Identifying Women's Experiences With and Strategies for Mitigating Negative Effects of Online Harassment

Jessica Vitak[1], Kalyani Chadha[2], Linda Steiner[2], and Zahra Ashktorab[1]
[1]College of Information Studies [2]Merrill College of Journalism
University of Maryland, College Park
{jvitak, kchadha, lsteiner, parnia}@umd.edu

ABSTRACT
The popularity, availability, and ubiquity of information and communication technologies create new opportunities for online harassment. The present study evaluates factors associated with young adult women's online harassment experiences through a multi-factor measure accounting for the frequency and severity of negative events. Findings from a survey of 659 undergraduate and graduate students highlight the relationship between harassment, well-being, and engagement in strategies to manage one's online identity. We further identify differences in harassment experiences across three popular social media platforms: Facebook, Twitter, and Instagram. We conclude by discussing this study's contribution to feminist theory and describing five potential design interventions derived from our data that may minimize these negative experiences, mitigate the psychological harm they cause, and provide women with more proactive ways to regain agency when using communication technologies.

Author Keywords
Online harassment; cyberbullying; social media; misogyny

ACM Classification Keywords
K.4.2. Computers & Society: Social Issues

INTRODUCTION
The emergence of new online technologies was initially accompanied by a celebratory discourse that underscored the democratic and participatory potential of the internet. This new medium, it was frequently and vigorously argued, undermined old societal distinctions and created new opportunities for traditionally marginalized groups such as women to enter and interact within the public sphere. Some even argued that the lack of physical cues in mediated environments would enable women and men to participate equally, thereby rendering gender issues irrelevant [10].

Implicit in such optimistic discourse were assumptions that technology was gender neutral and immune from the power asymmetries and social hierarchies of the offline world. However, these assumptions about a disjuncture between online and offline worlds have been challenged by research indicating that harassment is a pervasive feature of online environments [25]. According to a 2014 Pew Internet study [14], online harassment significantly impacts both men and women, albeit in different ways. This study focuses on understanding and unpacking young women's online harassment experiences.

Feminist scholars regard online harassment as part of a wide range of harassing behaviors that women experience, consistent with a misogynist ideology that considers women as inferior [30,31,39]. For example, researchers who set up fake online user identities found that users with female-sounding names were 25 times more likely to receive threatening and/or sexually explicit messages on an online forum than male-sounding names [44]. On the average, accounts that seemed to belong to women received 100 such messages *every day,* compared to 3.7 for accounts that seemed to belong to men.

Young women face several forms of harassment at higher rates than older women [14], and the pervasive harassment they experience online—which is further amplified by the sociotechnical affordances of social and mobile media—is disturbing. But the current understanding of online harassment is largely limited to high-profile anecdotal evidence and descriptive surveys providing frequency data across different populations. Furthermore, the psychological, professional, and financial impacts of such harassment highlight the *critical need* for rigorous empirical studies that provide insights for gender theorists, social computing researchers, and social media managers so that newly created and still developing platforms avoid online harassment.

To meet this need, we present findings from a survey study of 659 undergraduate and graduate women at a large (37,000+ students, 25% from underrepresented populations) U.S. public university. Findings highlight the current prevalence of online harassment experiences, account for the ways social media's affordances increase opportunities for harassment, and unpack the social and psychological factors most associated with experiencing harassment online. In this study, we conceptualize online harassment as "intentional behavior aimed at harming another person or persons through computers, cell phones, and other electronic devices, and perceived as aversive by the victim"

CSCW '17, February 25-March 01, 2017, Portland, OR, USA

ACM 978-1-4503-4335-0/17/03···$15.00
DOI: http://dx.doi.org/10.1145/2998181.2998337

(p. 588) [56]. We operationalize harassment through a weighted scale capturing women's experiences with nine types of harassing events ranging in severity. This measure provides a rigorous account of women's experiences with online harassment and is the first non-platform specific measure to account for how social and mobile media are redefining the experience of harassment.

We begin by synthesizing several decades' work on gender and harassment, as well as the current state of knowledge regarding online harassment in the age of constant connection. We then present findings from a survey of 659 women about their experiences with online harassment. Analyses assess characteristics associated with the most severe harassment experiences across type and frequency, as well as factors associated with women's likelihood of witnessing harassment on Facebook, Twitter, and Instagram. Finally, we discuss how these data contribute to feminist theory and enhance our understanding of how sociotechnical affordances exacerbate threats women face every day online. We also provide design recommendations focused on minimizing risks and providing women with proactive ways to regain agency online.

GENDER'S ROLE IN HARASSMENT EXPERIENCES

Harassment of women is widespread; the problem has persisted for as long as women have ventured out in public spaces. Historically, both theoretical and empirical research on harassment has focused on a subset of behaviors. For example, Gardner [20] describes women's concern about their physical safety in public spaces, i.e., sites and contexts considered by society to be "open to all." Gardner's research subjects experienced what she calls "heterosexually romanticized public harassment": catcalls and unwanted touching in public spaces, as well as societal disregard for such public harassment. Likewise, the definition of sexual harassment has evolved over time. Feminist work in the 1970s helped shift the legal system's definition to viewing sexual harassment as a form of discrimination and, consequently, a civil rights violation [17,38]. In the 1980s, the definition of sexual harassment was expanded to include sexist conduct such as telling sexist/misogynist jokes and addressing colleagues in sexually objectified terms [28].

Empirical data on women's harassment experiences exposes the extent to which abusive behaviors are gendered. Gallup's 2011 Crime Study found that, in many developed countries, women feel less safe than men walking alone at night; for example, in the U.S., 38% of women reported they did not feel safe, compared with just 11% of men [9]. Likewise, a 2000 national study found that almost all women (87%) had experienced street harassment and more than half reported "extreme" forms of harassment including being touched, grabbed, brushed, or followed by a stranger [74]. Perhaps most disturbing, *every* woman Gardner [20] interviewed over ten years (N=293) cited instances of being harassed on the street.

Furthermore, gender—and therefore gender-based harassment—intersects with race, religion, status, and sexual orientation; it is often motivated by women's color, their status (real or perceived) as disabled, or because of their sexual or religious orientation. Certainly this seems to be the case online where, according to Jane [31], women are targeted by discourse that "is more rhetorically noxious and occurring in far broader communities than earlier iterations of gender-based harassment documented in scholarly literature" (p. 284).

Although consensus about what exactly constitutes online sexual harassment is still emerging—likely in part due to the relatively new and evolving nature of technology and harassing behaviors—researchers have generally framed online harassment in terms of behaviors ranging from less severe (offensive names, purposeful embarrassment) to more severe (physical threats, stalking, sustained harassment over time, sexual harassment) [14]. Researchers also employ a variety of terms to encompass these behaviors, ranging from cyberbullying—which is normally targeted at tweens and teens—to cyber-aggression and cyber-hate. The majority of studies focus on adolescents (e.g., [33,47]) or undergraduate students (e.g., [18,36]).

At least two explanations have been offered for the apparent hostility toward women online. Leslie Regan Shade [58] is among those emphasizing the continuing and essentially circular problem of women's exclusion from the computing and hardware/software development sector. With the rise of online communication forums, re-traditionalized gender hierarchies and inequalities account for what Henry and Powell [22] call "technology-facilitated sexual violence and harassment." Instead of focusing on the character of the technology per se or competition for high status tech jobs, Jane [30,31] argues that the misogyny generally circulating in society migrated online, where it became normalized; gendered cyber-hate in the form of rape threats and sexualized vitriol have become regular aspects of women's quotidian experiences online. Moreover, gendered cyber-hate can discourage women's participation in the public sphere. Thus online harassment, as Jane [30,31] insists, is a *social* rather than an individual problem. Unlike online attacks on men, women are harassed *because they are women*. As Chemaly [6] notes, "[a] lot of harassment is an effort to put women, because they are women, back in their 'place.'"

