Virtual Resources: International Relations Research Resources on the Web

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The purpose of this research note is to provide a general overview of research resources related to international relations on the Internet and the World Wide Web. In connection with this article, *International Organization* will place on its Web site an annotated guide to research resources on the World Wide Web.

The origins of the Internet are, by now, fairly well known. Originally developed as a United States military experiment, and evolving through the 1960s and 1970s as a tool of a small group of scientific researchers, the Internet has grown in recent years to become a global phenomenon encompassing, by some counts, anywhere from sixty to ninety million users around the world.[1] The major factors behind this explosive growth are falling real costs of computing and communication technologies, the development of multimedia capabilities through the World Wide Web, the availability of increasingly ''user-friendly'' Web browsers, like Netscape Navigator and Microsoft Explorer, and the involvement of large corporate interests.

Still, the Internet and the World Wide Web (hereafter, referred to collectively as ''the Web'') are very much in their ''frontier'' stage.[2] Like the postmodern times of which it is a part, the content of the Web can often be more ''surface'' than ''depth''—a superficial, pastiche-like maze of enticing images and attractive sites with little in the way of actual substance. Because its content depends entirely on what its users contribute, Web sites are inconsistent, ranging widely in sophistication, form, and utility.

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1. Determining the precise number of Internet users at any one time is difficult, both because of the rapid growth and the variation in depth and regularity of use. This figure is a rough estimate based on the number of host computers multiplied by seven. This formula is used by one of the more reliable Internet survey organizations, Matrix Information and Directory Service (MIDS), which can be found at *http://www.mids.org/*.

2. Although the Internet and the World Wide Web are technically distinct, in this paper I use the term *Web* to encompass both. This makes practical sense because the latter now subsumes the former entirely.

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Generally speaking, Web resources tend to be more ''virtual'' than ''real.'' Nonetheless, it is clear that, with the rapid growth and movement onto the Web of many governments, nongovernmental organizations, international organizations, and academic research institutions, the substantive depth of many sites is increasing, as is the breadth of topics covered. Increasingly, scholars are turning to the Web not only for communications with each other, but also for research and teaching materials.

Others wish to do so but find navigating the Web to be a confusing and time-consuming experience. As most will attest, ''surfing'' the Web can at times feel like groping through a dark labyrinth of seemingly endless loops of links, dead links, and false leads. There is no giant floor plan or blueprint to the Web that says, ''you are here.'' There is no beginning, middle, or end to the Web, nor any logical sequence that surfers must follow. Although there are some fine keyword search engines, such as Infoseek, AltaVista, WebCrawler, and Lycos, the massive amount of information available on the Web practically nullifies their utility. Unless one is an expert in complex Boolean search logic, typing in a single phrase or word will just as likely turn up hundreds of thousands of misleads as a single accurate and useful find. For example, a keyword search on the words *Waltz* and *structural realism* using AltaVista turned up over fifty thousand returns to such things as ''Starlight Waltz,'' ''Cosmic Waltz,'' ''Danube Waltz,'' and the homepage of someone named Scott Waltz, among others.

Part of the reason for this seeming confusion is the unique system of navigating and presenting information on the Web, referred to as the ''hypertext–hypermedia'' architecture. Hypertext is a nonlinear method of presenting information; hypermedia is the same as hypertext, with the addition of audio, images, and video.[3] The essence of hypertext is the creation of links (called ''hyperlinks'' or ''hot links'') that enable users to jump between information at their discretion rather than follow a single linear sequence determined by the author or publisher. For example, if one were reading an article on nuclear weapons on the Web, an underlined hyperlink on the International Atomic Energy Agency (IAEA) might take the reader out of the article to the homepage of the IAEA itself simply by clicking on the hyperlink with a mouse. From there, the reader might find links to information on plutonium safeguards, and from there to a *Bulletin of the Atomic Scientists* article, and so on and so on.

There are a number of attractive aspects to this type of information presentation, but probably the most important and beneficial for social science research is that layers of interrelated information from a wide variety of disparate sources can be linked together in a seamless web.[4] As the illustration in the previous paragraph indicates, a scholar researching a particular issue-area might find, in the course of moving through hyperlinks, information from numerous and diverse disciplines, sources, or organizations related to the topic. The impact of serendipity on research

3. An excellent resource for information on hypertext is the Hypertext Web site at *http://www.stg.brown.edu/projects/hypertext/landow/cpace/ht/htov.html*

4. Observers have suggested that presenting information in this way is more useful for research and teaching because, in general, humans learn better associatively, which naturally complements the type of nonlinear experience of navigating the hypermedia environment. See Anderson 1983.

