

Adapting the Internet: Comments from a Women-Only Electronic Forum

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Running Head: ADAPTING THE INTERNET

### Abstract

This study examines the culture of electronic communication from the standpoint of a women-only electronic forum of computer scientists called Syssters. Surveys completed electronically by 491 members of the forum are analyzed, and extensive quotes from their responses are presented. The respondents' reactions to the culture of the internet, and their comments on the segregated forum they have created in response, provide a detailed description of the complexities of EC and the social worlds it allows us to create. Their comments suggest that electronic communication can give undue influence to extreme opinions and can make it easier for sexual harassment to occur. It can also make it easy for women who are unwilling to involve themselves in mixed-sex forums to interact with each other in a climate they find more congenial. Thus, the technology may increase the reach both of those who make the internet a difficult place and of those who wish to make it a safer place. One conclusion we draw is that basic patterns of gender based communication are at least replicated, if not magnified, in electronic communication.

### Adapting the Internet: Comments from a Women-Only Electronic Forum

I think that a lot of women are intimidated to present their opinions openly on the net, for fear of harassment of some sort. Also, if you are the only woman, it is quite likely that no one else can share or support your perspective. (289)

I know that I sometimes use the net to combat loneliness and isolation, but I am usually content to read the messages, it makes me feel involved, and in fact through the notices, i GET involved with things that otherwise would have passed me by. It's like radio, only interactive... (449)

These two seemingly contradictory quotes about electronic communication on “the net” are from computer professionals. Both are members of a women-only electronic mail group called “Systers.” The disparity between these two views of electronic communication (EC) highlights its complex and contradictory nature: it both isolates and connects people, both intimidates and liberates them. This paper is an in-depth analysis of the comments the women of Systers made in response to a survey asking about electronic communication. It attempts to provide a description of the nature of the support members gain from communicating within this group, and of the group’s perception of the largely male culture of computing. In addition, we hope it will give some insight into the complexity of interaction in EC, and the need for a more sophisticated understanding of “the” effect of EC.

Today’s electronic networks allow a more flexible, more diverse, and more convenient communication among people than has been available in the past. Within seconds, messages now move to the office next door, to someone’s home, or even to another continent. This has complex implications for the organizations and individuals who communicate this way. Some scholars suggest that EC will democratize organizations, flattening the hierarchy and incorporating the views and goals of all members of the organization (Giuliano, 1982). Other scholars emphasize the problems inherent in EC like the hostile climate of many news groups or bulletin boards, or the lack of personal contact and the isolation (Herring, 1993).

“Flaming” is a behavior found in EC that produces tension and may generate disparity between individuals. Flaming is hectoring or haranguing another person electronically, in response

to an electronic message. This behavior is found in all types of EC and at many levels of use, from world-wide news groups or bulletin boards to inter-departmental discussion lists. In many groups flaming is a norm. But it can also be frustrating. In fact, some individuals are intimidated enough by flaming to stop participating or to find alternative ways of using EC (Kramarae & Taylor, 1992). Some individuals are harassed so directly, persistently, or vehemently over EC that law enforcement has taken notice (EduPage, 1995).

Conversely, EC also has positive effects on individuals. For instance, the easy accessibility and widespread use of the internet facilitates access to those who share similar interests. Scientists from different parts of the world are able to share research ideas and resources, allowing them to collaborate on projects (Sproull & Kiesler, 1991b). Smith and Balka (1988) talk of using computer networks to link feminists around the world and keep isolated women in touch with one another. Similarly, Kramarae and Taylor (1992) point out that, “women and other marginalized people” use the internet to connect with “kindred souls”.

EC can also bring positive changes at the organizational level. Since access is available to employees at any time of the day, information given out electronically has a broad audience. EC not only facilitates the dissemination of information in an organization, but also allows those on the periphery of the organization to make their voices heard. For instance, night shift workers feel more connected when they can electronically participate in company decisions and this connection leads to a greater sense of commitment toward the organization (Huff, Sproull & Kiesler, 1989; Sproull & Kiesler, 1991b).

Thus, in some instances EC decreases communication and community because of anger and frustration while in other cases it increases communication and connection among individuals and within organizations. For some individuals, it allows connections across the world and for others it enforces isolation and withdrawal. These contradictory elements suggest a more complex world of EC than that seen by either the prophets of doom or salvation. How can we resolve these complex and contradictory findings?

A full understanding will require looking at economic and class issues of access to technology and EC (Anderson, Lundmark, Harrison, & Magnan, 1994), styles of interaction over EC (Allen, 1994), processes of group formation and maintenance in EC (Finholt & Sproull, 1990), organizational issues of control and communication (Kraut, 1987), and the new culture of the internet both in its “online” or virtual manifestation (Rheingold, 1993; Herring, 1993) and in its interaction with the real worlds in which the participants live (Frenkel, 1990; Kramarae & Taylor, 1992).

Within this large range of issues, this paper focuses on those relevant to the culture of a particular community, Syssters, and the reasons for its founding and maintenance. Syssters was formed in 1987 to allow women in computing fields to communicate with each other in a supportive atmosphere. It has experienced explosive growth since that time, and at the time of our survey had 1400 women from around the world on its distribution list. The perceptions these women had about the world of EC as unfriendly and unsupportive was the main reason for the formation of the group. It is these perceptions, and their perceptions of the group they have formed, that we hope to convey in this paper.

In this smaller world there are still a variety of issues to explore. Why is it that the members of Syssters felt EC in their discipline to be inhospitable? What is it about Syssters that makes it a useful alternative, even though it uses the same communication medium? Does the nature of the communication medium itself make both alienation and affiliation more likely?

#### Factors Influencing Electronic Communication

More established means of communication, like the telephone or business letter, have their own implied rules or social norms by which society has generally agreed to abide (i.e., answering “hello” when picking up the phone) (Levinson, 1983). These social norms make the use of a communication medium easier. But in EC, the appropriateness of a particular conversational move may be unclear to the seemingly isolated individuals in front of their computers typing messages

that will soon disappear into cyberspace. Thus the impersonal nature and seeming anonymity embedded within EC could cause the language of a message to be more direct and combative.