GamerGate[1] is a prime example of women facing severe harassment because they are women. In 2014, *Feminist Frequency* host Anita Sarkeesian and independent game developer Zoe Quinn experienced highly coordinated and toxic acts of "harassment, defamation and real life threats" initiated by anonymous individuals who leveraged the online environment to escalate their attacks and even recruit new attackers [23]; the authors emphasize the power of

[1] For a comprehensive overview of GamerGate, see [45].

online popular culture to negatively impact the lives and relationships of women working within these spheres.

Recent research highlights several challenges to minimize barriers to women's participation in the online public sphere. For example, Guberman and colleagues [21] evaluated #GamerGate verbal violence on Twitter, with the goal of developing an automated system for harassment detection; however, they found that coders could not agree on a definition of online harassment. Likewise, feminist legal scholar Danielle Citron [7,8] notes that while online harassment often causes women physical and emotion harm, current laws do not address—and police rarely prosecute—such abuse. Citron [7] blames the long history in law and regulation of dismissing women's complaints as part of daily life for the trivialization of online sexual harassment as harmless teasing.

MAPPING THE RISE OF ONLINE HARASSMENT

In general, women are more likely to report being stalked and harassed online than offline [67]; likewise, teenage girls are far more likely to face such attacks than boys, with data highlighting that young women experience stalking and sexually harassment at "disproportionately high levels," with a Pew study finding that 26% of women reported being stalked online and 25% were the target of online sexual harassment [14]. Young women also experience heightened rates of physical threats and sustained harassment when compared to their male peers. The less severe forms (e.g., being called offensive names or purposefully embarrassed) are so frequent that targets say they often ignore it [14]. More severe harassment (e.g., being physically threatened, stalked, harassed over a long time, or sexually harassed) can inflict serious emotional toll. Online harassment has been associated anecdotally and in the literature with numerous outcomes including emotional distress, self-censorship, and withdrawal from social media and other online spaces.

Researchers have evaluated a range of misogynistic behaviors targeted at women. Finn's [18] 2004 survey of 339 university students found that approximately 10-15% of women reported receiving repeated threatening, insulting, or harassing email or IM messages from strangers, acquaintances, and/or significant others; half received unwanted pornography. A 2011 replication study at a different university found significant increases in the prevalence of harassment, with 43.3% of women saying they had been harassed in some way [36].

How Affordances Are Reshaping Online Harassment

Social and mobile media have reshaped the communication landscape, enabling frictionless sharing of text, images, and videos to large and diverse audiences with a few clicks. Our experiences using technology to connect and interact with others are being significantly shaped by the sociotechnical affordances of these platforms [15,57,65]; likewise, online harassment behaviors are also evolving with technology.

Several affordances likely have an amplification effect on online harassment. Social media platforms, including Twitter and YouTube, increase the *visibility* of content, making harassment available to a much wider audience and enabling wide-reaching calls for others to engage in negative behaviors. Likewise, the persistence of harassment makes mitigating the negative psychological effects on women more difficult. This is especially problematic when sensitive content—such as provocative or nude photos—is shared publicly; young women typically cannot control the spread of such content and are subsequently labeled with pejorative terms via "slut shaming" [37,48,54].

Sites that afford anonymity and/or pseudonymity may also encourage or embolden harassers due to the *online disinhibition effect* [62], the idea that people disassociate their "real" identity from their online actions, and therefore act in more negative ways online than they would offline. Research supports this conclusion. For example, women playing online games where players are represented by pseudonymous avatars experienced significant amounts of general and sexual harassment in game; such experiences predicted withdrawal from the gaming environment [19]. Likewise, research comparing comments on videos from two popular YouTubers found that the woman received critical or hostile feedback four times as often as the man, and half of the woman's negative feedback was sexually or aggressively harassing [73].

How Online Harassment Affects Women's Well-Being

Victims of online harassment may experience emotional distress, with negative consequences including withdrawal from social network sites or, in extreme cases, self-harm [34]. Women are nearly twice as likely to list "fear of personal injury" as their foremost concern while interacting online, followed by fears related to their reputation [41]. Given these concerns, many women choose to self-censor when using mediated communication platforms; in more extreme cases—such as when harassment persists over time—they may delete their accounts completely [8,26]. Adolescent cyberbullying victims suffer multiple negative consequences, including significant emotional problems (e.g., anxiety and depression) and school-specific problems (e.g., absenteeism) [47].

Danielle Citron describes how online harassment takes away women's sense of agency [8]:

> *Online threats of sexual violence "literally, albeit not physically, penetrate" women's bodies. They expose women's sexuality, conveying the message that attackers control targeted women's physical safety (pp. 384-385).*

More serious types of harassment, such as threats of violence or rape, sharing intimate photos or videos, and doxxing (i.e., posting personal information such as one's home address) are likely to have significant negative effects on women's well-being, leaving them feeling helpless.

As noted above, women often respond to harassment by disengaging from the online community [7,8,19,59]. When fear of harassment prevents women from engaging in online communities, it can lead to increased loneliness and decreased well-being as they are unable to participate in activities they previously found fulfilling. Researchers evaluating cyberstalking find that nearly all participants (97.5%) who had experienced cyberstalking reported negative emotional consequences; compared to those who had not experienced cyberstalking, they reported a significantly lower sense of well-being [13].

CURRENT STUDY: WOMEN'S EXPERIENCES WITH, PSYCHOLOGICAL CONSEQUENCES FROM, AND STRATEGIES FOR MINIMIZING ONLINE HARASSMENT

While the above synthesis of research provides an important foundation for understanding the current state of online harassment—and consequently for designing mitigation tools—most public information about women's experiences is anecdotal, centering on highly publicized cases of severe harassment, as in the cases of women targeted in #GamerGate, and to a lesser extent, of well-known feminists (e.g., Jessica Valenti, Linda West). Published research evaluating the prevalence of online harassment is outdated [18], highly descriptive in nature [14], focuses on a subset of harassment [14], and/or limits experiences to a single platform [19,33,63]. Moreover, few researchers have used their data to consider the strategies women might implement to minimize the prevalence of harassment.

Therefore, the present study seeks to unpack the online experiences of contemporary "average" (i.e., not celebrities) young women when navigating social technologies. First, research indicates that minority groups (racially and sexually) are harassed more frequently online [18,27], so we expect to see a similar trend in our data.

> **H1:** Young women representing minority groups will report experiencing online harassment at a significantly greater frequency and severity than non-minorities.

Second, based on our understanding of the connection between women's harassment experiences and their well-being [3,67], we would expect that the well-being of women who frequently experience harassment will be lower than women who experience little to no harassment online. Likewise, we expect women who have more negative experiences online to view social media as more harmful to their well-being.

> **H2a:** Young women's overall well-being will be negatively correlated with the frequency and severity of their online harassment experiences.

> **H2b:** Young women's social media-specific well-being will be negatively correlated with the frequency and severity of their online harassment experiences.

Research in the CSCW and CHI communities is increasingly focused on how social media users manage their online identities. These studies, often framed through a lens of minimizing negative outcomes associated with *context collapse* [40,68], highlight the various social, technical, individual, and group strategies users can employ to establish more control over who can view their content and/or access their profile [34,61,69,71]. Women who have experienced harassment may choose to engage in more activities to protect their identity and to minimize the negative effects associated with the harassment. Rather than disengaging from an online community—which has been identified as one remedy women employ to avoid harassment [7,19]—some women may choose alternative strategies to preserve the benefits they associate with use. Conversely, women who are very active in managing their online profiles may experience less harassment, especially when employing strategies like self-censorship. Therefore, we propose the following competing hypotheses:

> **H3:** Young women's engagement in online impression management strategies will be (a) positively / (b) negatively correlated with the frequency of their online harassment experiences.

Finally, we address how women's harassment experiences may vary across social media platforms, which have different features and affordances; these may either exacerbate or reduce harassment. For example, Twitter affords some level of anonymity, which may encourage greater frequency and severity of harassing behaviors [62]. On the other hand, Instagram recently added a feature to allow users to filter out comments that contain negative language (although this feature had not been added at the time of data collection). Because of the variations in popular social media platforms, we are also interested in understanding the extent to which harassment experiences vary across the three most popular social media sites for young adults: Facebook, Instagram, and Twitter. Therefore:

> **RQ1**: How do young women's experiences with harassment vary across popular social media platforms?