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takes on a new dimension in this environment. As the Web continues to grow, and more information is posted and distributed, the potential for this type of interdisciplinary cross-pollination becomes even greater.

The flip side of this architecture is that it can be difficult to track down information on the Web quickly and easily. Hence, research guides such as this are increasingly important. As the substantive depth of the Web increases, and as more researchers log-on on a regular basis, research guides organized around broad thematic or disciplinary foci have arisen to fill a niche. The primary purpose of these guides is to provide a kind of temporary ''gateway'' to help researchers in a particular field find their feet, and, more importantly, find what they need quickly and easily. Excellent versions have sprouted up in history, political science, law, and economics and for more specialized topics, such as nonproliferation or ''anything nuclear,'' among others. In other words, instead of merely entering the Web at some arbitrary point A, economists, for example, can enter through the Economics Resources homepage,[5] development theorists through Devline,[6] human-rights researchers through Diana Home Page,[7] and so on. Gateways have also been added at higher levels of generality that then subsume these more focused ones, in areas such as international relations,[8] political science,[9] and social science.[10] Remarkably, the vast majority of gateways are offshoots of personal homepages—a testament to the still lively sense of voluntarism that has long characterized participation on the Web. Others have been constructed as class projects, and yet others are the work of government agencies, research institutes, and nongovernmental organizations.

This research project is composed of two separate parts: the research note, which is published here, and the research guide to Web sites, which will be posted on the *International Organization* Web site.[11] The research note is intended to be a thematic introduction to the research guide. Whereas the research guide provides a detailed, annotated listing of useful Web sites and gateways in issue-areas related to international relations, the research note provides a general introduction to and critical overview of research resources on the Web. My intention here is to give scholars a sense of what is unique about research resources on the Web and an indication in general terms of what types of information and materials can be accessed through it. Specific sites that are mentioned in this essay, as well as numerous others not mentioned here, can then be accessed through the research guide on the *International Organization* Web site.[12]

5. *http://www.clark.net/pub/lschank/web/econ.html*
6. *http://www.ids.ac.uk/*
7. *http://www.law.uc.edu:81/Diana/*
8. See, for example, the International Relations gateway maintained by the Department of International Politics at the University of Wales Aberystwyth at *http://www.aber.ac.uk/~inpwww/resour.html*
9. See, for example, Research in Political Science at *http://www.lsu.edu:80/guests/poli/public_html/research.html,* which is maintained by Professor James Bolner, Sr.
10. One of the best is Coombsweb, at *http://coombs.anu.edu.au/CoombsHome.html*
11. *http://www-mitpress.mit.edu/IO*
12. Although the uniform resource locators (URLs) referred to in this article were accurate at the time of publication, there is a possibility that they could change over time. The URLs in the online research guide, however, will be updated on a regular basis.

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In what follows, I first describe the types of materials that can be accessed through the Web, including primary and secondary materials, teaching resources, reference material, and news sources. I then suggest several guidelines for Web site development that I believe will improve the potential for social science research on the Web. Finally, I conclude by outlining some directions for further analysis raised by the widespread use of the Web for academic research and teaching.

Digital Data and Virtual Resources: Mining Cyberspace for Info-Nuggets

A common refrain heard among first-time ''surfers'' of the Web is that it is long on superficial distractions and short on quality information. ''Yes, it looks interesting,'' the novice might conclude, ''but is there anything *useful*?'' The short answer is ''yes''—in ever-increasing abundance—but it takes a great deal of digging and a strong will to avoid the diversions of the bizarre and inane. A few short ''clicks-of-the-mouse'' away from the digital treasure trove of the Library of Congress,[13] for example, one can find a site with nothing other than a ''Web-cam'' providing automatically reloading real-time pictures of Kitsilano Beach in Vancouver, Canada.[14] Another few clicks and you are on one of the dozens of *Gilligan's Island* fan sites,[15] complete with downloadable theme-song audio clips, episode transcripts, character biographies, and trivia. At first glance, such diversions seem to occupy much of the ''virtual space'' of the Web. Yet in other corners information more relevant to the scholar is flourishing in surprisingly useful ways.