Sproull and Kiesler (1991a) ascribe this effect to a lack of social cues. Social cues normally present in face-to-face communication (dress, posture, etc.), written communication (letterhead, envelopes, etc.) and even telephone (intonation, back channel signs) provide context, individuation, status information, and feedback that make for more circumspect and informed discussion. Unaware of their audience, electronic message senders may express more extreme opinions and vent anger more openly (Sproull & Kiesler, 1991a, 1991b).

In addition, the acknowledged rules of communication in many groups explicitly allows (if not, at times, encourages) venting of anger and the expression of extreme opinions (Herring, 1993). Finholt and Sproull (1990) have documented the processes that electronic groups use to maintain their atmosphere and to sanction communicators who violate these expectations. Although many electronic work groups are staid and sedate in their online manner, even those in private business organizations can be quite rowdy and confrontational (Finholt & Sproull, 1990). It may well be that the lack of social cues available in EC makes it easier to maintain this sort of confrontational atmosphere among those who find they can enjoy it.

In addition to the lack of social cues and the nature of the particular forum, there may also be physical cues in the immediate environment of the keyboard-bound electronic communicator that influence the tone of the messages composed. The intimate nature of typed, informal communication may increase a person's concentration on his or her own reactions and opinions, highlighting disagreements with others. This private self-awareness (Fenigstein, Scheier, & Buss, 1975) may overwhelm an awareness of the aspects of oneself that are evaluated by the public, causing the person to ignore social niceties. Matheson and Zanna (1990) have shown increases in private self awareness during electronic communication. This self awareness may be a precipitating factor in the volatile culture of EC: people who experience an increase in private self-awareness

when using computers may be more likely to use a direct style of EC, and may then be more likely to flame.

This relative anonymity and expressiveness of EC has a positive aspect, too. Ideas may be written without fear of (or thought of) negative reactions. This may help the sender express opinions more freely and participate comfortably in open dialogues. Sproull and Kiesler (1991a) suggest that this lack of identifying cues can help communicators bypass the hierarchical barriers found in organizations. Employees may feel more comfortable “having their say”. For example, an office assistant may post a concern to the company-wide discussion list. This message, in turn is read by a vice-president. The vice-president then mails a message directly to the office assistant regarding the concern. This path of communication is unlikely to occur within traditional forms of communication. The office assistant may never see the vice-president, but instead only reach the secretary’s desk where the concern is lost.

#### Gender and Electronic Communication

Since EC is a medium where traditional hierarchical barriers are broken down, where status differences are less apparent, and where social cues that identify group membership are less obvious, some theorists expect EC to produce a more equal exchange between men and women than is common in current society. Perhaps the lack of hierarchy in EC will allow more women to gain access to the “old-boy” network. Or perhaps the more democratic sharing of information will allow traditionally less powerful groups access to both the information and contacts they need to influence others. Some reports suggest this democratizing effect has taken place in at least some forums and organizations (Huff, et al. 1989; Sproull & Kiesler, 1991b).

On the other hand, the lack of social cues and relative anonymity of EC may make it easier for entrenched groups to openly disparage, disempower, and discourage others from participation. Many women are discontent with the environment of EC, changing their login name to make it gender neutral or backing away from certain discussion lists to escape the negative “feel” of the internet. Men also seem to monopolize internet discussion and electronic sexual harassment is

being reported by women at many sites (Ebben & Kramarae, 1992; Kramarae & Taylor, 1992).

Women participating in electronic conversation in internet newsgroups may also receive the message that they are unimportant to the discussion, and unwanted in the group (Herring, 1993).

Some of these perceptions are a result of intentional statements that malign or disparage the female communicator, but it may also be that the communication style used in these forums is one that is likely to make women feel unwelcome.

Gender differences in interaction style. Some research has suggested males and females differ in their interaction style to the extent that they employ different interpersonal strategies. Females may prefer strategies (among many others) of listening, sensitivity, and similarity whereas males may prefer strategies of assuming control, self-inclusion, and personal autonomy (Bell & Daly, 1984; Richmond, Gorham, & Furio, 1987; Tolhuizen, 1989). These differences in preferred strategies may also lead to different communication behaviors. According to Hall & Sandler (1982), frequent nods of the head and “uh-huh's”, called back channeling, occur more often in women’s speech. Back channeling may be used as a way of maintaining a sense of involvement with and connection to the speaker (Hall, 1984; Maccoby, 1990). Males, however, even when quite young, may depend on competition and dominance to regulate interactions with others. These differences in interaction style cause females even as young as preschoolers to become wary of male interaction styles (Maccoby, 1990).

Given these differences in interaction and communication styles, one might expect gender differences in the use of EC. The anonymity and isolated feel of EC could cause women to like it less than more informative channels since there is little chance for showing connection or involvement with the speaker. Back channeling, for instance, is nearly impossible through EC. But even if women are comfortable communicating without such connection, the climate still may not be appealing. The “unfriendly” feel of the internet may be a product of a male style of speech, where the competitive giving and receiving of information is more accepted. When women attempt to participate in this competitive exchange of information, they find the climate aversive.



Susan Herring (1993) studied the participation of males and females in two academic electronic discussion lists for a period of one year. Even though the percentage of women subscribing to both lists was approximately 40%, their participation in discussions was much lower. Only 16% of the discussions on theoretical issues were contributed by women. Three times during the year topics were raised that brought the contribution of women up to around 50%. All three times men on the list wrote disapproving messages about the discussion that was taking place. Some even threatened to unsubscribe. After the protests, women's participation dropped back to 15% of the total. An underlying yet unequivocal message was communicated: it was appropriate and expected that women would contribute less on the discussion list. Herring concludes that in these two academic discussion lists the climate is hierarchical and power-based and contains the patterns of male dominance found in society as a whole.

Computing as a Male Culture. At least for the women of Syssters, the technical world of computer science colors their electronic conversation. It is no secret that there are fewer women than men in the world of computer science. BA degrees in computer science earned by women rose steadily until 1984 when they reached 37 percent and since then, the number has been decreasing. Women make up approximately 14% of the PhD's earned in computer science (Anderson et al, 1994). Computer science and computer engineering faculties consist of only 7.8% women, and out of tenured professors, only 2.7% are women (Frenkel, 1990; Gries et al. as cited in Spertus, 1991). It is clear that in this professional environment women are a distinct and identifiable minority.

