

User Agency as a Feminist Frame in Human Computer Interaction and Information Science

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Abstract

User agency within sociotechnical contexts supports both feminist reflexivity in HCI research, and the feminist ethnographic tradition present within Information Science. User agency as a unifying scholarly frame between these two disciplines that in turn expand our understanding of gender identity formation within information and computing environments.

Keywords: User Agency; Ethnography; Feminist Research; Human Computer Interaction; Information Science.

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1 Introduction

HCI scholars are just beginning to become aware of IS literature that engages feminist grounded theory (Chatman 1996; Chatman 1999) based on ethnographic research into user populations. Normally, HCI and IS are “unconnected discourse communities” (Dervin, 1997, p. 115). It is important to further understand why gender research in HCI remains a controversial and multifaceted area of inquiry. Qualitative feminist researchers within HCI are beginning to investigate maker culture and hacker communities to understand the learning processes of user groups conventionally addressed in IS literature, such as children and amateur users who are not normally visible within computing environments (Fox et al., 2015; Weibert et al., 2014). Feminist IS literature has scrutinized nontraditional sociotechnical environments in terms of user agency, in the context both of female inmates in prison (Chatman 1999) and survivors of domestic violence (Westbrook 2006; Westbrook 2007). Both IS feminist literature and HCI feminist literature apply feminist ethnographic methods to critique masculinist norms of sociotechnical gender identity, in terms of marginalized user groups. A synthesis of these two scholarly domains would potentially support new ways of defining sociotechnical spaces outside of conventional computing cultures, and traditional information settings, with the acknowledgement that gendered discussions of user agency are a feminist consideration that links value sensitive design and information seeking.

User populations are increasingly the common foci of scholarly inquiries in both Human Computer Interaction (HCI) and Information Science (IS). Both disciplines engage in sociotechnical research that attempts to understand and configure theories both of learning processes and technical mastery, in the form of task-driven studies and examinations of self-efficacy. Feminist research in IS expands the focus onto nontraditional user populations that are usually marginalized within information environments, and these groups are largely women (Chatman 1996; Chatman 1999; Westbrook 2006; Westbrook 2007). Feminist research within HCI scrutinizes sociotechnical gender identity formation in terms of women users as amateurs and silent spectators within computing environments (Cockburn 1997; Faulkner 2000; Wacjman 2010). These notions of women users as amateurs and passive participants have their origins within masculinist computing cultural binary gender norms that demarcate femininity as both nontechnical and amateur; usually this gendered category of identity is assigned to women (Turkle 1988; Wacjman 2010).

2 Masculinist Constructions of Gender in HCI

Sociotechnical discussions of gender and technology within HCI are fraught with conceptual tensions in terms of both gender identity formation and gendered categories of artifacts. Scholars within HCI such as Cockburn (1997), Faulkner (2000) and Rode (2011a; 2011b) have discovered via ethnographic approaches that conventional masculinist discourses within HCI often ignore and obscure feminine sociotechnical identities. These discourses insist upon static and unchanging correlations between conventional binary gender categories and technological artifacts, in terms of both the construction of these objects and their contexts of use. Masculinist discourses within HCI are strongly associated with positivist conventions (Cockburn 1997; Faulkner 2000; Wacjman 2010). These conventions privilege masculine perspectives with regard to the construction and use of technological artifacts. Traditional views of masculine and feminine behaviors within computing cultures risk alienating users whose sociotechnical identities do not fully conform to these binary and essentialist stereotypes of gender.

Rather, ethnographic research strongly indicates that actual populations are more complicated than these stereotypes would allow (Cockburn 1997; Faulkner 2000; Turkle 1988). These views are further supported by feminist scholars within HCI who use ethnographic methods as a means to critically examine the dimensions of sociotechnical gender identities that are stifled due to the masculinist restrictions of conventional computing environments.

