

Gender and (A)nonymity in Computer-Mediated Communication

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Abstract

Computer-mediated communication (CMC) on the Internet has been claimed to possess a degree of anonymity that makes the gender of online communicators irrelevant or invisible; this purportedly allows women and men to participate and be recognized for their contributions equally, in contrast with patterns of male dominance traditionally observed in face-to-face communication. This chapter surveys research on gender and CMC, including textual, multimodal, and mobile communications, published between 1989 and 2013. The body of evidence taken as a whole runs counter to the claim that gender is invisible or irrelevant in CMC, or that CMC equalizes gender-based power and status differentials. In concluding, the notion of anonymity is critiqued, and the question of difference vs. disparity is addressed.

Introduction

Computer-mediated communication (CMC) has been claimed to be inherently democratic, leveling traditional distinctions of social status and creating opportunities for less powerful individuals and groups to participate on a par with members of more powerful groups. Specifically, this form of Internet-based interaction has been claimed to lead to greater gender equality, with women, as the socially, politically, and economically less powerful gender, especially likely to reap its benefits. The argument goes as follows:

Text-based CMC, lacking physical and auditory cues, possesses a degree of anonymity that makes the gender of online communicators irrelevant or invisible. This allows women and men to participate (and be recognized for their contributions) equally, in contrast with patterns of male dominance traditionally observed in face-to-face communication (e.g. Graddol and Swann 1989).

Of course, men, too, stand to benefit from anonymous online communication; the difference is that for women, the technological environment purportedly removes barriers to participation in domains where barriers do not exist – or do not exist to the same extent – for men.

Some thirty years after the introduction of CMC, we may ask whether this potential has been realized. Extrapolating from the properties of a technology to its social effects – a paradigm known as ‘technological determinism’ (Markus 1994) – tends to overlook the fact that the development and uses of any technology are themselves embedded in a social context and are shaped by that context (Kling, McKim, and King, 2003). Does CMC alter deeply

rooted cultural patterns of gender inequality, or do those patterns carry over into online communication? What role does anonymity play in either outcome?

This chapter surveys research on gender and CMC published between 1989, when gender issues first began to be raised in print, and the time of this writing (2013). During that time, Internet access – a prerequisite for online communication – reached parity for males and females in the United States. However, the body of evidence taken as a whole runs counter to the claim that gender is invisible or irrelevant in CMC, or that CMC equalizes gender-based power and status differentials.

The chapter is organized into seven sections. The following section considers gender in relation to issues of Internet *access and use*. Evidence, both early and recent, is then presented that bears on claims of gender equality in interactive *textual CMC*. The fourth section discusses gender behavior and representation in *multimodal CMC*, including via graphical avatars, photographs, and in video and audio chat, followed by a fifth section on *mobile CMC* via smartphones. In the *discussion*, the notion of anonymity is critiqued, and the question of difference vs. disparity is addressed. The *conclusion* looks towards the future of gender and CMC and identifies topics in need of research.

Access and Use

CMC is as old as the Internet itself. In the early days of the Arpanet – the predecessor of the Internet – in the 1970s, online access, largely via email, was restricted to the US defense department personnel and computer scientists (almost entirely male) who designed and developed computer networking (Hafner and Lyon 1996). The Internet, so called since around 1983, expanded geographically in the 1980s to include more universities, especially faculty and students in computing-related departments (mostly male), and other asynchronous CMC modes such as discussion forums. The trend by the late 1980s of increased diffusion to academicians in other disciplines and employees in a growing number of workplaces became a full-fledged sweep toward popular access in the 1990s, with the rise of Internet Service Providers (ISPs) that enabled people to connect and communicate from their homes, including via synchronous chat. The percentage of female users increased along with this expansion, as did public knowledge about the Internet and individual access to it.

Nonetheless, computer use remained a stumbling block for gender equity throughout much of the 1990s. Women were initially more reticent about using computers, less willing to invest time and effort in learning to use the Internet, and less likely to be employed in workplaces with Internet access (Balka 1993). In the early 1990s, an estimated 5% of Internet

users were women (Sproull 1992, cited in Ebben and Kramarae 1993). When they did log on, women were less likely to participate in online discussion forums and more likely than men to be alienated by the often contentious culture they encountered there (Herring 1992, 1993). Even women-only CMC environments were regularly targeted by disruptive males (Collins-Jarvis 1997; Herring, Johnson, and DiBenedetto, 2002), in keeping with the anything-goes, free-speech ethic that pervaded the Internet at the time (Brail 1996; Sutton 1994).

