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Gender Differences in CMC: Findings and Implications

Background

Starting with the early popularization of the Internet, and as recently as the mid-1990's, gender has been claimed to be invisible in text-based computer-mediated communication (CMC)-the absence of physical cues as to a message sender's identity was thought to remove all trace of information as to gender, race, social class, etc. from the message, making the medium inherently democratic and egalitarian. [[1 \(../herring.html#1 \)](#)] However, claims of widespread gender anonymity have not been supported by research on online interaction. In the present essay, I report on what has been found in a number of empirical studies of gender and CMC, and consider the implications of those findings for issues of access to online resources and social equality for women in the Internet Age.

To my knowledge, the first published research on gender and CMC appeared in the late 1980's, a period characterized by general optimism regarding the potential of the Internet to provide increased opportunities for traditionally subordinate groups. Thus Smith and Balka (1988) reported on the use of computer networks to connect geographically-dispersed women and facilitate grassroots feminist activism, and Graddol and Swann (1989) noted that participation by men and women tended to be equalized in an anonymous computer conferencing system used in a university setting, in contrast with the traditional pattern of domination of mixed-sex discourse by men. For the most part, however, early CMC research did not discuss gender or control for it in experimental studies.

As more women began to venture online in the early 1990's, infiltrating what had previously been an almost exclusively male domain, studies of gender and CMC started appearing with greater frequency. In contrast with the optimism of the 80's, the findings of these studies tended to problematize claims of gender-free equality in cyberspace. In an important early article documenting the results of an academic listserv group's self-directed experiment with anonymity, Selfe and Meyer (1991) found that males and participants in the group who enjoyed high status off-line dominated the interaction, both under normal conditions and under conditions of anonymity, although some individual women reported feeling freer to participate when their messages were anonymous. Soon after, researchers began reporting the use of more aggressive tactics by men in online discussions, some of it explicitly targeted at female participants (Herring 1992, 1993; Herring, Johnson & DiBenedetto 1992; Kramarae & Taylor 1993; Ebben 1994; McCormick & McCormick 1992; Sutton 1994). Using electronically-distributed questionnaires, Herring (1993) found that women were more likely than men to react aversively to aggression in online interaction, including falling silent and dropping out of listserv groups. Around the same time, reports began to surface in the popular press of women on the Internet being the targets of male intimidation, harassment and sexual deception (Brail 1994; Dibbell 1993; Van Gelder 1990). These findings raise an apparent paradox: how can gender disparity persist in an anonymous medium which allegedly renders gender invisible?

Asynchronous CMC

The first part of the solution to the paradox has to do with the meaning of the term "anonymity." Whereas asynchronous CMC on the Internet-the object of most of the early descriptions-offers the theoretical possibility of anonymity, in practice true anonymity is somewhat difficult to achieve, requiring the use of an anonymizing service or the ability to forge e-mail addresses, both of which require knowledge not available to all Internet users. [[2 \(../herring.html#2 \)](#)] More importantly, users are not necessarily interested in exploiting the potential for anonymous interaction-the

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use of one's real name lends accountability and a seriousness of purpose to one's words that anonymous messages lack. Accordingly, most participants in computer-mediated discussion groups interact in their real-life identities (Collins-Jarvis 1997; Herring 1992), without attempting to disguise their gender.

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Still, text-only CMC is less revealing of personal information than face-to-face communication, and some user names are neutral as to gender. Female users can choose to present themselves so as to minimize discrimination and harassment by adopting a gender-neutral name (Bruckman 1993). After all, in cyberspace others only know what you choose to present about yourself, the popular view goes. Here the second part of the solution to the paradox comes in: gender is often visible on the Internet on the basis of features of a participant's discourse style, features which the individual may not be consciously aware of or able to change easily. That is, users "give off" information about their gender unconsciously in interaction (cf. Goffman 1959), and this information does not depend in any crucial way on visual or auditory channels of communication; text alone is sufficient.