It is not only the sheer numbers of men in computer science that make it an unwelcome climate for women. Societal factors such as different expectations for boys and girls in math and science, and computer software that is aimed at boys help to perpetuate the stereotype that computer science is a "men-only" field (Anderson et al., 1994; Huff & Cooper, 1987). Stereotypes of women who do succeed in computer science or engineering are just as harmful, depicting female computer scientists as unattractive or masculine (Spertus, 1991). This masculine environment tolerates and even encourages the sexist or sexual humor, displays and discussions that are often

scattered throughout the field. Spertus writes that, “because computer work places are often overwhelmingly male, women find themselves in what sometimes feels like a locker room environment, having to put up with behavior they might find offensive, such as sexist or sexual humor and female pin-ups (p. 35).” And this “locker room” environment can easily appear in EC too, combining with what may already be an unfriendly interaction style to make EC a decidedly aversive environment.

### Women’s Response to the Climate of Electronic Communication

In response to what women perceive as an unfriendly environment some groups have formed electronic mailing lists that are closed to men. A complete list of women’s forums does not exist, and if there were a list, any publication of it would be immediately out of date. A few examples include: a women-only mailing list called (bof) birds of a feather that formed to discuss feminist issues away from what they perceived as internet hostility. Another list is EDUCOM-W, which is a moderated discussion of women’s issues in technology and education. The Feminist Task Force of the American Library Association started a group called FEMINIST that discusses issues such as “sexism in libraries and librarianship, pornography and censorship in libraries, and racism and ethnic diversity in librarianship.” And, there is a moderated list called GENDER devoted especially to the study of communication and gender ( A. Borg, personal communication, Nov. 11, 1993). Finally, there is Systers, a group of female computing professionals who discuss both computer science technical issues and professional issues relevant to women.

Why do some women join these forums? What benefits does interaction in them bring? And how effective are they in allowing women to make good use of EC? We had an opportunity to study a large corpus of comments from the members of Systers, and have used those written comments to try to understand how, in the perception of the members of Systers, EC left them isolated one the one hand, yet on the other connected them with a group that could provide them support and professional growth.

The comments we present here represent a powerful narrative of personal experience with both the negative and destructive aspects of EC and its positive and community building aspects. This “insider’s view” from a group of professional computer scientists provides an opportunity to understand some of the many issues pertaining to EC’s effect on individuals and groups.

## Method

### Respondents

The women on Systers represent many different fields within computing and are from both industry and university settings. Individuals from industrial research labs, university department chairs, and undergraduates in computer science and engineering all participate. The moderator screens applications for participation to provide at least minimal assurance of participants’ credentials (professional affiliation and gender). In addition, those who join Systers must agree never to share information received from the list with others without the express permission of the author of the message containing the information.

Systers was started in 1987 to allow female computer scientists to electronically communicate with one another and to discuss issues pertinent to their field. At the time of the survey, Systers had approximately 1400 members worldwide, from a large variety of countries, universities and organizations. Approximately 3 messages a day are exchanged on the list, but some of those consist of “summaries” of answers sent in private email to a question that was asked publicly on the list. The women discuss technical and professional issues as well as topics pertaining to the culture of computer science (e.g. women in the work place, harassment, women’s social networks).

Participants in this study consisted of women who subscribe to the Systers electronic mailing list and who responded to a survey distributed by the moderator. Our discussion is based upon the written comments of 491 women who responded to the survey. The first distribution of the survey was sent electronically on March 8, 1993. After a rather small return rate, the moderator sent the survey again on March 10 asking for more responses. The total number of responses was

491, a 35% return rate, over the period of 4 days. Basic statistical results of the survey were discussed in Borg (1993).

### Survey

Anita Borg, founder and moderator of Syssters, wrote and electronically distributed the survey.<sup>1</sup> It covers issues such as the women's opinions of EC, their experiences of harassment, problems of access to technology for women, and changes that might allow greater access. The survey contained eleven questions requiring a yes, no, agree, disagree or unsure answer and three questions asking for a list of top ten reasons or issues.

After each of the first eleven questions space was allowed for comments. 84% of the women included remarks and stories about their participation on the internet. Many detailed comments were included in response to even the three final questions that did not ask for comments. The remarks ranged from a single phrase of explanation (e.g. "Don't use net much " [274]) to long, multiple paragraph stories of incidents, reaction, and opinion. With the permission of the respondents, Anita Borg made these responses available to us for analysis. It is these comments that provide the basis for this report.

### Analysis

The completed surveys were stripped of identifying information and electronically transferred to the authors in September, 1993. All references that might still identify respondents were removed by hand.

Statistical results. The statistical results we report were generated with a computer script written by the moderator of Syssters. The script went through each survey and coded for an agree, disagree, unsure or other answer to the first 11 questions on the survey. These results are the same as those reported in Borg (1993).

Qualitative Analysis. We carefully read each survey and extracted quotes that seemed relevant to the respondents' perceptions both of Syssters and of the internet. These quotes included descriptions of personal experiences in EC, comments on workplace experiences, descriptions of

family and child care issues, and descriptions of experiences of colleagues. This culling process resulted in a file of 455 quotes (or about 1 quote per respondent) that represented a broad range of opinion and experience in the group. The file of representative quotes, now disassociated with particular individuals, was then analyzed by reading through them multiple times to identify patterns in the descriptions. Systematic checks of both the “quote file” and the original survey responses suggest that the responses we present in this paper are representative of those in the original responses.

Since the comments we present here are representative of the broad range of comments we received, the reader will notice that some comments or perceptions are in direct contradiction to each other (e.g. some think harassment is a critical issue, others say it is unimportant). We have tried to present this complexity without disguising it, while still noting the patterns we perceived.

Given that the response rate was 35% of those whose names are included in the distribution list, it is reasonable to be concerned that these comments are not representative of the group as a whole. In an attempt to address this issue, we sent an earlier, electronic version of this paper to the entire list and asked for comments on it. We received over 20 responses to the paper, all of them positive in terms of the representativeness of the paper to their concerns and perceptions.<sup>2</sup> Thus, if there is a significant segment of Systers that this presentation misrepresents, our efforts to contact its members failed.