Primary Materials

One of the most remarkable practical benefits for research on the Web in recent years has been the explosion of easily accessible primary documents, including official government documents and statistics, data-sets, and international treaties. Whereas not long ago the scholar searching for government information might have had to contact a particular ministry or department directly and then wait for the information to arrive by mail, today such documents are typically made available over the Web. Consequently, official documents and statistics from hundreds of states around the world are potentially within reach in seconds or minutes. Moreover, as such documents are made available in digital format, searching for and retrieving relevant information is made much easier. Several Web sites exist that provide direct links or ''gateways'' to government Web sites, making it easier to access governments from around the world from a single site.[16]

13. *http://www.loc.gov/*
14. *http://www.multiactive.com/cam2.cgi*
15. *http://www.lookup.com/Homepages/58181/home.html*
16. See, for example, the PSA International Government Sites, at *http://www.lgu.ac.uk/psa/intgovt.html*

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Similarly, accessing and comparing documents of international law is highly efficient through the Web. Numerous sites exist that provide links to the complete texts of international treaties, conventions, judicial decisions by various international forums, historical documents, domestic laws, and constitutions. At the Multilaterals Project Web site, for example, one can as easily access the full text of the Covenant of the League of Nations as one can the Convention for the Protection of the Marine Environment of the North East Atlantic (1992).[17] Moreover, since the site provides a full keyword search engine, one can have immediate access to the full text of several international legal documents from otherwise disparate areas, thus facilitating a potentially broader research base. A search on the keywords *outer space* produced, in less than six seconds, the complete text of ten relevant international legal documents ranked in descending relevance according to the number of times the words *outer space* were found in the text. An additional benefit of Web-based access to such documents is that if the site is well maintained (as is the Multilaterals Project site), a researcher can keep apprised of the latest amendments and ongoing negotiations in particular international legal areas. As with official government information, numerous sites exist that provide gateways to international legal collections in both general and more focused issue-areas, such as human rights, outer space, and the environment.

Other primary research resources now readily available on the Web include a variety of social science data sets that are accessible from numerous gateways to data archives held around the world. One of the better gateways is the Social Science Data on the Internet site, maintained at the University of California at San Diego.[18] Through this site, scholars have direct access to 402 sites with numeric data ready to download and 763 other sites of numeric social science statistical data, data catalogs, data libraries, and other social science gateways. The primary benefit of this particular gateway is its comprehensive annotated descriptions of particular data sets and archives to help facilitate browsing and downloading data. For example, the following is provided on the site as supplementary information to the comprehensive CIESIN (Consortium for International Earth Science Information Network) archive. Underlined areas in the following are hyperlinked on the site:

CIESIN: The Consortium for International Earth Science Information Network
2250 Pierce Road
University Center, MI 48710
313/797-2700
The Consortium for International Earth Science Information Network (CIESIN, pronounced "season") was established in 1989 as a private, nonprofit corporation with members from leading universities and non-government research organizations. The corporation was formed in response to a directive by the United States Congress and is dedicated to furthering the interdisciplinary study of global environmental change. CIESIN is agency-neutral, specializing in the access

17. *http://www.tufts.edu/fletcher/multilaterals.html*
18. *http://odwin.ucsd.edu/jj/idata/*

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and integration of physical, natural, and socioeconomic information across scientific disciplines. A good place to start is on the *Information Resources Page*.

Such extensive information on particular data archives is important not only because it provides detail on the type and extent of data holdings, but because many of the archives have unique access requirements, including registration and fees. And lest this particular comprehensive gateway does not provide the desired link to the information sought, the site also includes an annotated list of links to 143 other social science gateways on the Web.

