

# Sociable Information Spaces

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## ABSTRACT

**Information providing – the high-bandwidth, highly produced world of news and entertainment publication – is segregated from information exchange – the free-flowing verbal world of MUDs, chatrooms, newsgroups and email. Existing technologies enforce this segregation: the newspaper is inert; the TV set only receives. Yet these technological constraints are dissolving. The computers that today house the text-based virtual-communities will soon be capable of playing movies. But simply unifying the machinery is not itself the point: playing a movie in one window while writing a letter in another does not constitute the integration of publishing and communication. Rather, the point is to create environments that combine a rich information landscape with the ability to communicate with others – information spaces that provide a context for community.**

## 1. INHABITING THE INFORMATION LANDSCAPE

Any computer on the Net potentially connects you to millions of others people. The promise is that great communities will form, communities based not on accidents of location, but on common interests and concerns.

This is, to a certain extent, occurring. Usenet newsgroups and similar forums host thousands of discussions on a wide variety of topics. Communities of dedicated participants form around many of these forums as people find others who share their passion for computer benchmarking or tarot card reading.

As social institutions, these cyber-communities are still quite primitive. Many online discussions are prone to endless rehashing of the same topics, periodically devolving into repetitious insult-fests. As sources for information they are unreliable, with many postings filled with rumor and misinformation. Still, the newsgroups serve many purposes. Anyone with access (a rapidly growing population already well into the millions) can participate in the discussions. They can be entertaining or informative. And they can provide affiliation and support [17].

At the opposite end of the spectrum is the world of established media: books, magazines, radio, TV, etc. Here,

too, (as advertisers have long known) an audience of like-minded people forms around particular subjects [10]. An audience, however, is no community: though they have much in common, its members have no means of contact.

Until recently, it was not feasible for a book or TV show to also play host to the surrounding community. Magazines and newspapers include letters to the editor, but they are carefully filtered and selected; their role is more of a footnote to an article than a discussion among readers. But as the world of publishing and broadcast migrates to the computer, the technological barriers to true audience interaction are disappearing.

As the all-talk cyber-communities are joined online by the all-content no-commentary media, adding chatrooms or bulletin boards to the published material is an obvious next step. Several such pairings have already been made: *Mother Jones* magazine is online and a supplementary *Mother Jones Interactive* site carries additional articles and bulletin boards (<http://www.mojones.com>). *City of Bits* [13], William Mitchell's recent book about virtual society, is available online, with section by section reader commentary ([http://mitpress.mit.edu/City\\_of\\_Bits/](http://mitpress.mit.edu/City_of_Bits/)). *Hotwired* is *Wired* magazine online. It includes a wide range of ever-changing reader forums (<http://www.hotwired.com/>).

Conceptually, combining online forums and published materials is quite interesting. It brings the experience of sitting in a room with several people, reading the paper, and exclaiming over a particularly unusual event or arguing over a relevant point of politics to a global scale. It lets the reader see what ideas have drawn the most commentary - and it transforms the wholly passive reader into a potentially active writer.

It is especially interesting in the context of the Web, for here the boundaries between content and comment begin to break down. A book placed on the Web can link to any other page; it becomes itself a potential link any other site. Furthermore, the commentators need not be vague entities known only by name and email address: as individual home pages become increasingly common, the online persona begins to fill-out. Thus, when a publication moves from

print to the Web, it is not only gaining a new audience but a whole new environment. As we will discuss in the next section, the Web is a sociable environment, where publications become pieces of self-representation and where personal preferences become navigational devices.

## 2. THE WEB AS A SOCIAL TECHNOLOGY

The Web did not start out as a social technology: it started as a way to distribute physics papers. It has swiftly evolved far beyond its original academic domain: today, there are pages that represent giant corporations and pages that represent grade-school children. The Web contains short stories, reference manuals, price lists, pornographic pictures, classroom assignments - the list is growing to encompass every aspect of human endeavor. Its emergence as a social technology is marked by two phenomena: the rise of the personal home page as a necessary part of online presence and the ongoing attempts to introduce interpersonal communication to the Web's publication-only model.

### A. The Personal Home Page

The Web a place where people present their credentials, whether as established research scientists with impressive vita's and selected bibliographies, or as electronic trend-setters with eclectic web links and obscure lists of outrageous bands. Pages, like individuals, vary greatly. Some are elaborate creations, others simply a few links and an apology for the meagre offerings. Some are stiffly formal, reading like the cover letter to a resume. Others are almost embarrassingly personal, detailing the owner's emotional states and family psychodramas.

