, indicating an understanding that different information sources are appropriate for different uses. Recent articles comparing Wikipedia and Britannica come to the same conclusions students do: both sources have their place (Berinstein 26).

The encyclopedia exercise introduces the idea of corroboration, or verifying information against other sources (Meola 341). If a student has doubts about the accuracy of a source found on the free Web, the information can be checked against a reliable source, such as an encyclopedia. Given the recent controversy surrounding errors found in both Wikipedia and the print version of Britannica (Giles 900), verifying questionable information in at least three sources is advisable.

Online (and print) encyclopedias are excellent sources for providing background information on a topic, but even the best encyclopedia is not appropriate as the sole source for a research paper. Subscription databases that provide the full text of journal, magazine, and newspaper articles are gold mines of accessible information, but our experience indicates that students are not aware of these resources, or do not use them. Even after students are shown how to search a database, they may lack a fundamental understanding about information formats, referring to articles found through subscription services as “Web sites” and mistaking the abstract of an article for the full text. Jenson attributes this confusion to students’ lack of “hands-on experience in an actual library with actual library materials” (Jenson 108). Given
students’ exclusive experience with information online, where every “page” looks the same, it is understandable that they have trouble distinguishing an online article in an academic journal from a Web site selling a product.

To address this issue, Jenson suggests building students’ knowledge about information formats by asking them, in groups or pairs, to compare and contrast print copies of magazines and journals, noting differences in layout, graphics, vocabulary, advertising, etc. This exercise helps students become better able to distinguish differences between these types of sources when viewing the electronic versions (Jenson 111). In the Internet Research Strategies class, this type of activity is part of a larger lesson directed at helping students understand that academic journals are generally better sources for research papers, although there may be times when a magazine article is appropriate; for example, a personal story in a magazine about someone suffering from post-traumatic stress syndrome might be a good source for a paper on that topic.

It is essential that faculty guide students in their ability to bridge the gulf created by unfounded opinions to get to the shores of solid ground of fact. Information is a commodity, but knowledge is a human value. Illustrating this distinction to students has enormous ramifications. As critical thinkers and educated citizens, students must be able to apply evaluative skills not only to academic issues but also to their professions, political, economic, and even entertainment choices. The task is enormous as more open access literature and more full text appears on the Web. More than ever, we have a responsibility to help students locate information and determine its value.

The Internet Research Strategies course is the initial step toward bridging the gap between what students know and what they need to know in order to be effective college researchers. By the end of our course, students have learned new skills and their confidence in themselves as Internet users is more in line with their actual ability to conduct online research. As one student put it, “I feel more confident getting on the computer and searching the net. Personally, I learned to go beyond Google.com to find information.”

Arna, the student from the Summer Internet Research class, learned more about early childhood education terms from both her exploration of Web sites and in her conversations with her classmate, Babette. Arna earned an “A” for her wonderful evaluation of search engines and Web sites, and for her ability to distinguish peer-reviewed articles from popular Web news and blogs as well as her development in search strategies. After a struggle, Babette managed to do work that merited an “A-.” Now in a four-year nursing program, she recently wrote to her instructor that she earned an “A” in her medical research class at her university because of her familiarity with search engines and choice of good databases in her new school’s library.

Research shows that students understand and profit from credit-bearing library courses in areas far beyond the initial class experience (Wang 80). Students in our courses indicate growth in their confidence and consequent improvement in their research capability. The Library’s Internet Research Strategies course is a valuable plank in the bridge to cumulative learning and attainment of lifelong skills in an Internet world awash with unfiltered information.

Note
1. The names and statements of students are changed to protect their identity. The situations and comments are not fictitious.
WORKS CITED


