Disinhibition and the Internet

Adam N. Joinson
The Open University
Milton Keynes, United Kingdom

Over the last ten years of research on psychology and the Internet, there has been a general recognition that people often behave differently when online than in roughly equivalent offline situations (e.g., Joinson, 2003; Suler, 2004). For instance, they might be an outrageous flirt online, while being painfully shy offline. They might gossip and forward others' e-mails online, when they would usually act with discretion. Or, they might seek information online (such as health information or pornography) that they wouldn't dream of doing offline. This general difference has been termed "disinhibition" (Joinson, 1998) or an "online disinhibition effect" (Suler, 2004).

In the definition of disinhibition online provided in the first edition of this book, Joinson (1998), argued that "if inhibition is when behavior is constrained or restrained through self consciousness, anxiety about social situations, worries about public evaluation and so on (Zimbardo, 1977), then disinhibition can be characterized by an absence or reversal of these same factors … disinhibition on the Internet … is seen as any behavior that is characterized by an apparent reduction in concerns for self-presentation and the judgement of others" (p. 44).

One advantage (and problem) of the this definition is its vagueness—the use of the word "apparent" allows subsequent explanations to treat reduced concern for self-presentation as a dependent variable with no explanatory effect, or as an independent variable that in some way explains online behavior. Moreover, reduced self-presentation is obviously in the eye of the beholder, allowing researchers to apply their own views of what is "abnormal" to the behavior of those they study. However, disinhibition among computer users has proved to be a difficult term to define (Lea *et al.*, 1992). As a word, it is often used interchangeably with "flaming" (Lea *et al.*, 1992) and has encompassed behaviors ranging from being impolite

(Kiesler *et al.*, 1985) to the use of capital letters or exclamation marks (Sproull & Kiesler, 1986) and expressions of personal feelings toward another person using a computer network (Kiesler *et al.*, 1985).

Others (e.g., Suler, 2004) have avoided providing a definition of disinhibition, but instead have focused on possible causes of an effect. Such explanations usually rely on aspects of the online environment, for instance, anonymity or asynchronicity, to explain disinhibitory effects. In the present chapter, I argue that explanations that rely simply on aspects of the media (e.g., anonymity) and their presumed psychological impact (e.g., reduced concern for impression management) are doomed to fail to fully explain disinhibited behavior online. This is because behavior on-line does not occur in a vacuum—people have a variety of media to choose from much of the time, and the choice of an online alternative may be due to the expectation that its attributes can be appropriated to satisfy their own needs. So, what looks at first glance to be a disinhibition effect of a media may, in fact, be a strategic choice by the user (Joinson, 2004).

The present chapter focuses on evidence of disinhibition online in two main areas: communication (in the form of self-disclosure and flaming) and information seeking (in the form of the seeking of pornography). There are, of course, many other example of disinhibited behavior (e.g., inappropriate forwarding of e-mail messages), but for the purposes of the present chapter, these will suffice.

EVIDENCE FOR DISINHIBITION

SELF–DISCLOSURE AND THE INTERNET

A large body of experimental and anecdotal evidence suggests that computer–mediated communication (CMC) and general Internet-based behavior can be characterized as containing high levels of self-disclosure. For instance, Rheingold (1993) claims that new, meaningful relationships can be formed in cyberspace because of, not despite, its limitations. He further argues that "the medium will, by its nature … be a place where people often end up revealing themselves far more intimately than they would be inclined to do without the intermediation of screens and pseudonyms." Similarly, Wallace (1999) argues that, "The tendency to disclose more to a computer … is an important ingredient of what seems to be happening on the Internet" (p. 151). Self-disclosure has been studied in a number of different settings using computers. For instance, Parks and Floyd (1996) studied the relationships formed by Internet users and found high levels of self-reported disclosure within online relationships. Rosson (1999) analyzed 133 stories posted by Internet users on a resource called "Web Storybase." Overall, 81 of the stories contained personal information of some sort. Rosson concludes that: "users seem to be quite

comfortable revealing personal—even quite intimate—details about their lives in this very public forum" (p. 8). Similarly, McKenna and Bargh (1998) argue that participation in online newsgroups gives people the benefit of "disclosing a long secret part of one's self" (p. 682). McKenna and Bargh also found that self-disclosure online had powerful repercussions for "real life":

> As a direct result of Internet newsgroup membership and participation, over 37% of participants in Study 2, and 63% of those in Study 3 revealed to others what had been an embarrassing secret about themselves (p. 691).

More recently, Chesney (2005), in a small scale study of online diaries, reported high levels of disclosure of sensitive information, with half of his participants claiming to never withhold information from their diaries.

In the series of studies reported by Joinson (2001), the level of self-disclosure was measured using content analysis of transcripts of face-to-face (FtF) and synchronous CMC discussions (study one), and in conditions of visual anonymity and video links during CMC (study two). In keeping with the predicted effect, self-disclosure was significantly higher when participants chatted using a CMC system as opposed to FtF. In the second study, incorporating a video link while the participants chatted using the CMC program led to levels of self-disclosure similar to the FtF levels, while the comparison condition (no video link) led to significantly higher levels of self-disclosure.

These two studies together provide empirical support that visually anonymous CMC tends to lead to higher levels of self-disclosure. The results of these studies also suggest that high levels of self-disclosure can effectively be designed out of an Internet interaction (e.g., through the use of a video link or accountability cues (Joinson, 2001, study 3), as well as encouraged.