METHODS

Procedure and Sample

In October 2015, a random sample of 4000 women university students was obtained from the registrar of a large, public U.S. university of more than 37,000 students. Some 3000 undergraduate and 1000 graduate students were invited via email to participate in a 10-15 minute survey about their communication technology use and experiences with online harassment.

The email included a link to the consent form and survey, hosted on SurveyGizmo. As the questions in this study might cause emotional distress—especially among those who had been victims of harassment—language in the consent form and the survey itself emphasized that any

Item	Mean (SD) / %
Social Media Use	
Facebook	94.2%
Instagram	74.7%
Messaging Apps	72.4%
Snapchat	67.1%
Twitter	56.0%
Tumblr	35.4%
Tinder	14.1%
Reddit	13.7%
Average # of sites used (max: 11)	4.86 (2.06)
Year in School	
Freshman / Sophomore	23.8% / 14.9%
Junior / Senior	16.2% / 3.9%
Grad Student	40.7%
Age	22.81 (6.53)
Race	
White	53.3%
Asian	26.1%
Black / Latino / Multiracial	7.7% / 5.3% / 4.9%
Sexual Orientation	
Heterosexual	89.5%
Lesbian / Bisexual / Other	9.9%
Experienced Harassment growing up	43.6%

Table 1. Descriptive statistics for full sample (N=659).

question could be skipped without penalty. The final page of the survey provided links to resources, including the university's office of civil rights and sexual misconduct and WHO (Working to stop Harassment Online; see [72]). No identifying information was collected.

Those who completed the survey had the option to submit contact information through a Google Form to enter a raffle for one of 30 $25 Amazon gift cards. Two reminder emails were sent to students who had not yet completed the survey. The survey remained open for two weeks; at the time it was closed, 665 responses (659 usable) were received; accounting for bad email addresses, the response rate was ~17%. Sample descriptive statistics are in Table 1.

Measures

Online harassment frequency

One of the challenges to empirically evaluating online harassment experiences is in operationalizing the variable. For this study, we asked participants about their harassment experiences through several questions. Participants were prompted with the following text:

> *As social media platforms and new technologies become popular, we have seen an increase in people—and women especially—being the targets of online harassment. This could be messages directed toward you or general messages that reference you directly or indirectly. They can be sent privately (e.g., text message) or publicly (e.g., Instagram post). Online harassment includes any type of message that makes you feel upset or uncomfortable about the content being shared.*

Items[1]	M	SD	Weight
Been "doxxed" (i.e., had someone post personal contact details online, e.g., home address. or phone number)	1.11	0.48	3.00
Had an ex-partner share private messages, videos, or images of you publicly or with other friends	1.21	0.63	2.50
Had a friend (non-romantic) share private messages, videos, or images of you publicly or with other friends	1.35	0.77	2.50
Been called offensive names in a public online space	1.54	0.94	2.00
Received unwanted pornographic messages	1.66	1.03	2.00
Received messages from someone you don't/barely know that threatened, insulted, or harassed you	1.59	0.94	2.00
Received messages from an acquaintance or friend that threatened, insulted, or harassed you	1.47	0.89	2.00
Received messages from a "significant other" that threatened, insulted, or harassed you	1.36	0.82	2.00
Received messages from someone even after you told him/her to stop e-mailing you	1.68	1.03	1.50
9-item Scale (alpha = .84)	**1.44**	**0.58**	**

[1] *Scale range: 0=never to 4=more times than I can count.*
** *Weighted scores were calculated so that participants with no experiences would have a score of zero. The average score was 8 (median=4, SD=10.87, range: 0-58.50).*

Table 2. Online harassment experiences frequency items

Participants were then asked, "Have you ever been harassed before through text messages, social media, email, or related technologies?"; 63.2% responded "yes." Next, we asked all participants about the frequency with which they had experienced 14 negatively valenced behaviors on a 5-point scale (0=Never, 1=Once, 2=A few times, 3=More than a few times, 4=More than I can count). These items were derived from prior studies of women's online harassment experiences [14,18,36]. The harassment items varied in severity from the more minor (e.g., "Had someone try to purposefully embarrass you") to direct threats (e.g., "Been doxxed") to capture the full spectrum of experiences; however, because of this variance, creating a simple scale variable would treat experiences at the two ends of the spectrum equally. Therefore, we chose to calculate a weighted measure of harassment frequency. Scores for each item were multiplied by a weight value ranging from 1.5-3

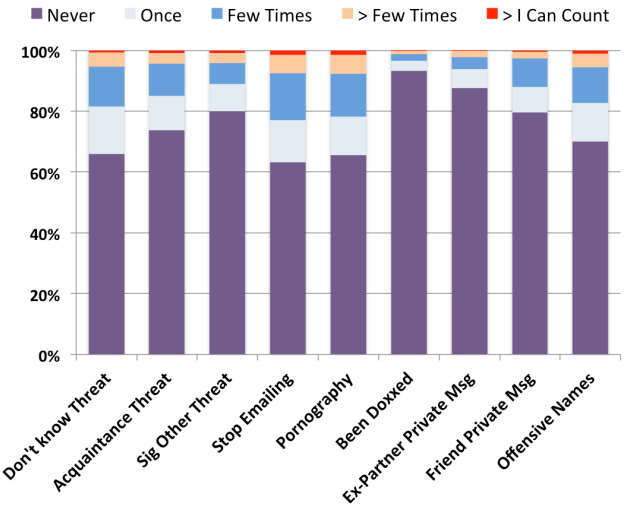

Figure 1: Response frequencies for eight harassment items included in dependent variable.

based on the severity of the behavior.[2] Final scores were calculated by summing the weighted values, with responses of "never" counting as zero in the index. The distribution exhibited high skew (2.06) and kurtosis (3.55), so 30 cases containing values higher than three standard deviations from mean were adjusted downward; this revision reduced the skew and kurtosis to acceptable levels (1.76 and 2.67, respectively) and was used in all analyses (M=7.70, median=4, SD=9.83, range: 0-43.5). Approximately 28% of participants (n=183) reported they had *never* experienced any of the 9 items measured. See Table 2 for items, means, and standard deviations for items in the final measure and Figure 1 for the frequency distribution of each item.

Perhaps the most distressing finding from looking at the harassment data is the implication that women have become desensitized and/or tolerant of some types of harassment because these have become embedded and normalized components of online interaction. This is most clearly highlighted in the discrepancy between the percentage of women who responded "Yes" to the question, "Have you ever been harassed before through text messages, social media, email, or related technologies?" (63.2%) and the number of women who reported experiencing one of the nine types of harassment listed in Table 2 (77.8%). This difference was statistically significant, $\chi 2(1)=78.24$, $p<.001$, $\Phi = .346$, and indicates a moderate effect size. This finding will be explored more in the Discussion.

Site-specific experiences with online harassment

For each social media platform actively used, participants were asked questions about their attitudes toward and use of the site. For each site, participants were asked: "How frequently have you had interactions or seen content on [site] that made you upset or uncomfortable?" and responded using a 10-point slider scale with end points of "Never" (value=1) and "Very Often" (value=10). Participants also indicated how frequently they used each platform on a 10-point sliding scale ranging from 1=Less Than Once a Week to 10=Multiple Times Per Hour. Detailed information for each site is included in Table 3.

Platform	Anonymous / Identified[1]	N Using Platform	Freq Seen Harassment[2]	Use Freq[3]
Facebook	Identified	572	3.40/2.02	6/2.5
Messages	Identified	449	1.84/1.52	6/3.5
Instagram	Both	449	2.37/1.70	6.5/3
Snapchat	Both	416	2.84/2.00	7/2.8
Twitter	Both	337	2.82/2.04	5/3.2
Tumblr	Both	211	3.02/2.30	4.5/3
YikYak	Anonymous	190	3.80/2.30	4/2.8
Reddit	Anonymous	82	2.68/2.64	3.5/3

[1] Platforms like Facebook require users to use their "real identity" whereas apps like YikYak allow anonymous or pseudonymous interactions. [2] Mean/SD; measured on 10-point sliding scale (range: 1=Never–10=Very Often). [3]Mean/SD; measured on 10-point sliding scale (range: 1=Less Than Once a Week, 10=Multiple Times an Hour).

