GENDERING THE DIGITAL DIVIDE

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ABSTRACT

Gender pervades how people use the Internet. Three large North American national surveys are used to compare women's Internet use with men. Consistent with the earlier literature on gender roles, they show that women use the Internet more for social reasons, while men use it more for instrumental and solo recreational reasons. Caregiving for children at home limits mothers more than fathers in the use they make of the Internet.

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Women have been online less than men. They have been online for fewer months, and when they do go online, they spend less time.

This gender divide is old news by now, part of the social factors affecting Internet access and use. Research into this digital divide has identified gender, socioeconomic status, race, and age as key factors that contribute to differentials in access to the Internet. Recently, research has moved from looking only at access to the Internet to analyzing social differences in how the Internet is used (Bimber 2000; Howard, Rainie & Jones 2001; Norris 2001; *Falling Through the Net* series[1]; Hargittai 2002; Haythornthwaite & Wellman 2002; Katz & Rice 2002; Chen & Wellman 2004; Robinson, DiMaggio & Hargittai 2003). Is the existing definition and understanding of the digital divide adequate when looking at disparities in Internet use between women and men? The evidence does not suggest so. The digital divide is not simply an issue of access, but also of obstacles to Internet use. Even when women and men have equal access to the Internet either through home, work, or school, they may not have the opportunity to access the Internet or to engage in a wide variety of uses.

Yet, much digital divide research focuses on documenting statistical differences in access and use. It takes for granted the causes of the divide: for example, that women and poor people use the Internet less. There is a need to explain how divides came to be and why they exist.

The concentration here is on the gender divide. Internet studies need to get gendered. Female-male differences in Internet use do not just happen and they do have consequences. Understanding the gender divide should be grounded in an analysis that involves how gender is created and perpetuated. This article goes beyond documenting gender differences in access to the Internet to examine disparities in Internet usage patterns. It focuses on how gender and the structure of the household are related to how women and men use the Internet. The research reported here principally uses survey data to analyze the issues raised by two key questions:

> *1) Do women spend less time online because of gender roles and domestic responsibilities?* Gender roles and domestic responsibilities (such as housework and care-giving to children and spouse) in the home shape how much time women spend online. One expects that women have less opportunity to go online in the home because of these domestic responsibilities, and therefore are online less than men.

2) Do women and men do different things online because of gender roles? and expectations, and domestic responsibilities? Women and men use the Internet differently and in different amounts because of social expectations guided by gender roles. For example, women traditionally are the communicators and networkers within families more so than men (Wright 1989; Wellman 1992; Robinson and Godbey 1997). Also, men tinker with technology and are task oriented (Eagly & Wood 1991; Eagly & Karau 1991). Therefore one expects to see women predominantly using the Internet as an activity, using email to communicate with their networks. One also expects to see men search for information and Web surf recreationally more than women.

WOMEN AND THE INTERNET: THE STATE OF KNOWLEDGE

Why Gender? What does it mean to study Internet usage though a gender lens? Gender is different from sex. Sex refers to anatomy and physiology, and gender refers to the accompanying social behaviors. Gender is something that is accomplished through interactions with others, yet incumbent within social institutions (West & Zimmerman 1987). Traditionally, women are expected to be "feminine": sensitive, emotional, and nurturing. Men are expected to be "masculine": assertive, analytical and unemotional (Kimmel 1995; 2000). Without going into great detail regarding the sociology of gender, it suffices to say that gender roles are socially constructed through institutions such as family, media, religion, education, and are pervasive in daily routines. Gender roles frame actions and shape behaviors.

What Does Family Have to Do with It? Within the family context, the gendered interactions between men and women actively shape their expectations of one another and therefore are manifested within their performances and actions. Within the family context, gendered interactions between men and women actively shape their expectations of one another and their performances. For example, the traditional household division of labor often presumes that women are primarily responsible for domestic work (West & Zimmerman 1987).

Many reasons have been proposed for this gendered division of labor. *Essentialist* ideas claim that women are born to be wives and mothers because of their anatomical and hormonal differences from women. Women are presumed to be emotional and nurturing in nature, and therefore the caregivers of the household, family and friends. Men are presumed to be physically stronger than women, and therefore the instrumental breadwinners for the family.

In contrast, *socialization* arguments look to the different ways in which girls and boys are brought up, with girls not encouraged to have scientific or computer interests (Mann 1994; Spertus 1991; Frenkel 1990; Looker & Thiessen

2003; Kiesler, Sproull & Eccles 1985). Women are often understood to be better communicators then men, a feminine characteristic that is reinforced in childhood. Girls are encouraged to express their feelings verbally and physically and are consoled when they cry, whereas boys are taught not to express their feelings and not to cry. In adulthood, men generally do not share their feelings and emotions the same way women do. In their communications, "Women express, men repress" (Perlman & Fehr 1987: 21). Similarly, Moyal (1992) notes that women interact to "create intimacy and closeness, to communicate thoughts and impressions, to support and be supported, to connect".