Secondary Material

The constraints of prevailing intellectual property rights notwithstanding, the Web is home to a wealth of online texts and journals that is growing exponentially. Probably the most remarkable are the full-text libraries, which provide complete manuscripts, from the ancient classics to the contemporaries. Although I have yet to meet anyone (myself included) whose eyes could withstand reading Augustine or Heidegger on a fifteen-inch flickering monitor, something is intangibly satisfying about being able to access thousands of these texts in an instant. Carrie, which is a "full-text electronic library," has collections in English, Chinese, Dutch, Esperanto, Latin Classical, and Spanish, among other languages.[19] Holdings in the "stacks" include hundreds of works, ranging from St. Thomas Aquinas' *Summa Theologica* to Thorsten Veblen's *The Theory of the Leisure Class*. Similarly, from the Web site of the Hanover College History Department, one subdivision of the site provides links to the full texts of authors such as Aristotle, Euclid, and Cardinal Richelieu.[20] Likewise, through Horus' History Links, the works of Kierkegaard, Freud, and Newton are as easily accessible as those of Hegel, Marx, and Darwin.[21] Although many would rightly argue that the retention value and esthetics of thumbing through these texts under the shadow of a campus oak tree far outweigh having them burned into your retinas from a color monitor, their practical significance for quick and easy reference is undeniable.

Although full-length manuscripts might be too unwieldy to read online, full-length journal articles and working papers are perhaps more practical for both reference and reading. Whether or not electronic journals, or "e-journals," will ever match the peer credibility of more established print-based journals is an open question, but many have begun to flourish nonetheless. In the international relations field, *AntePodium*[22] and the *Journal of World Systems Research*[23] are both new electronic journals. Most print-based journals are beginning to establish a Web presence that typically includes the abstracts (where available) and tables of contents of forthcoming, current, and past issues. Some include sample full-text articles, book reviews, and entire sample

19. *http://kuhttp.cc.ukans.edu/carrie/carrie_main.html*
20. *http://history.hanover.edu/texts.htm*
21. *http://www.ucr.edu/h-gig/horuslinks.html*
22. *http://www.vuw.ac.nz/atp/*
23. *http://csf.colorado.edu/wsystems/jwsr.html*

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issues online, as well as additional links to relevant Web sites. Some periodicals, such as *The Economist*[24] *and Scientific American*,[25] have very comprehensive and imaginative Web pages, including detailed information from current and back issues. Although publishers are understandably nervous about how deeply to immerse themselves in the Web and risk losing their subscription base, the trend in the last several years has been toward making available an increasing amount of content, particularly from back issues.[26]

Reference Material

Traditional reference materials, such as dictionaries, thesauruses, and encyclopedias, are also available in diverse formats on the Web. These range from the traditional *Oxford English Dictionary* (full-text access to participating institutions), acronym dictionaries,[27] and multilingual dictionaries[28] to *Bartlett's Familiar Quotations*[29] and *Roget's Thesaurus,*[30] all hyperlinked and searchable by keyword. More specialized reference material is available in seemingly endless varieties, such as W. Strunk, Jr.'s *Elements of Style*[31] or *The CIA World Factbook*,[32] which provides detailed country-by-country statistics. Other examples include an extensive glossary of political economy terms,[33] a listing of grant resources,[34] and a massive annotated philosophy of the mind bibliography maintained by philosopher David Chalmers.[35] Some of these are collected together and accessible through such sites as My Virtual Reference Desk,[36] which contains links to online atlases, maps, dictionaries, encyclopedias, and telephone directories, or the Online Dictionaries, Glossaries, and Encyclopedias[37] maintained by the Department of Oceanography at Texas A&M University, which provides quick reference to topics ranging from "feudal terms of England" to the "glossary of English criticism."

News and Current Events

One of the primary benefits of the "borderless" nature of the Web is that, as its worldwide growth continues, access to a wide variety of news sources from around the world is made much quicker and easier. Most traditional wire services, such as

24. *http://www.economist.com/index.html*
25. *http://www.sciam.com/currentissue.html*
26. Beginning in the fall of 1997, a service from Columbia University Press, called Columbia International Affairs Online, or CIAO, will begin to offer full-text collections of journal articles, selected manuscripts, and international relations working papers from research institutes in North America.
27. *http://www.ucc.le/info/net/acronyms*
28. *http://www.june29.com/HLP/*
29. *http://www.columbia.edu/acis/bartleby/bartlett/*
30. *http://humanities.uchicago.edu/forms_unrest/ROGET.html*
31. *http://www.columbia.edu/acis/bartleby/strunk/*
32. *http://www.odci.gov/cia/publications/nsolo/wfb-all.htm*
33. *http://www.duc.auburn.edu/~johnspm/glossind.html*
34. *http://www.pitt.edu/~ian/resource/grants.htm*
35. *http://ling.ucsc.edu/~chalmers/biblio.html*
36. *http://www.refdesk.com/facts.html*
37. *http://www-ocean.tamu.edu/~baum/hyperref.html*