Table 3. Details of participant engagement and harassment experiences on major social media platforms.

For Facebook, Twitter, and Instagram, participants were asked about the personal information they disclosed in their profiles. Participants could select from a list of eight information types, including full name, email address, phone number, personal website URL, location, education, employment, and likes/hobbies. Participants included significantly more personal information on Facebook (M=4.10, SD=1.51) than on Twitter (M=1.58, SD=1.21) or Instagram (M=1.47, SD=1.41), likely because Facebook's features afford greater sharing of likes, hobbies, and related content.

Measuring perceptions of well-being

Because of empirical links between individuals' experiences with harassment and their well-being [3,67], we included several items to measure aspects of participants' perceived well-being. First, we included two validated scales: the UCLA Loneliness Scale [53] and Rosenberg's Self-Esteem Scale [51]. The UCLA Loneliness Scale includes 20 items and asks participants to indicate the how often each statement is descriptive of them (5-point scale, 1=Never to 5=Very Often; α=.95, M=2.91, SD=.73); thus, higher score indicates greater perceived loneliness. Sample items include: "It is difficult for me to make friends" and "I feel as if nobody really understands me." Rosenberg's Self-Esteem Scale includes seven items on a 5-point scale (1=Strongly Disagree to 5=Strongly Agree,

[2] Note: Five items from the original corpus of 14 were removed from the final index because they were deemed too ambiguous to or were redundant with other items.

Items	M	SD
Spend time thinking about who can see a piece of content you're sharing.	3.34	1.02
Delete content **before** posting (i.e., you write it but then change your mind).	3.19	0.97
Change the wording of a status update to avoid angering the recipients.	2.88	1.06
Delete content you've already posted.	2.81	0.99
Ask someone to delete content (e.g., a picture) that you don't want online.	2.22	0.95
Ask someone to untag you in a post.	2.24	0.98
Defriend or block someone because they have sent you harassing messages.	2.12	1.09
Defriend or block someone because you are offended or upset by the content they share.	2.28	1.03
Decide to not post/share content to avoid receiving negative responses from friends.	2.39	1.07
Decide to not post/share content to avoid receiving negative responses from strangers.	1.97	1.04
Share content anonymously to prevent people from knowing you're the source.	1.76	1.25
Delete or deactivate an account/app because of drama or harassment.	1.59	0.94
Scale (alpha = .85)	**2.40**	**0.62**

Note: *Participants were asked to rate the frequency with which they engaged in the listed behaviors when interacting digitally (Five-Point Scale: 1=Never to 5=Very Often).*

Table 4. Items, means and standard deviations in online impression management scale.

α=.88, *M*=4, *SD*=.66); thus, a higher score indicates higher self-esteem. Sample items include: "All in all, I am inclined to feel that I am a failure" (reverse coded) and "I take a positive attitude toward myself."

Two original items were included to gauge students' perceptions about the relationship between their social media use and well-being. These items, measured on 10-point sliding scales, were "Overall, my experiences using social media have been…" (1=Very Negative to 10=Very Positive; *M*=7.36, *SD*=1.50) and "Overall, I think my use of social media has…" (1=Negatively Affected My Well-Being to 10=Positively Affected My Well-Being; *M*=6.42, *SD*=1.69). When averaged, the two items produced a reliable measure (α=.78; *M*=6.93, *SD*=1.45).

Online Impression Management Strategies

Drawing on prior work examining social media users' social and technical strategies to manage their online identity [35,69] and national surveys of people's internet behaviors [49], we developed a pool of items to capture individuals' engagement in impression management online. These items included cognitive (e.g., reflecting on how content could be misunderstood by the audience), social (e.g., asking a friend to delete content or tags), and technical (e.g., deactivating an account, blocking another user) behaviors. Participants were prompted with the following text: "*How often do you engage in the following behaviors when interacting digitally (e.g., through social media, smartphone, messaging)?"* and responded on a five-point Likert-type scale ranging from 1=Never to 5=Very Often with a midpoint (3) of "Sometimes." The final scale included 12 items and was reliable (α=.85, *M*=2.40, *SD*=0.62). See Table 4 for items, means, and standard deviations for each item.

Data Cleaning

After the survey closed, the responses were downloaded into SPSS and checked for errors. Cases that included excessive amounts of missing data (>20%) and cases that included more than 20% of items in any given scale were removed. This led to the removal of six cases. Missing data analysis was conducted and in some cases, missing data were replaced using expectation-maximization imputation.

FINDINGS

Factors Predicting Women's Frequency and Severity of Online Harassment Experiences

To test our three hypotheses regarding the relationship between individual characteristics and online harassment experiences, we conducted a nested OLS regression. Using the weighted online harassment scale—which accounts for both the frequency with which women reported experiencing the nine types of harassment as well as differences in severity of behaviors—as the dependent variable, we entered the independent variables (IVs) into the model in clusters, first evaluating individual traits, then social media-specific factors. Standardized betas are included in Table 5.

In the first step, we entered our control variables, which included individual characteristics like race, sexual orientation, and college status, as well as two measures of well-being: loneliness and self-esteem. These variables explained 5.3% of the variance in the frequency and severity of young women's online harassment. In this step, we see that when controlling for the effect of other variables, sexual orientation was a significant predictor of online harassment (β=-08, p<.05), providing support for H1. Likewise, loneliness (β=.14, p<.01) and self-esteem (β=-.11, p<.05) were significant predictors, providing support for H2a. Interpreting these findings, non-hetero women and those with higher loneliness reported experiencing more significant online harassment.

In the second step, we added three social media-specific variables, significantly increasing the R^2 to .17. Findings suggest that young women who use more social media platforms (β=.13, p<.01), who believe their use of social media has a negative impact on their lives (β=-.16, p<.001), and who more frequently employ strategies to manage their online identity (β=.28, p<.001) are more frequently victims of online harassment. With the addition of these variables, the two measures of well-being and sexual orientation fell out of the model as significant predictors. These findings provide support to H2b that young women who view social

IV Data Entry	Step 1	Step 2
	Standardized Coefficients	
(Constant)	***	***
Sexual Orientation: Straight	-.081*	-.065
Race: White	.037	.046
Student Group: Undergrad	-.001	-.067
UCLA Loneliness Scale	.142**	.056
Self-Esteem Scale	-.106*	-.059
# of Social Media Sites Used		.122**
Social Media & Well-Being		-.129**
Impression Management Scale		.287***
F-test	***	***
Adjusted R^2	**.053**	**.166**

* p <.05, ** p < .01, *** p < .001

Table 5. OLS regression predicting frequency and severity of women's online harassment experiences.

media as negatively affecting their lives have experienced more online harassment, and to H3a that women who are harassed more frequently online engage in more strategies to manage their online presence. The competing hypothesis, H3b, was not supported.

Predicting Harassment Experiences on Popular Social Media Platforms

Finally, we considered how exposure to negative and/or upsetting content may vary across social media platforms. One common assumption is that people are more likely to engage in negative behaviors online when they can hide behind a shroud of anonymity, or what Suler [62] terms the online disinhibition effect. Sites like Facebook require users to use their "real identity," which is intended to create a degree of accountability for one's actions. That said, we know that women experience harassment across all online communication channels, so we were interested in seeing if the factors associated with site-specific harassment were consistent or if they varied.

To address RQ1, we conducted three OLS regressions to analyze potential factors associated with young women's harassment experiences on Facebook, Twitter, and Instagram—three of the most popular social media platforms where users tend to disclose a lot of personal information that ties back to their identity. When considering the affordances of social media, the visibility and persistence of content is significantly higher on these sites than on more ephemeral platforms like Snapchat.