  Structural analyses focus on how contemporary societal arrangements, such as between work and family, create and perpetuate positions as wife/mother and husband/father that were previously connected with biology (West & Zimmerman 1987). Gender is important in household maintenance and how domestic work is allocated (Van Every 1997). Analysts point out that women work hard at maintaining social networks by remembering birthdays, holidays, contacting friends and relatives and organizing get-togethers (Wellman & Wellman 1992). Women particularly depend on each another for emotional support, and they often share stories of domestic life and child rearing (Wellman 1985). This has implications for leisure time, and ultimately for how women and men use the Internet in gendered ways. It is not enough to state that gender roles simply exist, but rather to understand how and why gender and family shapes Internet use. There is a need to go beyond the idea of the have and have-nots, the skilled and unskilled, in order to understand the social processes that are involved in gendered patterns of Internet use. The division of domestic labor in heterosexual, couple-based households involves practices through which gender is constituted (Berk 1985).

  Other theoretical approaches to understanding gender differences include *Marxist* and *Socialist* feminists who ground their arguments of gender inequality within economics (Hartmann 1981; Acker 1988; Luxton 1980). Briefly, they place emphasis on how the gendered division of labor, particularly in the family, perpetuates social systems. Women are seen as primarily responsible for home care, childcare and family reproduction (raising more workers), and men as primarily responsible for doing paid work to sustain the family. Marxist and Socialist feminists note a distinct split between the public and private spheres. Men are situated in the masculine public sphere – work and government – whereas women are situated in the feminine private sphere – family and sexuality (Lorber 2001). This public/private split reflects the basic structure of the "gendered social order" that is pervasive in people's lives – both physically and virtually (Lorber 2001: 22).

DOING TECHNOLOGY – DOING GENDER

Technology is something that people engage with, and is not simply an artifact. It works within societies and actively participates in social processes, such as gender. Technology is an action (a verb), and not merely a thing. Therefore when people do technology, they are also doing gender (MacKenzie & Wajcman 1985; Wajcman 1991; Edwards 1995; Winner 1985; Herring 2000).

Indeed, Cockburn (1985) insists that part of what makes people men and women is their relationship to technology. Henwood (1993) notes "gender relations shape technology and technology, in turn, shapes gender relations" (p. 39). Wajcman (1991) asserts: "Treating technology as a culture has enabled us to see the way in which technology is expressive of masculinity and how, in turn, men characteristically view themselves in relation to these machines" (149).

Women's experiences with technology have historically been limited and dominated by men. The origin of computers owes much to the achievements of women, with women pioneering information processing systems during the 1940s (Fallon 1998). Even in the post-war period, computer programming was initially regarded as an extension of clerical work and was assigned to women in the army. However, this work later became culturally reconstructed as "men's work," when more complex skills were deemed necessary (Fallon 1998). The reconstruction of women's work illustrates how different activities may be classified as "masculine" or 'feminine" according to the power and status attached to them (Fallon 1998; Wilson 1991). This gendered redefinition of skill reflects how cultural contexts affect the social shaping of technology and the redefining of technological skills.

By 1995, when Internet use dramatically increased, few women were online. Men principally traveled the information highway. Early Internet research cited the Internet as an unfriendly and unsafe environment for women (Tannen 1994; Fallon 1998; Spender 1997; Spertus 1996; Jenson 1996; Bell & de la Rue 1996). Other research noted that women were often harassed (usually sexually) and subject to much negative feedback from men (Kennedy 2000). Consider, for example, "Amy's" situation in Douglas Coupland's 1995 novel, *Microserfs*:

> [Amy] told me that all her life people had only ever treated her like a body or a girl — or both. And interfacing with [her virtual lover] Michael over the Net [where she used the gender-obscure alias, "Bar Code"] was the only way she could ever really know that he was talking to her, not with his concept of her. "Reveal your gender on the Net, and you're toast." She considered her situation. "It's an update of the rich man who poses as a pauper and finds the princess. But f*** that princess s*** — we're both kings". (p. 334)

As Amy/BarCode observes, social characteristics did not disappear entirely from the Internet. At times, women received special attention from male Internet members that made them feel uncomfortable in participating actively (Shade 1994; Herring 1996, 2000; O'Brien 1998). At times, women got "flamed" (receiving hostile messages). Some of them were so intimidated by such harassment that they no longer participated in online discussions (Winter and Huff 1996). Men tend to dominate online conversations and try to redefine women's meanings in their own (masculine) terms. However, there has been no systematic analysis comparing women and men and no investigation into whether the prevalence of male-dominated flaming has decreased with the more widespread diffusion of the Internet into the general population.