The linguistic features that signal gender in computer-mediated interaction are much the same as those that have been previously described for face-to-face interaction, and include verbosity, assertiveness, use of profanity, politeness (and rudeness), typed representations of smiling and laughter, and degree of interactive engagement (cf. Coates 1993). There is an overall tendency for some of these behaviors to correlate more with female CMC users, and for others to correlate more with males. This does not mean that each and every female and male manifests the behaviors; exceptions to the tendencies can readily be found. It does mean, however, that gender predicts certain online behaviors with greater than chance frequency when considered over aggregate populations of users.

In asynchronous CMC such as takes place in discussion lists and newsgroups on the Internet and Usenet, males are more likely to post longer messages, begin and close discussions in mixed-sex groups, assert opinions strongly as "facts", use crude language (including insults and profanity), and in general, manifest an adversarial orientation towards their interlocutors (Herring 1992, 1993, 1996b, forthcoming; Kramarae & Taylor 1992; Savicki et al. 1996; Sutton 1994). In contrast, females tend to post relatively short messages, and are more likely to qualify and justify their assertions, apologize, express support of others, and in general, manifest an "aligned" orientation towards their interlocutors (Hall 1996; Herring 1993, 1996b; Savicki et al. 1996). Males sometimes adopt an adversarial style even in cooperative exchanges, and females often appear to be aligned even when they disagree with one another, suggesting that gender socialization carried over from face-to-face interaction is at the root of these behaviors, rather than inherent character traits based on biological sex. Moreover, there is evidence that the minority gender in an online community tends to modify its communicative behavior in the direction of the majority gender: women tend to be more aggressive in male-dominated groups than among other women, and men tend to be less aggressive in female-dominated groups than in groups controlled by men (Baym 1996; Herring 1996b), an observation which suggests that the more numerous a gender group is online, the greater the influence it will have on shared discursive norms.

Politeness is one common means through which gender is cued in asynchronous CMC. Women are more likely to thank, appreciate and apologize, and to be upset by violations of politeness: they more often challenge offenders who violate online rules of conduct (Smith et al. 1997), and predominantly female groups may have more, and more strictly enforced, posting rules designed to ensure the maintenance of a civil environment (Hall 1996; Herring 1996a). In contrast, men generally appear to be less concerned with politeness; they issue bald face-threatening acts such as criticisms and insults, violate online rules of conduct, tolerate or even enjoy "flaming," and tend to be more concerned about threats to freedom of expression than with attending to others' social "face" (Herring 1994, 1996a). These patterns have been noted even in gay and lesbian discussion groups (Hall 1996), and among women who have succeeded in traditionally male-dominated professions such as computer science (Herring & Lombard 1995). Inappropriately appreciative or contentious messages can "give away" individuals in Internet discussion groups who are attempting to pass as the opposite gender, evidence that stereotypes about online gender styles based on these patterns are starting to emerge (Herring 1996a).

Gender differences in online communication tend to disfavor women. In mixed-sex public discussion groups, females post fewer messages, and are less likely to persist in posting when their messages receive no response (Broadhurst 1993; Herring,

forthcoming). Even when they persist, they receive fewer responses from others (both females and males), and do not control the topic or the terms of the discussion except in groups where women make up a clear majority of participants (Herring 1993, forthcoming; Herring, Johnson & DiBenedetto 1992, 1995; Hert 1997). The lesser influence exercised by women in mixed-sex groups accounts in part [[3 \(../herring.html#3 \)](#)] for why women-centered and women-only online groups are common on the Internet (Balka 1993; Camp 1996), whereas explicitly designated men-only groups are rare. [[4 \(../herring.html#4 \)](#)] Moreover, an inherent tension exists between the conventionally masculine value on agonism and the conventionally feminine value on social harmony: the contentiousness of male messages tends to discourage women from participating, while women's concern with politeness tends to be perceived as a "waste of bandwidth" by men (Herring 1996a), or worse yet, as censorship (Grossman 1997; cf. Herring 1999). This tension does not inherently favor one gender over the other; each value system potentially constrains the other. On the Internet, however, where civil libertarian values have traditionally constituted the dominant ideological context, and where few structures are in place to sanction anti-social behavior, aggression tends to win out over less aggressive behaviors. In a number of documented cases, repeated aggression from disruptive males has forced women-centered online communities to disband, move elsewhere, and/or reconfigure themselves with strict rules and regulations regarding acceptable participant conduct (Collins-Jarvis 1997; Ebben 1994; Reid 1994).