Table 6 presents the results of these regressions, including data from all participants who reported having an active account for a given platform. For each regression, the DV was a single, continuous item capturing the frequency with which participants saw content "that made you upset or uncomfortable." In general, the three platforms exhibited similar patterns, sharing the same trends for (1) frequency of use, which was positively correlated with observations of upsetting content; (2) attitudes toward social media, which were negatively correlated with observations of upsetting content; and (3) engagement in impression management strategies, which were positively correlated with observations of upsetting content. On the other hand, the UCLA Loneliness Scale was only significant for Facebook and Instagram (not Twitter), while the amount of personal content posted to one's profile was only significant for Instagram. These site-specific findings need further evaluation to unpack how harassment experiences vary based on platform features and affordances.

	Facebook (N=572)	Twitter (N=337)	Instagram (N=449)
	Standardized Coefficients (Beta)		
(Constant)	***	**	*
UCLA Loneliness Scale	.096*	-.064	.121**
Social Media & Well-Being Scale	-.231***	-.156**	-.173***
Frequency of [SITE] Use	.285***	.375***	.200***
Personal Info on [SITE]	.058	.033	.102*
Impression Management Scale	.174***	.199***	.181***
Adjusted R^2	.21	.22	.18

* p <.05, ** p < .01, *** p < .001

Table 6. OLS regressions predicting frequency of seeing upsetting content on three social media platforms.

DISCUSSION

Some libertarian groups argue that counter-speech is sufficient to address online harassment; for example, the Electronic Frontier Foundation asserts that "targeted groups or individuals "should deploy that same communicative power of the Net to call out, condemn, and organize against behavior that silences others."[3] While they do not condone online harassment, they nevertheless maintain that the most effective response to it is communicative.

We take the position that with the continual evolution of technological tools for connecting and interacting, researchers must remain vigilant in evaluating how the affordances of these newer technologies create new opportunities for misuse and abuse. This is especially true when people use these technologies to induce psychological harm in others, as in the case of online harassment.

[3] See EFF's stance on reducing online harassment here: https://www.eff.org/deeplinks/2015/01/facing-challenge-online-harassment

Several recent trends are critical to understand, evaluate, and mitigate the harmful experiences women regularly experience. High profile teen suicides connected to cyberbullying reveal the severe toll of harassment on young women [27]. #GamerGate has highlighted the vitriol facing well-known feminists who expose problems in male-dominated fields; consequently, younger women may be more discouraged about complaining of harassment given the claims of "censorship" by men who invoke libertarian principles of free speech [24]. More broadly, the social web is becoming increasingly diverse as more marginalized and underserved groups gain internet access.

This study's primary goal was to expand existing knowledge of young women's online experiences of harassment and to develop granular data regarding the current state of online harassment across social and mobile media platforms. The increased complexity of harassment that moves from offline to mediated spaces has created challenges for law enforcement and legal scholars, who have yet to agree on a universal definition [29]. To account for variations in severity, as well as variations across platforms, we asked participants about their experiences with 14 types of harassment—nine of which were included in the final analysis—capturing a much more comprehensive overview of harassment experiences than prior studies in this space (e.g., [18,36]). We expanded on these studies, which are largely descriptive, by using multivariate analyses to assess how individual characteristics and online behaviors correlate with a comprehensive measure capturing frequency and severity of online harassment experiences. The benefit of elevating our operationalization of this construct and our analyses is that we can make stronger inferences about how these factors interact. We do this in the following sections, focusing on key implications of this data for theory and design.

Implications for Theory

Much critical and philosophical writing has responded to recent increases in online harassment and called for change [4,5,8,31,43]. Nonetheless, the majority of empirical research on online harassment has been atheoretical, focusing on bullying of adolescents and/or evaluating technical and social applications to reduce the prevalence [1,32,50]. These studies provide important insights into technical mechanisms for detecting abuse and the underlying rationale used by perpetrators to justify their acts, yet little has been done to understand the underlying factors that render women more vulnerable to harassment or the implications of such harassment, including its considerable psychological toll [3,55,67].

Feminist theorists—including Judith Butler [5]—have emphasized that while women are not inherently more vulnerable to harassment than men, "certain kinds of gender-defining attributes like vulnerability and invulnerability… are distributed unequally" (p. 111) and "certain populations are effectively targeted as injurable (with impunity)" (p. 111). Such targeting—as our study demonstrates—occurs in many online spaces and has material consequences. Online misogyny tends to have a chilling effect on women's public sphere participation: many targets engage in "self-censoring, writing anonymously or under pseudonyms or withdrawing from online domains altogether" (p. 286) [31].

Even when women do not retreat from online spaces, a disheartening trend exposed in both anecdotal work and this study is the general sense that women are tolerant of these behaviors because they have become part and parcel of interacting online. The discrepancy between participant responses to a narrowly framed question about harassment experiences and more specific questions about nine behaviors suggests that at least some of our participants narrowly interpret what constitutes harassment. The question is: *Is this perceptual discrepancy problematic?*

We argue **yes,** such discrepancies are highly problematic, especially when they cause women to feel bad and/or withdraw from public spaces [8,19,34]. More broadly, these trends have worrisome implications for women's involvement in technology sectors of academia, industry, and government. In fact, other than withdrawal or acceptance, often the only other option open to women is to engage in individual acts of online vigilantism whereby they call out or name their harassers. But as Jane [31] points out, while such efforts may be empowering at the individual level, they not only shift the burden of action and response, but also turn the issue into a matter that an individual must confront in private. Instead, Jane and others emphasize that adopting a more collective stance is necessary to pressure both governments and corporations to address gendered cyber-hate and harassment directly. We believe some of this pressure can come from researchers and designers in the CSCW community working to make women's online experiences safer and providing them with more agency.

The present study also highlights the need for caution in generalizing data from one platform to others, as often happens in media accounts of online harassment. Social media platforms vary in both features and affordances, as well as user motivations and goals [15]. These variations influence users' experiences on the site. When looking at the models predicting women's exposure to disturbing or harassing content on Facebook, Twitter, and Instagram, we find differences and similarities across each platform.

One consistent factor in all analyses was the positive relationship between women's engagement in strategies to regulate access to themselves online and the frequency and severity of their harassment experiences. Future research is needed to fully understand the causal path of this relationship, as well as to identify which strategies are most effective at reducing women's negative experiences online.

Design Challenges to Identifying and Mitigating Online Harassment

Social media platforms have struggled to keep up with the sheer quantity of negative content being shared on their sites. While most sites include features for users to flag or otherwise report content they regard as offensive, slow reaction times and a lack of transparency about the process for reviewing content may lead users to think the sites do not care about women's experiences or their well-being. A prime example of this is reflected in Twitter's struggles to address harassment. In early 2015, the CEO took full responsibility for his company's failures, saying, "We suck at dealing with abuse" [64].

Progress is being made in developing algorithms to automatically detect and remove abusive or inflammatory content [12,32,50], but these methods may suffer from high rates of false positives and false negatives. In the former case, vocal users whose inoffensive content was removed (e.g., women who post pictures of breastfeeding) can create headaches and bad press for tech companies. Human judgment is typically superior but requires significantly more time and effort. Perhaps most importantly, cases where users receive no feedback after reporting content [42] highlight why these companies need more transparent internal procedures for evaluating flagged content and why they should consider ways to more closely involve users in the evaluation process. That said, such changes are challenging because they need to protect individual users' privacy.

Social media platforms have taken a first step in acknowledging online harassment as a problem, and one that disproportionately affects women. Going forward, they need to take significant and visible steps to show users that they not only care about women's experiences and the harm that negative comments cause, but that they are prioritizing efforts to reduce the quantity and severity of such content.

Design-specific recommendations

Informed by our findings and expanding on previous work, we discuss five areas for designers in the CSCW community to consider when developing tools and interventions to reduce instances of and mitigate harm from online harassment. We approach these recommendations from a feminist perspective by focusing on interventions that take the onus off victims (such that individuals are not blamed for preventing their being harassed) and by advancing the argument that women need to be involved not only in *using* technology but also in *designing* it.