There may well be "a tendency for Internet users to display features of culturally-learned gender differences to work to the disadvantage of women" (Herring 2000). Herring's extensive reviews of research into gender and computer mediated communication (1992; 1994; 1996; 2000) show that men are more adversarial in their posts, while women are more apologetic and more likely to express support and solidarity (see also Kramarae & Taylor 1992; Savicki et al. 1996; Sutton 1994).

WOMEN AS NET-WORKERS

The transition of developed societies from producing things (extracting and manufacturing molecules) to producing words (shuffling electrons) has affected gender roles. Where women have historically been responsible for *maintaining* kinship networks – "kinkeepers" (Rosenthal 1985), their role has expanded to network *keeping* -- defining and maintaining friendship and neighboring for themselves and their families. Wives recruit most new friends and neighbors and arrange most get-togethers between couples, both family and friends Women also rely on their friends, neighbors and relatives for much domestic work. Sisters and friends provide emotional support and advice about caring for children, husbands and elderly parents (Stone 1988; Wellman 1992; Chodorow 1978; Ross and Holmberg 1990; Thoits 1982; Kessler and McLeod 1984; Turner and Avison 1989; Hochschild 1989; Cochran et al 1990; Luxton 1980; 1990).

Thus, women now carry a triple load of paid work, domestic work, and "net-work" (Wellman 1985). To cope with this load, many have reduced their discretionary use of time, including their ties with kin and especially, with friends. As one secretary lamented before the advent of the Internet, "I don't go out much during the week, because I always promise myself that I am going to get home early, and I never get home early" (quoted in Wellman 1992: 90). Yet, much of the socializing and social support women exchange is intangible and can be substantially provided over the Internet. As email is fast and often effective, women may be able to use it to revisit the relationships that were once put aside or to develop new ones in their place.

How do these suppositions play out with the Internet? Previous research has shown that both women and men with children at home spend less time talking on the phone, reading a newspaper, watching television and attending cultural events (Robinson & Godbey 1997). As women continue to be the primary caregivers, women with children should have less time to spend on using the Internet to socialize, recreation or for information.

Thus, as the Internet has become embedded in everyday life, gender issues have become salient as a broader spectrum of the population uses the Internet and as Internet use becomes embedded in everyday life. To examine gendered differences in Internet use, two survey data sets were used: one from the National Geographic Society and the other from the General Social Survey.

DATA SOURCES:

To examine gendered differences in Internet use, two sources survey data sets were used: one from the National Geographic Society and the other from the General Social Survey.

National Geographic Survey 2000: The National Geographic "Survey 2000" (NGS) was available to visitors from September to November 1998. It was publicized through the widely distributed, monthly National Geographic magazine, a prominent notice on the society's homepage, and multiple public information sources. Although the survey was international, garnering 47,176 adult completions worldwide, this paper focuses on 39,211 North American adult participants: 34,839 Americans and 4,372 Canadians. Although this was not a random sample, comparisons with the 1993 and 1996 U.S. General Social Survey comparison suggest a reasonable representative sample (Witte, Amoros & Howard 2000). Thus, this is an analysis of the Internet use of North American visitors to the National Geographic site and not of the general North American adult population.

The sample consists of 48 percent women, with a mean age of 38 years, and 51 percent men, with a mean age of 41. Three-fifths (61 percent) of the women in the sample are coupled, meaning they are either married or living with a partner, as are 65 percent of the men. More men (72 percent) than women (57 percent) do full-time paid work. However, more women (18 percent) than men (10 percent) do part-time work. Some 25 percent of the women and 19 percent of the men do not do any paid work.

General Social Survey 2000 and 2002: Where available, the NGS data were supplemented with more limited information available from the General Social Survey (GSS)[2], a bi-annual survey of social, cultural and political phenomena in the United States. One of the many special topics or modules in the GSS included questions about using computers and the Internet. The GSS "asks about use of these technologies at home, work and elsewhere, and focuses on specific internet use in such areas as politics, health, finances, and the arts"[3]. The present data analysis is based on data from 2000 (n=2353) and 2002 (n=2765).

Of the total 2000-2002 sample, 56 percent are women, with 64 percent of men and 45 percent of women working full time. Some 18 percent of women are homemakers, with 14 percent of women working part-time, compared to 8 percent of men. The average income for women and men is between $20,000 and $25,000. While 46 percent of all respondents are married, 25 percent have never been married, and 16 percent are divorced. The average age is 47 years for women and 45 years for men. Both male and female respondents are similarly educated, averaging approximately 13 years of education. Some 82 percent of the male respondents and 77 percent of the females are white.

There are some differences in terms of demographics in the data sets. Respondents from the GSS are older then the NGS participants, with more women, less married people, and fewer people working full time in the GSS.

