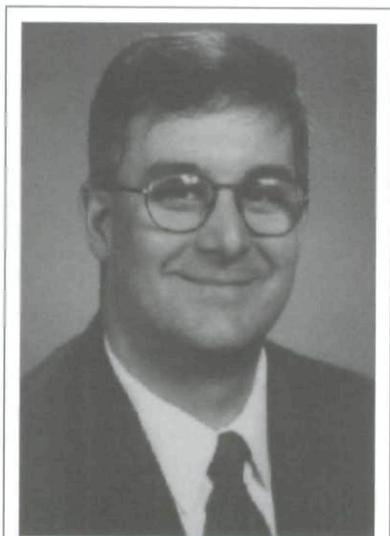


Conducting Better Research: Google Scholar and the Future of Search Technology

by Michael L. Kent

Since technology seems to advance in dog years, and the closer someone is in age to a technology the better they tend to understand it, keeping up with technology is not easy for many professionals. The odds are good that many of the readers of Public Relations Quarterly are not familiar with the latest Internet search tools. Thus, as part of my continuing effort to stay smarter than the average 12 year old, I offer an overview of one of the latest and perhaps most significant research and information tools in the last twenty five years: Google Scholar.

Research is at the heart of all effective public relations. Several new pilot projects have been underway for over a year now to test a new variety of search engine that searches for scientific/scholarly information. The new search technology has great potential for improving the caliber of public relations research.



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Two of these projects are "CrossRef", found at: www3.interscience.wiley.com/crossref.html, a multi-publisher system being tested by a consortium of 35 academic publishers and including more than 1,000 scholarly journals, and Google Scholar, found at: www.scholar.google.com, a similar project to search scholarly journals. Google Scholar also draws upon scholarly material gleaned from other sources especially the Web. Currently, Google and CrossRef are working together. The publishers in the CrossRef consortium, which includes some of the largest academic publishers including John Wiley & Sons, Lawrence Erlbaum Associates, Taylor & Francis, and others, have given Google permission to index their databases.

Some issues in the partnership still have not been worked out but CrossRef and Google have made great progress. As Craig Van Dyck, Vice President of Operations, John Wiley and Sons Inc. and chair of the CrossRef Search committee, explained at a lecture in New Jersey recently, Google views the universe of academic literature more broadly than CrossRef (which is comprised of a consortium of educational publishers), and consequently is less concerned with identifying authentic sources for articles when it returns search results. Additionally, Elsevier Science Inc., publishers of Public Relations Review and thousands of other journals has opted out of participating in the CrossRef consortium or with Google Scholar. Although the exclusion of a publisher as important as Elsevier is significant in terms of the strength of the CrossRef/Google Scholar database, Google scholar still indexes articles located on the Web and from bibliographic citations. Many of the articles indexed by Elsevier still come up in Google Scholar searches.

In order to help professionals at all levels (practitioners, teachers, managers, students) conduct more effective research, this article will cover four issues: (1) what Google Scholar is and how it works; (2) how Google Scholar can help professionals; (3) how Google Scholar can help students/teachers; and (4) how to access the scholarly databases indexed by Google Scholar so that you can use Google Scholar effectively. To understand the value of Google Scholar you must first understand how it is different than other search engines.

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What is Google Scholar and How Does it Work?

On the most basic level, Google Scholar is just another search engine, like Google itself. However, unlike a standard search engine that searches the Internet and pages accessible in cyberspace, Google Scholar is designed to search for "scholarly" research. Google Scholar searches hundreds of the databases that house thousands of scholarly articles and returns hits for journal articles, conference papers, books and book chapters, governmental reports, scientific reports, dissertation and theses, and other scholarly information.

Some might ask, "Why does it matter where the information comes from?" The answer is that the information that is currently located on the Internet is only as reliable as the source of the information. Web sources typically only post favorable information or information designed to support the individual/organization's interests.

