CHAPTER IV
EDUCATORS AND LIBRARIANS ADDRESS THE COMMERCIALIZED WEB

The more I use the Internet, particularly the World Wide Web, the more I believe we need to introduce to students an element of skepticism about anything that they find in Internet searching.
—Barbara Safford, Professor of Library Science, 1996

It is *my education. I get all my information off the Internet. I don't even look at books anymore.*
—High School Boy, Pew Internet Study, 2002

In 2002, it became evident that students did use the internet as an information superhighway. The Pew Internet and American Life Project surveyed approximately 2000 middle-and high school students across the U.S. about teen internet use. They reported that 94 percent of 12 to 17 year olds turn to the internet for their school research; 71 percent rely on the internet as their major, if only resource (Levin & Arafeh). According to another Pew study conducted that same year, college students rarely go inside their college library. Moreover, when they do visit the library, most of their time there is spent checking email, doing instant messaging, and web surfing rather than conducting academic research. Like middle school and high school students, college students tend to do their academic work at home, on the web, using commercial search engines, not library databases (Rainie, Kalehoff & Hess, 2002). "Students prefer to locate information or resources via search engine above all other options, and Google is the search engine of choice," wrote Jill Griffiths and Peter Brophy about U.K. students in 2002. "Students either have little awareness of alternative ways of finding information to the search engine route or have tried other methods and still prefer to use Google—a situation we now refer to as the Googling phenomenon" (p. 6). Kapoun (1998), who works as a college librarian at Southwest State University, has similarly noted that "Students seem to gravitate to the Web first and grudgingly consult paper materials after" (p. 522). They admit that the glitz on many web sites can be distracting, but educators have also postulated that maybe students—having grown up on MTV and an increasingly commercialized culture—are attracted to it, have come to expect it, and as such prefer doing their research online in a multimedia environment rather than using other, more "boring" library sources (e.g., Gardner, Benham & Newell, 1999).

While students are using search engines almost exclusively, it also seems that search engines are not serving them well. Educators and librarians' observations of student web use have echoed these findings. They admit a sense of lost control over the quality of research data retrieved by students and are often shocked by how students do research online. Reporting that students become both overwhelmed and confused by the number of hits they typically retrieve from search engine queries, some researchers conclude that undirected, school-related web use can be a miserable waste of time. For example, Arnold and Jayne (1998) write that:

> Students are often working with broad and as yet unfocused topics, trying to search the Web at a prefocus exploration state when their anxiety level is high. To make things even more difficult, they are searching in an environment where more specific inquiries and focused searching work better. Most of the time the search engines give them an overwhelming number of hits on a broad topic such as "the flat tax," typical of the topics that freshmen are often researching. (p. 47)

While Arnold & Jayne relate stories of students wandering off "into the glitter-paved, hypertext-linked pathways of the Web" (see also Claus-Smith, 1999), they further note that student anxiety is countered by the immediate gratification of typing in a keyword and getting instant feedback on the screen. Indeed, this is a second observation reported by educators and librarians—that the search engines are often detrimentally easy for students. Moreover, most students seem to trust internet resources regardless of their editorial quality. "Unfortunately," Berger (1998) states, "many students think that if they find it on the Web, then it must be true." Both Arnold and Jayne (1998) and Safford (1996) would agree with this position, and actually attribute students' "reverential" trust of online information to media hyperbole and political enthusiasm about the promise of internet resources as an educational panacea and "information highway." "The President [Clinton] calls it that, the media call it that, and we call it that," Safford wrote in 1996, right in the midst of the Education Challenge campaign. "Information means facts to most people. Therefore what we read on the Information Highway must be fact. We must dissuade students of this myth" (p. 43). Studies have confirmed some of these observations, reporting that most students trust the information they gather from search engines. In a survey of 1,693 middle school students, Susan Gibson and Joanne Tranter (2000) found that 62.5 percent of their participants felt that 50-70 percent of the information they found online was true, and 21.8 percent felt that 80-100 percent was true. "Lots of studies have shown us that kids need to be reminded constantly to verify the source of the information they use in homework assignments and research papers," writes Walter Minkel of the *School Library Journal*. "Students tend to blithely accept that everything they see online is correct" (2000, p. 49).

