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Research Authority in the Age of Google: Equilibrium Sought

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Once upon a time not so long ago in college libraries, there was a settled pattern of relationships in the research process. Instructors sent students to find information in books and journals, and librarians helped them do it. One key basis of these relationships was authority: that is, the search for reliable sources. Behind this search, however, lurked a hidden struggle over who determined reliability and who provided access.

Before the digital age, information derived its authority from author credentials and the reputation of a limited number of publishers. The authority of instructors to accept or reject content as valuable rested on their academic credentials and content knowledge. Furthermore, instructors provided the context for information seeking, since they authorized students' research in the first place. At the same time, the authority of librarians to select and provide access to published information was based on their credentials and their access to bibliographic tools. Students, however, had little authority when it came to information seeking and relied on instructors for content knowledge and on librarians to teach them how to find and evaluate information. Nevertheless, while students began their college careers with little authority to evaluate or access information, they gained it as part of the initiation into research that college provided.

This state of affairs (simplified for purposes of argument) held true through the development of online catalogs and electronic databases, up to the introduction of the World Wide Web in the mid-1990s. The web, Web 1.0 as it might be called in retrospect, caused a major shift in the relationship of students, instructors, and

librarians to information. This shift was due to three fundamental changes to authority in the research relationship in terms of web publication, access to content and technical know-how.

First, the authoritativeness of available information now fell along a much broader continuum because suddenly information consumers could easily produce and publish information without undergoing the editorial process of traditional print information or bumping up against its traditional barriers, notably money and access. Thus for librarians and instructors invested in the traditional scholarly publication cycle, the web represented a significant break with tradition. For students, on the other hand, the authenticity and validity of information that was implicit in books and journals transferred over to web-based information sources, perhaps due to what Marilyn Lutzker (248) has called the "magical" quality of the computer and "its power of instant retrieval." Second, because traditional authorizing or gate-keeping mechanisms such as publishers who select what to publish, librarians who select published material for libraries and bibliographic tools that point to published materials could suddenly be bypassed, students gained easy and direct access to a great deal of content. In effect, students could evade the traditional mechanism of authority to find information. Third, students themselves gained newfound authority as savvy, experienced users of technology, and the web in particular. Thanks to hours spent online chatting with friends, surfing websites, shopping, and more, students' technological confidence and comfort level far outstripped that of many of their instructors and librarians. Of course, time online did not necessarily equal experience in academic research and a struggle over control of authority played out in the library.

To the chagrin of librarians and instructors alike, students often perceived any results as search success. Student tendency to value convenience over quality in resources exacerbated the problem of students seeing search engine rankings of results as authoritative, even though the sometimes meaningless ranking of results in early search engines led students to pages of dubious scholarly, or even informational, value. To make matters worse, cut-and-paste plagiarism of online sources proliferated. Student use of the web was thus seen as a threat to research quality and also to the status quo of information authority. Instructors responded with prohibitions on the use of web resources in student work. Academic librarians responded with efforts to improve web use: they produced lists of useful and scholarly websites so students could bypass search engines and their problematic results and placed a strong, new emphasis on web evaluation criteria in bibliographic instruction. Librarians worked to bridge the student/instructor divide: they kept up with online tools and resources better as a whole than the instructors, and they continued their efforts to keep students aware of scholarly issues raised by web research. Librarians strived to maintain their gate-keeping role while recognizing that both the students at the gates and the information beyond the gates were very changed.

The Google search engine introduced in 1998 proved a second critical turning point for online research. This new search engine was a quick and effective way to

locate relevant and often authoritative information from reliable sources. There was no turning back from Google's highly effective relevance-ranking of results.

Google marked a new era of constantly improving and innovative web search tools. Its new search engine contained within its PageRank algorithm the first inklings of the second wave of the internet revolution: that is, authority based on popularity. PageRank is a link-analysis algorithm that uses links *to* a page to determine its relative rank in results lists. Importantly, the "popularity" of a page is based on not only how many links, or votes as Google calls them, there are to a page, but also on how popular those linking pages are in turn ("Google Technology"). In effect, Google's new search engine looked at links in web pages (i.e. popularity as measured by links) as authority, or at least influence, for ranking. Google's new authority by popularity in ranking differed from traditional information retrieval: off the web, the traditional publication process itself provides a chain of authority from author to publisher to library to researcher. On the web, Google's new PageRank method introduced authority based on *consumer input*: the age of Google had begun.

Revolutionary at the time, consumer-based authority on the web is now widespread, particularly in social media such as social bookmarking at del.icio.us, movie suggestions from Netflix, product reviews at consumer websites such as Amazon.com, and opinion and discussion on blogs. The new interactivity and openness of the web is a major characteristic of the age of Google and is also known popularly as Web 2.0, "a second generation of the World Wide Web that is focused on the ability for people to collaborate and share information online" ("Web 2.0"). The pervasiveness of the user input phenomenon is evident in Time Magazine's person of the year 2006: "you," the Internet user. "The new Web," the author writes, is "a tool for bringing together the small contributions of millions of people and making them matter" (Grossman).