Anyone who has used the Internet knows how valuable it can be for locating everything from e-mail addresses to products. Search engines really excel at tasks that involve sorting through a lot of information and returning the most relevant results: finding answers to factual questions, locating pictures of famous people and places, isolating the source of

important quotations, locating telephone numbers, finding a Web site when you want to buy something, or providing members of the news media with a news release or organizational information.

Where the Internet has always been at its worst is in providing trustworthy and reliable answers to sophisticated or substantive questions. Complex (and more valuable) information is still housed primarily in books, journal articles, and research reports. Such sources are not free on the Web. Rather, newspapers, magazines, journal articles, dissertation/theses, and other data are housed in proprietary databases. Although such scholarly databases can be searched for free through interfaces on many Web sites, the actual articles are located behind firewalls and in databases that belong to the publishers. To obtain articles from publisher databases users must have paid a fee or be affiliated with sources that have paid for access like a university or college.

What makes articles, books, government reports, etc. more valuable to professionals and academicians is the editorial process and "blind review" (also called "peer review" or "refereed"). More simply, the oversight of gatekeepers and experts improves the quality of research. For example, newspapers, books, and many journals, like *Public Relations Quarterly*, are edited. In edited journals, the content is filtered through experts who decide if submissions warrant publication. With the exception of news Web sites that (hopefully) filter content through some editorial process, the remainder of the information on the Web is essentially posted at the whim of site owners. Information on the Web is often posted for publicity, sales, marketing, and public relations purposes, and typically out of a desire to increase, not limit, what gets published.

The blind review process involves the evaluation of articles and books by an editor, as well as several other professionals who are experts on the topic that they are reviewing and not told who the author is of the text that they are reviewing. The anonymity of the blind review process is designed to ensure an unbiased and rigorous review. Most academic/scientific articles and books go through a blind review process (as well as many conference papers at national and international conferences), and are typically subject to rejection unless all (or most) of the reviewers agree that the article deserves publication.

What makes Google Scholar so valuable is that rather than searching through the billions of Web sites that are currently out there, Google Scholar primarily searches through the dozens of scholarly databases that house

academic articles and indexes to books and research reports. Indeed, the database for Google Scholar and the standard Google Web search are completely separate, making Google Scholar leaner and more flexible than a standard Web search. Because Google Scholar uses scholarly material for its search data, the sources found by Google Scholar are a lot more trustworthy and informed by experts/professionals and scientific research than a normal Web search. Moreover, most of the articles that Google Scholar indexes are not actually on Web sites at all, but contained in proprietary databases that can only be accessed with permission.

Search results on Google Scholar are also returned with bibliometric data indicating how many other researchers have cited the article, book, etc., and the list of those citations can be displayed to follow up on related articles. In keeping with Google's basic search logic, which prioritizes results based on "relevance," results are sorted by most relevant or most cited to least relevant or least cited.

To locate the Google Scholar feature simply type <www.scholar.google.com>, or go to the Google Web site <www.google.com>, click on the link for "more," and then click on the icon for the "Scholar" feature located near the middle of the group and resembling a diploma. Once there, the caption beneath the search box reads: "Stand on the shoulders of giants," which is just what Google Scholar allows public relations practitioners to do. The search results that are returned in a Google Scholar search represent not only the most reliable data available in most disciplines (advertising, business, communication, economics, law, marketing, medicine, psychology, political science, public relations) but also the most valuable research as judged by other professionals.

Although Google Scholar is of obvious value to teachers and students, practitioners will find the scholarly information a goldmine as well. More and more, students and professionals are turning to search engines to find answers to research questions (polling data, scientific studies, etc.). Unfortunately, as suggested above, turning to the Internet is a poor research choice. In most cases, the accuracy of the information obtained on the World Wide Web cannot be verified and the real "valuable" information (proprietary, scholarly, scientific research) is not even posted on the Web.