RESULTS:

1) Experience Online: The NGS data fit the general belief that in 1998, women were more likely to be newbies. They had been connected to the Internet for fewer months (a mean of 28.3 months) than men (31.1 months)[4]. The male-female differential is consistent for each age group, from 18-29 to 65+ , as shown in Table 1. The older age disparity is not surprising for when the Internet became popular, more men than women were online. But the disparity is about the same for young adults as it is for seniors. Moreover, GSS2000 data show that men are on the Internet more frequently than women: an average of five hours a week on the Web from their home computer as compared to an average of three hours per week for women. GSS2002 data show that overall men estimate spending an average of 7.1 hours a week on the Web compared to the 4.9 hours that women spend. The disparity in the duration of Internet use is important because experienced Internet users are more frequent and diverse Internet users. Using the same NGS data, Quan-Haase and Wellman (2002) have shown that the longer that people have been using the Internet, the more frequently they engage in online communication, utilize the Internet for an information resource, and use the Internet for recreational purposes. However, the small difference between the length of time that women and men have been online suggests that the duration of Internet use cannot explain gender differences in how the Internet is actually used.

TABLE1: MEAN DURATION OF INTERNET USE BY GENDER AND AGE (IN MONTHS)

Age	Women	Men
18-29	31.5	34.0
30-39	28.3	31.5
40-49	26.8	29.9
50-65	26.1	29.8
66+	22.6	25.8
Total	28.3	31.1

Source: National Geographic Survey 2000

TABLE 2: ATTITUDES TOWARDS ONLINE RELATIONSHIPS (PERCENT)

	Women	Men
I feel a sense of community with the people I've met on the Internet	39	42
I have made new friends by meeting people on the Internet	34	34
The Internet has brought my immediate family closer together	60	54
The Internet has brought my extended family closer together	66	62
Talking with people on the Internet is as safe as communicating with people in other ways	44	55
The Internet has allowed me to communicate with all kinds of interesting people I otherwise would never have interacted with	62	66
The Internet isolates people from one another	50	47
I feel I belong to an online community on the Internet	32	34
Information on the Internet is as trustworthy as information from television and newspapers	51	53
I can find people who share my exact interests more easily on the Internet than I can in my daily life	45	55

Source: National Geographic Survey 2000

2) *Sense of Community:* It has become clear in the early 21st century that the Internet adds on to community, rather than destroying it. For example, the amount of phone and face-to-face contact that people have does not diminish with high Internet use. Rather, the overall volume of communication increases (Wellman & Haythornthwaite 2002; Wellman, Boase & Chen 2002).

Thus, it is not surprising that both female and male respondents in the NGS survey feel positively about the Internet, as shown in Table 2. However, NGS women have somewhat more favorable attitudes than men towards the Internet in regards to keeping in touch with family members online. For example, a slightly higher percentage of women than men feel that the Internet has brought their immediate family (60 vs. 54 percent) and extended family (66 vs. 62 percent) closer together. This is consistent with the argument that women are communicators who actively work harder than men to maintain kin.

Yet, the differences are limited to already-existing kinship relationships, because in general, women do not feel more of a sense of online community than men. For example, only 34 percent of both women and men feel that they have made new friends by meeting people on the Internet, and women are slightly less likely to feel that they belong to an online community. Moreover, although a majority of both women and men report the Internet has allowed them to meet interesting people, a slightly lower percentage of women (62 percent) than men (66 percent) feel this way.

3) *Safety:* One suspects that concerns about safety are affecting a sense of community online. Women are more apt to be skeptical about Internet safety. Fewer women believe that communicating on the Internet is as safe as other means of communication: 44 percent of the women vs. 55 percent of the men. Slightly more women (57 percent) than men (47 percent) feel that the Internet isolates people from one another, despite statistical evidence to the contrary.

Both gender and the duration of Internet use are associated with feeling safe online in Table 3. However, while women may have more concerns about safety (both online and in the physical world), concern does not lead to gender differences in online activity. If it did, there would be fewer women using the Internet in general. However, the data do suggest that women tend not to be as comfortable as men in socializing on the Internet, especially when they are communicating with people outside of their families.

4) Information: Information online comes from both formal sources (such as news services and search engines) and from informal sources (such as friends, old and new). About half of both women and men find that formal Internet sources are as trustworthy as television and newspapers in Table 2. The situation is different for informal sources. Nearly 10 percent more men (55 percent) than women (45 percent) in the NGS sample feel that they can find people who share their exact interests more easily on the Internet than they can in daily life. This disparity is congruent with that just discussed about sense of community and of safety. It suggests that women are more apt to build on existing physical relationships, whereas men are more likely to form new relationships online. The contrast is real but should not be overstated: Nearly half of the women have found people with shared interests online.