Some evidence suggests that women participate more actively and enjoy greater influence in environments where the norms of interaction are controlled by an individual or individuals entrusted with maintaining order and focus in the group. Thus women-centered groups whose moderators place restrictions on the number or nature of messages that can be posted, particularly when contentious (challenging, insulting, etc.) messages are discouraged, tend to flourish, with large, active memberships and widespread participation (Camp 1996; Korenman & Wyatt 1996). Female students also participate more-sometimes more than male students-in online classrooms in which the teacher controls the interaction, even when the teacher is male (Herring & Nix 1997; Herring 1999). While this result may seem initially puzzling-how can women be "freer" to participate when they are "controlled" by a group leader?-it makes sense if the leader's role is seen as one of ensuring a civil environment, free from threats of disruption and harassment. The need for such insurance, rather than reflecting a weakness on the part of women, points to the fundamental failure of "self-regulating" democracy on the Internet to produce anything like equitable participation: when left to its own devices, libertarianism favors the most aggressive individuals, who tend to be male. Consistent with this imbalance, male respondents to Internet-wide surveys cite "censorship" as the greatest threat to the Internet, whereas females cite "privacy" as their greatest concern (GVU 1997). [[5 \(../herring.html#5 \)](#)]

Synchronous CMC

The studies cited above reveal some of the mechanisms by means of which gender disparity operates in asynchronous computer-mediated communication, despite the potential of the medium to neutralize gender differences. Some writers remain optimistic, however, as regards synchronous ("real-time") chat modes such as Internet Relay Chat and MUDs and MOOs. Pointing out that many of the asynchronous studies focused on professional (e.g., academic) users, Grossman (1997) speculates that the real-world power hierarchies in such groups carry over into the virtual domain and cause the observed gender disparities. Power dynamics of this sort, and hence gender difference, should be irrelevant in casual chat in which users have no real-world connections. Danet (1998) further points out that chatters are more anonymous than participants in asynchronous discussion groups, in that recreational chat environments encourage users to take on pseudonyms. For Danet, these pseudonyms function as masks which invite experimentation with gender identities in playful, "carnavalesque" ways, potentially liberating users from traditional gender binaries.

As a more recent and less widespread phenomenon than asynchronous CMC, synchronous CMC has not yet been the object of many gender-focused studies. However, what research is available suggests that in the gender realm as in other domains, synchronous CMC both differs from and resembles asynchronous CMC. Some of the differences initially appear to bear out predictions of greater gender equality. Males and females tend to participate more equally in chat environments, both in terms of number of messages and average message length (Herring 1999). On average, response rates to males and females are also more balanced; if

anything, females tend to receive more responses to their messages than males (Bruckman 1993; Herring & Nix 1997). In apparent support of Danet's claim, the literature also contains anecdotal reports of play with gender identity, including gender switching sustained over periods of weeks or months (McRae 1996).

