

Are We Steering Technology or Is Technology Steering Us?: Challenges and Opportunities in Internet Publishing

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Internet journals offer some remarkable opportunities for scholars in disseminating ideas and results to a global community in a timely fashion. As the brief history of the Inter-

net journal *First Monday* proves, scholars and their editors and publishers have barely tested a few of the possibilities of this medium.

A Technology Paradox

What does the Internet offer to scientific publishing? For some, it presents incredible opportunities; the leading advocate for these new ways of imagining the Internet as a medium for scholarship is Steven Harnad. He calls this new digital publishing vehicle “scholarly skywriting” because it is so radically different from anything else (Harnad 1996). Harnad and other enthusiasts certainly belong to the MIT Shoes Camp in their faith in new technologies driving away all that is wrong with traditional printed scholarship, inspired by a little poem from MIT’s Media Lab that reads

In the past, shoes could stink
In the present, shoes can blink
In the future, shoes will think. (Hoffman 1995).

With apologies to the Media Lab, this ditty could be turned into a paean for Internet journals, such as

In the past, journals could only yellow
In the present, journals may mellow
In the future, journals will say “hello”

Many would argue that traditional journals will not disappear, that the future will be popu-

lated with a rich mix of traditional printed journals, existing side by side with Internet-only scholarship and other media to be invented. As in the past, no one medium will completely replace another; instead each medium will occupy a niche, co-existing with other media to offer a diverse array of opportunities for scholarship to reach new audiences (Borgman 2000). This more tempered view of new technologies makes historic sense. We only need to look back to J.C.R. Licklider’s remarks written 35 years ago:

“As a medium for the display of information, the printed page is superb. It affords enough resolution to meet the eye’s demand. It presents enough information to occupy the reader for a convenient quantum of time. It offers great flexibility of font and format. It lets the reader control the mode and rate of inspection. It is small, light, movable, cuttable, clippable, pastable, replicable, disposable, and inexpensive.” (Licklider 1965)

Internet journals will never completely enjoy all of the features of the printed journal. Perhaps the most appropriate course of action is not to imagine too far-fetched a future, but rather to look at how existing Internet journals work, to predict a more reasonable picture. This approach is best described by John Seely Brown and Paul

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Duguid in this way: "The way forward is paradoxically not to look ahead, but to look around" (Brown and Duguid 2000). In this paper, we will "look around" at one specific Internet journal, entitled *First Monday*.

Transforming Print? Defining Internet Journals

Internet journals have many features in common with their traditional printed counterparts. They appear with some regularity on a predictable schedule; exercise peer and/or editorial review of manuscripts in advance of publication; and, utilize an easily understood interface, that routinely organizes the content for each issue and volume in a recognizable form. Unlike conventional journals, some Internet journals alter content over time; alter focus randomly; and take on a highly irregular printing schedule (Valauskas in press). Nevertheless, over time, Internet journals are becoming more like print in their fundamental characteristics, losing some of their less charming and erratic features along the way as they evolve.

Many Internet journals owe their origins to scholars tired of publication delays, insular and political editorial decisions, and the limited audiences of some routine scholarly publications. The Internet, when it happens to work just right for scholarly publishing, offers a global and dynamic community, interactive and diverse; quick review and editorial analysis; and, frequent opportunities to discuss ideas as they percolate through a given research community. The multimedia aspect of Internet publishing is perhaps not as powerful an argument in favor of this medium as some would assume; instead the timeliness and global reach of Internet-based scholarship are the fundamental causes for scholars of all persuasions to treat Internet journals as serious forums. By examining *First Monday*, we can begin to understand the directions in which scholarship seems to be moving at this point, to take our cue from Brown and Duguid to "look around".

The Importance of Readers

First Monday (<http://firstmonday.org>) is a monthly, Internet-only, free journal dedicated solely to the Internet. It features an editorial col-

lective of three main editors – Esther Dyson, Rishab Aiyer Ghosh, and me – supported in review and editing by an editorial board of seven individuals (recently expanded with the addition of three editors). The journal first appeared on the first Monday of May, 1996 to coincide with the opening of the International World Wide Web Conference in Paris. From May 1996 through December 1998, *First Monday* was published by Munksgaard International Publishers of Copenhagen. It was sold at the start of 1999 to the core editorial trio, with the server moving from Copenhagen to the Library at the University of Illinois at Chicago.

The journal has strove from the beginning to be designed for ease of use and access. The organizational nature of the journal emphasized a clean and straightforward interface for readers to find exactly what they need in the journal. In turn, this simple interface means that readers with poor or slow Internet connections could still secure the contents of the journal with little technical penalty. Instead of counting hundreds or thousands of readers, this ease of use translates into hundreds of thousands of readers from all over the world. *First Monday's* logs for 1999 proved this point, indicating that 1,055,678 papers were read and downloaded from the current issues and back files of the journal.

This ease of use also means that *First Monday* is fundamentally utilitarian. For many readers of scholarly journals, the current issue is only one small part of the equation. The archives or back issues are of equal or sometimes even greater importance than the contents of the latest issue. *First Monday* has always had a policy of making all issues – current and historic – available all of the time. This approach means that readers can personalize their use of *First Monday* as they see fit, by reading and printing articles from current or diverse back files. This approach certainly is popular; examining *First Monday's* logs for 1999 demonstrated that the most read paper last year was not published in 1999, but in October 1998 (see Table 1).