The introduction of the World Wide Web in the early 1990s brought with it ubiquity, easy-to-use graphical interfaces, and mainstream content (e.g. news, online shopping), making the Internet a “safer,” more familiar-seeming place. Women flocked online: By 2000, slightly more than 50% of web users in the US were female (CyberAtlas 2000). The gender demographics of web users now mirrors that of the broader US population, although as recently as 2009, men still went online more often, spent more time online, and visited more websites than women did (NAS 2009).

Recently, women have come to outnumber men in some social media domains. They use social networking sites such as Facebook more often and more actively than men do (Brenner 2012), and female users predominate on the microblogging site Twitter, the consumer review site Yelp, and the online pinboard Pinterest. More males, in contrast, frequent music-sharing sites such as last.fm, as well as Reddit, a social news website known for its sometimes misogynistic content (HuffPost Women 2012; Williams 2012); contributors to Wikipedia are also overwhelmingly male (Lam et al. 2011). Moreover, the professional social networking site LinkedIn has attracted almost twice as many males as females. LinkedIn representatives claim that this is because men are better at professional networking than women, at least in some industries (Berkow 2011), whereas women have traditionally focused on maintaining relationships (Fallows 2005; cf. Tannen 1990). Women’s greater concerns about privacy and identity disclosure on social networking sites (Fogel and Nehmad 2009) may also predispose them to interact with individuals they already know and trust (Muscanell and Guadagno 2012), which Facebook and other social networking sites facilitate through features such as ‘friending’.

Crocco, Cramer, and Meier (2008) argue that the move toward web-based computing has had an equalizing effect on gendered technology use. If equality is defined as equal in-principle access, women in the US have caught up with men. At the same time, the web is becoming increasingly specialized by gender. Although many sites are male dominated, women today have more choices of online environments than they did in the past, including social media sites in which they can exercise a degree of control over who reads and

comments on their contributions. As discussed further below, users of these social media sites tend to be less anonymous than in earlier text-based forums.

Textual CMC

Early studies

CMC comprises a variety of interactive socio-technical modes including email, discussion lists, web forums, chat, MUDs (Multi-User Dimensions) and MOOs (MUDs, Object Oriented), IM (Instant Messaging), text messaging (SMS), weblogs (blogs), and microblogs. These modes are primarily textual, involving typed words that are read on digital screens.

Early CMC research did not typically discuss gender or control for it in experimental studies. As more women began to venture online in the early 1990s, however, studies of gender and CMC started appearing with greater frequency. In contrast to the optimism of Graddol and Swann (1989), the findings of these studies problematized claims of gender-free equality in cyberspace. In an early article documenting the results of an academic discussion group's self-directed experiment with anonymity, Selfe and Meyer (1991) found that males and high-status participants in the group dominated the interaction, both under normal conditions and under conditions of anonymity. Other research reported the use of aggressive tactics by men in online discussions, sometimes explicitly targeted at female participants (Dibbell 1993; Herring 1992, 1993, 1999; Herring, Johnson, and DiBenedetto 1995; Kramarae and Taylor 1993; Sutton 1994). Women and participants suspected of being female also received a disproportionate amount of (unwelcome) sexual attention (Bruckman 1993; Herring 1998, 1999; Rodino 1997). These findings raised an apparent paradox: how can gender disparity persist in an anonymous medium that allegedly renders gender invisible?

Part of the answer to this paradox is that gender is often visible in CMC on the basis of features of a participant's discourse style – features that the individual may not be consciously aware of or able to change easily. The linguistic features that signal gender in CMC are stereotypically sex-linked and similar to those that have been described previously for face-to-face interaction. They include verbosity, assertiveness, use of profanity, (im)politeness, typed representations of smiling and laughter, and degree of interactive engagement (cf. Coates 1993; Tannen 1990).