One segment of this online community that we may have missed is called in the jargon of the internet “lurkers.” This includes all those members of any online group who listen to the conversation but do not ever volunteer comments. Many internet newsgroups are distributed in such a way that one cannot determine how many people read the messages posted to the group. This is a technical issue in research in EC that is difficult to resolve (Huff & Rosenberg, 1989). Some of these readers may read regularly and thus consider themselves part of the group. Others may simply delete most or all of the messages, and feel little or no connection to the conversation or to the other members. Thus, if there is an underrepresented opinion in this report, it is likely to be

that of those “lurkers” on the mailing list -- and since we know the distribution of the list, we can at least identify the possible size of that group. If the perceptions and opinions of these non-respondents differs in any way from those we report here, we suspect it is in thinking the issues less important. Thus, to the extent that we can, we have highlighted those comments we did receive that tend to this opinion.

One final caution. We cannot use these reports statistically to determine how many times particular incidents (such as harassment) occur on the internet. For instance, one flaming, sexually explicit message to a mailing list could be reported by fifty different women as personal harassment. Nor can this analysis allow us to generalize to “all women’s experience” with EC. This is a particular group of internet denizens, and one we think interesting because their technical expertise and experience in things computational should make them among the most comfortable in the internet environment.

## Results

The central purpose of this research is to obtain some insight into the complex nature of the internet culture as this group of women experiences it. In order to do this, we will need to look both at their experience of the broader internet, and their experience of the small, exclusive corner they have set aside for themselves. In addition, we will review our respondent’s perceptions of the “non-virtual” culture of their offices and homes, as it impinges on their electronic communication.

### The culture of electronic communication

The internet as a male culture. There are no accurate figures for the percentages of men and women who use the internet. However, most researchers who comment on this issue agree that the overwhelming majority of internet communicators is male. Even in open electronic forums whose topics focus on women’s issues, the majority of comments are from men (Herring, 1993).<sup>3</sup> Here are some of the comments that reflected on the rarity of hearing a woman’s voice:<sup>4</sup>

In those newsgroups that discuss women’s issues, however, it is rare to hear a woman’s voice. Even on soc.feminism, which is moderated, women seldom feel safe speaking

out....There is no safe place on the net for women to discuss issues that are specific to women. (446)

Just try reading a forum like soc.women, and it becomes obvious. For example, someone may query a “woman’s point of view” in soc.women, and more than half the responses will be male. (379)

Besides there being more men on the net in physical numbers, the style of language that is the “norm” may intimidate or overwhelm. Many women commented on being squelched by what they felt was a confrontational and competitive style of language. Some found the interaction style used by men on the internet particularly aversive:

In my experience, men are likely to dominate a forum, whether it’s a newsgroup or a real-time chat session, disproportionately to the male/female ratio in a group. It may just be a personal, but I find that men are also more likely to be verbally (electronically?) abusive. (293)

The culture of the net often seems confrontational rather than supportive. I attribute this to a male dominated culture. (227)

Hostility and Harassment On The Internet. 31% of the respondents reported having been harassed in some way on the internet. Many of their comments described the climate of EC as hostile and unwelcome. In addition to the confrontational styles noted above, they cited flaming, personal attacks, and hate mail as typical displays of hostile behavior. For instance:

There have been several occasions where I’ve gotten unbelievable hate mail for posting a simple, (I thought) rational opinion. (407)

There are not all that many net-jerks out there, but the ones that exist are quite prolific, vitriolic, and extremely persistent in hammering away at people who disagree with their positions. (179)

[I have experienced] threatening/derogatory anon and non-anon mail about my “feminazi” views. Anon phone calls about my posts. (451)

This personal hostility caused some to feel intimidated and to refrain from making any moves that might produce these attacks. Usually this meant not posting or commenting at all, even though this would mean she pays the price of non-participation. Note that this is not necessarily a response to hostility directed at the person, but a preventative strategy, given what she has seen happen to others:

I am afraid to be belittled and laughed at as I have seen other women treated on the net. (155)

Most women I know are too scared of getting corrected or attacked for things they say by men on the net. (452)

I have not personally experienced harassment, but I have seen other women/people harassed for holding certain viewpoints. Perhaps this is why I rarely post anything or participate in any discussions (even including Syssters). (249)

Sexual Harassment On The Internet. 19% of the women reported experiencing sexual harassment on the internet. Most definitions of sexual harassment include not simply “offers” based on sex, but also the creation of a hostile environment based on gender. Our respondents also spanned this range in their comments. Everything from “feeling uncomfortable” to explicit offers of sex were reported.

We noted earlier that some women did not participate in internet groups beyond reading the messages, and they restricted their participation to reading. But it is still possible to be confronted with a “hostile environment” even if one never uses electronic mail. There are a variety of ways to be contacted and to communicate on the internet, and our respondents reported incidents of sexual harassment that occurred in all of them. One woman reported that, by looking around through other users’ publicly shared files, (the equivalent of browsing the halls of an office building)<sup>5</sup> she was confronted with a hostile environment. Several of our respondents reported that simply being logged into a machine connected to the internet (or to any other users, for that matter) put some of them at risk of harassment based on their gender:

I have been contacted several times in the past year by men who didn’t know me, but just “saw that I was logged in,” and because I am a woman, they sent me mail and “talk”ed to me in personal and inappropriate ways. (331)

On a fairly regular basis, I get unsolicited email from men who say they saw my address somewhere and who want to “get acquainted”. I used to get unsolicited “talk” messages on my terminal from strange men, but I put a stop to that by permanently setting a flag to deny write access. Just last week, I received an unsolicited and anonymous email message that consisted of our online encyclopedia’s article on sperm. (68)

[I was] Trying to finger a friend, and running into “offers” and glorifications of violence against women. (241)



IRC, or internet-relay chat, is another form of EC on the internet in which two or more individuals type messages to each other that appear on the each others' screen as they are typed.