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Reuters and Associated Press, make their news items available through a wide variety of sites and are very prominent on the Web, as are the major global broadcasters, such as CNN.[38] One novel Web site, called Create Your Own Newspaper Online, allows participants to pick and choose among dozens of international news sources to construct a personal daily "newspaper" that might contain links to, for example, *The Times* (London), *The Jerusalem Post, The Irish Times, The Daily Yomiuri* (Japan), and *The Hindu* (India).[39] Also available are "real-audio" broadcasts of news services, from such news organizations as the Canadian Broadcasting Corporation and the British Broadcasting Corporation.[40] More significantly, perhaps, is that other "nontraditional," "alternative," or "non-Western" news organizations are increasingly establishing Web presences, such as One-World Online[41] and Africa News Online.[42] Of course, keeping abreast of the latest world political developments need not be limited to that which is provided by news services. Scholars can also access the latest information right from the source, so to speak; for example, the United Nations' Web site contains an up-to-date list of current peacekeeping activities, with detailed information on troop contributions and task assignments for individual missions;[43] and the World Trade Organization's site may provide the text from the latest speech of Director-General Renato Ruggiero.[44] Most all formal international organizations and scores of nongovernmental organizations provide similar up-to-date information in various issue-areas.

Teaching Resources

Many scholars are beginning to employ the Web as part of their teaching environment, whether in the form of course homepages that provide links to supplementary material or as Web-based readings and assignments.[45] Some fully dedicated Web courses have also emerged.[46] Because of this gradual utilization of the Web by instructors, much more teaching-relevant material is becoming available on the Web. In addition to the material listed earlier, this material includes collections of syllabi and cases.[47] Many international relations simulations are also available, such as Project Icons (the International Communication and Negotiation Simulations).[48] Increas-

38. *http://www.cnn.com*
39. *http://crayon.net/*
40. One Web site, called Tuned-In, provides links to worldwide radio and television Web pages, divided by region. From this site, one can as easily access BBC 1 as the Televisa Argentina (TVA).
41. *http://www.oneworld.org/news/index.html*
42. *http://www.africaonline.com/AfricaOnline/covernews.html*
43. Available at *http://www.fib.ethz.ch/fib/pko/allops.html*
44. *http://www.wto.org/*
45. My homepage, for example, is used for both teaching and research information. See *http://www.chass.utoronto.ca/~rdeibert/*
46. See, for example, Lev Gonick's The Virtual Seminar in Global Political Economy at http://csf.Colorado.EDU/gpe/
47. See, for example, CaseNet Active Learning in International Affairs Web site at *http://csf.Colorado.EDU/CaseNet/index.html*
48. *http://www.bsos.umd.edu/icons/icons.html*

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ingly, international relations textbooks used in introductory courses are establishing complementary Web pages, though of varying quality.

Developing a Normative Framework for Research on the Web

The research for this note and its companion guide entailed hundreds of hours of surfing the Web, following leads and links through what seemed like an endless variety of sites. In the course of such canvassing, I noticed both the promise and perils of Web site development. The faults became ever more exasperating, while the strengths stood out more clearly. To conclude this note, then, I offer several criteria for research on the Web, and particularly Web site development, that I feel will improve its potential for social science research. These recommendations are directed at both present and future webmasters—the latter of whom may well come from the pool of readers of this note.

Appropriate Economical Use of Hypertext and Hypermedia

The differences between the linear presentation of traditional printed documents and the essentially nonlinear environment of hypermedia are basic and fundamental, yet many Web sites are more linear than nonlinear. The worst offenders are those composed of a single long page full of text scattered with hyperlinks. To find out what information the site contains or is linked to, the reader must scroll through the entire page—a potentially irritating and time-consuming experience. Web sites that fully exploit hypermedia are composed of numerous, multiply linked pages. Ideally, the front-end, or homepage, of the site is as parsimonious as possible, providing single hyperlinks to each of the pages associated with the Web site. This is the site's navigation center, providing the reader with the type of information available on the site and an opportunity to assess whether or not the site is relevant to that reader's research project.[49]

