

The Teacher

Using the Internet as a Teaching Tool: Why Wait Any Longer?

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Editor's Note: The following symposium on Using the Internet in the Political Science Classroom was edited by Professor Ball.

Introduction

The Internet is a rapidly growing international collection of computer networks which operates largely over leased phone lines. A few political scientists have for some time taken advantage of the traditional strengths of the Internet (e-mail, discussion lists, and remote access to other computers) to aid them in teaching and research. For example, the political science research and teaching list (PSRT-L), which Gary Klass and I moderate, has passed its fifth anniversary as an Internet discussion list serving the needs of political science.¹ Yet it is only in the last couple of years that the number of political scientists using the Internet as a teaching tool has really begun to grow.

In the articles that follow, our intent is to demonstrate how the Internet can be used to enhance the teaching of political science in a wide variety of ways. Each author has been asked not only to explain how they incorporate the Internet into their teaching, but also to honestly assess the advantages and disadvantages of doing so.

Martha Bailey discusses an accessible way to increase the impact of an existing course through the Internet: have students become participants in existing discussion groups. Gary Klass demonstrates how this can be taken a step further by creating a discussion group specifically for the class. Vernon Vavrina evaluates his years of experience with ICONS, a simulation

conducted over the Internet which restructures the class itself. Steve Frantzich takes a different tack, using the Internet as a virtual library to enable current events assignments which would be otherwise impossible.

I preface these applications with a discussion of how the confluence of many changes in the Internet make it vastly more suitable as a teaching tool in teaching political science than it was even a year or two ago.

Changes in Access and Changes in the User Community

Until very recently, using the Internet essentially required one to have an account on a university mainframe. This meant several things—having a university computer account, having physical access to computer terminals, learning a mainframe operating system, interacting only with other university mainframe users, and having almost no software integration with personal computers. These practical realities limited the appeal of using the Internet in the classroom to those teachers comfortable with a mainframe environment.

While it is still possible to access the Internet in the traditional fashion, new ways of access have changed the environment completely. The initial impetus for this change was the spread of local area networks (LANs). As LANs are connected to the larger computers that have direct Internet access, it becomes possible to use a personal computer on the LAN as the point of access—the personal computer becomes an Internet node, in many cases eliminating the need for the

user to interact directly with the mainframe operating system.

What about users who don't have access to an Internet-enabled LAN? Two primary alternatives for this large population are available to anyone with a personal computer and a modem. The first possibility is access through the established dial-up networks, such as CompuServe, America Online, Prodigy, and others, that are offering increased access to Internet resources each month. However, existing commercial networks like these have been reluctant to provide access to the newest technologies, and they charge relatively high rates compared to the second alternative—using an Internet service provider.

With a fast modem and the right communications software (SLIP/PPP), one can lease unlimited direct Internet access on a monthly basis more cheaply than cable television. Indeed, all of the major vendors of personal computer operating systems have integrated direct Internet access into their new products, choosing to become service providers themselves. If one lacks a connection through a LAN, buying access through a service provider is clearly the next best choice.

The great liberalization of access to the Internet has directly contributed to major changes in the community of users. For one thing, the community has become a big one. Estimates of the number of Internet users currently range from 20 to 30 million, although estimates are considered unreliable. As the Internet grows in size, the pool of knowledge and opinion accessible by the individual user grows apace.

As important as its increase in

size is the increase in the diversity of the Internet user community. Not too long ago, whether you subscribed to a physics discussion list or to a politics discussion list you read the opinions of undergraduate science majors. This is another factor that limited its appeal as a teaching tool in the past. Today a much broader cross section of the academic community is represented. Moreover, nonacademics now make up a sizable portion of this population.

These changes in access and community have freed the user from the physical, technological, and cultural limitations of using a mainframe terminal. They have created an Internet that is more open to noncomputer experts and that generally comes closer to resembling society as a whole. Thus, introducing the Internet into the political science classroom is a less traumatic experience, and a more enriching one, for the faculty member and student alike.

Changes in Technology and Changes in Content

The old standby tools of the Internet, such as FTP (a file transfer program) and Telnet (remote terminal access software) have cryptic names and even more cryptic interfaces. Newer tools, such as Gopher and World Wide Web, have more comprehensible names and represent a revolution in user-friendliness, incorporating the older tools while adding tremendous functionality. The new tools, with their client/server design, also help make it possible for the user to remain in the more comfortable hardware and software environment of the personal computer. In the discussion that follows I will focus on two new forms of electronic publishing—Gopher and World Wide Web. These are unquestionably the most important new technologies on the Internet.

Gopher is a system for retrieving documents stored anywhere on the Internet using an interface so simple it requires little more than cursor movement keys and an enter key. It became an overnight suc-

cess when released by the University of Minnesota a few years ago. Gopher users need a program—a Gopher client—running on their own computer to access Gopher servers. Gopher servers present a series of menus to the user from which one can select text, graphics, sound, and other types of files. However, Gopher servers are really only easy to browse and use when they contain plain text files, something which will restrict the future growth of Gopher.

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Despite its limited potential for future development, Gopher has been so popular to date as a means of electronic publishing that a tremendous variety of documents of interest to the political science teacher is available through it. Working in conjunction with the American Political Science Association, I have endeavored to provide easy access to this material in the form of the APSA Gopher server.² The top-level menu of the APSA Gopher offers links to other Gophers in various subfields of political science.