Many qualitative researchers within HCI employ interdisciplinary approaches to their work; Rode's ethnographic work on gender and technical identity formation is both reflexive (2011a) and informed by feminist theories and practices (2011b). Rode's feminist grounded theories of gender and technology allow her to generate critical questions about how masculinist privilege renders feminine sociotechnical identities invisible and unexpressed in many computing cultures (2011a; 2011b). Similarly, other scholars within HCI such as Mellstrom (2002), contends that perceptions of technological artifacts are conceptually reductive and masculinist. Masculinist practices within HCI dictate divisions between masculine as technical and feminine as nontechnical. Harding (1988) Rode (2011b) and Wacjman (2010) have acknowledged that these restrictions as applied to the understanding of design practices, the making of artifacts, and user identities are insufficient and problematic. Cockburn (1997) established that binary constructions of gender do not accurately reflect the range of gender sociotechnical identities that are often discovered within ethnographic studies of gender and technology.

As actual men and women do not fit seamlessly into binary categories within computing cultures (Faulkner 2000), it is possible to assert that gender stereotypes are present within HCI, particularly in many scholarly discussions concerning the design and use of technological artifacts. Feminist scholars outside of HCI such as Judith Butler (1990) and Adrienne Rich (1980) have identified these gendered stereotypes as essentialist; essentialist constructions of gender identities rely upon reductive masculine and feminine traits to define gender expression within men and women. Furthermore, essentialist categories of gender insist upon binary oppositions between men and women (Butler 1990; Rode 2011b).

Conventional engineering domains often insist upon these gender classifications as absolute and static. Heterosexuality is a necessary dimension of these binary gender stereotypes (Faulkner 2000; Light 2011), which denies the validity of nonbinary and queer gender expressions. These conceptual constraints are found within HCI perceptions of sociotechnical gender identity formation; these constraints continue to resist the premise that the production and use of technological artifacts are not separate from the social values and technical contexts of use that are embedded within them (Cockburn 1997; Kannibiran et al. 2011). However, binary gender constructions that are widely accepted within HCI literature refuse the potential for other gendered identities to emerge, and refute the existence of a gendered spectrum within engineering environments (Blackwell et al., 2006; Wacjman 2010).

Faulkner (2000) observes that her focus on design engineers as a frame within which to better contextualize gender and technology relations, as "technology is where the power is" (p. 89) as well as the "danger of conflating gender with sex" (p. 89) present within some feminist discussions of engineering culture. The idea that a "diverse range of gender identities" (p. 89) can be found "empirically" (p. 89) too emphasizes how ethnographic approaches to gender and technology relations can disrupt and dismantle binary gender constructions within engineering design cultures. Blackwell et al. (2006) have argued it is feasible to explicate and investigate gendered "stereotypical behaviors" so that one can "identify resulting inequalities, and potentially act to correct them" (p. 1). Hence, these stereotypes of gender should "not be applied indiscriminately to define the ability of individuals" (p. 1).

This is further complicated by notions within engineering design cultures that "industrial plants, space rockets weapon systems and so on" (Faulkner, 2000, p. 93) are standardized representations of technological artifacts. These masculinized images position technology as "hard" and "inert and powerful" (Faulkner, 2000, p. 93). Gendered stereotypes associated with these images also insist upon "an objectivist rationality" (Faulkner, 2000, pp. 91-92) that in turn creates "normative pressures to conform" and that these "pressures...may be gendered" (p. 92). Additionally, the belief that women are users of technological artifacts, rather than designers and producers as well, serves to reiterate the idea that only men can create and understand "real technology" (Faulkner, 2000, p. 94).

One attitude in HCI that creates other obstacles to scholarly inquiry is a resistance by some scholars to engage with human sexuality at all. "Sexuality in HCI is a taboo topic, and attempts to address it have elicited reactions anywhere between politely ignoring it to outright moral high handed judgement" (Kannibiran et al., 2011, p. 701). This is further complicated by the fact that qualitative approaches within HCI reveal conventional gender-technology relations that often perpetuate binary gendered stereotypes. The seemingly impenetrable black box of both engineering design culture and masculinist technology culture requires intimate scrutiny that both ethnographic approaches and critical theoretical contexts can successfully dissect. This is because with nebulous concepts such as gender identity, it is difficult to investigate how these concepts are embodied as they do not always reveal themselves in literal, empirical,

or measurable ways. In order to understand how masculinist computing cultures reify binary gender roles, it is necessary to unpack how this practice is perpetuated within the field of HCI.