Importantly, this new consumer-based information exists at the same time as traditional information publication, but has introduced a new kind of authority and has changed user expectations and by extension has begun to influence even traditional access tools. In the current web environment, a new equilibrium in the authority in research is being sought (if not actually achieved) in college libraries. In the new balance of power, academic professionals have regained their authority as knowledgeable, sophisticated information seekers with much to teach college students about finding and understanding information. While anyone can do a web search, academic content experts can quickly identify a potential high quality source on a results list based on their prior knowledge, for example they might quickly parse a Google Scholar search and recognize the types of records returned based on format and content details such as publisher name, as well as recognize other scholars' names and relevant key terms in titles. They can also more quickly understand and use the new source whether it's a document or a tool. The kind of content knowledge and experience that underlie this academic information literacy give librarians and instructors authority as information searchers.

Librarians and instructors also use the new age-of-Google tools to deliver better and more relevant access to authoritative information and to give students the skills to locate and evaluate, then process and apply information. Librarians in particular are taking the lead in making use of the new tools: instant messaging tools for virtual reference, wikis for subject research guides, blogs for news and commentary, and RSS feeds for sharing news and even search results, to name a few. While use of web tools is not in and of itself authority, librarians are harnessing these tools to deliver authoritative information in the medium students know best. In the new equilibrium librarians are experts in age-of-Google tools as well as in disciplinary content and modes of scholarly communication.Increased information literacy on the part of librarians lends them authority in presenting resources and in teaching information literacy to students.

The students' brief moment as online experts has ended. While students are *still* online all the time (see OCLC), they are still primarily socializing on the web. They require librarians and instructors, however, to help them discover the potential of the hidden, and now perhaps not-so-hidden, web of scholarly databases and the free web. Though studies have shown that students view themselves as successful online researchers (OCLC 3), they can get into deep swamps of information out on the web because they do not (yet) have the searching savvy or subject expertise to evaluate the reliability of the information they come upon. To become authoritative researchers, students need to learn information literacy skills, in particular evaluation, and learn disciplinary content and models of scholarly communication.

Despite much wailing and gnashing of teeth by librarians concerned about "real" research (and their not-so-hidden agenda: job security), traditional authority in the research process remains in force, though coexisting with new forms of authority. In academic circles, information from a book or journal published by an academic press is still considered more authoritative than that published on websites. At the same time, web-based access points, i.e. the gate keeping mechanisms, have become infinitely more sophisticated and useful. Services such as Google Scholar, Google Book Search and Worldcat.org not only provide remarkably broad access to published materials through their regular services and "linking" programs, they point researchers back to published journal articles and books and thus reaffirm the continuing authority of officially published works. Furthermore, as a number of authors (Noruzi 170; Pomerantz 54) have shown, Google Scholar is emerging as an important tool for determining academic authority through its function as a citation index. Thus the free age-of-Google tools are being used to support traditional authority.

Nevertheless, thanks to the web, libraries and their bibliographic tools no longer provide the primary point of access to authoritative information. Age-of-Google tools combine powerful search technology with ease of use: anyone can access them, and anyone can use them with some degree of success. In fact, some of the tools on the web are superior to subscription resources: for example, for sheer user-friendliness there is no comparison between Google Scholar and Scirus on the one

hand and ISI's Web of Knowledge on the other—the free web-based searches win hands down. At the same time, as Noruzi (173-5) has shown, many library-based information access tools such as ISI, the MLA Bibliography and Lexis-Nexis still offer much more precision and coverage in searching. Libraries must take seriously the challenge free web-based tools make and demand improved bibliographic tools and with straightforward, useable search interfaces to meet researcher needs and expectations. Librarians' role as gate-keepers to information, whatever its authority, is more vital than ever – as information literacy experts they know better than most researchers what the range of tools is, how to use them and when to use or abandon them in the context of a search.

Though the academic value of user-authenticated information—for example in Wikipedia articles or Amazon.com and Internet Movie Database reviews—is still a topic of some debate on college campuses and library lists, there is a growing acceptance of these resources. Google Scholar promises much with its ease-of-use and linking features, not to mention its connection to the popular Google Web search. Wikipedia—the much-discussed, user-created online encyclopedia—is now regularly consulted by researchers of all categories as a starting point or background for research. Librarians have begun to teach these tools too, as can be seen in two recent discussions of Wikipedia on Association of College and Research Libraries' information literacy and instruction discussion list (ILI-L). The flurry of emails revealed that while some vehemently oppose the use of Wikipedia and actively warn researchers off it entirely, most librarians who responded felt that Wikipedia has a place in library instruction, not the least because researchers, students in particular, are *already* using Wikipedia and that librarians must respond to that. For example, one respondent commented that, "Banning a source like Wikipedia (rather than teaching how to use it wisely) simply tells students that the academic world is divorced from real-world practices" (Badke). Active discussion and debate like this helps librarians stay abreast of current issues and contribute to the negotiation of authority in research.

Academic librarians in particular serve as the counterweight in the new research equilibrium. Librarians continue to do what they have long done, that is, provide a meaningful context for research and provide a kind of nuanced, empathetic, thoughtful help no online search tool can provide. Furthermore, with the many authoritative tools at their disposal, including those of the age of Google, they work toward a shared mission: to lead all researchers, especially students, to relevant, reliable information they can understand and use. Librarians can help all researchers to decode and evaluate information found, and to understand the power and limits of databases free and hidden. Much more than just a warehouse of print materials or a portal to online ones, the library is "a social dynamic institution of communication and knowledge dissemination" (Keresztesi 1982, 2). At its best, the academic library can be a kind of contact zone where both students adept in web searching and faculty adept in content knowledge learn to harness the power of age-of-Google and library tools and the information they access.

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For a full technical discussion of authority in a hyperlinked environment, see Kleinberg.