Now that the logic behind Google Scholar is clear, the next issue is to explain how Google Scholar can be of value to professionals. To do this I will give an example of how Google Scholar might be used to address a particular public relations decision.

How Can Google Scholar Help Public Relations Professionals?

A few years ago a colleague and I wanted to study organizational name change. After examining thousands of announcements from organizations changing their names we came to the not very profound conclusion that "organizations change their names a lot." Although we did eventually develop a more sophisticated typology of reasons, the frequency of this event suggests that this might be a good example.

Imagine that you work for one of those 5,000 organizations that are thinking of changing their name. Name changes are expensive. Besides the obvious expense involved in re-branding and developing new advertising materials, the cost of new business cards, stationery, pens, coffee mugs, etc. with the organization's new name on them could be hundreds of thousands (or millions) of dollars—especially if new

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names and logos need to be painted on planes, trucks, buildings, etc. When upper management comes to you to look into the viability of a name change to deal with a crisis, merger, acquisition, scandal, etc., Google Scholar would be a good place to start.

If you visit Google Scholar and input the search phrase "name change" (in quotations), Google Scholar would return approximately 2,600 hits. If the same search phrase were searched for using the standard Google interface, more than 3,300,000 hits are returned. (Note, in a 2001 Public Relations Quarterly article, "Essential tips for searching the Web," I offer suggestions for how to narrow that list of 2,600 hits down using quotation marks, search logic [AND, OR, NOT] and other key terms). With Google Scholar, only scholarly articles are identified. Note also that none of the tens of thousands of newspaper articles or Web sites about companies that have changed their names come up, nor do Web sites for consulting firms that specialize in name changes, as they would if you conducted a standard Google search.

Looking at the first few screens of information that come up on Google Scholar, several articles that might

be valuable are listed. Consider the first item on the list, an article by Cooper, Dimitrov, and Rau that has been cited by 49 others. (Note: most articles that are written are never cited more than once, if at all. An article that has been cited 49 times is an important article). The citation for the article looks like this:

[PDF] A rose. com by any other name

MJ Cooper, O Dimitrov, PR Rau - Cited by 49 - Web Search

... However, the academic literature has found little evidence that the announcement of a name change results in a positive stock price reaction for the firm. ...

Journal of Finance, 2001 - blackwell-synergy.com
- ingenta.com - mgmt.purdue.edu - mgmt.purdue.edu
- all 5 versions »

Several other promising articles also come up on this first screen. But, as many readers of Public Relations

Google Scholar can serve as an excellent “first source” for student and academic researchers.

Quarterly probably know, when a search engine returns a list of results in the thousands, researchers are advised to add a new search term/phrase and resubmit the search. Interestingly, however, the reason that this list of 2,600 articles is not as useless as a typical Web search with 2,000-plus hits might be is because the search engine is only indexing articles/books/etc. and not Web sites with meta-terms designed to draw the attention of search engines. Additionally, because the Google Scholar search technology uses “relevance” (bibliometric or citation data) for sorting results, the results returned at the top of lists are more useful than a typical Web search. Many university administrators use citation data to judge the value of professors’ research when making promotion and tenure decisions and librarians are increasingly interested in relevance to create better search engines.

As a research tool, Google Scholar enables professionals interested in specific research topics or areas to quickly identify what other experts in the field consider the most useful and significant work. By taking into account the citation information that Google Scholar provides, practitioners and researchers are able to quickly narrow searches down. The only downside to the Google Scholar interface currently is that because

it is only a “beta test” version, Google has not worked out the bugs on how to keep the database up-to-date. At present, the database might be as many as two months out-of-date and users are advised to visit the CrossRef database <www3.interscience.wiley.com/crossref.html> before or after a Google Scholar search to see what research has been missed. Although both cites are linked in principle, typically results vary.

How Can Google Scholar Help Public Relations Students/Professors?