Interventions to enhance users' well-being. Findings from this study support and extend prior work on the close relationship between women's negative experiences in mediated settings and their overall well-being. Therefore, mitigating the negative effects of harassment through interventions designed to boost women's well-being following a negative event could reduce the negative outcomes associated with harassment [7,8,19,55,60]. Recent participatory design research with teenagers identified multiple mitigation tools that could be embedded in social media [1]. We would expect such tools to also be well received by young women. Possible interventions include highlighting the positive interactions more strongly in users' content streams and sending users' positively valenced messages at regular intervals; however, extreme care would be needed when automating these kinds of messages, as highlighted by one researcher's experiences developing the "you're valued" Twitter bot [see 70].

Custom filtering. Participants in this study frequently reported being called names or receiving unwanted content online, with more than three-quarters (78%) experiencing at least one of the nine forms of harassment included in the dependent variable. Such behaviors are particularly likely on platforms that afford anonymity and interactivity, as is more likely to be seen on public accounts; for example, Trice's [66] analysis of #GamerGate documents suggests anonymity was a major goal for the organization.

Algorithms and machine learning tools to identify malicious content and language are continually improving to more accurately classify harassment. However, harassment and directed malicious content intended to offend may lack the key features (e.g., expletives and other cues) required to identify problematic content [12]. Furthermore, language continues to evolve as new insults are coined. Instagram's new custom filtering [46] feature, which allows users to identify words to be filtered from comments, represents a positive method for proactively reducing exposure to negative content, but there are likely other solutions to this specific type of harassment. Importantly, any tools that focus on hateful words must consider the diverse contextual nature of insults; likewise, they should provide users with agency to decide what they perceive as offensive [1].

Offering alternatives to deactivation. Researchers have shown that one prominent outcome of online harassment is that victims withdraw from the space of abuse or, more broadly, from interactive platforms [8,19,34]. While deactivation is one way to distance oneself from abuse, these individuals may miss out on positive aspects of their social media use, such as obtaining social support and other resources from their peers [16,68].

All social media platforms should offer alternatives to deactivation, including blocking a potential harasser, banning users who engage in repeated harassment, or enabling users to easily switch their account to a limited version that only allows a subset of users to interact through the space. Based on responses to items in the impression management scale used here, we find that, in general, participants rarely applied strategies for managing the content and people they interacted with. While some research suggests many strategies are not used because of the effort required [69], future research should further unpack users' thought processes.

We also encourage more research in the vein of Jill Dimond's work on Hollaback [11], a platform for women to share their experiences of sexism and misogyny through storytelling; her research argues against withdrawal and encourages women to share more information to help the broader community of women heal from and respond to negative experiences. Hollaback focuses on street harassment, but its anti-intimidation tactics could easily be expanded to online environments and experiences.

Making impression management strategies more transparent to users. A key finding from this study was the strong positive correlation between harassment experiences and engagement in strategies to manage access to one's account and content. For example, women who have experienced more harassment tend to edit content to minimize negative responses and/or self-censor their posts.

Engagement in these strategies provides users with significantly more control online; however, the platforms can and should provide more transparency regarding users' options for managing their accounts. Recent studies highlight the need for clearer and more prominent descriptions of privacy settings; for example, Facebook users significantly underestimate the size of their audience when sharing content [2]; similar findings have been suggested through qualitative work with Twitter users [40]. Likewise, Vitak's [68,69] work on Facebook users' impression management strategies found that few users used audience segmenting features; even among high self-monitors, many said they rarely used these features because they were too complicated.

Social media platforms can and should proactively highlight various ways users can engage with a site's settings to manage their audience. Facebook has begun this process through its "Privacy Checkup" [52] and should be commended for its efforts to prioritize users' privacy.

Quick reaction to harassment by social media platforms. While the survey did not explicitly ask participants how they resolved their negative experiences, other research has highlighted some troubling patterns in platform response. For example, in 2014 the policy group Women, Action & the Media (WAM) partnered with Twitter to collect data on tweets that constituted harassment and escalate validated reports of harassment to Twitter to ensure they were processed [42]. During a three-week period, the researchers analyzed 811 reports of harassment and escalated 161 to Twitter, leading to 70 account suspensions. The researchers also found that 29% of those reporting harassment indicated it was ongoing; many of the users had previously reported harassment to Twitter and/or engaged law enforcement without any resolution.

In fact, Twitter's failure to act swiftly against abusive content—as acknowledged by former CEO Dick Costolo in a leaked internal memo [64]—demonstrates that social media platforms remain slow to respond to harassment before emotional damage has occurred. Social media platforms need more expedient methods for reacting to harassment, and stricter repercussions, including banning individuals from a platform who engage in or promote abuse. Instances of online harassment such as those captured in our survey may decrease if social media platforms take swift and appropriate actions against them.

Limitations and Future Work

Data presented in this study reflect the experiences and attitudes of women attending a single U.S. public university during fall 2015. The data reported here may also be put into context of a 2016 survey by the Title IX Officer at the university where our study was conducted finding that of the 3947 students responding (53.4% of respondents were women, 45.7% men, and .9% trans/queer), 15.3% reported having been sexually assaulted as a student; at the same time, 13.4% did not believe sexual assault is a problem and 47.6% were undecided (*personal communication,* 2016).

Caution should be taken in interpreting findings because they may not represent the experiences of women in other parts of the U.S., other nations, or other socioeconomic groups, or women who fall outside the "young adult" age range. That said, using a representative sample of students at the university increases validity of the findings. Furthermore, national data on some factors—most notably sexual identity—suggests minority groups are well represented in this dataset. Additional research is needed to establish the causal direction between variables; for example, while it appears that women who have experienced harassment online respond by employing additional strategies to manage their online interactions, we cannot sufficiently infer directionality without collecting additional data. Regarding the role of gender, research by Pew Internet [14] has highlighted the pervasiveness of men's harassment experiences; while evaluating men's experiences were beyond the scope of this study, it should be examined in future research.

Additionally, while survey data helps us to understand the broad landscape of a diverse group of individuals, it prevents us from unpacking *how* individual experiences tie back to the broader picture. We encourage researchers and designers to employ qualitative methods to delve deeper into the mechanisms associated with online harassment—from both the perspectives of the attacker and the victim—and to use more interactive methods like participatory design when building potential tools to reduce online harassment. We also encourage researchers and designers to expand research to younger populations, including adolescent boys and girls, who experience high levels of harassment both on- and offline.

CONCLUSION

The evolution of interactive social technologies has dramatically altered understandings of communication and relational processes. In general, these advances have provided significantly more benefits than drawbacks. That

said, the darker side of the web has also expanded; and women are especially vulnerable to forms of online harassment that can cause significant emotional distress and, in extreme cases, reflect physical threats to their safety.

Findings from this study highlight the complexity of factors associated with women's online harassment and point to the need for both theorists and designers to renew their efforts to minimize harassing behaviors and mitigate their negative effects. Our data provide important directions for next steps and extend our understanding of the current state of online harassment to include a more diverse accounting for the range of experiences women have online.

We call on scholars and technologists to work more closely with the platforms where abuse is most prevalent; such partnerships will enable designers to build more effective tools based on what we know about the human factors associated with harassment. WAM's partnership with Twitter in 2014 [42] represents one such case, but in general these collaborations are sorely lacking. The CSCW community can and should be at the forefront of developing effective, implementable solutions to one of the most troubling trends in mediated communication.

ACKNOWLEDGMENTS

We would like to thank the anonymous reviewers who provided useful feedback on earlier drafts of the paper. This project was funded by a University of Maryland ADVANCE seed grant.