With most students believing what they find online to be true, another troubling development is that students are clicking on a huge proportion of commercial web pages that have no bearing on their academic objectives. This, of course, is not surprising given the commercial nature of search engines (as explained in Chapter 3) or the commercial nature of the web in general. Communications scholar Samuel Ebersole (2000) has found that students select commercial sites much more than other domains:

> While students believe the WWW to be a valuable source of reliable information, their use of the WWW suggests other motivations. Analysis of sites visited indicated that by nearly a two-to-one margin students visited sites rated "unsuitable for academic research" versus sites rated "suitable." Seeking out "pleasurable experience" appeared to win out over "learning information" when students were given access to the WWW within the school setting. Furthermore, the types of sites visited most frequently, i.e., commercial sites, were rated as having the lowest educational value.

With students' high level of comfort with commercial search engines, with students' propensity to trust the many commercial web sites visited via search engines, and with the bulk of commercial web sites being unsuitable to their research, we are at an interesting crossroads in

terms of the internet and education. How are educators and librarians dealing with what has now become a commercial highway in their classrooms?

Solutions to the Commercial Clutter

It is surprising that there has been so little concern about what has become of the No. 1 educational research tool for middle, high school, and college students in the U.S. Perhaps this is because most teachers and administrators seem to consider the web a neutral medium (with commercial annoyances). Perhaps educators don't bother about commercial inundation because they find commercial sites to be extremely useful to their students.

There have been a few bubbles of discontent over distracting, and sometimes inappropriate online advertising (Reed, 1999). Some librarians have warned their colleagues about the presence of cookies on web sites, which track users (e.g., Alexander & Tate, 1999). But if various educational and library trade journals are any indication of what educators are thinking, only a few published articles have discussed the growing number of commercial pages as a main contributor to internet clutter. Even fewer articles have made any connections between commercial search engines, the increase of commercial results in search engine lists, and the kind of material students are accessing for their in-school research and homework. Arnold & Jayne (1998) and Brandt (1996b) for example, have commented on the savvy use of metatags ("keyword stuffing"), which then leads to skewed search results favoring sites with the highest numbers of descriptors. Kirk (2000) has mentioned the issue of paid placement, which prioritizes commercial pages. "Some search engines 'sell' top space to advertisers who pay them to do so," she writes, alluding to the high level of commercial sites that appear at the top of search engine lists, but not identifying the specific search engines involved in the practice (p. 2). Finally, Kennedy (1998) has warned against the commercially-driven nature of search engines themselves, which display distracting advertisements, track user surfing habits, install cookies on people's hard drives, and impede the straightforward search for factual information. "Each individual search engine is desirous of being your best friend," she writes. "Why? For sure it's not a matter of virtual love. Each site wants you to visit as often as possible because high Internet traffic is what attracts advertisers—and their wallets. (Ka-ching!)" (p. 22).

But these articles are rare in contemporary education and library discourse. When it really comes to web site relevance, the major concern among educators and librarians are unfiltered (and therefore undesirable) personal homepages, which have no affiliation to any legitimate business or organization. Educators and librarians overwhelmingly see these "vanity" sites as imposters in the online environment; the pages almost selfishly clog up search engine lists with opinionated nonsense, and are a main deterrent to students finding "quality" information online. Solock & Wells (1999) typify this viewpoint:

> In a medium with no barriers to publishing, where anyone with an Internet connection, space on a computer server, and a rudimentary knowledge of HyperText Markup Language (HTML) can quickly create an Internet presence, it is very easy to "publish." Part of the great charm of the Internet is the ease with which anyone may have their say. However, from a librarian's point of view, particularly with respect to selection of quality resources, ease of publishing has a difficult flip side. It involves filtering through much information, often of dubious utility, to locate quality resources. (p. 208)

Accordingly, most educators have blamed ordinary people with time on their hands—or university students with personal agendas (and time on their hands)—for the "information explosion" and the high number of irrelevant web pages appearing on search engine lists. Graduate students come under particular scrutiny. As Safford noted in 1996, they have access to university servers, create personal sites, and then "get busy with other interests and simply desert their sites" (p. 43). The abandoned sites, she explained, continue to show up on search engine lists as dead links or as seriously outdated material. Nearly every article reviewed for this chapter noted the prevalence of suspect personal pages. This idea persists today despite evidence that the largest area of growth on the web is not from vanity publishers but from commercial enterprises, which already dominated 83 percent of the web in 1999 (Lawrence & Giles, 1999). Still, the problem exists that there is too much "bad information" online, and with students depending on and trusting the web for most of their academic research, numerous educators and librarians have concluded that students need help in finding applicable online content. Their solutions have generally fallen into four areas: subject gateways, power searching, web page evaluation, and critical liteacy.