In asynchronous CMC in discussion lists and newsgroups, researchers found that males were more likely to post longer messages, begin and close discussions in mixed-sex groups, assert opinions strongly as 'facts,' challenge others, use crude language (including insults and profanity), and in general, adopt an adversarial stance toward their interlocutors (Herring

1992, 1993, 1994, 1996a, 1996b, 1999; Kramarae and Taylor 1993; Savicki, Lingenfelter, and Kelley 1996; Sutton 1994). In contrast, females tended to post relatively short messages, and they were more likely to qualify and justify their assertions, apologize, express appreciation, support others, and in general, adopt an ‘aligned’ stance toward their interlocutors (Hall 1996; Herring 1993, 1994, 1996a, 1996b; Savicki, Lingenfelter, and Kelley 1996). Females also used more emoticons and other representations of smiles (Witmer and Katzman 1997; Wolf 2000). Moreover, Herring (1996b) observed a majority-gender effect: women tend to be more aggressive in male-dominated groups than among other women, and men tend to be more aligned in female-dominated groups than in groups dominated by men.

Analogous behaviors were observed in synchronous (“real-time”) CMC. Cherny (1994) reported that female-presenting characters in a social MUD used mostly neutral and affectionate ‘action verbs’ (such as ‘hugs’ and ‘whuggles’), while male characters used more violent verbs (such as ‘kills’), especially in actions directed toward other males. Herring (1998) found that females on IRC typed three times as many representations of smiling and laughter as males did, while the gender ratio was reversed for challenging and insulting speech acts. Males also produced overwhelmingly more profanity and sexual references. Rodino (1997, n.p.) concluded 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.”

Gender-based harassment and the contentious tone of many online forums have tended to discourage participation by women (Herring 1992, 1999). In mixed-sex public forums, females post fewer messages (Herring 1993, 1996a), and chat rooms are typically frequented by fewer females than males (Herring 1998). Women are also less likely to persist in posting when their messages receive no response (Broadhurst 1993; Herring 2010). Even when they persist, their messages receive fewer responses, including from other women (Herring 1993, 2010). Moreover, they typically do not control the topic or the terms of the discussion except in groups where women make up a clear majority of participants (Herring 1996b, 2010; Herring, Johnson, and DiBenedetto 1992, 1995; Hert 1997). The lesser influence exercised by women in mixed-sex group interactions accounts in part for the existence of women-centered and women-only online groups (Balka 1993; Camp 1996), whereas explicitly designated men-only online environments are rare.

Online chat environments often encourage users to take on pseudonyms. For Danet (1998), these pseudonyms function as masks that invite experimentation with gender

identities in playful, ‘carnavalesque’ ways, liberating users from restrictive gender binaries. The literature contains anecdotal reports of play with gender identity, including gender-switching sustained over periods of weeks or months, in chat environments (e.g. Bruckman 1993; McRae 1996). Bruckman (1993) interviewed MOO participants and found that females tended to assume gender-neutral pseudonyms in order to avoid sexual attention, while males assumed female-sounding names in order to attract it, as well as to experience virtually what it is like to be a different gender.

However, empirical observation of synchronous CMC users suggests that gender-switching is actually rather infrequent. After years of observation, LambdaMOO founder Pavel Curtis (1992) concluded that 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. Herring (1998) found that 89% 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 11%. In theory, it is possible that gender-switching takes place more often but is so successful that it goes undetected. In practice, the longer someone participates, the more likely it is that they will produce cues that reveal their actual gender (Herring 1998). Thus researchers concluded that gender differences – and gender asymmetry – were evident in textual CMC, despite the use of pseudonyms.¹

Recent studies

Since female Internet users achieved numerical parity in 2000 (CyberAtlas 2000), it has popularly been assumed that gender differences in CMC have leveled out, as well. This is supported by reports that women’s participation now equals that of men overall in environments such as blogs and social network sites (Herring et al. 2004; HuffPost Women 2012).

As regards language, however, the research results are mixed. Some of this research focuses on variables that are not *a priori* stereotyped by sex. In a study of adolescent blogs, Huffaker and Calvert (2005) found no significant gender differences in frequencies of words expressing cooperation and passivity, although males used more resolute and active language. Herring and Paolillo (2006) found that gender differences in grammatical word frequency disappeared when they controlled for blog genre – personal diary vs. ‘filter’ blogs commenting on events external to the blogger – although females produce more of the former and males more of the latter genre. Guiller and Durndell (2007) also found few gender differences in lower-level linguistic features in their study of computer-mediated student

discussion groups, although stylistic differences were found. In a multi-level study of teen chat, Kapidzic and Herring (2011) discovered that gender differences were most evident in discourse style, somewhat evident at the level of speech acts, and least evident in word choice. However, not all Internet users exhibit gendered discourse styles: female computing professionals on the technology news website Slashdot adopt both aligned and adversarial stances (Bucholtz 2002), and Subrahmanyam, Smahel, and Greenfield (2006) observed that girls were quite sexually assertive in the two teen chatrooms they studied – although the girls used more sexually implicit communication, whereas the boys were sexually explicit. These findings complicate and refine the body of CMC and gender scholarship.