Contemporary discussions of gender and technology within the field of HCI often support conventional gender roles for women and men within computing environments (Faulkner, 2000; Wacjman 2010). These traditional sociotechnical gender identities within HCI rely upon the notion of gender essentialism; i.e., the idea that men are inherently technically adept at 'hard' skills such as working with machines as they possess certain fixed traits (Cockburn 1997) and that women are innately adroit with 'soft' skills such as sewing and crafting as they possess certain fixed characteristics (Weibert et al., 2014). Furthermore, essentialist constructions of gender identity promote the notion of mapping heterosexual feminine and masculine gender traits directly onto female and male sexed bodies. The insistence that sex (the biological category a human is born into) and gender (the masculine and feminine characteristics that one expresses within social categories) are equivalent and synonymous renders any identities that deviate from these binary categories to be invisible. Therefore, traditional binary and essentialist gender roles within masculinist HCI viewpoints appear to exclusively support straight, heterosexual masculine and feminine identities (Light 2011). This dominant heterosexual paradigm for sociotechnical identity formation restricts discussions of masculine and feminine identities to solely straight contexts (Kannibiran et al., 2011; Light 2011).

Scholars outside of HCI such as Barad (2011), Butler (1990), and Rich (1980) have demonstrated the mapping of binary masculine and feminine gender identities onto biologically sexed bodies is reductive, as queer identities defy and disrupt binary gender roles. Queer identities are not considered realistic forms of gender expression, as they exist outside of straight and essentialist categories of gender. Thus, they risk being obscured and ignored by conventional masculinist perspectives of gender in HCI. Essentialist configurations of men and women deny the validity of a gendered spectrum of sociotechnical subjectivities. These conventional constructions of gender support the concealment of queer sociotechnical identities by leaving the 'black box' (Light 2011) as a focal point within HCI gender discourses. In order to reveal the inner mechanisms that influence the formation of sociotechnical gender identities, it is important to closely scrutinize the gendered assumptions that prevail within computing environments.

The insistence upon gendered essentialism and binary gender roles within HCI stymies any possibility for the expression of sociotechnical gender identities that exist outside of this duality. Furthermore, these gender roles are situated strictly within the confines of what scholar Adrienne Rich has termed "compulsory heterosexuality" (1980). It is important to understand that masculine and feminine gender identities are not static and unchanging. Rather, masculine and feminine gender identities are flexible constructs that are performed in concert with shifting contexts with regard to gender and technology. Qualitative researchers within HCI have stressed the need for reflexive and varied methods which permit a spectrum of sociotechnical gender identities, that exist beyond masculinist and heteronormative categories, to emerge as a locus of inquiry (Light 2011; Turkle 2011). Queer gender identities are invisible within HCI, as they exist outside of straight and binary constructions of gender (Kannibiran et al., 2011; Light 2011). Scholars within science and technology studies such as Karen Barad (2011) have critiqued feminist scholars such as Butler and Rich for placing gender performativity solely within the realm of discourse, rather than establishing the expression of queer gender categories as "a contestation of the unexamined habits of minds that grant language and other forms of representation more power in determining our ontologies than they deserve" (Barad, 2011, p. 802). Barad (2011) also comments that "performative alternatives to representationalism shifts the focus from questions between descriptions and reality (do they mirror nature or culture?) to matters of practices/doings/actions" (p. 802). She emphasizes the need for the application of feminist and queer theory as lenses within science studies, since these bring "'the social' and 'scientific' together in an illuminating way" (p. 803).

Similarly, HCI scholars such as Ann Light (2011) perceives the process of queering discussions of the sociotechnical as actions in which practitioners "create a space that is flexible enough to keep the discussion open as to who we might turn out to be" (p. 437). She observes that this generates the opportunity for a frame that is a "nonessentialist position on the formation of identity" that instead inscribes "identity through the new sociotechnical initiatives that we devise" (p. 437). As gender performativity is continually filtered through sociotechnical contexts, "who we might turn out to be" (Light, 2011, p. 437) continually positions questions of user agency in HCI as a feminist goal, beyond binarily gendered categorical considerations, and into the "practices/doings/actions" (Barad, 2011, p. 802) that ethnographic inquiries into user behavior can reveal (Rode 2011a; Rode 2011b; Wacjman 2010). These user behaviors include information as a performance (Chatman, 1999, p. 208); information seeking is a crucial component of value sensitive design, and user agency is a feminist sociotechnical context present in IS that discusses this more thoroughly, through the application of ethnographic approaches.