The Call for Subject Gateways

Early on, both librarians and internet companies such as Yahoo!, which created one of the first commercial gateway to other sites, recognized the need to catalogue and organize the internet. "We can either resign ourselves to terminal Information Anxiety or we can clean up the mess," Holt wrote in 1995. "Librarians and, especially, catalogers are uniquely qualified to tame the electronic wilderness—If not us, who? If not now, when?" (p. 34). Rosenfeld (1994), who taught at the University of Michigan's School of Information and Library Studies and founded one of the first nonprofit subject gateways (the Argus Clearinghouse), also wrote of the dire need for librarian input in internet categorization. Noting librarians' professional training in content evaluation, and in repackaging information in ways that enhance user access, Rosenberg said that the internet desperately needed these skills, and that librarians were the obvious ones to evaluate and repackage the web.

Also called subject directories, subject trees, subject guides, or virtual libraries, these services—some commercial, many librarian-initiated—attempt to pull related links together under specific topic headings. Emphasizing skilled human involvement and careful evaluation strategies, most subject gateways offer both hierarchies of topics and keyword searching. The document lists are manageable, and the selection process ensures that the sites have been evaluated—at least in some way—and annotated by real people. Yahooligans!, for example, is a subject gateway service that steers its K-12 audience to increasingly narrow subject categories and finally, links to web pages that were pre-evaluated by an editorial staff. While numerous services attempt to cover a broad swathe of categories (in an attempt to be "all-inclusive"), some of the best subject gateways are extremely specialized, reflecting the topic areas of a distinct sub-field, and maintained by experts whose intent is to share the web resource with colleagues in their field. These gateways often remain hidden from general users, never reaching a wider public audience. More simplistic and assignment-oriented directories are often established by teachers or school librarians who have searched sites on their own and then organized them on a printed sheet or, for more ambitious instructors, on a school-based home page. These lists of

links structure a student's web experience according to specific school assignments (Arnold & Jayne, 1998), sending them straight to previewed web content without potentially wasting time using search engines.

A handful of librarians see internet cataloguing as central to the current and future work of all libraries, and envision a nationwide and even global collaboration of resources (e.g., Kirkwood, 1998; Holt, 1995). Subject gateway efforts in the U.K. and in Continental Europe have made significant inroads in this area, with a clear focus on higher learning. Britain, for example, has devoted consequential government funds towards the creation of interlinking subject directories and internet databases, which aspire to "transform the use and storage of knowledge in higher education institutions" (Resource Discovery Network, 2003). In the U.S., existing efforts to catalogue the web have developed either at a commercial level (e.g., Yahoo!) or among librarians and academics at a grass-roots level, with often singular people organizing internet data bases as stand-alone projects that are often spearheaded by national grants or university initiatives. Examples of these efforts include The Internet Scout Project (based at the University of Wisconsin), The Internet Public Library (based at the University of Michigan), the Librarian's Index to the Internet (an official part of the California Public Library), Infomine (based at the University of California), and The Merlot Project, which draws upon university professors across the U.S.

To date, these numerous nonprofit internet cataloguing projects across the U.S. have not been unified into a national public network, for a number of reasons. First, unlike the U.K., the rest of Europe, or Australia, the U.S. government has made only half-hearted efforts to sponsor, promote, or protect subject gateway initiatives across the country. Dependent on voluntary help, nonprofit cataloguing efforts often have trouble keeping afloat and figuring out where to spend their limited funds—on cataloguing or on self-promotion. "While recognizing that it is a professional responsibility to find, evaluate, and catalog internet information," Hinman and Leita (1999) write, "there are few individual public librarians who have either the time, dedication, or skills to do more than put a few links on the branch home page" (p. 146). Indeed, the state of librarian-supported subject gateways in the U.S. is fragmented and their survival is at risk (Hinman & Leita, 1999; Noakes, 2000; Oder, 2000).

Second, commercial services, as I describe in Chapter 3, have already made inroads into the educational subject gateway scene. Directories such as Yahoo!, and ones that are specifically geared towards the K-12 market, such as AOL@SCHOOL, heavily promote their subject gateway services, and, at least in the case of AOL@School, aggressively court K-12 administrators to get the service in schools (O'Leary, 1998). Many teachers regularly rely on Yahoo!'s "filtering" tools and give the service high marks, according to Paul & Williams (1999). "We love Yahoo!, too," they write. "It is often the first place we go when we're looking for a specific site or for a list of some good resources in a particular category" (p. 2). They are quick to note, however, that the commercial nature of Yahoo! and its paid placement practices have diluted its mission as a selective directory to quality resources. It is this commercialization that fuels the fire for Steve Mitchell and Margaret Mooney, the ones behind the University of California's nonprofit Infomine directory. Arguing that subject gateways staffed with experts from within a given field or with knowledgeable librarians have a better chance of giving niche sites the proper attention they deserve, they are committed to providing "a public-domain academic finding tool that will remain free or inexpensive to use in the future" (1999, p. 105).