Other studies directly echo earlier findings. Koch et al. (2005) found that men were more dominant and assertive in computer chat, even under conditions of anonymity, similar to the findings of Selfe and Meyer (1991). Thompson and Murachver (2001) found that subjects could identify a partner's gender accurately based on features of the gendered styles described by Herring (1993, 1996a, b). Gendered discourse styles continue to be used in forums on the social network site MySpace (Fullwood, Morris, and Evans 2011; Thelwall, Wilkinson, and Uppal 2010). In addition to using more emoticons (e.g. Baron and Ling 2007; Tossell et al. 2012) and exclamation points (Waseleski 2006), the latest female communication trend is the inclusion of *xo* ('a kiss and a hug') in tweets, IM, and email (Bennet and Simons 2012).

Alongside difference, disparity also persists. On Twitter, men's tweets are retweeted more often, especially by men, even though women post more tweets overall (Mashable 2012). Blogs by men are linked to and reported on in the mass media more than women's blogs (Herring et al. 2004). Moreover, women are still disproportionately the targets of online verbal violence and harassment, as attested by the case of technology blogger Kathy Sierra, who in 2007 received sexualized death threats on her blog from well-known male bloggers for, as Harding (2007) put it, the crime of publicly "Writing While Female." Recent incidents of threatening communication directed toward women 'speaking up' on social media continue to deter women's participation in online environments (e.g., Marwick, 2013).

Multimodal CMC

The World Wide Web, more than any other Internet application, was responsible for bringing women online in large numbers in the mid-1990s. The main property of the web that sets it apart from text-based CMC is that it is multimodal, encompassing text, graphics, video, and

audio. Moreover, CMC itself is increasingly multimodal on “Web 2.0” sites such as blogs, social network sites, media-sharing sites, and multiplayer online games.

Along with these technological changes there has been a shift in the ways people represent themselves online. In early text-only environments, individuals could construct creative self-representations through user names and textual self-descriptions (Danet 1998; McRea 1996). In the graphical chat environments that followed, users were represented by cartoon-like avatars (Kolko 1999; Scheidt 2004). In recent years, however, the combination of increased bandwidth and the rise in popularity of social network sites has led many Internet users to post photographs of themselves, which show them, in principle, “as they really are.”² Accompanying this is a trend for people to make their personal information openly accessible. Thus, there has been a shift from (relative) anonymity towards ‘nonymity’ (Zhao, Grasmuck, and Martin 2008). At the same time, one is free to select any image to represent oneself, since the actual physical appearance of the user remains hidden, as in text-based CMC. Unfortunately, little research as yet relates multimodal representations to verbal language. The focus of the following discussion is on how multimodality affects gender and online communication more broadly, although language is mentioned where research findings are available.

The first studies to address this question were of graphical avatars. Subjects in experiments conducted by Nowak and Rauh (2005) reported preferring graphical avatars that portrayed them realistically. However, other research found that avatars in chat and 3-D environments exaggerated secondary sex characteristics, especially of females, not only in environments designed by (male) professionals (Kolko 1999; McDonough 1999) but also in self-chosen and self-designed avatars (Scheidt 2004). Avatar gender-switching has also been reported in online games: men sometimes play as female avatars in order to get more help from other players, and women sometimes play as male avatars in order to be taken more seriously by male players and/or avoid harassment (Hussain and Griffiths 2008; Lehdonvirta et al. 2012).

There is evidence that the gender of one’s avatar reflects and influences one’s communication style. In experiments by Palomares and Lee (2010), women were more apologetic and tentative when using a female avatar, whereas gender mismatched avatars encouraged the use of countertypical language. As with user nicknames, it seems that it is easy to select an avatar that differs from one’s offline gender, but more difficult to modify one’s gendered behavior.