Thus, this research shows that neither the duration of Internet use nor attitudes about Internet community, safety and information explain why women and men use the Internet in the ways that they do. Evidently, there is more going on. The next analysis therefore turns to understanding the effects of gender and family roles on patterns of Internet use.

5) Email and Social Communication: Both women and men in the NGS sample report using email for the same number of days per year: a mean of 270 days in Table 4. They also use email list serves at about the same rates: an average of 104 days/year for women and 107 days/year for men. By contrast, the GSS data show that women are increasingly using email in Table 5. In GSS2000, women sent 9 emails per day, 5 of which were personal, while men sent about the same number of emails per day: 8.5 in total, of which 6 were personal. But, by GSS2002, women were sending 40% more emails per day than men: 15 for women and 11 for men. The ratio for personal emails is similar, 9 personal emails per day for women and only 6 for men. It appears that as the level of emailing has increased with the embedding of the Internet in everyday life, it has risen especially for women. Not only have more women come on to the Internet, they are using it more frequently to communicate.

Although their overall email use is similar, women and men differ in whom they email. True to their gender, women use their online time to communicate and maintain relationships, both within the family and outside of it. The NGS data shows that on average, women email relatives and friends, within and beyond thirty miles, more days per year than men do in Table 6. Women are especially apt to keep in touch with relatives and friends living more than thirty miles away. GSS data are fairly consistent with this, showing that men email more business contacts than women, but that women and men have similar rates of emailing co-workers, church members and fellow members of voluntary groups.

TABLE 3: SENSE OF SAFETY ONLINE (REGRESSION)

Talking with People on the Internet is as Safe as Communicating with People in Other Ways

	Sig.	Unstandardized. Beta	Std. Error	Standardzed Beta
Gender (woman=1)	.00	-.108	.008	-.108
Duration of Internet use (months)	.00	-.004	.000	.099
Race (white=1)	.06	-.033	.018	.014
Employment status (employed full-time=1)	.63	-.004	.008	.004
Age (years)	.03	-.008	.003	-.018
Children in hh (yes=1)	.00	-.042	.008	-.039
Education (years)	.00	-.007	.002	-.030
Constant	.00	.531	.033	N/A
R²	.139			

Source: National Geographic Survey 2000

TABLE 4: INTERNET USE BY MEAN DAYS/YEAR, GENDER, AND CHILDREN IN HOUSEHOLD

Activity		Total	Mean days/year Kids in HH	No Kids in HH	Differ-ence	ANOVA F	Sig.
Email	Women	270	252	278	26	22.805	.00
	Men	270	264	272	8		
Mailing lists	Women	104	98	107	9	2.810	.09
	Men	107	104	108	4		
Information seeking	Women	103	94	107	13	357.296	.00
	Men	143	142	144	2		
Surfing the web for recreation	Women	129	124	132	8	420.377	.00
	Men	178	174	180	6		
Playing multi-user games	Women	10.1	11.0	9.7	-1.3	1.449	.23
	Men	11.5	10.9	11.7	.8		
Purchase products or services	Women	6.4	6.0	6.6	.6	5.750	.02
	Men	8.6	7.4	9.1	1.7		

Source: National Geographic Survey 2000

TABLE 5: EMAIL USE BY GENDER (MEAN NUMBER PER DAY)

	2000			2002		
	Women	Men	Sig.	Women	Men	Sig.
Email Sent	9	8	0.77	15	11	0.10
Personal Sent	5	6	0.61	9	6	0.04
Email Received	15	15	0.99	29	28	0.73
Personal Received	8	9	0.60	11	9	0.40

*Sources: US General Social Survey 2000, 2002

TABLE 6: SOCIAL CONTACT AND EMAIL PATTERNS OF WOMEN AND MEN (MEAN DAYS PER YEAR)

	Women	Men	Sig.
Email with relatives within 30 miles	34	29	.00
Email with friends within 30 miles	73	70	.00
Email with relatives beyond 30 miles	51	39	.00
Email with friends beyond 30 miles	57	49	.00

*Source: National Geographic Survey 2000

Thus, gendered activities in the physical world are manifested in the virtual world via the Internet, just as they had been on the telephone (Moyal 1992; Rakow 1988; 1992; Noble 1987). For example, women who have questions or concerns about ailing or crying children often use email to contact people for help or solace. Nor is such online help limited to North America. Japanese women maintain online child-care communities that provide social support and promote psychological well-being (Miyata 2002).

These gender differences fit women's classical roles as maintainers of kinship and friendship. While phone calls, letters, and visits have traditionally been the vehicles for maintaining networks, the Internet offers a quick and easy way to reach people. Moreover, the present findings are congruent with those of the Pew Internet & American Life Project (Rainie & Kohut 2000) that women use email "to enrich their important relationships and enlarge their networks".