For all these reasons, at least in the U.S., calls for using nonprofit subject gateways instead of their commercial counterparts exist only at the margins of education and library

discourse. Most educators concerned about quality web content for the K-12 community do not even distinguish between nonprofit and commercial subject guides. As noted earlier, most educators are content to use commercial search engines, seeing them as the best and most efficient way to locate online information.

As valuable as subject gateways are as repositories of specialized, often noncommercial information, they face many challenges in gaining widespread use. Users in general don't trust their ability to stay current amidst the ever-changing web environment, or their ability to be comprehensive. Potential users also don't know about them. Or, they prefer the simple ease of typing a single search term into a commercial search engine. None of this is very surprising to the editor of *Ariadne*, an online digital library journal out of the U.K. "Librarians have known for years that a common characteristic of most new students is that they know almost nothing about libraries and how they work…Google is an easy solution if you don't know what it can't find for you" (Hunter, 2002).

Power Searching

With a single search engine term capable of gleaning millions of hits, many librarians and educators hope to combat information overload by teaching students advanced searching skills. One strategy involves a better knowledge of Boolean operators—the searching techniques developed for library databases that have been adopted by a number of search engines. Kohut (2000), for example, refers to the benefits of "advanced search syntax":

> For more-advanced searches, use MetaCrawler's and SavvySearch's advanced search syntax, which helps refine your search so you can get better results. For instance, to designate groups of words in your search, enclose them in quotation marks (e.g., "George Washington"). You can also specify words or phrases that must appear in documents by prefixing them with a plus sign (e.g., "George Washington" +president), and also specify words or phrases that must not appear by prefixing them with a minus sign (e.g., "George Washington" –Carver). (p. 19)

Student confusion and the number of hits generated in broad searches can be minimized, then, by helping students understand that refined search terms can make an enormous difference in locating relevant web sites. Salpeter (2003) even recommends that students compete to see who can find a piece of online information with the least amount of hits. "As your students work on refining their search skills," she writes, "take the opportunity to discuss what you have learned" (p. 23).

Besides knowing how to refine search terms within any given search engine, numerous educators suggest that students should develop efficient ways to organize their searches, and develop a better knowledge of differences between individual search engines. In their article "Fishing the Net," for example, Bailey and Lumley (1999) explain that "some [search engines] send robot software to every site and record the full text of every page. Others analyze the addresses in the database to determine which sites seem most popular (typically by determining

the number of links pointing to the sites)" (p. A20). By considering each search engine as a unique tool with particular "search logics," and by trying more than one search engine when exploring a given topic, Bailey and Lumley, along with other researchers, argue that smart searching can better pinpoint quality information.

Educators and researchers who support power seraching generally do not describe search engines beyond the way they build databases, determine relevancy, or match search criteria. They also do not distinguish between the impartial search technology and web indexes (supplied by search engine providers like Inktomi and Google) search engine portals that are powered by such technology (such as Yahoo!, MSN and Lycos) or commercial search providers (such as Overture). While Kirk (2000) has noted the practice of paid placement, and Kennedy (1998) has discussed consumer profiling schemes among search engines (with both authors telling their readers to by wary of such practices) there are no attempts among educators to define the role of a commercial search provider or identify which search engine portals are the worst offenders. For the most part, those who advocate a better knowledge of search engines describe search engines as neutral tools, without considering the economic and commercial role search engines play in the overall internet environment—a role that can heavily influence the number and variety of search results despite the best attempts to winnow the list of search results.

Web Page Evaluation Skills

Promoting information literacy has emerged as the most popular way to help students deal with the crush of web sites. The goal, basically, is to help students critically interpret internet information—identify which sites are high quality (i.e., fact-based and truthful) and which sites are low quality (i.e., misleading and irrelevant). These discerning skills are often referred to as **"**critical thinking," an umbrella term that is loosely applied to a range of higher order thinking skills with regard to reading and producing texts. While critical thinking skills have long applied to print texts, a number of educators believe that the web—as the host of so many varied and incongruent resources—calls for higher-level thinking capabilities. The web also offers the perfect platform with which to help students understand the relevance of critical thinking. Arnold and Jayne (1998), for example, write that the web mixes the "useful and useless," thus giving teachers the chance to effectively teach the research process. Gardner, et al. (1999) call this opportunity a "blessing" for English teachers who are trying to teach higher-level thinking. And Mather (1996) discusses the importance of exposing students to "raw, unfiltered, even contradictory information" so as to challenge their quest for credible sources, but also to arm students against less-than-credible information:

> the critically literate reader will be armed with the skills necessary to avoid the pitfalls of specious advertising, pseudo-science, narrowed reality (e.g. Holocaust revisionism, Scientific Creationism, cults), get-rich-quick schemes (time-share scams, pyramid schemes, innumerable mail frauds), political rhetoric, indoctrination, media bias, double-speak, twisted statistics, and other ills that prey on the gullible in this information society we live in. (p. 2)

The single, dominant theory of new information literacy within this particular body of literature can thus be summarized as follows: Students develop critical thinking skills by determining

whether a web text is high quality and "truthful" or low quality and "not truthful." These skills can then be translated to critically analyze other media. In order to help students find the truth on the web, a basic set of web page evaluation criteria has been advanced in educational and library circles to this end. Borrowing from the already established librarian evaluation code for print resources—checking for authorship, accuracy, objectivity, currency, and coverage—librarians and educators have adapted these categories to the web, evaluating individual pages against these five criteria.

Authorship

Educators and librarians seem to agree that identifying web site authors is one of the most important considerations to make when evaluating a web site. With an overriding concern that "anyone can publish," questions have regularly revolved around establishing a single author's specific identity (e.g., Harris, 1997; Richmond, 1998) and testing this author for various credentials and levels of expertise. Gardner et al. (1999), for example, suggest that students locate an address, phone number, or email somewhere on the site—the ability to contact an author, they argue, helps to legitimize author credibility. Smith (1997) advises that links to biographical information are a good way to measure credibility, while others urge students to type the author's name into a search engine and see what other documents come up under the author's name (e.g., Information, 1996). Ormondroyd et al. (2000) suggest that students consult *Who's Who in America* or a biography index in order to establish author expertise. Additional authorship verification strategies include determining if the information on the page is peer-reviewed or filtered (Quality, 1999); if the site is a link from a "trustworthy" site; (Kirk, 2000) if the source holds up against other sources (Brandt, 1996a; Information, 1996); if the author relies on other reputable sources in a bibliography (Kirk, 2000; Reynolds & Plucker, 1999); and if it's possible to verify the identity of the web page's server (Kirk, 2000).

Sponsorship is a key issue relating to authorship identity. Students are advised to find out if the web page is sponsored by an organization, determine if the organization is "legitimate," and identify the domain under which the web page is categorized. "Categorizing a site by its domain name—.com, .edu, .gov, .mil, .net, .org, or .us, for example—can send readers in the right direction to determine credibility," Bailey and Lumley (1999) write, "although it is only a first step" (p. A21). With this strategy, a ".com" web site is considered slightly suspicious because it's likely to market a certain product or point of view, and thus may have a profit motive in relating information (e.g., Alexander & Tate, 1999), while .gov and .edu sites are considered information-rich. Not all .edu sites, though: Like sleuths with an important discovery to share, many librarians and educators warn their readers about the potentially deceptive "tilde" (~) which is often affiliated with a "legitimate" university or educational site, but indicates that a single person with little authority is behind the information. Henderson's (2000) warning is typical: "If you see a tilde (~) as part of the URL, be aware that the web site is a personal page likely created by someone who was given space on the web server in an unofficial, unauthorized capacity" (p. 2). The popular internet education newsletter, *Classroom Connect* (published by a company that develops web-based curriculum products) printed this warning in 1996:

> A legitimate information provider will have a straightforward online address, such as http://www.xyz.com. On the other hand, and individual user will have an online address reading something like http://www.xyz.com/~sjm/data.html. The ~sjm part of the address gives it away. In this case, an individual with the

> initials SJM has put Web pages in his or her personal Web directory, and made their contents available to the world. (p. 4)

Once again, these warnings lead back to the overriding emphasis throughout educational and librarian discourse that ordinary people (i.e., graduate students, misguided professors) are presumably responsible for disseminating the lion's share of misinformation on the web, not more "legitimate" sites like "www.xyz.com." As a piece of advice, tilde warnings, while incredibly popular throughout the educational discourse, are actually a flimsy and simplistic way to judge author validity, especially since any "ordinary person" can also buy a top level .com, a .org, and a .net domain name for about $35 a year—through domain name registration services such as Register.com or Networksolutions.com. Perhaps a more instructive way to determine sponsorship—and some educators are now advocating this—is to send students to the "About Us" or "Company Info" pages that appear on nearly every organizational, educational, government or corporate site (Salpeter, 2003). Perhaps more effective than any other authorship/sponsorship investigation strategy, these pages are one of the surest ways to determine behind-the-scenes information about a web site—its core mission, the individual spokespeople affiliated with the site/organization, press releases, annual reports (and addresses to shareholders), multiple levels of sponsorship, and even ulterior motivations for the site's existence (which may affect or compromise web content).