Google Scholar can serve as an excellent “first source” for student and academic researchers. As a professor who teaches on both the graduate and undergraduate level I can attest to the fact students at all levels have poor library and research skills. Many students (even at top research institutions) do not even know what sort of information can be found in a good library.

The problem is that students have learned to turn to search engines first to find information for research papers and class assignments. Considering that many U.S. high schools are under-funded and that teachers have been encouraging students to use the Web as a research tool for many years, student reliance on the World Wide Web is not surprising. In order to combat the tendency of students to rely on the biased information that is found on many Web sites, many professors now require students to consult a requisite number of “scholarly sources” (books, articles, etc.) first, and the Web after that. By encouraging public relations students (or any student) to obtain scholarly support for all of their research projects, students develop a greater appreciation for how research can inform practice. Reading scholarship also allows students to become more comfortable and less intimidated by scholarly articles and books.

Google Scholar facilitates an initial search in a number of ways. Because Google Scholar is not a discipline specific search engine, Google Scholar returns search results for articles from any field that has written about the subject searched for. Because many fields never look at research outside of their own discipline, using Google Scholar can lead to better, more thorough, research. Additionally, when students are encouraged to read scholarship from outside their own disciplines, students learn to interpret research better and to conduct research that is more effective.

The bulk of valuable information and knowledge useful for strategic decision-making, problem solving, and crisis management, is not located on organizations’ Web sites but in the tens of millions of books and journal articles that already exist. Are some of

those books/articles pedantic and difficult to read? Of course. But many books/articles are well written and have the potential to inform all aspects of business, management, organizational communication, and public relations.

Ultimately, the most important reason for encouraging (or requiring) public relations students to use scholarly sources is because they will become the practitioners of the future. Learning to differentiate "good" from "bad" research is an important skill. Students who learn to read academic articles properly and understand how to apply the research and knowledge contained in them to practical professional situations become professionals who are more comfortable with research and ultimately more effective practitioners and communicators.

Accessing Scholarly Databases

Although Google Scholar is free to use just like most other search engines, as illustrated in the example above, most documents, except for books (which eventually will all be digitized as well), are cited as PDFs (Portable Document Format). However, the PDF designation does not really mean that a user will have the access privileges needed to open the documents. The PDF reference simply means that a PDF of the document is available. In the example above of the Cooper, Dimitrov, and Rau article, the article can be found in the Journal of Finance, controlled by Ingenta (a data provider).

Unless a user is affiliated with an organization (typically a university/college, or larger company) that has purchased online access to journal databases (and in most cases smaller universities do not have the access that larger universities do), the only way that an article can be obtained is to pay for it on a per-article basis. The cost for a single article varies but typically, \$20–30 is common. Researchers can of course subscribe to important journals in their fields such as Public Relations Quarterly and gain free electronic access to each journal. But when conducting research the idea of subscribing to every journal that has information of value is prohibitively expensive, as is purchasing each article à la carte.

Obviously, access is one of the drawbacks to conducting research with Google Scholar. Although many large organizations pay for access to databases like Proquest (which indexes Public Relations Quarterly) and EBSCO, access is expensive, and there are varying levels of access. Over the last several years, the Public Relations Society of America has conducted trials of EBSCO, with the most recent one ending in January

2005. Currently, the PRSA does not offer access to EBSCO for members.

Many states, and organizations, have negotiated statewide contracts (New York State's PRSA, for example). Organizations in states that have negotiated statewide contracts may obtain access to EBSCO, and other databases, for reduced rates.

Individual subscriptions are also possible but very expensive and fairly uncommon. Thus, unless a researcher is affiliated with a university and has access to several of the thousands of journals referenced by Google, the Google Scholar service is of limited value. Fortunately, several access solutions present themselves:

First, like in the days before the Internet, researchers can simply go to a university, or a community library with database access or actual paper journals, and print or download copies of research articles. Of course, not all libraries have access to every article that a researcher might be looking for so it may be necessary to search a library's journal database first, before going there to download/print articles.