One woman found she was at risk by logging in to IRC:

I have received sexually explicit e-mail that bordered on frightening. Some people will e-mail something that they would never say to your face. Also, if you have an obviously female login name and you login to IRC, you will almost immediately be hit on by some jerk with a sexually suggestive login name. I found this very disorienting. It's like being groped in a dark bar or an elevator. (135)

When posting a message to a newsgroup, it is often appropriate to "sign" one's name. Some women found, however, that they were harassed simply by being identified as a woman in their signature (a file titled .sig -- pronounced "dot sig" or "signature" -- with identifying information that is appended to messages sent to others):

If I post, I sometimes get requests for 'dates', and I have heard other women complain of getting messages that are sexually explicit. (366)

Posting to any group is always an experience - regular "wanna-fucks" and other such annoying email come just due to having a female name in many groups. Often I've had to argue my points more strongly and then been put down merely due to being female. (369)

Some of the sexual harassment experienced was less personal, but made women feel devalued. Dirty limericks or sexual suggestions in signatures or messages made some of our respondents uncomfortable. In addition, the names of some servers and sites connected to the internet are sexually explicit and quite difficult to avoid:

Sometimes the signatures of men are misogynist and/or violent. That makes me less likely to interject myself into a discussion. It implicitly devalues me or makes a more hostile environment for me. (476)

The sexist and very sexual way in which many users express themselves alienates me. (165)

The server I most frequently used is listed alphabetically beside a server named "Irina's Red Hot Pussy". (241)

Pornography On The Internet. Even though the questionnaire did not include a specific question on pornography on the internet, concern about its presence was mentioned in some of the

comments. Both its presence and the climate that its presence created were brought up in the comments. These respondents, for example, both noted the presence of pornography on the internet and felt that its presence was inappropriate:

My sense is that men peruse bboards more than women, and that proportionally more pornographic material is exchanged/retrieved over the net by men than by women. (170)

The men I know use it to download porno pictures and things like that. (And, yes, these are professional men in the computer business -- they get really excited (no pun intended) when a new source is discovered). (9)

At times the pornography available on the internet impinged on the “real” work place. The incidents related below suggest that simply avoiding places on the internet where pornography is located will not insulate a person from its presence and influence:

... there was an incident at an ex-employer where people were using our machine as a dropoff for anonymous FTP porn-GIFs.<sup>6</sup> As an administrator, I sent mail to each user and administrator for their site telling them that this was a gov’t machine and we seriously frowned on this use of gov’t equip. Most administrators were apologetic or even helpful, but some were quite belligerent. Their attitude was directed as our site, though, not me personally (our mail was sent from root, not me personally). (142)

Because of the availability of pornography on the net, it has appeared in my lab and offended me. (298)

[I have been] working around “air-brushed” pictures of naked anorexics with breast implants. (241)

### The Culture Surrounding Electronic Communication

There are at least two major factors affecting women’s use of EC: the culture of the internet itself and the culture of the society in which the internet is embedded. A technological optimist might claim that the internet is a world completely separate from all outside issues, and that its culture will evolve independent of (or at least not simply replicate) the culture of the world in which it is embedded. To the contrary, it seems evident in the comments from these women that the two worlds are inseparable.

Our respondents talked about several “real world” issues that affected their use of the internet: the male culture of computer science, family and child care issues, and sexual harassment

at the office. Each of these provide examples of the interconnection between the “real” and the “virtual” worlds.

The Male Culture Of Computer Science and Related Fields. Female computer scientists are a distinct minority in their field. Approximately 14% of the PhD’s earned in computer science, and only 2.7% of tenured faculty are women (Anderson et al., 1994; Frenkel, 1990). This creates both problems and opportunities for them on the internet, for example:

It [a women-only forum] allows women to meet each other such as sisters. C.S. and Engineering Women are a real minority. It is nice to know that there are other women like yourself. (327)

I think that a lot of women are intimidated to present their opinions openly on the net, for fear of harassment of some sort. Also, if you are the only woman, it is quite likely that no one else can share or support your perspective. (286)

A problem with being a distinct minority in this environment is gaining access to important information and social networks. Not having access to the “old-boy network” was perceived as a clear disadvantage:

Women are excluded from the “old-boy network”. These groups can do much to further careers. By having an all-women’s forum, we allow this kind of networking. (289)

There is absolutely no doubt in my mind that the current system suppresses participation and achievement of all sorts of people, women in particular. (471)

Until I have access to “locker room” type interaction with my male colleagues, and until my male colleagues -- including my division head -- feel comfortable having a one-on-one dinner with me, as they do with each other, I will be left out of certain amount of exchange of information by default. (348)

Access -- physical access to computers and their connections and access to better information about the internet -- was seen as a significant problem by several of our respondents. The upshot of this difficulty with access to computers, information, and social networks, is that many of our respondents felt shut out from their field. Add to this the minority status of women in the field and the hostile climate of much of the internet, and it is no surprise that feelings of isolation are common:

Anyone “in the know” is expected to already know how to access every nook and cranny of the net from any cite. Information about the net (and its use for research/business purposes) is passed on by word of mouth. There is little documentation on how to access and effectively use the resources of the net. Even access to the net is not a trivial task particularly in industry where special accounts or specialized knowledge may be required. Because information about the net is not disseminated through more available means (documentation, publications or courses) people who are not well connected may remain ignorant. Women trying to establish themselves may be especially reluctant to ask questions about something so seemingly trivial to others. (478)

There is an enormous hacker culture that is currently the way that many “hardcore” computer scientists get introduced to the field of computer science. This culture provides a social group that is either the greatest drawback to the net or the greatest advantage of the net, depending on who you are. I think men/boys benefit from this culture and women/girls are disadvantaged by it. (493)

However, the same technology that contributes to the isolation is used by some women to combat it: I know that I sometimes use the net to combat loneliness and isolation, but I am usually content to read the messages, it makes me feel involved, and in face through the notices, I GET involved with things that otherwise would have passed me by. Its like radio, only interactive... (449)

Family & Child Care Issues. Using EC is time consuming. It takes time to learn all of the nuances of the internet, to master the programs that allow access to email, discussion lists, newsgroups, talk, IRC. This is not to mention keeping up with the personal email, discussion lists and bulletin boards that are the fruits of successfully using the programs. Because women are the primary caretakers for children and households, they may not have the extra time to spend at work or in front of a computer. Many find the internet too time consuming or expensive:

During work hours I try not to read IN [Internet] emails. At home, I have to take care of my daughter, who is less than 2 years old, so I have not enough time to use IN. (391)

Sexual harassment in the workplace. Not only are women affected by harassment on the internet, but they often find it in the work place as well:

I'm not sure if this was directly to do with the net, but one time I felt rather uncomfortable because I was in a lab full of men. Someone had found a list of (anti-)blond jokes and everyone was happily reading them. All implied blondes were stupid, most that blondes were sluts. I seem to be the only person in the world bother by blond jokes, so didn't say anything... (438)

I've often been offended -- or unpleasantly surprised -- by pictures that my male colleagues picked off the net and displayed on their screens. (178)

Pornography posted in the work place, often from archives of such material available on the internet was also seen as a contributor to a hostile workplace. Often times, pornographic pictures or displays are distributed via the internet, and some sites are used by individuals to maintain collections. After being distributed through the internet, these pictures often show up in unexpected places (such as on computer screens) and create aversive situations in the work place. These women describe some particular incidents:

I have recently dealt with young men who were getting pictures of scantily clad young women through the network and displaying them on the screen in public labs. This was the beginning of making our lab a hostile environment for women. By the way, the men on my faculty saw the same pictures and said nothing. (84)

At college, having nude background screens is particularly prevalent. I don't think this would happen if there were more women. Anti-women jokes are also pretty common. Also, there's a feeling that women in the computer lab aren't "real" women - we're either "one of the guys" or completely androgynous. (438)

### Women's Responses To The Uninviting Culture Of EC

58% of our respondents agreed with the statement that the way women use the internet in mixed-sex forums is significantly affected by the fact that most users are male. Their descriptions of these "effects" consists mostly of comments on ways they have adapted both their personal style and communication habits, and the environment of internet itself by forming their own groups. We present several of these adaptations here, and later look in depth at one of them: the formation of segregated groups.

Using Gender Neutral Identifiers. Some of our respondents reported that they were ignored, or at the very least, treated differently simply because they were identified as women:

If I post something to a newsgroup like comp.sys.transputers and use my name (in my sig), I usually don't get a response to a query. If I post using my initials, I get a response. (284)

I have always used my first name as my login id, and I don't want to change now, but if I had to do it over again, I would probably use my last name. I have discovered the disadvantages of being identified as a woman by my login id. (331)

As women discovered the disadvantage of being identified as female, some chose to change their login name to a gender neutral one. Of the women who responded to the survey, 21% had chosen a gender neutral name. Of the women who had not changed to a gender neutral name, some commented that their login name was gender neutral to begin with (i.e., last names only are used in their organization, etc.).

Withdrawal from Electronic Communication. Several of our respondents reported that they have withdrawn from the internet in a variety of ways. Although the survey did not ask specifically if the women restricted or changed their use, many offered this information in their comments on the survey. Some women simply changed their language style when using EC, while some chose to completely withdraw. Others limited their use of EC by only sending messages to individuals they already knew or by not posting in certain places on the internet. This woman withdrew by only posting messages that were factual:

I first started using bboards at a time when one of my female friends was being roasted on an opinion bboard. Seeing the effect on her, I have refrained ever since from posting anything that is not purely informative for which no one could flame me. I feel like a coward sometimes, but I have no desire to go through what she did. (464)

Partial withdrawal from participation on the net meant that some women would post messages only to certain newsgroups or discussion lists:

...I haven't given anyone the opportunity to harass me. I only post notes to company specific groups and then only when I am posting factual information and not opinions. I have no desire to be attacked in the flame wars that are part of every notes group. If I have a question to ask, I'll find out who has the information and then talk directly to that person. I do not use the net as a way to find out who has the information I need. (357)

Other respondents found the internet so aversive, they almost completely withdrew from its general climate, only participating in segregated groups:

I think men tend to "flame" more so I feel more comfortable posting to an all-female group because I expect to get more support than abuse. (342)

Although I have the respect of most male colleagues, there are two particularly disagreeable colleagues, who make their "superiority" obvious to all. Having working in this atmosphere for over ten years, I would probably NEVER participate in an open forum. (441)

Forming Groups: Systers as a Haven. The withdrawal we mention above is made possible by the presence of several segregated (women-only) electronic groups on the internet. These groups provide a way for the women to get many of the advantages of EC without having to risk most of the disadvantages we have reviewed above. Systers is not the first, nor the only group that has formed. A few samples of women-only groups were listed earlier in this paper. In the next section, we take an in-depth look at Systers as a haven from the hostile culture of the internet.

Systers as a Haven.

The women of Systers view their gender-segregated mailing list as a place to communicate without the hostility they perceive on the internet. Many respondents expressed a wish that the internet be more conducive to their participation, thereby making women-only forums less necessary. But even so, 84% of the respondents said they felt women-only forums are necessary at the present time. Systers provides, in the words of one respondent:

A safe haven to discuss issues which men might not even understand. (182)

The formation of this community is a distinct positive advantage mentioned by many. It increases access to information pertaining to the participants' fields. It provides the ability to discuss issues that may not be thought of as important or worthwhile by the general internet climate. These comments provide evidence that the women of Systers have used the technology that previously alienated them to create their own space and produce for themselves community and involvement on the net.