Accuracy

In this third major category of web page evaluation, librarians and educators point to the presence of typos, grammatical and spelling errors, and shoddy page design as a red flag against web page quality (e.g., Quality, 1999). Others consider the literary composition within a given web page (e.g., Grassian, 2000; Ormondroyd, et al., 2000), and ask questions concerning the level of balance and depth evident in the writing (Harris, 1997; Henderson, 2000), the legitimacy of a research method (Kirk, 2000), the general accuracy of the information (Quality, 1999), and the provision of sources along with statistical material (Gardner, et al, 1999). Reynolds & Plucker (1999) simply ask students to question whether time was put into the site, writing that "the overall attention to detail on the site is an indicator of content quality" (p. 12).

Objectivity

Measuring web pages according to an objective standard is a fourth criteria used for web page evaluation. Ideal pages, most educators and librarians feel, should contain factually verifiable information, no verifiable bias (i.e., arguments should establish at least two sides of an issue) and clear distinctions between advertisements and information. When pages contain advertising, commercial gimmicks, or attempts to sway opinion, librarians and educators offer tips to students and teachers for judging potentially biased content more stringently. Alexander and Tate (1999), for example, differentiate between advocacy advertising, institutional advertising, corporate sponsorship, and nonprofit sponsorship, and in particular, warn about the subtle blending of information and advertising on many web pages, a practice, as noted in Chapter 3, which is becoming increasingly common. "On the Web, it is often not so readily apparent when an individual or group is supplying both the informational and advertising content of the page" they write. "Whenever any site accepts advertising and sponsorship but also

provides information, the user must be aware of the potential influence by the advertiser or sponsor on the objectivity of that information (p. 27).

Although Reynolds and Plucker (1999) discuss the presence of advertising, they do not see it as a sure red flag indicating potential bias. Instead, they rightly note that many information-rich sites use ad revenue in order to make the site's availability and upkeep possible—the *New York Times*' online site, or *Salon* magazine, are examples of ad-supported informational web sites. The advice, then, is to distinguish between the types of ads used on particular sites. "The type of ad can be an indicator of content quality (e.g., an educational site with ads for nightclubs is questionable; a site sponsored by the local PTA or a national distributor of teaching materials is probably not)" (p. 12).

Currency

This fourth category involves determining when the page was last updated. A recent update, according to web page evaluation discourse, indicates that the web site's information is well-maintained and therefore more reputable. Gardner et al. (1999) ask, for example, "Is the date of the latest revision clearly stated? Is the date given for when the information was gathered? Is the page kept current? Are the links current—do they work? Is this truly the latest information on the topic?" (p. 41). In recalling Safford's complaint about graduate students who "simply desert their sites" (p. 43), graduate students (or any unauthorized person not maintaining information onto a web page), are seen as the most typical culprits in lowering the overall value of the web.

Coverage

Finally, educators and librarians want students to consider the scope and depth of a particular site. If the site compares well to other sites (e.g., Grassian, 2000), contains supportive evidence for any conclusions (e.g, Henderson, 2000), covers the topic comprehensively (e.g., Ormondroyd, et al., 2000) and offers links to other "legitimate" sources (e.g., Gardner, et al., 1999) then, educators advise, the web site gets high marks for quality.

As early as 1996, the widely circulated technology newsletter *Classroom Connect* published a "how to" guide to web page evaluation, which documented the criteria listed above and offered a worksheet for teachers to copy and pass out to their students, who would apply the criteria to each page they visited. "If a student follows these steps," the newsletter wrote, "they'll find that separating the good online information from the bad is a rewarding, enlightening experience" (Information, 1996, p. 4). Since then, numerous librarians and educators (often university professors in education) have posted web page evaluation checklists online. Librarians are incorporating these strategies in their orientations, and teachers, many in English, are designing research units around web page critiques. The hope is that once students learn to patiently proceed through the evaluation process with every web search, often using a checklist or question sheet as a guideline, and working within carefully constructed assignments, they can gradually internalize the fine points of web evaluation and eventually evaluate pages without any help (e.g., Bos, 2000; Scholz-Crane, 1998). With these efforts, educators believe, they can better

combat undiscerning students and information overload. Moreover, they believe they can transform students into effective critical thinkers, not just in the way they address web content, but in the way they regard all information resources.