When conducting research the idea of subscribing to every journal that has information of value is prohibitively expensive.

Second, as suggested by an EBSCO representative I spoke with, if a researcher has a family member (spouse, child, etc.) in college, access may be obtained through their school account. Those professionals with kids in college might even get them to help with the research, which might be a valuable educational experience!

Third, a researcher could sign up to audit a class at the local college or university and thus obtain the access privileges that typically come with a school affiliation.

And Fourth, and perhaps the slowest and least dignified, an organization might call upon an intern to download/print desired files using the student's university access privileges. The down side of using an intern is that an organization needs to be sure that they always have a student available to assist in this fashion.

Using Google Scholar

As mentioned above, in order to use Google Scholar effectively, a researcher needs access to one (or several) of the major database services such as EBSCO, Lawrence Erlbaum Associates (LEA), ProQuest, ScienceDirect, etc. When using Google Scholar I typically find it helpful to do the following:

1. Open one browser window to the Google Scholar Web site.
2. Open another browser window to the database service that your organization has access to. Or, in the case of someone with access to many databases through a university, etc., open the browser window to the school or library's alphabetical journal search page (where books/journals that the school can access are alphabetically listed).

Conduct the search for articles, etc. in the Google Scholar window just like a normal Web search might be conducted. That is, if too many results are returned, narrow the search down by adding more search terms, and using quotation marks around names/phrases, to limit results.

When you find an article that you want, click on the link for the PDF. If there is an html or text version available, you might click on that first to save time (or cost if you are paying for access). Also, many articles that are indexed by Google Scholar can be found on the home page of the author(s), and frequently the PDF file that Google lists is for a file that can be downloaded for free.

More often, however, the PDFs identified by Google are only available through a database host service like EBSCO for a fee. When this happens, switch to the other browser window that you previously opened (with the journals index) to determine if the journal/article that you are looking for is available through the library's journal subscription service. Note, if an article is not available and the researcher has library privileges, articles can still be ordered in a few weeks through "interlibrary loan," a library service that borrows books, articles, etc. from other libraries for free.

Once a journal is located in the browser window for the library or database provider, most interfaces allow you to open an index of the journal's volumes/issues to browse. After a particular volume of a journal has been opened, locate the article that you seek and download a copy of the article that you are looking for. Articles can be accessed as "abstract only" (which provides an overview of the article), "full text" (which is essentially a text only version of the article without formatting), and PDF (which provides an exact copy of the article as it looks in print).

While you are browsing the index, be sure to look at the other articles in the same volume. Many journals publish special issues and you may discover several articles on your subject of interest in the same journal issue. Finally, look at the bibliography of the articles that you find the most useful to see who the experts who wrote the article consider to be the most important/influential sources. Track those articles down using the alphabetical journals list mentioned above.

Conclusion

Given that research is at the heart of all effective public relations campaigns and activities, the emergence of Google Scholar onto the public relations landscape represents one of the most important research advances ever. Hopefully databases like Google Scholar will become more common, and students and professionals will become more comfortable reading scholarly sources rather than the many predigested, and often biased, Web-based sources located on the World Wide Web.

The trend toward more reliable information is refreshing and I hope long-lived. Better public relations will only ensue when practitioners and academicians are better informed and draw on reliable scientific research rather than anecdotes and advice from biased parties. The Web can be a great resource for finding quick facts, or summaries of complicated ideas on a university professor's Web pages. But the majority of the information found on the Web has not been placed there to meet the research needs of public relations practitioners and has not been edited or peer reviewed. The information on the Web has been placed there to meet the needs of organizations.

In public relations, the time has come to "Stand on the shoulders of giants," as the slogan on the Google Scholar browser window exclaims. What Google Scholar makes clear is that the greatest research advance in history will not be remembered as the Internet, but access to scholarly databases. Hopefully, in the near future, more professionals will begin to turn to primary research to conduct better public relations.

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