Email lists provide a good way to post questions or concerns and to trade tips and ideas. However, email lists are also informational in that most members do not contribute but receive information in a one -way direction. Women and men are both using email lists in similar amounts in Table 4, and the data do not show which kinds of lists to which they subscribe. One could speculate that women are more inclined than men to participate in lists with other women that involve reciprocity and communication. As Moyal (1992) asserts from her work on gender and the telephone, "historically men have not considered women's communication to be part of an important information network"[5]. What is important is that rather than seek information online (something that men are more inclined to do), women gain their information from personal communication (see also Tannen 2001).

Gender differences are reversed for chatting on the Web. The NGS survey shows that men spent 24 days in chats, as compared to 21 days for women in Table 7. The somewhat later GSS2000 and GSS2002 surveys show a higher percentage of men than women using chat rooms (Table 8). In 2002, 21 percent of the men used chat rooms as compared to 17 percent of women. The greater use by men can be seen as an extension of their greater use of the Web for other activities. By contrast, women use email or email lists to interact with others.

6) Information: Being male is positively associated with accessing digital information online. In the NGS sample, men spend an average of 125 days year accessing digital libraries, newspapers or magazines, compared to women who spend 88 days (Table 7). More men than women participate in Usenet newsgroups, with an average of 26 days per year vs. 15 days per year. Overall, women access digital information an average of 103 days per year, 40 days fewer than the average for men at 143 days per year (see Table 4). Men use the Internet as a source of information more than women do, consistent with the ongoing suggestion in the gender literature that men are more task-oriented than the more socially-oriented women.

Just what are women and men doing on the Web? GSS2000 and 2002 data in Table 8 show that more men than women use the Web for work and product information, and to buy products, invest money, do finances, find addresses, play games, and less so for travel information and political information in Table 8. The only area where women use the Web more than men is the nurturing role of finding health information. GS2000 shows that 65 percent of women did this as compared to 54 percent of men (Table 8). However, by 2002, the situation had reversed, with 35 percent of the women and 43 percent of the men finding health information online[6]. There are no significant relationships between gender and using the Web for meeting new people or for finding new jobs.

7) Recreation: The GSS data show that a higher percentage of men than women play online games. In GSS2002, Table 8 shows that 22 percent of the men and 16 percent of the women play games online. Slight gender differences in online games also appear in the NGS data, with men playing an average of 11.5 days per year and women playing an average of 10.1 days in Table 4. The NGS data also show that men spend an average of 8 days per year visiting MUDs, MOOS, MUSHs or otherwise, while women only spend 5 in Table 7.

GSS data show that men spend more time visiting hobby sites than women do in Table 9. They also went to more news, sports, music movie, humor, porn, science and hobby sites than women. Women and men visit art sites about the same. The only types of sites that women visit more than men are those devoted to cooking and "personal interests".

TABLE 7: INTERNET USE BY MEAN DAYS PER YEAR AND GENDER

	Women	Men	Sig.
Access digital libraries, newspapers, or magazines	88	125	.00
Take online college courses/pursue other educational opportunities	10	10	.12
Participate in Usenet newsgroups	15	26	.00
Engage in chats	21	24	.00
Visit MUDs, MOOs, MUSHs or other	5	8	.00

*Source: National Geographic Survey 2000

TABLE 8: PERCENTAGE OF WEB USE IN LAST 12 MONTHS BY GENDER

	2000			2002		
	Women	Men	Sig.	Women	Men	Sig.
Work	59	66	.01	58	65	.02
Product Info	72	88	.00	75	86	.00
Meet People	14	18	.18	14	15	.71
Find New Job	40	45	.14	46	50	.28
Invest Money	10	24	.00	9	17	.00
Chat Rooms	22	25	.04	17	21	.06
Finances	41	55	.00	47	56	.00
Buy Products	45	56	.01	61	66	.01
Health Info	65	54	.00	35	43	.02
Find Addresses	52	60	.04	54	58	.02
Play Games	18	24	.08	16	22	.01
Travel Info	35	43	.02	44	48	.31
Political Info	32	36	.30	33	40	.02

*Sources: GSS 2000, 2002

Despite common stereotypes about women's predilection for shopping, women shop online less than men. In the NGS sample, women report using the Internet to purchase products or services 6 days per year and men 9 days per year (Table 4). GSS data are similar: in 2000, 56 percent of the men used the Web to buy products as compared to 54 percent of women (Table 8). By 2002, the percentages were 66 percent for men and 61 percent for women.