An understanding audience. More than two thirds (68%) of the women said they felt more comfortable communicating in a women-only forum. They felt less likely to experience hostility in reaction to their opinions. They often felt they could be more "themselves." They described Systers as a place where it is easy to ask questions without needing to be "on guard" or "on the defensive":

I feel less likely to be “flamed” or criticized for an opinion, and less likely to be dismissed as less serious because of my sex. (194)

I certainly feel more comfortable [on systers]. I don’t have to put on my “professional” (read “acceptable to the male establishment”) voice and scrutinize my own writing for signs of such “unacceptable” things as : emotional-attachment, lack of confidence (lack of forcefulness), or a focus on others rather than myself. Women-only forums are a welcome chance to let my guard down and be my full female self, something I have learned from painful experience that I cannot do at work. (478)

The feelings of isolation we documented above are reduced simply by being reminded of the existence of other women in the field. But in addition the respondent’s felt that Systers provided a place to share concerns with similar others. This encouragement and sense of support is for some the primary benefit they receive from Systers:

[Question 8 : Do you feel that women-only forums are necessary?]  
YES, YES, YES, YES, ...for us who live in the middle of a well-entrenched GOOD-OLE-BOY system. This is the ONLY place that I can talk to other professionals as an equal. (well, no quite, my colleagues in my field treat me as an equal, but, the situation here is unreal!) (441)

The “net” is there, the support for women and their interests and goals IS not always there. Being a part of the “syster” group has given me some new courage - seeing others do well has spurred me to consider returning to my abandoned project. So, in a sense, the net was one of the few things not denied me and has been one of the most sustaining forces in my personal struggle to build a career. (80)

Some women found a sense of safety in their perception that all participants on Systers were similar in their feelings about the issues they discussed. This led them to disclose information about themselves that they felt would be dangerous if it were to get back to their sites. This strong perception of community and willingness to disclose personal information is remarkable given that messages sent to Systers are broadcast to 1,400 people across the world. But the perception that Systers is a community that would not violate this trust is clear in these comments:

I’m trusting the women here to not give my comments here to management as proof of what a feminist loon I must surely be. There \*is\* rampant sexism at my sit, and there’s no place else I can discuss it. (114)

It is easier sometimes talking with only women about some very sensitive issues, such as discrimination, company policies on child-rearing, etc. without having to endure flames from misguided males on the net. (467)



Uniqueness of the issues discussed on Sisters. Not only did Sisters provide an opportunity to discuss some topics openly, some of the respondents perceived the issues they did discuss as either unwelcome, unimportant, or not understandable to the men they might encounter in mixed-sex internet groups:

Issues which should be important to both genders aren't in our culture, so it's an opportunity to discuss/share with others who have those concerns as well. (17)

We need "safe" places to talk and voice our opinions. Many of us are already censored in the workplace for standing up for ourselves and pointing out sexist behavior. There are some issues the men "just don't get". I hope this changes over time, but I'm not sure it ever will. (96)

For discussion of "women's" issues, it is often more productive to talk among a group that understands the issue, rather than spend additional energy to untrain years of misunderstanding by men. (392)

Access to Information: An "old-girls' network." Many of the respondents mentioned the access to information provided by the women in the group as a significant advantage. Many felt that their lack of access to the "old-boys' network" led to their exclusion from information pertaining to important issues such as salaries and job openings. The respondents felt they were able to obtain and share this "privileged information" through Sisters. Although some were concerned about the list being unfair to those excluded, 68% said they did not think this was a problem:

I think that groups such as Sisters help to counterbalance the effect of the old boys' network, which is alive and well in 1993. The old boys' network silences women and withholds information from them; the "new girls' network" permits them to speak with authority and provides them with information that they need in order to compete in what is still a man's world. (446)

Women are excluded from the "old-boy network". These groups can do much to further careers. By having an all-womens forum, we allow this kind of networking. (289)

### Dissenting Views

The picture one receives of Sisters from the comments we have presented so far is of a tight community of expatriates who have found a place they can be with people of their own kind. The

reader must remember, though, that this picture is the one presented by the preponderance of that third of the community that responded to the survey. It is certainly possible that those who did not respond feel differently. Given their silence (both to the survey and to the earlier version of this paper distributed on the list), one reasonable inference is that at least they think the issues less important. They may not feel as strongly that the larger internet is hostile or that Syssters is as much of a safe haven and important resource as did our respondents.

In order to perhaps represent these opinions, we present in more detail the comments of those respondents who have a different view of both the internet and of Syssters from the majority of responses. For instance, several respondents indicated that they felt there really was no problem with women and the internet:

In my experience, professionals, regardless of gender, use the net to correspond with colleagues and friends. Just as I doubt that men and women use telephones differently, I don't think the issue of gender is relevant in a discussion of net usage. (128)

I didn't answer originally because I don't really understand the questions. Is there a problem with respect to the net? Are some women unable to access it where men of the same position are able to access it? I can't imagine how something as neutral as the net could in its structure be hostile to women. (126)

In addition, several respondents suggested that even Syssters was not as "safe" a place as our previous characterization might suggest:

Syssters is a forum of 1400 women, of whom I know only a few.... The fact that it is so large, and that I don't know the participants means that I do modulate what I am saying... (8)

... I often see messages on syssters which make me think some people feel \*too\* secure in such a forum. There is no reason to expect women to be an entirely cohesive, all-forgiving, all-accepting, homogenous mass. We differ in our experiences, achievements, and beliefs. Ironically, it sometimes seems that the syssters list causes people to forget this, or to let their guard down a little too far. (267)

After an incautious remark on syssters I was inundated with flames from people who put the worst possible construction on my remark. (479)

These quotes provide some balance to what may seem a uniformly positive account of Syssters and a uniformly negative account of the broader internet. Flaming does occur in Syssters, there are disagreements there, and some participants still feel intimidated. But there seems to be

general agreement that the level of discussion, and the inclusiveness of the discussion, is much better than that of mixed-sex forums, even those that are moderated.

### Discussion

The picture that emerges from this study mirrors the complexities of the social world of EC. The comments we report here provide a view of a group of women who found the electronic culture they inherited from computer science to be unfriendly, unsupportive, and at times even hostile. But they used the technical means available to them to create a group that they felt would provide them with the things the larger internet community had not. These computer professionals faced problems that were common to them as women in the new culture of the internet, but their comments may also provide us with insight into concerns that any newcomers to the culture of the internet will face. Finally their comments provide us with a detailed description of the complexities of EC and the social worlds it allows us to create.

#### Women and the internet

In the same way that girls find they need to adapt their interaction style to that of boys when they play in mixed-sex groups (Maccoby, 1990), and in the same way that language forms of mixed-sex office work becomes that of the males (Tannen, 1990), many of these women reported that the mixed-sex forums on the internet they encountered required them to either adopt the competitive, confrontational style of that forum or not to play at all. Thus, the basic pattern of gender based communication is replicated in EC.