Annotated Descriptions for Hyperlinks

Guides to resources in particular issue-areas, or collections of hyperlinks for further information, are extremely useful and provide the Web with its characteristically serendipitous quality. Yet for the researcher, little is more frustrating than clicking on what appears to be an enticing link only to find nothing of substance or utility and then having to backtrack to the original source. Even more frustrating are collections of links with vague or redundant terms. What is essential are clear descriptions of what types of information a researcher can expect to find by following a particular

49. An outstanding example is the site Universita' di Bologna Facolta' di Scienze Politiche Research Guide to International Law on the Internet at *http://www.spfo.unibo.it/spolfo/ILMAIN.htm*

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link. For example, the IANWeb (International Affairs Network) megadirectory has clear annotations for each hyperlink and explanatory icons for such information as whether or not the Web site has full-text documents, abstracts, contact information, and downloadable statistics information.[50] Another example is the General Environmental Resources from Eldis homepage, which has extensive annotated descriptions for each of the hundreds of hyperlinks collected, including type of resource and contact information.[51] Many other examples could be cited as well, but unfortunately such sites are still exceptions to the norm.

More Focused "Issue-Area" Resource Guides

The many superb social science megadirectories and general international relations resource guides are major contributions to the academic community. Several excellent general gateways now exist to which individuals have given enormous time and effort to their maintenance. What is still needed, however, is less duplication at a general level and the construction of more focused resource guides. Such guides are just now beginning to emerge. The Federation of American Scientists Web site, for example, is an outstanding guide to intelligence, outer space, and information warfare resources.[52] Likewise, A Pocket Guide to NonProliferation on the Internet site is an excellent guide to weapons proliferation information and research on the Web.[53] Similarly, Mark Bernkopf's Central Banking Resource Center is an outstanding guide and resource base for information on central banks worldwide.[54] More such guides as these are needed in other issue-areas as a natural next step to the general social science and international relations guides that now exist.

Clear Identification and Contact Information for Web Site Maintainers

One of the novel, well-known strengths of the Web is that it allows each person to become their own publisher—in effect, private broadcasters to a potentially global audience. Yet this strength is also a potential pitfall for researchers, since information gleaned from the Web could be misleading or false, depending on who is posting it. Such a pitfall, however, need not be any more inherent to the Web than it is to printed publications. In the latter case, the credibility of the information printed is typically contingent on where it is published and by whom. Likewise, for the information on the Web to be legitimate for research purposes, Web site maintainers must clearly identify themselves and the source of the documents they post. In a more practical sense as well, contact information (telephone and fax numbers, for example) is a courtesy all Web site maintainers should provide.

50. *http://info.pitt.edu/~ian/ianres.html*
51. *http://www.ids.ac.uk/eldis/envgen/eng_lele.html*
52. *http://www.fas.org/*
53. *http://cns.miis.edu/guide/cnswebguide.html*
54. *http://adams.patriot.net/~bernkopf/*

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Conclusion

In a very short time the Web has become a valuable research resource for social scientists, one that will likely continue to develop to the point of being fundamental to such research in years to come. In this research note I have tried to give scholars a sense of what is unique about the Web and how their research can benefit from it. I have also sketched out several guidelines for Web site development that I feel will channel the Web in ways advantageous to research. The companion to this research note, the research guide to be posted on the *International Organization* Web site, will provide a detailed, annotated navigation guide to research resources on the Web, from general social science megadirectories to more focused sites in issue-areas such as human rights, environment, development, gender studies, history, and ethnic conflict.

One topic that I have not touched on in this research note, however, is the likely sociological and epistemological implications of such a rapid shift in scholarly research and communications. Certainly, issues that warrant further research include the effect on national-collective identity of the possible erosion of territorially distinct, government-regulated systems of mass public education and their replacement by nonterritorial, ''online'' systems of transnational education[55]; the possibility that the nonlinear environment of hypermedia might help facilitate ''nonlinear'' modes of thought and causation; the possible erosion of disciplinary boundaries encouraged by the interlinking of information through the Web; and whether the dramatically increasing volume of information accessible to scholars gives rise to a sudden leap in scientific ''progress'' or an embrace of epistemological relativism. It is too early to tell with certainty how these questions will be resolved. Clearly, though, they will increasingly concern all social scientists in years to come as the Web deepens and expands.

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55. I deal with these issues at some length in Deibert 1997.

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