REFERENCES

1. Zahra Ashktorab and Jessica Vitak. 2016. Designing cyberbullying mitigation and prevention solutions through participatory design with teenagers. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, ACM, 3895–3905. http://doi.org/10.1145/2858036.2858548
2. Michael S. Bernstein, Eytan Bakshy, Moira Burke, and Brian Karrer. 2013. Quantifying the invisible audience in social networks. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, 21–30. http://doi.org/10.1145/2470654.2470658
3. Nicole T. Buchanan and Louise F. Fitzgerald. 2008. Effects of racial and sexual harassment on work and the psychological well-being of African American women. *Journal of Occupational Health Psychology* 13, 2: 137–151. http://doi.org/10.1037/1076-8998.13.2.137
4. Judith Butler. 2006. *Gender Trouble: Feminism and the Subversion of Identity*. Routledge, New York.
5. Judith Butler. 2014. Bodily vulnerability, coalitions, and street politics. *Critical Studies* 37: 99–119.
6. Soraya Chemaly. 2014. There's no comparing male and female harassment online. *Time Magazine*. Retrieved May 27, 2016 from http://time.com/3305466/male-female-harassment-online/
7. Danielle Keats Citron. 2009. law's expressive value in combating cyber gender harassment. *Michigan Law Review* 108, 3: 373–415.
8. Danielle Keats Citron. 2014. *Hate Crimes in Cyberspace*. Harvard University Press.
9. Steve Crabtree and Faith Nsubuga. 2012. *Women feel less safe than men in many developed countries*. Gallup Inc., Washington, D.C. Retrieved August 8, 2016 from http://www.gallup.com/poll/155402/Women-Feel-Less-Safe-Men-Developed-Countries.aspx
10. Brenda Danet. 1998. Text as mask: Gender, Play, and performance on the internet. In *Cybersociety 2.0*, Steven G. Jones (ed.). Sage Publications, Thousand Oaks, CA, USA, 129–158. Retrieved May 27, 2016 from http://dl.acm.org/citation.cfm?id=295080.295086
11. Jill P. Dimond, Michaelanne Dye, Daphne Larose, and Amy S. Bruckman. 2013. Hollaback!: The role of storytelling online in a social movement organization. In *Proceedings of the 2013 Conference on Computer Supported Cooperative Work*, ACM, 477–490. http://doi.org/10.1145/2441776.2441831
12. Karthik Dinakar, Birago Jones, Catherine Havasi, Henry Lieberman, and Rosalind Picard. 2012. Common sense reasoning for detection, prevention, and mitigation of cyberbullying. *ACM Transactions on Interactive Intelligent Systems* 2, 3: Article 18. http://doi.org/10.1145/2362394.2362400
13. Harald Dreßing, Josef Bailer, Anne Anders, Henriette Wagner, and Christine Gallas. 2013. Cyberstalking in a large sample of social network users: Prevalence, characteristics, and impact upon victims. *Cyberpsychology, Behavior, and Social Networking* 17, 2: 61–67. http://doi.org/10.1089/cyber.2012.0231
14. Maeve Duggan. 2014. *Online harassment*. Pew Internet Project, Washington, D.C. Retrieved August 8, 2016 from http://www.pewinternet.org/2014/10/22/online-harassment/
15. Nicole B. Ellison and Jessica Vitak. 2015. Social network site affordances and their relationship to social capital processes. In *The Handbook of the Psychology of Communication Technology*, S. Shyam Sundar (ed.). Wiley & Sons, Boston, MA, 205–227.
16. Nicole B. Ellison, Jessica Vitak, Rebecca Gray, and Cliff Lampe. 2014. Cultivating social resources on social network sites: Facebook relationship maintenance behaviors and their role in social capital processes. *Journal of Computer-Mediated Communication* 19, 4: 855–870. http://doi.org/10.1111/jcc4.12078
17. Lin Farley. 1978. *Sexual Shakedown: The Sexual Harassment of Women on the Job*. McGraw-Hill, New York.
18. Jerry Finn. 2004. A survey of online harassment at a university campus. *Journal of Interpersonal Violence* 19, 4: 468–483. http://doi.org/10.1177/0886260503262083

19. Jesse Fox and Wai Yen Tang. in press. Women's experiences with general and sexual harassment in online video games. *New Media & Society*. http://doi.org/10.1177/1461444816635778
20. Carol Brooks Gardner. 1995. *Passing By: Gender and Public Harassment*. University of California Press.
21. Joshua Guberman, Carol Schmitz, and Libby Hemphill. 2016. Quantifying toxicity and verbal violence on Twitter. In *Proceedings of the 19th ACM Conference on Computer Supported Cooperative Work and Social Computing Companion*, ACM, 277–280. http://doi.org/10.1145/2818052.2869107
22. Nicola Henry and Anastasia Powell. 2015. Beyond the "sext": Technology-facilitated sexual violence and harassment against adult women. *Australian & New Zealand Journal of Criminology* 48, 1: 104–118. http://doi.org/10.1177/0004865814524218
23. Michael James Heron, Pauline Belford, and Ayse Goker. 2014. Sexism in the circuitry: Female participation in male-dominated popular computer culture. *ACM SIGCAS Computers and Society* 44, 4: 18–29. http://doi.org/10.1145/2695577.2695582
24. Susan C. Herring. 1999. The rhetorical dynamics of gender harassment online. *The Information Society* 15, 3: 151–167. http://doi.org/10.1080/019722499128466
25. Susan C. Herring and Sharon Stoerger. 2014. Gender and (a)nonymity in computer-mediated communication. In *The Handbook of Language, Gender, and Sexuality*, Susan Ehrlich, Miriam Meyerhoff and Janet Holmes (eds.). John Wiley & Sons, 567–586. doi: 10.1002/9781118584248.ch29
26. Amanda Hess. 2014. Why women aren't welcome on the internet. *Pacific Standard Magazine*. Retrieved May 27, 2016 from https://psmag.com/why-women-aren-t-welcome-on-the-internet-aa21fdbc8d6
27. Sameer Hinduja and Justin W. Patchin. 2010. Bullying, cyberbullying, and suicide. *Archives of Suicide Research* 14, 3: 206–221. http://doi.org/10.1080/13811118.2010.494133
28. Kathryn J. Holland and Lilia M. Cortina. 2013. When sexism and feminism collide: The sexual harassment of feminist working women. *Psychology of Women Quarterly*: 0361684313482873. http://doi.org/10.1177/0361684313482873
29. Sarah Jameson. 2008. Cyberharrasment: Striking a balance between free speech and privacy. *CommLaw Conspectus: Journal of Communications Law and Policy* 17: 231.
30. Emma A. Jane. 2014. "Your a ugly, whorish, slut." *Feminist Media Studies* 14, 4: 531–546. http://doi.org/10.1080/14680777.2012.741073
31. Emma A. Jane. 2016. Online misogyny and feminist digilantism. *Continuum: Journal of Media & Cultural Studies* 30, 3: 284–297. http://doi.org/10.1080/10304312.2016.1166560
32. April Kontostathis, Kelly Reynolds, Andy Garron, and Lynne Edwards. 2013. Detecting cyberbullying: Query terms and techniques. In *Proceedings of the 5th Annual ACM Web Science Conference*, ACM, 195–204. http://doi.org/10.1145/2464464.2464499
33. Grace Chi En Kwan and Marko M. Skoric. 2013. Facebook bullying: An extension of battles in school. *Computers in Human Behavior* 29, 1: 16–25. http://doi.org/10.1016/j.chb.2012.07.014
34. Tom van Laer. 2013. The Means to Justify the End: Combating Cyber Harassment in Social Media. *Journal of Business Ethics* 123, 1: 85–98. http://doi.org/10.1007/s10551-013-1806-z
35. Airi Lampinen, Vilma Lehtinen, Asko Lehmuskallio, and Sakari Tamminen. 2011. We're in it together: Interpersonal management of disclosure in social network services. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, 3217–3226. http://doi.org/10.1145/1978942.1979420
36. Megan Lindsay and Judy Krysik. 2012. Online harassment among college students. *Information, Communication & Society* 15, 5: 703–719. http://doi.org/10.1080/1369118X.2012.674959
37. Julia R. Lippman. in press. I did it because I never stopped loving you: The effects of media portrayals of persistent pursuit on beliefs about stalking. *Communication Research*. http://doi.org/10.1177/0093650215570653
38. Catharine A. MacKinnon. 1979. *Sexual Harassment of Working Women: A Case of Sex Discrimination*. Yale University Press.
39. Karla Mantilla. 2015. *Gendertrolling: How Misogyny Went Viral*. Praeger, Santa Barbara, CA.
40. Alice E. Marwick and danah boyd. 2011. I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society* 13, 1: 114–133. http://doi.org/10.1177/1461444810365313
41. Carsten Maple, Emma Short, and Antony Brown. 2011. *Cyberstalking in the United Kingdom: Analysis of the ECHO pilot survey*. The National Centre for Cyberstalking Research, University of Bedfordshire. Retrieved May 28, 2016 from http://www.beds.ac.uk/research-ref/computing/?a=190288
42. J. Nathan Matias, Amy Johnson, Whitney Erin Boesel, Brian Keegan, Jaclyn Friedman, and Charlie DeTar. 2015. *Reporting, Reviewing, and Responding to Harassment on Twitter*. Women, Action, and the Media, Rochester, NY. Retrieved August 2, 2016 from http://papers.ssrn.com/abstract=2602018
43. Jessica Megarry. 2014. Online incivility or sexual harassment? Conceptualising women's experiences in the digital age. *Women's Studies International Forum* 47, Part A: 46–55. http://doi.org/10.1016/j.wsif.2014.07.012
44. Robert Meyer and Michel Cukier. 2006. Assessing the attack threat due to IRC channels. In *Proceedings of*