This re-emergence on the internet of the problems many female computer professionals face in their workplaces -- a confrontational style that at times merges into hostility, lack of support, sexual harassment -- makes the mixed-sex portion of the internet look much less appealing than its glamorous advertisements in the media. The comments we report here make it clear that, at least for the preponderance of our respondents, these issues are central ones in making the internet a hospitable environment for women.

And although the basic gender based communication patterns are replicated in this new medium, it seems that the medium may modify the ways they are expressed. The easy access to messages addressing thousands of people, with little in the way of social cues to moderate extreme expression, increases the influence of the “prolific, vitriolic, and extremely persistent” “net-jerks.” Extremely skilled internet users can avoid messages from these people, but the newcomer, and likely the “average” internet user, cannot. In addition, it may be that the seeming anonymity of EC (see the discussion in the introduction) makes it easier for users to consider saying and doing things that constitute sexual harassment. A sly comment or innuendo, or even sending the online article on sperm, may seem less offensive and easier to contemplate and perform over the relative anonymity of EC. These will be central problems in EC as the norms of interaction and the technology evolve together.

The response of many of the women in our sample -- withdrawal to a more secure environment -- is a rational and adaptive one. It is disheartening to be flamed in public -- even if sexual innuendo is not a part of the attack -- and reasonable to avoid venues where this may occur. It may even be reasonable to withdraw when there are no alternative venues, like Systems, to substitute. There is a cost for this withdrawal; some of the forums our respondents mentioned were not simple “chat” lines, but online discussions that held useful job and career related information. To withdraw from these forums to avoid a difficult climate (and possible sexual harassment) means cutting oneself off from useful information and career opportunities. Women face these sorts of decisions regularly in other venues; “Will I work late and perhaps have to negotiate an empty parking garage?” “Do I want to take on the extra work it will take to be the only woman in this firm?” Thus, this reduction of exposure on the internet results in a reduction of opportunity, and another pattern of decision-making that faces women in the non-virtual world is replicated in the virtual world of the internet.

Finally, to the extent that interaction in the virtual workplace becomes a requirement of the regular workplace, the resolution of online sexual harassment will become a responsibility of the

employers who provide the online environment or who require their workers to spend significant amounts of time there.

#### Access issues are not simply about hardware

The technical complexities of navigating the internet are daunting enough for newcomers, and when the social complexities of online interaction are added to the burden, withdrawal can look extremely inviting. Because the social constraints on extreme behavior in many online groups are lacking, it seems reasonable that any newcomer (not just women) could get the same feel of confrontational hostility and decide to withdraw (Sproull, Kiesler, & Zubrow, 1987). Some individuals (like those “dissenting opinions” in our sample) will find it relatively easy to adapt, but others will find the interaction style too much to conquer and may withdraw. And again, to the extent that they do, they will be removing themselves from opportunity. The upshot of this is that equity in access may be as much an issue of the climate of the internet as it is one of access to computing hardware and a wire.

#### Conclusions

Many of the complexities of EC are made apparent in the comments our respondents have made about their experience with Systems and with online communication. Electronic communication can give undue influence to extreme opinions and can make it easier for sexual harassment to occur. It can also make it easy for women who are unwilling to involve themselves in mixed-sex forums to interact with each other in a climate they find more congenial. The technology increases the reach of both those who make the internet a difficult place and those who wish to make it a safer place. And the technology that send messages almost immediately to groups of people larger than the subscription list of many newspapers, also creates the illusion of an intimate environment in which one can disclose oneself without risk of damage.

We have talked in this article as though the internet was a single entity, with a single “culture,” a single set of interaction rules, and a single style. “The internet” (to the extent one can even determine what is and isn’t on the internet) is by no means a monolithic world. There is no

good demographic information on the composition of “the internet” and it is vitally important that we attempt to obtain some (Huff, 1994). But even a cursory look at the variety of forums on the internet will convince the reader that, though there are surely continuities in culture across many groups, the variety is also immediately evident.

The thousands of electronic forums on the internet present a great deal of variety, not only in topics discussed, but in style of conversation and variety of participants. Some forums are extremely personal and supportive, some are dryly professional, and others are entirely dedicated to vitriolic flaming. Even Syssters is a part of the internet, adding its own flavor to the mix. The internet’s variety also provides places for innovation in interaction rules (like those on Syssters) that may diffuse to the more general forums over time. This is clearly the hope of many of our respondents; that the internet as a whole will become less hostile, more supportive, and perhaps make their segregated forum eventually unnecessary.

Another alternative is that the ease of forming groups in electronic media will contribute to the splintering of “virtual culture” into the smallest units that can reasonably agree with each other. Each group would avoid overlap with others and, though using the same communication technology, would be living in a separate world. This splintering would be the opposite effect from the one hoped for by “global village” advocates: a splintering of the community into “global ghettos.” This is, perhaps, one of the most important issues to watch for as the culture and technology of the internet evolve together.

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## Footnotes

<sup>1</sup>A copy of the survey is available from the authors.

<sup>2</sup>One person asked us to change a quote she recognized as hers in order to correct a blatant factual error (we did). She also expressed her opinion that the paper was, in general, representative of the opinions and experiences of the group.

<sup>3</sup>Again, this does not take account of the “lurker” issue mentioned above, but it may well be impossible to determine any demographic characteristics of this invisible population. And since it is invisible, its effects on the visible internet culture are likely negligible.

<sup>4</sup>We include all quotes in their original, unedited form. The numbers at the end of each quote identify the individual survey from which we excerpted the quote.

<sup>5</sup>In the case of the last quote mentioned here (“trying to finger a friend”) the person was using a program called “finger” that allows one to look both at some basic identification data (name, login status, last time email was read) and to view what is called a “plan” file for the fingered user. Plan files often contain contact information, descriptions of current projects, and other information that personalizes and identifies the individual. It is the virtual equivalent of posters and cartoons posted on one’s door. Presumably, the “offers” and “glorifications of violence” were contained in plan files that users knew would be read by other individuals.

<sup>6</sup>Anonymous FTP is a file transfer program that allows users to move files from one machine to another on the internet. Often these machines are quite distant from each other (e.g. on different continents). GIFs are pictures in an electronic format that can be displayed on computer screens or printed out. There are numerous sites on the internet that serve as repositories for sexually explicit pictures.