Some institutions insist that employee home pages follow a standard template. These are the Web's professional uniforms, with their identically sized photos and neatly formatted entries. Here, what one sees of the subject is their membership in the corporate group. These pages seldom include links to outside areas for their role is to provide access to basic information about the subject: job title, publications, contact addresses. Like the conservative suit, they are not vehicles for self-expression. (Some allow the employee to put a link to a personal home page. Following these links is like seeing a usually polished and correct co-worker in jeans and sneakers for the first time.)

Outside of such institutions, there are no rules about what should be in a home page. One result is a pervasive case of writer's block: "Hello, my name is John. This page is under construction. Here are some links to my favorite stuff on the Web. Here are some of my friends." As reading matter, these are quite dull. As social phenomena, however, they are quite intriguing. When a page contains useful information - such as an index of published papers or a thoroughly researched set of links - the utility of the page is

a sufficient reason for its creation. Yet when a page is seemingly pointless, the question arises: "why make this page at all?" One explanation is that home pages, among certain groups, are fast becoming a social requisite. Most of these pages belong to college undergraduates, for whom a home page is clearly a social, rather than professional, undertaking. Friends link to each other's pages; they are linking not to the contents of the page (though they may note if it is in some way outstanding) but to the person behind it.

Most home pages contain somewhat more information. A common format contains a bit of personal information about the subject, a bit about work, and then a list of favorite links. The choice of personal information is often shaped by what one can say with links: "I like *coffee*" with a link to an online coffee-pot or "I was born in *Wisconsin*" with a link to the state's page. Still, even the blandest self-description can be revealing. From graduation dates the reader can infer age, tone of voice can be heard through even the briefest sentence, and photographs show gender, race, hairstyle, facial expression - the basic clues of first impressions.

Nearly every pages contains a list of links, which is particularly revealing. Good Web citizens provide links to the CERN server, the perl info page and the beginner's guide to HTML: they want to help and encourage their fellow page builders. Teenagers on the Web have the electronic equivalent of the black concert T-shirt: links to Wired, to Anime galleries, and to the Terrorist's Handbook. For the home-page builder seeking to create a self-portrait in hypertext links, the Web provides a vast and varied selection.

Thus, the home page is fast becoming one's online self-presentation. Like one's self-presentation in the physical world, it is open to a wide range of interpretations. Erving Goffman, in his classic work *The Presentation of Self in Everyday Life* distinguished between the "expressions given" and the "expressions given off". The former are the deliberate stated messages indicating how the one wishes to be perceived; the latter are the much more subtle - and sometimes unintentional - messages communicated via action and nuance [6]. Home pages are already reaching the stage where one can read from them not only the expression given by their author, but the expression given off. As the technology improves and as the pages become more common, the ability to "people-watch" in cyberspace will grow.

### B. Communicating within the Web

Yet, as a social technology, the Web has one serious drawback: communicating with one's fellow wanderers is poorly supported. Although the current servers and browsers do not specifically include support for communication, the demand for it is strong. A variety of interim solutions have been created: there are Web pages that bring-up telnet

windows to MUD session; links that jump to Usenet newsgroup, and “graffiti walls” and “guest books” where visitors can post comments. While none of these is a perfect solution they are worth considering both as progenitors of tomorrow’s systems and as another aspect of the social side of information spaces.

Graffiti walls and guest books are Web pages that can be added to by the viewers: the comments appear as a growing list of statements. The books and magazines online that have added discussion forums, such as *Hotwired*, *Mother Jones* and *City of Bits*, use this format. Its main advantage is full integration into the Web: the comments can include links to related pages and to the writer’s homepage. However, graffiti walls and guest books do not scale well and they have no structure to support discussion. A variety of more elaborate interfaces are being designed (e.g. *Hypernews* or the highly structured *WIT* from CERN) on top of existing HTML standards, but a large scale, distributed system would require more fundamental rethinking.

The telnet links to MUDs and to IRC clients seem at first to simply be gateways for moving from one system to another: from the Web, one clicks on a link which brings up a regular window executing the telnet command. However, it is interesting to note that the Web is being used as a support environment for the close communities that develop around these live-chat systems [1][14]. In these systems text (and quickly typed brief text at that) is the sole means of communication. While the austerity and relative (or absolute) anonymity of such an environment can be beneficial, e.g. in role playing games, it can also be frustrating, as one’s fellow participants remain vague and sketchy. A number of MUDs and IRC groups have created group homepages where one finds pointers to the homepages of the regular participants. For example, the homepage for #bawel, the Indonesian chat network, shows almost 30 homepage links, to servers in Canada, Germany, Australia, all over the United States, and, of course, Indonesia. The #bawel habitue can now see what his online friends look like and can get a glimpse at other aspects of their lives.