Although web page evaluation practices are increasingly common among librarians and teachers, there is some evidence that they are not wholly effective. One issue is that students aren't bothering to use the web page evaluation skills educators are teaching, and continue to rely on questionable information for their fact-supported, objective-style reports. For example, Arnold and Jayne (1998) observed that despite various efforts to teach students basic discerning skills, their students persisted in either not remembering these lessons or simply not applying them, using, in one particular instance, an online student paper as a credible source. "The process of identifying who is responsible for a Web page and of verifying their credentials may require extensive investigation that consumes too much time," they noted. "Consequently, freshmen are often willing to accept the information without questioning the source" (p. 47). According to Gibson and Tranter (2002), "Comparing information with other [web] sources in a broad sense is indeed a tenable approach for differentiating between true and false information (p. 2).

Watson (2001) reported a different problem. Students, she observed, are nervous about evaluating web pages when they are unfamiliar with the topic they are investigating. In other words, without prior knowledge of the subject they are researching, they feel ill-equipped to identify what is the most factual information. "When one finds dates conflicting or other small errors, one is wary of the site as a whole," she reports. This problem is aggravated, Watson continued, by the large number of obviously biased material online.

As if discerning quality sites isn't hard enough, another difficulty is that many web sites do their best to seem as unbiased as possible. Indeed, a web design aesthetic has evolved for most professionally-crafted web sites that incorporates *all* of the web page evaluation criteria outlined above. Every organization or corporation today uses the web, in part, as a tool for public relations, and has adopted a "credibility aesthetic" to appear as legitimate as possible to any reader. Their web sites routinely list, for example, page "authors" and contact information. The pages are frequently updated. The information is written and copyedited by professionals, so typos and grammatical incongruities are rare. They provide bibliographic references to objective (or at least, objective-seeming) sites. They present a balanced-sounding argument, and even post web site awards, no matter how bogus, that may increase the chances of the web page *appearing* legitimate or objective. These evaluative criteria, for example, do little to prevent a student from thinking a public relations page with a well-crafted design and the aesthetics of objectivity in place, is valid and factual information when its purpose is purely propaganda. As we have seen, students are often impatient web searchers; they also may corroborate one invalid web site with another, and feel like they are dealing with completely legitimate information all along.

Critical Literacy and the Web

Some educators believe that a way to address these problems—and to alter the way students do web research—is to change assignments. Rather than asking students to write a paper or design a project based upon "true" facts gleaned from the web, literacy scholars like Allan Luke (2000), Carmen Luke (2000), Elizabeth Bir Moje, et al. (2000) and James Paul Gee (2000) argue that students should address the world of opinion, not

malleable facts. They have introduced an expanded form of literacy that positions all discourse within a political, economic and social framework. In their view, fact-based assignments that lead to objective-style reports do little to help students understand more meaningful issues that directly or indirectly correspond to their social world: how political, economic and social context shapes all texts, how all texts can be adapted for different social purposes, and how no text is neutral or necessarily of "higher quality" than another. In other words, Luke et al. see no point in trying to determine the factual or "true" nature of certain information, but instead see the importance of understanding all information within a broader cultural context. This understanding, to these scholars, is the point of critical literacy. In Allan Luke's (2000) words:

> The aim of critical literacy is a classroom environment where students and teachers together work to (a) see how the worlds of texts work to construct their worlds, their cultures, and their identities in powerful, often overtly ideological ways; and (b) use texts as social tools in ways that allow for a reconstruction of these same worlds. (p. 453)

Under this notion of critical literacy, web page evaluation skills are a good first step in understanding a text's orientation. But, rather than label a specific web page "good" or "bad," critical literacy sees the page as the product of a particular context within a particular political and economic framework. As such, "raw, unfiltered, and contradictory information" doesn't necessarily challenge critical literacy, as Mather (1996) suggests, but enables it: Disparate sources (representing various contexts) invite students to acknowledge the "technical characteristics, social functions, and contexts of texts" (Luke, 2000, p. 453). In other words, students don't only learn information, they learn about and through information (See Cervetti, Pardales & Damico, 2001, for an explanation of the differences between critical reading and critical literacy; Lankshear, Snyder & Green, 2000). They learn how all information falls on a political and ideological continuum.