The earliest studies of photographic self-representations were of personal homepages. Blair and Takayoshi (1999) found that some women's homepage pictures were sexualized, showing the subjects in provocative clothing and/or postures. This practice has since become the norm on social media sites (e.g. Kapidzic and Herring 2011; Wang 2011), arguably due to the ubiquity of pornography online, leading to what Paasonen (2011) calls "self-commodification". On one photo-sharing site, Willem, Crescenzi, and Tortajada (2011) found that even girls who did not initially post sexualized pictures moved toward that photographic style over time.

Blair and Takayoshi (1999) critique the practice of sexualized self-representation, pointing out that even when girls and women consider displaying their images online as an act of self-empowerment, the reception and use of those images can objectify them. For example, an infamous site from the mid-1990s, "Babes on the Web," linked to photographs on women's homepages without their permission and rated them in offensively sexist terms (Spertus 1996). In that case, women were objectified independently of the 'provocativeness' of their images. More recently, a 2012 Facebook page titled "12-year-old slut meme's [sic]" reposted photographs of young girls so that others could comment on their sluttiness; in this case, the girls self-sexualized in their original images. Chemaly (2012, n.p.) concludes that "use of photography (especially without the subject's consent) intensifies harassment, abuse and violence against women."

Self-sexualization online appears to be spreading to young males. The young men Manago et al. (2008) interviewed felt pressure to present themselves in an attractive manner and reported representing themselves as 'playboys' on MySpace. Relatedly, 15% of profile photographs of males on a popular teen chat site showed the subject with a nude upper body; this was more often the case for white than for black boys (Kapidzic and Herring, 2011, under review). In contrast to the cases involving females reported above, there is no evidence so far that males who post self-sexualized images are publicly demeaned.

One type of multimodal content that has been associated more with men is video. Following the meteoric rise in popularity of the video-sharing site YouTube, a number of studies reported that males were uploading more video content and using more video-sharing applications than females were (e.g. Chen 2007). In a study of YouTube video bloggers ('vloggers'), Molyneaux et al. (2008) found that almost twice as many men as women posted vlogs, and many more men than women reported visiting YouTube on a daily basis. Further, only 13% of female respondents had ever posted comments on videos or uploaded videos, compared to 50% of males. Biel and Gatica-Perez (2009) also found more men (73%) than

women (27%) in their study of YouTube use. However, the women accumulated more subscribers, had more subscriptions, and had double the numbers of friends than men had, leading the authors to conclude that “women, overall, have a more social-driven behavior in YouTube” (835). Moreover, recent numbers indicate that female teens today are more likely than teen males to videochat and to create and share video (Lenhart 2012; Lenhart et al. 2010), suggesting that video communication patterns may be shifting.

Research on representations of males and females in online videos is lacking. One might posit that because of gender role schemas and the trend towards self-sexualization, some women would represent themselves in online videos in sexualized ways. Anecdotal evidence in support of this is the phenomenon of ‘reply girls,’ young women who seek to garner views by posting video replies on YouTube with the camera focused on their cleavage. Because of its manipulative nature, this practice is generally condemned by both male and female YouTube users (Eördögh 2012).

Gender identity is more difficult to disguise in video than in textual CMC. The same is true in audio chat, which has become popular in multiplayer online games, despite the concerns of some players that it will make playing with an avatar of a different gender more difficult and that it will open the door for discrimination against and harassment of female players (Wadley, Gibbs, and Benda 2007). However, in a study of second language learners communicating online via voice, Jepsen (2005) noted that although “the gender of the participant was often identifiable due to the sound quality of the participant’s voice[...], the participant’s gender could not be verified simply by voice quality” (84). Issues of gender identification aside, there is a need for research into gender and communication style in audio CMC, including in dyadic interactions using popular applications such as Skype.

Mobile CMC

Another recent trend is the growth of CMC via mobile phones. ‘Smartphones’ enable sending text messages (SMS), accessing the Internet, recording video, and taking and sharing photos (Duggan and Rainie 2012). Smartphones differ from previous CMC technologies in supporting mostly private communication between known interlocutors, and both men and women use them actively (in the US, 46% and 45%, respectively; Brenner 2012).

They tend to use them in different ways, however. Female teens and college students around the globe typically use their mobile phones for socializing (including expressing affection and support), whereas males use theirs for information seeking and planning (e.g. Israel: Lemish and Cohen 2005; Hong Kong: Lin 2005; Japan: Okuyama 2009; Taiwan: Wei

and Lo 2006). Similar patterns have been found in the U.S. (Lenhart et al. 2010), Australia (Horstmanshof and Power 2005), and the UK (Barnett 2012). Moreover, girls and women tend to send longer and more frequent SMS than males do (Baron and Campbell 2012; Herring and Zelenkauskaite 2009; Lenhart et al. 2010; Ling 2005).