Usenet news is also growing ties to the Web. It is possible to read news from within many Web browsers and contributors have begun signing their name with a home page link. Such a link is also a way of presenting ones credentials: it serves as a way to further establish online identity [4]. The intense arguments that pervade Usenet discussions are starting to include references to Web pages that contain data supporting the writer’s assertions. The scale of the news system makes it a potentially influential environment for the critique of information set forth on the Web.

There are others. There are collaborative annotation systems (<http://dri.cornell.edu/pub/davis/annotation.html>) and cooperative story building mechanisms (<http://discus.ise.vt.edu/cgi-bin/wwwproj/story>); there are voting systems where you can rate Star Trek episodes or recent

movies. The profusion of these Web-related communication systems indicates that there is a demand for communicative mechanisms integrated within the Web.

### 3. CURRENT RESEARCH

Two important social functions remain unaddressed by the systems described above. First, wandering about the Web is a solitary pursuit: one is unaware of the presence of the many fellow explorers. Second, one cannot communicate directly to another person online within the rich context of the Web. We address these issues with the projects described here.

#### A. *WebTalk*

*WebTalk* allows you to see who else is on a page – and to communicate with them.

The *WebTalk* project consists of a modified Web browser and server. The browser looks like an ordinary browser, and on pages not served by a *WebTalk* server, it functions normally. On *WebTalk* pages, however, it provides a number of social and collaborative features. Most notably, it shows who else is on the pages and it allows the user to strike up conversations or to join in ongoing discussions.

A “Who’s Online” window shows who else is on the page. People can be seen as simple text strings - their name and their host machine - or they can provide a small graphic to represent themselves. This window lets the user quickly scan for a particular person, such as the owner of the page or an acquaintance often found at this spot. It also gives the viewer a sense of the activity level of the page: are there only a couple of people here or is this a major gathering spot, a favorite Web meeting point?

The *WebTalk* system is based on the concept of shared location: you are able to talk only with other people who are on the same page. However, the big activity on the Web is wandering - following links, jumping from page to page. If you had to literally stay on the same page when conversing with others on it, it would seem confining. Virtual locations allow the user to put down an anchor on a particular page - where they appear to remain - and still wander about the Web with their main browser window. This allows people to have a real “home” page, a place where they can usually be found, without limiting their use of the Web.

At times, one does not wish to be sociable. The *WebTalk* browser allows the user to be invisible. In such a state, one may visit *WebTalk* pages without showing up in anyone’s Who’s Online window. However, if not seen, one can’t be heard: it is necessary to be visible to talk.

One may also participate pseudonymously. Since the connection is specified by machine name and port, one can use any name as a “callsign”. It will be up to the server to determine whether visitor identity is authenticated and by

what mechanism: this is part of establishing the general style of the server's conferences.

The main feature of the *WebTalk* is the discussions that occur in the context of the Web and that use its rich hypermedia capabilities. *WebTalk* discussions are live: one types a message and it appears instantly (or at least reasonably fast) on the screens of the intended recipients. The discussions can be public conferences, open to all, or they can be private conversations between two people. Images, sounds, and links to other pages can all be integrated with the flow of words. The *WebTalk* client includes several tools for fluency in hypertext conversation. For instance, the user can highlight a phrase and then, simply by clicking on a picture (or link) on any Web page, attach the chosen object to the phrase. When the phrase is sent, the recipient sees it as highlighted text; if the recipient clicks on it, he or she will receive the picture (or follow the link).

A *WebTalk* conversation can transcend smiley-faces. One can have an entire library of eloquent pictorial - or auditory - interjections. And a *WebTalk* conversation can be completely interwoven with the vast resources of the Web. One can point to references, counterarguments, examples, expansions - all within a single sentence.

The *WebTalk* system was designed and implemented by Niel Robertson. It is implemented, running, and in the process of final debugging. The current status of this project is available at <http://judith.www.media.mit.edu/SocialWeb/CurrentStatus.html>.