What's else is important to readers? Given that hundreds of papers have been published in *First Monday*, it is important to have some sort of search mechanism as part of the journal. Readers can find a search engine under a button labeled "search First Monday" at <http://>

Table 1: Most Frequently Read Papers in *First Monday*, 1999

1. Kerry Coffman and Andrew M. Odlyzko, 1998. "The Size and Growth Rate of the Internet," *First Monday*, volume 3, number 10 (October), at http://firstmonday.org/issues/issue3_10/coffman/
2. Nikolai Bezroukov, 1999. "Open Source Software Development as a Special Type of Academic Research (Critique of Vulgar Raymondism)," *First Monday*, volume 4, number 10 (October), at http://firstmonday.org/issues/issue4_10/bezroukov/
3. David F. Noble, 1998, "Digital Diploma Mills: The Automation of Higher Education," *First Monday*, volume 3, number 1 (January), at http://firstmonday.org/issues/issue3_1/noble/
4. Gisle Hannemyr, 1999. "Technology and Pleasure: Considering Hacking Constructive," *First Monday*, volume 4, number 2 (February), at http://firstmonday.org/issues/issue4_2/gisle/
5. John Kelsey and Bruce Schneier, 1999. "The Street Performer Protocol and Digital Copyrights," *First Monday*, volume 4, number 6 (June), at http://firstmonday.org/issues/issue4_6/kelsey/
6. Eben Moglen, 1999. "Anarchism Triumphant: Free Software and the Death of Copyright," *First Monday*, volume 4, number 8 (August), at http://firstmonday.org/issues/issue4_8/moglen/
7. Jeannette Allis Bastian, 1997. "Filtering the Internet in American Public Libraries: Sliding Down the Slippery Slope," *First Monday*, volume 2, number 10 (October), at http://firstmonday.org/issues/issue2_10/bastian/
8. Mary Minow, 1997. "Filters and the Public Library: A Legal and Policy Analysis," *First Monday*, volume 2, number 12 (December), at http://firstmonday.org/issues/issue2_12/minow/
9. Michael H. Goldhaber, 1997. "The Attention Economy and the Net," *First Monday*, volume 2, number 4 (April), at http://firstmonday.org/issues/issue2_4/goldhaber/
10. Hal R. Varian, 1996. "Differential Pricing and Efficiency," *First Monday*, volume 1, number 2 (August), at <http://firstmonday.org/issues/issue2/different/>

firstmonday.org/search.html or wrestle with a more print-like lists of issues arranged chronologically (<http://firstmonday.org/issues/index.html>), by author (<http://firstmonday.org/issues/authorindex.html>), and title (<http://firstmonday.org/issues/articleindex.html>).

Readers also need to know when a new issue is ready for use; even though *First Monday's* name means that it appears on the first Monday of each month, some 4,000 subscribers take advantage of a free tables of content notification service (<http://firstmonday.org/join.html>).

Table 2: Leading domains accessing *First Monday*, 1999 (excluding United States, sorted in order of successful requests)

1. Denmark (.dk)
2. United Kingdom (.uk)
3. Canada (.ca)
4. Australia (.au)
5. Sweden (.se)
6. Germany (.de)
7. Netherlands (.nl)
8. France (.fr)
9. Japan (.jp)
10. Austria (.at)

This emphasis on readers and readership means that *First Monday* can boast of a global audience, providing contributors with a forum spanning the networked world. In 1999, 142 different country domains were represented in the logs, from Mongolia (.mn) to the Faroe Islands (.fo), from Zambia (.zm) to Greenland (.gl). As might be expected, traffic largely concentrated from North America, Europe, and the Pacific rim (see Table 2).

Contributors to *First Monday* enjoy rapid editorial review, measured in days and weeks, rather than months or years. This enhanced review means that there is ample time to create new drafts to reflect editorial comments or new research results. Readers in turn know that *First Monday* publishes work in a timely fashion, so that papers are often at the cutting edge from recent conferences and symposia, not fossilized remains caught in the eddies of peer review. Contributors also enjoy their copyright, because *First Monday* allows its authors to retain their rights to their works. In turn, papers in *First Monday* repeatedly reappear in other forms and in other languages in other journals and magazines, or metamorphose into books. This not insignificant legal advantage for contributors provides yet another incentive to publish in *First Monday*, over a more traditional serial.

First Monday in turn is watched and read by the traditional media, who in turn summarize contributions from *First Monday* in the popular press. For example, Andrew Odlyzko's criticism of "information appliances" – which appeared in the September, 1999 issue of *First Monday* – re-

appeared in abbreviated form in the November 8, 1999 issue of *Business Week* (Wildstrom 1999). David Ronfeldt's paper in the February, 2000 issue of *First Monday* was summarized enthusiastically in David Ignatius' column in the *Washington Post* within a few weeks of publication (Ignatius 2000). For both contributors and readers, this sort of recycling confirms the utility of *First Monday* as a medium for scholarship and highlights the diversity of its global audiences.

Prospects for Internet Publishing

Fundamentally, *First Monday* describes a methodology where simplicity means flexibility, where content is accessible by a variety of paths. Electronic journals will act as filters, rather than status symbols. Given the ever increasing quantities of information on the Internet and in print, this niche as filter will be more important than ever. With billions of Internet documents, Internet journals will become the ultimate specialized search engines, pulling together highly specific content in a timely fashion for readers increasingly frustrated with the networked morass of reports, opinions, and scholarship filling hundreds of thousands of servers around the world. With terabytes of digital information, Internet journals will increasingly act as filters as well as verifiers and agents. Without them, it will be increasingly difficult to isolate virtual gold from electronic dross.

In spite of these roles, Internet journals will not replace their paper equivalents. These journals

will provide acceptable alternatives for the quick publication of new ideas and interesting results. With continued efforts, Internet journals, in tandem with imaginative editors, contributors, and readers are going to provide new windows for ideas, banding researchers around the world together at minimal cost.

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