3 User Agency, Information Seeking, and Value Sensitive Design in IS

Chatman (1999), in her ethnographic study of women inmates at a maximum-security prison, concluded that information is a “performance” (p. 208) sustained by contextual shifts that create particular perspectives:

In trying to explain how information aids in forming a worldview, a conclusion I’ve reached is that information is really a performance. It carries a specific narrative that is easily adaptable to the expectations and needs of members of a small world. It also has a certain form. In this situation, the form is interpersonal, and for the most part is being used by insiders to illustrate ways of assimilating one’s personal world to the world of prison life (p. 208).

Chatman’s assertion that “carries a specific narrative” (1999, p. 208) is supported by Dervin’s assertion (1997) that, “context requires a focus on process” (p. 116); often information is constructed as a “form” (Chatman, 1999, p. 208) that is “interpersonal” (p. 208). Furthermore, how information is conveyed and interpreted varies contextually; these contexts are performed and impacted by the interactions between human and nonhuman social actors within information environments. Scholars within HCI such as Dork et al. (2011) have noted that, “Information seeking is an inherently complex human experience that includes a wide range of emotions and motivations beyond a particular problem or need” (p. 2).

This includes situating information seeking within “one’s personal world” (Chatman, 1999, p. 208), as these user-based perspectives are inseparable from the idea of information as narrative and information as performance. Sociotechnical research within IS also promotes the notion that in fact “Information seeking is often portrayed as an activity carried out by knowledge workers interacting with information systems” (Dork et al., 2011, p. 4). However, there is a wider range of information practices in that occurs within ordinary daily life. This specific kind of information seeking is what Savolainen (1995) has described in part as “The concept of everyday life information seeking (ELIS) emphasizes the legitimate nature of the nonwork contexts” (p. 266). Feminist IS scholars such as Chatman, and Westbrook have applied everyday life information seeking (ELIS) to their research; they have also eclipsed “nonwork contexts” (Savolainen, 1995, p. 266) through their ethnographic investigations into underrepresented female populations. These ethnographic studies pursue information seeking into areas of value sensitive design as well as user agency.

Batya Friedman (1996) has commented that in order for user agency to manifest both contextually for and between human social actors, information technologies should in turn reduce the amount of articulation work conducted by users, as well as be customizable to user needs as they contextually shift:

The point here is that users’ goals often change over time. Thus to support user autonomy, systems need to take such change into account and provide ready mechanisms for users to review and fine-tune their systems (p. 19).

The notion that “users’ goals often change over time” (Friedman, 1996, p. 19) is an integral component of value sensitive design; Westbrook (2006) posits that, “culturally-aware and user-responsive information systems should certainly address preferences for personalized information” (p. 423). She has also identified severe risks for domestic violence survivors who in turn require immediate access to information in order to escape dangerous situations from abusers who threaten their victims’ physical, psychological, and emotional safety (2008).

Sociotechnical spaces can also contribute to restrictions upon information seeking; this too is a concern of value sensitive design, as evidenced by Chatman’s research (1996; 1999). These environments influence social norms, which in turn directly impact how information is concealed, shared, resisted, or discarded within groups (Chatman 1996). In her groundbreaking study on information poverty, Chatman (1999) explained that “Social norms affect the exchange of information because they set parameters around the communication process” (p. 204). Current ethnographic internet research in IS supports this contention; in a study of “Best Answer” pairs from the LGBT threads of Yahoo Answers, Kitzie (2015) discovered:

By only rendering certain elements of an LGBT identity visible both within offline and online communities, an individual’s perception of what information is relevant to them and further, their awareness of possible identity expressions, is profoundly affected (p. 10).

Therefore, sociotechnical environments both digital and physical directly impact how information is

performed (Chatman 1996) and their design has a considerable influence on how information is transferred, interpreted, withheld, and understood. Kitzie's study (2015) also revealed that sociotechnical identity formation within digital information environments was a process of sexual orientation performativity and information performativity:

For many individuals who visit this thread due to a perceived lack of other resources regarding an LGBT identity, receiving an answer that removes establishment of an LGBT identity from the realm of discursive possibility can have a consequential impact on how the individual continues, or discontinues, establishing an LGBT identity (p. 11).