As for future work, there are several directions we see this work taking. One is developing the range of server styles. A *WebTalk* server should be able to determine the nature of the conferences that occur on its grounds. Some might be very casual, allowing anyone to create a conference and permitting people to use any name as their identifier (this is for now the normal setup). Other servers might wish to be more restrictive, permitting only the page owner or a chosen group of people to form (and dissolve) conferences and requiring that participants use their real (or at least, traceable) name. These and other variations in server style will help a page owner to create a social atmosphere that best matches the environment of the page.

### B. The Electric Postcard

The *Electric Postcard* (<http://www.postcards.media.mit.edu/Postcards/>) makes it possible to use the World Wide Web for interpersonal communication. As in the real world, the user chooses the postcard, writes a message, and sends it off to the recipient. These postcards, however, are wholly electronic. No physical card is sent - the image and the message are kept online. Because the Electric Postcards are part of the WorldWide Web, the message contents can be hypertext: images and sounds can be

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Date: Thu, 13 Apr 1995 14:20:01 -0400
From: cardmaster@postcards.www.media.mit.edu
To: <recipient>
Reply-To: <sender>
Subject: Greetings from Cyberspace

There is a postcard waiting for you in the
Post(card) Office.
You may claim it at the Pickup Window, which is
located at
http://postcards.www.media.mit.edu/Postcards/
Your claim number is:<recipient>.170227
Please have this number available when you claim
your postcard.

Thank you,

                                The Postmaster

Messages left unclaimed after 3 weeks may be
discarded.
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Fig 1. *Electric Postcard* recipient notification.

embedded in the text and there can be links to any other data in the Web.

The recipient is notified by email that a postcard awaits. The notification includes the address of the "postoffice" and the claim number for the card.

The *Electric Postcard* has been quite successful. Online now for about 5 months, the daily number of cards sent has risen steadily from 10 or 20 in the first weeks to over 2000 a day and increasing. By mid-May, about 5 months after its debut, the number of cards sent passed 100,000. For some, it is a simply an amusing twist on email; for others, a way to show that they have found something new and different on the Web. It is often used as a lure to get a reluctant friend to explore online. And it is a convenient way to forward recommended URLs.

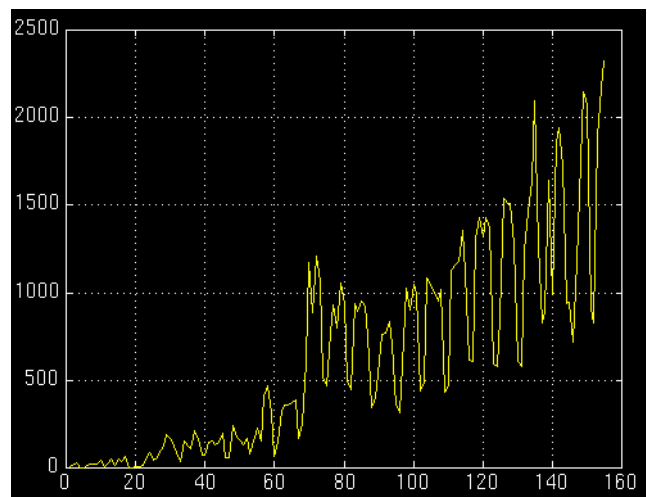


Fig 2. Usage statistics for the *Electric Postcard*. The regular dips are week-ends. The first big leap in use (around day 70) was on Valentine's Day.

Beyond the novelty value of sending greetings from cyberspace, the *Electric Postcard* represents a new development in the epistolary tradition: the ability to send, along with one's words, links to anything within a vast universe of information.

#### 4. CONCLUSION

The information landscape provides the inhabitants of cyberspace with the raw material to create their own electronic culture. It provides topics for their discussions and the links from which they construct an electronic self-portrait. In turn, their activities bring structure to the landscape, by wearing a path to the most well-liked (or at least, well-linked) sites [7].

Cyberspace is still very primitive. The information that is available is limited, the interfaces to communication rudimentary. This, however, is rapidly changing. In the process, we are seeing the development of an online world in which many of the boundaries we are accustomed to weaken or disappear. In particular, the barrier between published material and popular discourse is lower; the former is becoming more fluid and the latter more grounded.

We are beginning to see what it means to inhabit the information landscape. Just as one fashions a real-world self-image with hairstyles and accents, clothing and courtesies, so today one fashions an online presence from text and links. The Web, with all its limitations, still provides very rich and complex social environment. The goal of our research projects is to create new tool that enhance its communicative ability.

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