Taken together, the data suggest that women spend a greater proportion of their Internet time socializing -- emailing and using email lists -- rather than using the Web. The NGS data in Table 4 also show that women are less active Web users, averaging 129 days a year as compared to the men's average of 178 days. It appears that men use the Internet more as a Web tool that is integrated into their everyday lives while women use the Internet more for social reasons. Moreover, men's recreational pursuits are more likely to be Web-based, perhaps as an extension of their instrumental use of the Web and perhaps because many

TABLE 9: WEB USE IN PAST 30 DAYS (MEAN NUMBER OF DAYS)

	2000			2002		
	Women	Men	Sig.	Women	Men	Sig.
News	3	4	.00	3	4	.00
Sports	1	2	.00	1	3	.00
Music	1	2	.00	1	2	.00
Art	1	1	.21	<1	1	.16
Movies	<1	1	.03	1	1	.01
Games	2	2	.93	2	2	.51
Humor	1	1	.17	1	1	.04
Porn	<1	<1	.00	<1	<1	.00
Personal	<1	1	.04	<1	1	.00
Science	1	2	.00	1	2	.00
Hobby	1	2	.01	1	2	.00
Cooking	1	<1	.00	1	<1	.00

Sources: US General Social Survey 2000, 2002

Web-based recreations are one-way (like hobby and humor sites) without involving informal communication.

In short, the NGS and GSS data show three key areas where women and men differ in Internet use: communication, information and recreation. Women and men appear to be "doing gender" by the way they use the Internet (West & Zimmerman 1987). As women are traditionally the network maintainers, it is not surprising that they use the Internet primarily to communicate with their friends and family. As men are more task-oriented, it is not surprising that they spend considerable time on the World Wide Web for information and recreation. As expected, online activities are clearly related to offline gender roles.

GENDER, CARE-GIVING AND THE INTERNET

What is it about women and men that leads to such a gendered use of the Internet? Although the data do not delve into every aspect of gender, women's domestic roles appear to play an important part. A key finding is that care-giving reduces Internet activity, especially for women.

In Table 4 from the NGS sample, people with children generally use the Internet less frequently than people without children. Women with children invariably experience this effect more strongly than men, accessing the Internet even less frequently. For example, women with children spend 26 fewer days per

year using email than women without children. For men the difference is only 8 days. Thus, even though email is the most common Internet activity for both women and men – with or without children living at home – women with children do 9 percent less emailing. The situation is reminiscent of Wellman's (1985, 1992) finding in pre-Internet days that the time pressures of women doing childcare results in a cut back of socializing.

Findings from GSS 2002 are complementary. They show that one of the ways that men now share domestic responsibilities is by using the computer for managing finances and paying bills. Although the percentages are low, men are significantly more likely than women to use the computer for household management. Where women historically have performed their domestic duties via cooking, cleaning and childcare, men have historically taken their domestic duties outside the private sphere by mowing the lawn and repairing things outside the house (Wellman 1992; Robinson and Godbey 1999). Since men are often the breadwinners and the money managers for the family, it is not surprising that they are adapting and applying these masculine duties to the Internet. As technology itself is often understood as something masculine, and men are presented as naturally more technologically inclined, using the Internet fits their gender role.

Inspection of different types of Internet activity shows that the presence of children affects women more than it does men in Table 4. For example, women with children in the home access digital information 13 days less often than women with no children. However, there is only a 2-day difference between men with children and men without children. Men do not seem to be as affected by the presence of children: the changes for men are very slight. The only exceptions are those activities done least frequently and by the smallest number of participants: playing multi-user games and purchasing online.

These findings are consistent with those of Bowlby, Gregory & McKie (1997), who showed that adult heterosexual couples in homes are characterized by gender roles and family obligations. Women are traditionally the primary caregivers to children, and women with children have the least free time to use the Internet in the home. Although Dutch research indicates that Internet users spend less time on housework and childcare -- reading, games, talks, walks (De Haan & Huysmans 2002), these results suggest that the gendered division of labor still exists for Internet users. Thus, women with children spend less time communicating with their networks then women who do not have children. Although men are becoming more involved in domestic duties and childrearing, responsibility for these activities still falls primarily on women and affects how women use the Internet (Arber 1993).

These findings support the hypothesis that gendered responsibilities in the home shape how much time women spend online. Women have less opportunity to go online in the home because of their domestic responsibilities. Therefore, they are online less than men when they are at home. Email, often

seen as optional socializing, faces the biggest cutback as free time becomes limited when women turn inward to household caregiving.

CONCLUSIONS:

Once upon a time two decades ago, utopians had the fantasy that computer-mediated communication would facilitate pure interaction and community without any sense of gender or other social phenomena. All that people would see would be the words, presented in gender-neutral green Courier type on black MS-DOS screens.

This was a fantasy then. It continues to be so now. As the Internet has grown, it has accommodated a much more diverse set of participants than its original heavy representation of white and educated American young adults. Moreover, the Internet has descended to earth. No longer is it a precocious means of communication that is separate from everyday life. To the contrary, the Internet has become more embedded in how people carry out all aspects of their lives, from work to socializing to shopping. The one-time distinction between the virtual world and the real world has become passé, if indeed it was ever correct (Wellman & Gulia 1999).