Texting via mobile phones and ‘textspeak’ are stereotypically associated with young females in the mass media, the latest manifestation of “the convergence of telephony and teenage girlhood in [American] popular culture” (Kearney 2005, 571; cited in Jones and Schieffelin 2009, 1054). A few studies have empirically analyzed the language of text messaging in relation to gender. Tossell et al. (2012) found that females had a higher emoticons-to-words ratio in their messages than males, although the emoticon vocabulary in male messages was more varied. However, emoticons were found in only 4% of the SMS they examined. In a study of SMS posted to an interactive television program in Italy, Herring and Zelenkauskaite (2009) also found that emoticons were rare, although women used significantly more nonstandard typography and orthography than men. This contrasts with previous variationist sociolinguistic findings that women use more standard language in speech (cf. Labov 1990); the researchers interpreted the nonstandard usage as gendered social capital, with females earning value in the virtual marketplace by appearing playful, sociable, and friendly.

Finally, mobile phones themselves are social and cultural artifacts that participate in the presentation of self. Men tend to display their phones as symbols of their status and wealth, especially in groups of men and in mixed-sex groups with more males than females (Lycett and Dunbar 2000). Females physically decorate their phones more than males do, and females are also more likely to feign talking on their mobile phone to avoid harassment by potential predators (Baron and Ling 2007).

Discussion

Anonymity

Anonymity is a major theme that runs through gender and CMC research, where it (or its close relative, pseudonymity) is often claimed to promote gender equality. Yet this claim is problematic for several reasons. While some research suggests that anonymous forms of online communication are more comfortable for and encourage participation by women (e.g., Koch et al. 2005; Selfe and Meyer 1991), anonymity also reduces social accountability, making it easier for harassers to engage in hostile, aggressive acts. On sites such as the image discussion board 4Chan, which encourages absolute anonymity as a way to promote the

posting of open and uninhibited content, the discourse is notoriously profane and sexist (Bernstein et al. 2011). Further, the literal meaning of ‘anonymous’ is “not identified by name;” however, most participants use their real names in asynchronous CMC (Herring 1993), and those names often indicate the bearer’s gender. In addition, communicators give off cues through their interactional style and message content, making it possible to identify their gender sometimes even when they use pseudonyms (Donath 1999; Herring 1996a, b).

To this can be added the technologically-driven trend towards increased ‘nonymity’ online (Zhao, Grasmuck, and Martin 2008), in keeping with the evolution of CMC technologies towards multimodal systems rich in visual and auditory cues. This trend is encouraged by anonymity policies implemented by technology companies such as Google (Osborne 2012), as well as by proposed legislation, such as the Internet Protection Act in New York, that would ban anonymous criticism (Sandoval 2012). The intent of these rules is to protect individuals from false claims and cyberbullying³ by making Internet communicators more accountable. Using real names instead of pseudonyms also makes individuals ‘3-dimensional’ and more ‘authentic,’ according to Sheryl Sandberg, the Chief Operating Officer of Facebook (Sharing to 2012). However, as the cases of Kathy Sierra and the “12-year-old-slut meme’s” [sic] show, online harassment occurs even when harassers use their real names, and women still tend to receive fewer responses and retweets in nonymous CMC (Herring 1993; Mashable 2012).

The increasing popularity of mobile CMC can be seen as a parallel, related shift from public communication with strangers to private communication with individuals of one’s choosing. Communicators also know who their audience is in social network sites where they can choose their friends, such as Facebook, although Facebook’s ‘walled garden’ model has been eroded recently by changes to the site that make more user information public by default (Bankston 2009). The enthusiastic embrace of these more controlled environments by female users can be seen as a reverse reflection of the problematic nature of less controlled public environments, where anonymity is insufficient to ensure females equal access to the conversational floor or protection from harassment.