Australian education scholar Cushla Kapitzke (2001) offers a practical way of introducing this kind of critical literacy to students, teachers and librarians working with web information. Instead of being consumed by the search for factual and credible information, teachers and librarians would do the opposite: construct and support assignments that ask for a range of theoretical, ideological, and political perspectives:

> Take, for example, the topic of globalization. Rather than seek the facts or the truth about its negative or positive impacts, student reading and analysis could focus on the social construction of discourses and practices of economic and cultural integration, which have costs and benefits, and advantages and drawbacks, in specific local and global contexts. In collaboration with the teacher, the cybrarian would furnish print and electronic texts produced by unionists, transnational corporations, indigenous peoples, feminists, environmentalists, and the World Trade Organisation, all of which would present different and often conflicting versions of "reality." Opportunity to analyse how these positions are materialized in language and text would show students that the production of knowledge necessarily entails relations of power that are able to be contested and transformed.

> Considering the power of information networks to connect and disconnect, and to include and exclude (Castells, 1996), any pedagogy that ignores the political economy of information does a disservice to students, irrespective of whether they are part of and contributing to, or disconnected from, the electronic current of the Information Age. (pp. 453-4)

Kapitzke's vision of using information incorporates some elements of the web evaluation/checklist method but goes beyond it by asking students to acknowledge the shifting terrain of knowledge construction and work to synthesize their own opinions. Organizing opinions is much different than reporting facts. Salpeter (2003) also recommends that students work with contradictory web pages to understand numerous points of view:

> …you could challenge students to do their own research to find point-counterpoint sites on such topics as the effects of television viewing on children or the advantages and disadvantages of a diet high in carbohydrates—or any other controversy that ties in with a current curriculum topic. As each site is located, students can summarize the key points being made and identify which ones directly contradict what they have learned elsewhere. Then it's time to debate what is the "truth." Which point of view is more popular? Does that make it more believable? Who created each site, and what reasons might that individual or organization have for espousing a particular point of view? Are they simply stating their opinion, or is there evidence that they are distorting or hiding information to make their case?

In helping students interpret contradictory online information, students could also investigate contradictions within a single web site. They could deep link into the "About Us" sections of many corporate and organizational web pages, not to verify authorship, but to understand the often incongruous messages directed at a company's various audiences: shareholders (e.g., annual reports, press releases), potential advertisers (e.g., commercial opportunities), employees and potential employees (e.g., job listings), and target audience of the web site itself (home page) (Fabos, 2000). One of the most unique things about the web is that this type of "About Us" insider information is so readily available. Asking students to read the fine print of web site privacy policies—what the policies are and how they may be subject to change—could be another valuable lesson in understanding how the web's interactivity promotes a two-way information exchange: a web site offers information but also expects its readers to divulge their own personal information in return.

Asking educators to require students to chart ideas rather than document truths is a rather new concept in education. This teaching strategy would work best if a student had access to as many varying ideas as possible. Given the scope of search engine corruption, and the tremendous hold corporate public relations and commercial enterprise increasingly wield over the internet medium, however, this kind of many-viewpoint utopia is becoming increasingly hard to find. As we have seen in Chapter 3, all search engines except for Google are exploiting user trust and manipulating search results to favor paying customers. The web is so commercially stacked that even Google—the sole search engine with content integrity—is not exempt from these powerful forces. At present, most educators are either concerned about information clutter (they advocate subject gateways, power searching and web page evaluation skills) or creatively utilize the web's breadth of contradictory viewpoints (they endorse critical literacy). However, the teachers and librarians in both groups still view the whole internet in neutral terms—as a new technology owned by no-one and free for anyone with internet access to use (or abuse). In their view, the

"neutral" web environment, which changes only in terms of proliferating information, is the host to a variety of suspicious, low-quality, or opinionated information that exists regardless of what impartial search engine is used.

Perhaps another level of critical literacy needs to be introduced that looks at the entire world wide web as a complicated and contested text. In attempting to understand this text—this information resource—students would have to investigate the history of the medium; various methods search engines and subject gateways use to increase revenues; and many other commercial components of the web. What points of view, for example, are missing or hard to find? What areas of the web are silent, and why? It's one thing to understand that contradictory viewpoints co-exist; it's another thing to understand why (and how) certain kinds of information, like commercial speech, is privileged over other kinds of information. These discussions are not currently evident in the academic or public discourse on web content. Critiquing the web in its entirety can be difficult however, because it points to questions about the existence of the web in education in general, and raises issues about democracy within the context of capitalism. These are topics that, in many cases, educators are not willing to touch.