However, these results should not be taken to indicate that binary gender is invisible or irrelevant in recreational chat. IRC users frequently ask other participants about their biological sex (along with their age and location, abbreviated 'asl'), and they display their own gender through their message content, use of third person pronouns to describe their actions, and nickname choice (Herring 1998b). [6 ([../herring.html#6](#))] Less conscious differences in discourse style are also evident: in a study of the use of 'action verbs' in a social MUD, Cherny (1994) found that female-presenting characters used mostly neutral and affectionate verbs (such as 'hugs' and 'whuggles'), while male characters used more violent verbs (such as 'kills'), especially in actions directed towards other males. Similarly, Herring (1998b) found that females on IRC typed three times as many representations of smiling and laughter as did males, while the gender ratio was reversed for aggressive and insulting speech acts. These findings parallel the finding that women and men in asynchronous discussions tend to use different discourse styles-aligned and supportive, as compared to oppositional and adversarial (Herring 1996a, 1996b). Rodino (1997) concludes a case study of an IRC interaction by noting that "despite multiple and conflicting gender performances [by one participant], the binary gender system is alive and well in IRC."

Nor is the apparent equality of participation what it seems on the surface. Message length in most chat modes is determined by buffer size and constraints on real-time interaction, hence little variation is possible. As regards frequency of posting, recreational chat modes are typically populated by more males than females (by some estimates, three males to every female), but those females who do participate receive a disproportionate amount of attention, much of it sexual in nature (Bruckman 1993; Herring 1998b, 1999; Rodino 1997). The most common "gender switching" patterns reflect this dynamic: females tend to assume gender-neutral pseudonyms in order to avoid sexual attention, while males assume female-sounding names in order to attract it (Bruckman 1993; Herring 1998b).

As in asynchronous CMC, instances of aggression against women are also found, and these, too, tend to be of a sexual nature: Dibbell (1993) describes a textually-enacted "rape" on a social MOO, and Reid (1994) reports an incident on a support MUD for sexual abuse survivors in which a male-presenting character named 'Daddy' shouted graphic enactments of sexual abuse to all present on the MUD. Such occurrences expose the dark side of recreational CMC, in which anonymity not only fosters playful disinhibition (Danet et al. 1997), but reduces social accountability, making it easier for users to engage in hostile, aggressive acts. A number of harassment incidents target women who have gender-neutral pseudonyms (Herring 1999), suggesting that chatters, like emailers, give off gender cues through their interactional style, and thus that pseudonyms alone are insufficient to mask online gender.

What, then, of the cases of successful online gender-bending that some authors point to in support of the claim that CMC deconstructs gender? Empirical observation of large populations of synchronous CMC users suggests that such cases are actually rather rare. Based on several years of observation, LambdaMOO founder and chief wizard Pavel Curtis (1992) concluded that sustained gender switching is infrequent in LambdaMOO: because of the effort involved in trying to be something one is not, most participants interact as themselves, regardless of the name or character description they choose. In support of this, Herring (1998b) found that nearly 90% of all gendered behavior in six IRC channels indexed maleness and femaleness in traditional, even stereotyped ways; instances of gender switching constituted less than half of the remaining 10%. In theory, it is possible that gender switching takes place more often, but is so successful that it goes undetected. In practice, however, IRC users give off gender cues frequently (an average of once every 3-4 lines of text in the Herring (1998b) study), such that the longer someone participates, the more likely it is that they will reveal their actual gender. Thus gender differences-and gender asymmetry-persist, despite the greater anonymity and lack of an externally-imposed power hierarchy in synchronous CMC.

Discussion

Two common themes emerge from the above summary of research, notably, a tendency for Internet users to display features of culturally-learned gender styles in

their typed messages, and for gender differences to work to the disadvantage of women, especially when they function as cues to attract predatory or harassing attention from men. At the same time, gender dynamics differ in asynchronous and synchronous CMC; the former environments show greater inequity in terms of amount of participation, while the latter show greater objectification of women in sexual terms. To some extent, this is a reflection of user demographics: adult professionals in asynchronous groups, as opposed to adolescents and young adults in chat modes, and the purposes for which people tend to engage in asynchronous and synchronous CMC: serious discussion as opposed to recreational chat. Each activity carries with it cultural expectations concerning the appropriate role of women which are reflected in their status as minor discourse participants, and as sex objects, respectively, both being roles which define women in relation to the interests of men.