Difference and Disparity

The Internet was predicted to lead to gender equality by rendering gender differences in communication invisible or irrelevant. This prediction clearly has not been supported; many traditional gender differences carry over into CMC. Males and females ‘like’ different products, services, and entertainers on Facebook, consistent with traditional gender

stereotypes (Glenn 2013). Moreover, they tend to communicate online about different topics, in different contexts, for different purposes, and often (albeit not always) in different ways. These differences have remained relatively stable over the past 20 years, suggesting that gendered identities are socially facilitative – for example, when engaging in heteronormative activities such as flirting (Kapidzic and Herring 2011). That many girls and women choose to reveal their gender in textual CMC and produce gendered (including self-sexualized) images supports this view. More generally, social capital can be accrued by engaging in gender-appropriate behavior online (Herring and Zelenkauskaite 2009).

Internet users also orient to stereotypes of gender differences. In a study of an online gender deception game, Herring and Martinson (2004) found that players guessed gender based on stereotypes about male and female behavior. Relatedly, Thompson (2006) found that online discussions about gender-stereotypical topics triggered use of gender-preferential language by both men and women.

Disparity is also evident, as described in the preceding sections. Public CMC is often contentious, favoring assertive male over supportive female discourse styles. The perception that a participant is female can lead to discursive discrimination (e.g. lack of turn uptake) and harassment. Females self-commodify and are commodified and sexually demeaned by males online. More broadly, while the gender digital divide has been bridged in terms of who logs on, at least in the US, women and men still do not have equal access to the creation and control of what takes place on the Internet. Roles that require technical expertise, such as network administrator, are disproportionately filled by men, consistent with the traditional association of technology with masculinity (Wajcman 1991). Women, given their lower numbers in fields such as computer science,⁴ are less likely to have the necessary qualifications to take on these roles. In these respects, the Internet and CMC reproduce the larger societal gender status quo.

Conclusion

The reality of gender and online communication may fall short of the early projections because the projections were unrealistic in the first place – for example, because they were based on the problematic assumption of technological determinism. Computer networks do not guarantee gender-free, equal-opportunity interaction, any more than any previous communication technology has had that effect. Still, the current status quo represents a gain over the recent past, in which the Internet was limited to a predominantly male elite; it now has caught up with – and reflects – the larger society in which it is embedded.

Moreover, the interplay of a popular technology such as the Internet with social and cultural forces over time may yet lead to change, just as technologies such as the typewriter and the telephone have altered patterns of sociability and business practice, and affected women's lives, in particular, in significant ways (Davies 1988; Martin 1991). A desirable future outcome would be that as more and more women go online globally the Internet would truly become an egalitarian environment. An increasing number of women would control web content and distribution, and more women would become computer network designers and administrators, giving them real influence – both numerical and technical – to shape the nature and uses of the Internet. The likelihood of this coming about depends crucially on a critical mass of women entering information technology professions. It may also depend on policies being implemented that increase user accountability and CMC environments being designed that give users control over who and what is included in their online spaces.

The coverage in this chapter is limited by the lack of availability of research in some (especially emerging technology) domains. Topics in need of future research include gender and sexuality and gender and race in online communication, language use in video and audio CMC, and user responses to multimodal presentations. Some research has addressed the latter topics by analyzing user comments on language use in multilingual YouTube videos (e.g. Chun and Walters 2011), but gender has not been its focus. The trend towards Internet multimodality, in particular, opens up new vistas for CMC research and raises challenges for language and gender research, in that textual, oral, and non-verbal communication increasingly converge.

NOTES

- 1 Gender is often visible in recreational public chat, even aside from discourse style. Chatters frequently ask other participants about their biological sex, along with their age and location (abbreviated “asl”). Moreover, they display their gender through their message content and use of third-person pronouns to describe their own actions (Herring 1998).
- 2 Photographic images may be modified, as well. Zhao, Grasmuck, and Martin (2008) report that in social network sites, users of both genders enhance their representations in ways that may be viewed as more socially desirable and “anti-nerd” (p. 1827).
- 3 Anonymity can also be abused by females. Some studies (e.g., Hinduja and Patchin 2010) investigating the online behaviors of young people ages 10-18 suggest that females are

more likely to be cyberbullying victims *and* offenders. According to this research, young girls are more likely to spread rumors online about others, whereas young boys are more likely to post mean/hurtful pictures or videos.

- 4 Recent reports contend that women continue to be severely underrepresented in technology-related fields. Only 14% of undergraduate computer science degree earners at major US research institutions in 2010 were women, and in 2011, women made up only 25% of the computing workforce (NCWIT 2012).

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