Most importantly, people's social characteristics are not disposable baggage to be checked at the security counter when they go online. People come to the Internet as people, and not as minds-and-fingers devoid of gender, socioeconomic status, race and the like. They have backgrounds that inform their access to the Internet and how they use the Internet. They have needs, constraints and abilities that affect what they want to do online and what they can do.

Doing gender is something that people do continually. Gender, as a structuring category of social life affects almost everything that people do, including accessing using the Internet. This means that as long as gender has any social meaning, the Internet will be gendered.

Although the percentage of women online in North America is now about level with that of men, this research shows the continuing importance of gender for how the Internet is used. To some extent, this is because the average woman has had less experience online and is more concerned about safety. However, the key finding here is that gender roles and domestic responsibilities (such as housework and care-giving to children and spouse) in the home actively shape how much time women spend online.

For one thing, women have less opportunity to go online in the home because of these domestic responsibilities, and in practice are online less often than men. Care-giving, historically women's role, has an impact over and above gender itself. Those women who have families at home use the Internet less and in different ways. Although more research needs to be done, it does not appear

that the Internet is empowering stay-at-home mothers to the extent to which advocates of telework had once hoped (Bookman 2000).

Second, women and men use the Internet differently and in different amounts because of social expectations guided by gender roles. As women are the preeminent communicators and networkers in families, they spend considerably more time than men emailing family and friends. Women's Internet use is shaped by their roles of childcare provider, kinkeeper and networker. By contrast, men's use of the Internet is less social, as they spend more time searching for information and pursuing more isolated recreational activities.

Other NetLab research, conducted in Netville (a "wired suburb" near Toronto with superb Internet access), corroborates the findings discussed here (Hampton 2001a; 2001b; Hampton and Wellman 1999; 2002; 2003). It shows that women use the Internet especially for email and list communication, and less than men for information and recreational use. In Netville, women and men also use email on a regular basis, and in similar amounts. Netville women consider the Internet very useful for keeping in touch with their friends. In fact, women rate the usefulness of the Internet higher than men do.

What, then, is the gendered digital divide really about? Concern over the Internet has moved beyond the simple issues of access: the haves vs. the have-nots. Research has moved past the simple notion that more time online equates into similar usage patterns for men and women. Discussions of the digital divide need to go beyond only enumerating differences in access and use, to account for how disparities came to be and why they exist. Although the focus is on gender in this article, such a contextual understanding must be applied to understanding other social factors – such as race, life-cycle state, socioeconomic status, language and geographic location. These clearly affect how people use the Internet differently.

The digital divide will continue to exist despite various attempts to provide equal access to people unless systemic and structural factors are considered. Gender, age, class, race and sexuality are all fundamental components that often affect daily activities and experiences – including the virtual world.

The argument here is not that women and men *should* use the Internet in the same ways, or be online for the same amounts of time. Rather, the attempt is to understand why there are differences, and what the ramifications of these disparities might be. For example, the analyses presented in this article have interesting implications regarding online resources for women. If women are using, searching or surfing the Internet for information in less amounts than men, can policymakers assume that online resources are effectively reaching women? For example, do sites such as Violence Against Women Online Resources adequately serve female victims of violence (http://www.vaw.umn.edu/)? Can such informational sites offer adequate support and services, if women are communicating and gaining support

primarily through email and discussion lists and not via the Web? The research here indicates that support services are best offered via communication and interaction, as is the case with email.

Further research is needed to fully understand what transpires within the home to shape Internet time and use. Home ethnographies and time-diary studies can shed more light on why – for women and men with equal access to a home computer – women spend less time online than men and how they integrate the Internet into their everyday lives. Learning more about the gendered Internet can only enrich understanding and development of the Internet itself.

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ENDNOTES

[1] http://www.ntia.doc.gov/ntiahome/digitaldivide/. See also Pew Internet & American Life http://www.pewinternet.org/; Stanford Institute for the Quantitative Study of Society http://www.stanford.edu/group/siqss; University of Maryland Internet Usage Survey http://www.Webuse.umd.edu/sdaWeb/cgi-bin/hsda.exe?/Webuse/sdaWeb/cgi-bin/harcsda+inet.

[2] See http://www.norc.org/projects/gensoc1.asp for more information

[3] http://www.ropercenter.uconn.edu/gssmod.html

[4] Because of large sample sizes, many statistical significance tests are omitted in order to focus on substantive differences.

[5] See http://www.telegeography.com/resources/essay_archive/telephony/tg1992_women_calling.html

[6] It is puzzling to find that the percentage of people using the Web for health information has declined so appreciably in two years.