These patterns are not artifacts of the computer medium. Indeed, it is difficult to imagine what functionality a "sex object" might have in a text-only group environment, other than a social symbolic one. The patterns rather are learned behaviors carried over from off-line social and professional contexts. As such, they point to the naiveté of earlier beliefs that computer network technology alone would erase social inequality between women and men. Computer networks do not guarantee gender-free, equal-opportunity interaction, any more than any previous communication technology has had that effect. The main reason seems to be that people generally do not-and in most cases, it seems, do not want to-disguise their gender when they engage in interaction with other people online, even when their gender works to their disadvantage. These findings call for further research to explain why binary gender persists in CMC, including what positive social functions it fulfills (e.g., flirting in chat environments, which often invokes binary gender stereotypes, appears to be enjoyable for young adults).

Implications, Present and Future

The findings summarized here have practical implications for women's participation in computer-mediated communication, and their use of the Internet more generally. I have argued in this essay that conventional gender styles interact with the broader Internet context to create a public online climate that is generally less hospitable to women than to men. This interpretation is supported by patterns of Internet use: when provided with unlimited free access in one two-year study, female adolescents' use declined sharply after several weeks compared with adolescent boys, who outstripped all other demographic groups in amount of use (Kraut et al. 1996). When women do log on to the Internet, they self-report exchanging more private e-mail than participating in public discussion groups and chat rooms, whereas for men the order of participation is reversed (Hoffman et al. 1996). Similar to off-line cultures, therefore, in which men control public discourse and women communicate more often in private settings (Coates 1993), public CMC is predominantly a male preserve.

At the same time, more and more women are getting online (as many as 40% of Internet users in the US, according to a 1998 survey) and using the Internet for their own purposes, including engaging in private communication and interacting in limited access, women-friendly groups. This difference is not necessarily a disparity, if public CMC is not valued above private and semi-private CMC as to what the Internet is primarily about. Indeed, the growing rise in popularity of semi-private, commercial online domains such as AOL and eCircles suggests that controlled access communication environments may be the way of the future, and that large, open, chaotic environments such as Usenet will become increasingly marginal to the definition of the Internet. Regardless of whether one views this trend as a failure of the great civil libertarian experiment that was the Internet of the 1980's and 1990's to produce a workable online society, as a technological advance, or as the inevitable conquest of creeping commercialism, it stands to have implications for the territory that men and women will occupy-and no doubt, dispute-on the Internet of the 21st century.

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[1 ([../herring.html#one](#))] For recent articulations of this view, see, e.g., Barlow (1996) and Grossman (1997).

[2 ([../herring.html#two](#))] During the "anonymity" experiment in the Selfe and Meyer study, the listowner arranged to have identifying information stripped from message headers prior to distribution of messages to the list.

[3 ([../herring.html#three](#))] The other part of the explanation involves freedom from harassment; see discussion below.

[4 ([../herring.html#four](#))] Many groups are implicitly men-centered, but they are not usually designated as such with the modifier 'men' in the group's name in the way that women-centered groups have 'women' as part of their names (e.g., Women's Wire, the Women's Studies list, the Society for Women in Philosophy list).

[5 ([../herring.html#five](#))] I interpret the women's response to reflect a concern for their personal safety, e.g., from predatory male behaviors, rather than a concern for encryption or hacking issues, the other sense in which "privacy" on the Internet could be interpreted (but cf. Gilboa 1996). Respondents were given a limited list of "concerns" to choose from in the questionnaire; this list did not include "safety" or "harassment". For further discussion of the gendered dimensions of libertarian ideology on the Internet, see Ess (1996) and Herring (1998a, 1999).

[6 ([../herring.html#six](#))] As Danet (1998) notes, many nicknames in IRC are unrevealing as to gender, but some index gender: lisa1, CoverGirl, shyboy, GTBastard, etc.

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