the International Conference on Dependable Systems and Networks, IEEE Computer Society, 467–472. http://doiorg/10.1109/DSN.2006.12
45. Torill Elvira Mortensen. 2016.Anger, fear, and games the long event of #GamerGate. *Games and Culture*. http://doi.org/10.1177/1555412016640408
46. Casey Newton. 2016. Instagram's new stories are a near-perfect copy of Snapchat stories. *The Verge*. Retrieved August 5, 2016 from http://www.theverge.com/2016/8/2/12348354/instagram-stories-announced-snapchat-kevin-systrom-interview
47. Justin W. Patchin and Sameer Hinduja. 2006. Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice* 4, 2: 148–169. http://doi.org/10.1177/1541204006286288
48. Emily Poole. 2013. Hey girls, did you know: Slut-shaming on the internet needs to stop. *University of San Francisco Law Review* 48: 221–260.
49. Lee Rainie and Mary Madden. 2015. *Americans' privacy strategies post-Snowden*. Pew Internet Project, Washington, D.C. Retrieved May 27, 2016 from http://www.pewinternet.org/2015/03/16/americans-privacy-strategies-post-snowden/
50. Kelly Reynolds, April Kontostathis, and Lynne Edwards. 2011. Using machine learning to detect cyberbullying. In *Proceedings of the Fourth International Conference on Machine Learning and Applications*, 241–244. http://doi.ieeecomputersociety.org/10.1109/ICMLA.2011.152
51. Morris Rosenberg. 1965. *Society and the Adolescent Self-Image*. Princeton University Press, Princeton, N.J.
52. Seth Rosenblatt. 2014. Facebook's privacy checkup helps you figure out who's seeing what. *CNET*. Retrieved August 8, 2016 from http://www.cnet.com/news/facebook-launches-its-privacy-checkup/
53. Daniel W. Russell. 1996. UCLA loneliness scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment* 66, 1: 20–40. http://doi.org/10.1207/s15327752jpa6601_2
54. Michael Salter. in press. Privates in the online public: Sex(ting) and reputation on social media. *New Media & Society*. http://doi.org/10.1177/1461444815604133
55. Allison M. Schenk and William J. Fremouw. 2012. Prevalence, psychological impact, and coping of cyberbully victims among college students. *Journal of School Violence* 11, 1: 21–37. http://doi.org/10.1080/15388220.2011.630310
56. Corrie L. Schoffstall and Robert Cohen. 2011. Cyber aggression: The relation between online offenders and offline social competence. *Social Development* 20, 3: 587–604. http://doi.org/10.1111/j.1467-9507.2011.00609.x
57. Andrew Richard Schrock. 2015. Communicative affordances of mobile media: Portability, availability, locatability, and multimediality. *International Journal of Communication* 9: 1229–1246.
58. Leslie Regan Shade. 2011. Wanted, alive and kicking. *Feminist Media Studies* 11, 1: 123–129. http://doi.org/10.1080/14680777.2011.537041
59. L. P. Sheridan and T. Grant. 2007. Is cyberstalking different? *Psychology, Crime & Law* 13, 6: 627–640. http://doi.org/10.1080/10683160701340528
60. Frithjof Staude-Müller, Britta Hansen, and Melanie Voss. 2012. How stressful is online victimization? Effects of victim's personality and properties of the incident. *European Journal of Developmental Psychology* 9, 2: 260–274. http://doi.org/10.1080/17405629.2011.643170
61. Frederic Stutzman and Woodrow Hartzog. 2012. Boundary regulation in social media. In *Proceedings of the 15th ACM Conference on Computer Supported Cooperative Work*, ACM, 769–778. http://doi.org/10.1145/2145204.2145320
62. John Suler. 2004. The online disinhibition effect. *CyberPsychology & Behavior* 7, 3: 321–326. http://doi.org/10.1089/1094931041291295
63. Wai Yen Tang and Jesse Fox. in press. Men's harassment behavior in online video games: Personality traits and game factors. *Aggressive Behavior*. http://doi.org/10.1002/ab.21646
64. Nitasha Tiku. 2015. Twitter CEO: "We suck at dealing with abuse." *The Verge*. Retrieved May 27, 2016 from http://www.theverge.com/2015/2/4/7982099/twitter-ceo-sent-memo-taking-personal-responsibility-for-the
65. Jeffrey W. Treem and Paul M. Leonardi. 2013. Social media use in organizations: Exploring the affordances of visibility, editability, persistence, and association. *Annals of the International Communication Association* 36, 1: 143–189. http://doi.org/10.1080/23808985.2013.11679130
66. Michael Trice. 2015. Putting GamerGate in context: How group documentation informs social media activity. In *Proceedings of the 33rd Annual International Conference on the Design of Communication*, ACM, 37:1–37:5. http://doi.org/10.1145/2775441.2775471
67. Maarit A-L Vartia. 2001. Consequences of workplace bullying with respect to the well-being of its targets and the observers of bullying. *Scandinavian Journal of Work, Environment & Health* 27, 1: 63–69.
68. Jessica Vitak. 2012. The impact of context collapse and privacy on social network site disclosures. *Journal of Broadcasting & Electronic Media* 56, 4: 451–470. http://doi.org/10.1080/08838151.2012.732140
69. Jessica Vitak and Jinyoung Kim. 2014. "You can't block people offline": Examining how Facebook's affordances shape the disclosure process. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, ACM, 461–474. http://doi.org/10.1145/2531602.2531672

70. Molly White. 2014. The challenges of building a compassionate robot. *Molly White's Blog*. Retrieved August 8, 2016 from http://blog.mollywhite.net/the-challenges-of-building-a-compassionate-robot/
71. Pamela Wisniewski, Heather Lipford, and David Wilson. 2012. Fighting for my space: Coping mechanisms for SNS boundary regulation. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, 609–618. http://doi.org/10.1145/2207676.2207761
72. Working to Halt Abuse Online. 2013. *Comparison Statistics 2000-2013*. Retrieved from http://www.haltabuse.org/resources/stats/Cumulative2000-2013.pdf
73. Lindsey Wotanis and Laurie McMillan. 2014. Performing gender on YouTube. *Feminist Media Studies* 14, 6: 912–928. http://doi.org/10.1080/14680777.2014.882373
74. Oxygen/Markle Pulse poll finds: Harassment of women on the street is rampant. 2010. *PR Newswire*. Retrieved May 25, 2016 from http://www.prnewswire.com/news-releases/oxygenmarkle-pulse-poll-finds-harassment-of-women-on-the-street-is-rampant-87-of-american-women-report-being-harassed-on-the-street-by-a-male-stranger-73669892.html