Potential anonymity in digital spaces does create insider/outsider barriers to information seeking (Chatman 1996); additionally, Chatman (1996) observed that "The decision to keep things secretive is reasonable when faced with a set of circumstances in which one views things from an outsider's perspective. From this stance, one encounters the world of others with utmost suspicion" (p.200). Sociotechnical contexts that shift within digital environments actually promote the "utmost suspicion" (p. 200) of information both provided and resisted. When questions of identity and authenticity are nebulous in online domains, sociotechnical identity formation is becomes more challenging and this in turn creates a very pressing need for more investigations into value sensitive design within IS. This is particularly challenging when one considers marginalized populations such as the LGBTIQA, various populations of women, etc.; information seeking is directly impacted by sociotechnical spaces; information seeking and its relevance to value sensitive design as feminist goals should be of more concern to scholars in HCI.

4 HCI and IS: Shared Feminist Goals

Feminist HCI scholars have surmised that maker spaces are sociotechnical environments that could support value sensitive design, as they in particular are created with democratic goals for all types of learning styles and levels (Fox et al., 2015; Kuznetsov, S., & Paulos, E. 2010; Lindtner et al., 2014). User agency within these settings remains a possibility within these nontraditional information and computing environments. Conversely, current discussions of maker spaces in HCI (Tanenbaum et al., 2012; Tanenbaum et al., 2013) still refuse to acknowledge that there is a population of individuals that might be too intimidated and/or may not feel welcome in these settings. Those individuals who feel the least welcome and are the least studied in maker spaces are largely different groups of women (Fox et al., 2015).

Technology as a masculinist culture is actually only one component of this issue; many ethnographic inquiries in conventional HCI literature regarding maker culture may appear to inadvertently marginalize women, amateurs, people of color, LGBTIQA individuals, etc. (Fox et al., 2015) as they are not represented fully, or at all visible, in these studies. Additionally, many maker spaces tend to be masculine in appearance and mainly promote traditionally masculinist activities, rather than more feminine craft pursuits (Fox et al., 2015; Weibert et al., 2014). Sociotechnical contexts of information seeking within groups of women who are alienated from masculinist maker spaces lead to the construction of new, explicitly feminist maker spaces (Fox et al., 2015) as well as closed communities of women that in turn create their own standards for insiders/outsiders (Chatman 1996). HCI feminist scholars would greatly benefit from understanding how scholarly discussions in IS of information seeking can meaningfully contribute to understanding the processes of sociotechnical identity formation, gender performativity, and the value sensitive design of sociotechnical environments that support diversity and access.

Feminist IS scholars are particularly concerned with digital tools and online access in current modes of research. Westbrook's investigations into how online access for DV survivors has very real consequences for the women she studied (2006; 2008). Chatman's research into information seeking (1996; 1999) could potentially be applied to discussions of digital spaces, particularly those that host and endorse user groups who may be unintentionally obscured within traditional IS studies. IS has a long and venerable tradition of feminist scholarship, and a more flexible approach to engaging with varied and marginalized user populations. Feminist IS scholars could benefit from HCI design literature that contains deep ethnographic studies of marginalized populations, value sensitive design, and user agency as an embodied sociotechnical gender identity performance (Weibert et al., 2014). User agency is at the crux of feminist research in HCI and IS; an interdisciplinary dialogue between these two seemingly disparate fields would promote more thorough inquiries into 'real world' implications for diverse and marginalized user groups, who may not comfortably conform to traditional computing cultures (masculinist) and normative information settings (libraries).

5 Future Works

Sociotechnical objects, contexts, spaces, and artifacts all contribute to how information is transferred and how identities are constructed in response to information flow. Feminist HCI is starting to investigate more oppressed user populations; however, this is problematic as much of HCI literature (design literature in particular) resists intersectionalist critiques of technology as masculinist culture (Dork et al., 2011; Fox et al., 2015; Turkle 2011; Wacjman 2010). Feminist IS research supports intersectionalist research goals, but methodologically has not yet linked information seeking and value sensitive design explicitly to design and engineering cultures that directly influence how information is transmitted, archived, and understood within online and offline networks as well as with regard to librarians, knowledge managers, and other gatekeepers. Future work in these areas needs to incorporate and implement further collaboration and cooperation between feminist IS and HCI scholars, to create sociotechnical systems both digital and physical that can promote user agency in new and exciting contexts.

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