Alongside interacting with students through e-mail, Gopher has become my primary Internet teaching tool. Its use has rapidly become pervasive in my teaching-related tasks. I regularly read publishers' descriptions of new textbooks online. The preparation of my history of political thought class is greatly aided by my ability to search and download portions of the classics. Indeed my entire syllabus, from Plato through Machiavelli, Hobbes, and Locke to Mill, is now available on-line. My American political theory students use Gopher the same way for their own research, viewing and searching the text of the federalist papers, book reviews,

recent Supreme Court decisions, and other documents. Students in my methods class download government data for statistical analysis.

One of the most exciting uses of Gopher is for current events material, as indicated by two simple examples from the 1994–95 academic year. When a colleague expressed frustration in obtaining a copy of the Republican Contract with America for his class, I was able to retrieve it in seconds from the APSA Gopher without leaving my desk. I also obtained, from the same source, a copy of Proposition 187 and accompanying material from the California Voter's Guide for an independent-study student unable to obtain the material from the library. Gopher turns the Internet into another library, one that is open 24 hours a day, where everything is available for check-out and yet everything is always on the shelf, and where powerful indexing and searching tools locate the precise passages a user seeks.

There are important qualifications to using Gopher for teaching purposes, however. Coverage of the wide range of topics of possible interest to political scientists is limited. Although the situation has been improving, documents found on a Gopher server are often presented with little context. It is sometimes hard to know if the document you are viewing is accurate or up-to-date. In addition, it is hard to know how to cite this kind of information, although some standards are emerging. The Internet is also a very fluid world. Documents or even entire Gopher servers can simply disappear from the net. Thus while Gopher provides a virtual library, it does not yet have the same standards of quality and reliability we expect out of actual libraries.

A second electronic publishing technology is the World Wide Web (WWW). World Wide Web has been labeled by some "the killer application" of the Internet; it fueled the tremendous growth in commercial interest in the Internet in 1994. In addition to its own impressive capabilities, a WWW client program can seamlessly access Gopher servers, FTP archives, Tel-

net sessions, and even electronic mail. Thus a good WWW client program is the only piece of Internet software many users would require. World Wide Web client programs are available for all major kinds of personal computers and mainframes, although they differ widely in capabilities. The best performing WWW client at present is Netscape; best of all, it's free.³

Like Gopher, World Wide Web is primarily a means of electronic publishing. But a WWW document is as different from a print document as an Apple Powerbook is from a slide rule. World Wide Web documents are fully multimedia-enabled. This means that they can display fully formatted text with graphics, such as newspapers or professional journals. They can also contain sound and video files. It has even become common to see interactive forms processing embedded into WWW documents where the user submits a request for information or products right on the WWW document itself. World Wide Web is also a highly hypertextual technology where clicking on a phrase or graphic in a document can instantly display a related document or multimedia element stored half a world away. Text, graphics, and audiovisual clips can easily be downloaded from the server to the client's computer. World Wide Web clients allow the user a surprisingly wide range of control over the appearance of documents and over how special kinds of files are interpreted. They also make it relatively easy to compose and publish one's own documents.

The capabilities of this technology are simply stunning. Yet the things WWW can do only overshadow somewhat its impressive ease of use. A student used to a graphical operating system like Windows or the Mac OS would not require additional training to use WWW. Since text versions of WWW clients are available for other operating systems as well, their users can also easily start us-

ing WWW. The World Wide Web is poised to rapidly supplant all other Internet technologies except, perhaps, for good old e-mail.

Two web sites more than adequately demonstrate the excitement generated by this technology. The first is the White House server, offering everything from visual tours of several buildings, to recorded speeches, to a wide range of government documents.⁴ The White House WWW site is one of the classiest acts on the Internet. Not to be outdone by the White House however, Newt Gingrich has promoted Thomas, the WWW server of the House of Representatives.⁵ Thomas is somewhat more document-oriented, providing the status of bills, daily summaries of floor debates, and the full text of the Congressional Record, as well as educational and background material.

The Web will provide many of the same types of services as Gopher, yet because of the World Wide Web's multimedia emphasis, it also enables entirely new applications. For example, I am currently adding multimedia elements to my lectures, using WWW sites such as art museums and the Library of Congress⁶ as a resource for graphics and audiovisual files in this project. In the near future, entire multimedia courses could be composed from on-line sources, used in class, and then published on-line. I have also established a web page for publishing documents of interest to the faculty and students in my department.

Current obstacles to wider adoption of WWW as a teaching tool are its hardware demands and its coverage. To take full advantage of World Wide Web technology, one needs an up-to-date personal computer running a graphical operating system and fast Internet access. The real performance bottleneck is usually the speed of Internet access, with the minimum being a 14.4 kbps modem connection. Also, because World Wide Web is newer

than Gopher, the quantity and quality of the content is more limited. However, WWW is experiencing the same explosive rate of growth that Gopher did a couple of years ago. Also, remember that World Wide Web does not replace Gopher—it includes it. Thus the coverage obstacle should be quickly eliminated.

Conclusion

The Internet is a different place than it was a year or two ago, due to changes in access and community on the one hand, and changes in technology and content on the other. Through each of these changes, the Internet has become more hospitable to use in the political science classroom. I suggest that even a brief experience with one of the Gopher or World Wide Web sites mentioned here will change the mind of readers still reluctant to add the Internet to their teaching resources.

Notes

1. To become a participant on psrt-1 send the following message to listserv@mizzou1.missouri.edu: subscribe psrt-1 (your name).
2. Direct your gopher client to: apsa.trenton.edu
3. It can be downloaded via anonymous ftp at: <ftp2.netscape>
4. <http://www.whitehouse.gov>
5. <http://thomas.loc.gov>
6. <http://www.loc.gov>

About the Author

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