Further empirical confirmation of increased self-disclosure during CMC comes from the work of Tidwell and Walther (2002). They proposed that heightened self-disclosure during CMC may be due to people's motivation to reduce uncertainty. According to Uncertainty Reduction Theory (URT; Berger & Calabrese, 1975), people are motivated to reduce uncertainty in an interaction to increase predictability. In FtF interaction, uncertainty can be reduced through both verbal and nonverbal communication and cues. Tidwell and Walther hypothesize that during CMC, uncertainty-reducing behaviors are text-based only, including increased levels of self-disclosure and question asking. To test this, Tidwell and Walther recruited 158 students to hold a discussion in opposite sex pairs with an unknown partner using a CMC system or FtF. The subsequent conversations were content analyzed for disclosure using the breadth and depth of self-disclosure indices developed by Altman and Taylor (1973).

Tidwell and Walther found that those in the CMC condition displayed higher levels of both question asking and self-disclosure compared with the FtF condition. The questions asked by CMC discussants were also more probing and intimate

than those asked by those talking FtF, while both the questions and disclosure by FtF interactants tended to be more peripheral than those in the CMC condition. Tidwell and Walther conclude that the limitations of CMC encourage people to adapt their uncertainty-reducing behaviors—they skip the usual asking of peripheral questions and minor disclosure and instead opt for more direct, intimate questioning and self-disclosure.

Surveys and research administered via the Internet, rather than using paper methodologies, have also been associated with reductions in socially desirable responding (Frick, Bächtiger, & Reips, 2001; Joinson, 1999), higher levels of self-disclosure (Weisband & Kiesler, 1996) and an increased willingness to answer sensitive questions (see Tourangeau, 2004).

In a similar vein, survey methodology techniques that tend to reduce human involvement in question administration also increase responses to sensitive personal questions. For instance, compared to other research methods, when data collection is conducted via computer-aided self-interviews (where participants type their answers on to a laptop), people report more health-related problems (Epstein *et al.,* 2001), more HIV risk behaviors (Des Jarlais *et al.*, 1999), more drug use (Lessler *et al.*, 2000), and men report fewer sexual partners and women more (Tourangeau & Smith, 1996). Medical patients tend to report more symptoms and undesirable behaviors when interviewed by computer rather than FtF (Greist, Klein, & VanCura, 1973). Clients at a STD clinic report more sexual partners, more previous visits, and more symptoms to a computer than to a doctor (Robinson & West, 1992). Ferriter (1993) found that preclinical psychiatric interviews conducted using CMC compared to FtF yielded more honest, candid answers. Similarly, automated or computerized telephone interviews, compared to other forms of telephone interviewing, led to higher levels of reporting of sensitive information (see Lau, Tsui, & Wang, 2003; Tourangeau, 2004).

Conversely, methods that increase the social presence of the surveyor (e.g., by using photographs of the researcher) have been predicted to lead to a reduced willingness to answer sensitive questions (Tourangeau *et al.*, 2003), although the findings of Tourangeau *et al.* were equivocal. However, Sproull *et al.* (1996) found that participants "present themselves in a more positive light to the talking-face displays" (p. 116) than to text-only interfaces. Joinson *et al.* (in press) report that although personalizing the research experience leads to higher response rates to a self-administered survey, it also reduces self-disclosure. Given the need for high response rates to reduce sampling error in surveys, and the need for candid disclosure to maintain data quality, this potential tradeoff between response rates and disclosure is important. Joinson *et al.* suggest that the provision of "I prefer not to say" options may well provide one route to manage the tradeoff because respondents with compromised anonymity can still complete the survey without a subsequent loss of privacy.

FLAMING AND ANTI-SOCIAL BEHAVIOR

In its original format, "flaming" referred to incessant talking or pointless chatter. However, it came to be generally seen as negative or antisocial behavior on computer networks. When such antagonistic or aggressive messages are traded between people, it becomes a "flame war." Academic research into flaming has been hampered by a lack of clarity in the definitions used to measure it in laboratory research.

For instance, Kiesler *et al.* (1985) operationalized flaming as:

- impolite statements
- swearing/flirting
- exclamations
- expressions of personal feelings toward another
- the use of superlatives

Other operationalizations of flaming include items such as profanity, "typographic energy" (e.g., exclamation marks), name calling, swearing, and general negative affect. When the focus of a research project moves from flaming to "uninhibited" communication, the definition widens to include even non-task-based messages and conveying bad news.

A further problem with the definition and operationalization of flaming is its *a priori* link to computer-mediated communication (Lea *et al.*, 1992). In many instances, flaming is, by definition, something that either only occurs on computer networks, is unique to computer networks, or is more evident on computer networks than face-to-face.

EMPIRICAL EVIDENCE FOR FLAMING

According to Selfe and Meyer (1991), "heated, emotional, sometimes anonymous, venting … is a common, if not universal, feature of computer-based conferences" (p. 170).

In three early studies outlined in Kiesler *et al.* (1984) the levels of uninhibited verbal behavior were compared in four conditions: face-to-face communication, anonymous computer conferencing (one-to-many), non-anonymous computer conferencing (one-to-many), and e-mail. In the experiments, groups of three people were asked to reach a consensus using a choice–dilemma task (a dilemma where groups weigh up two possible choices, often a risky and cautious option, and come to a joint decision). The researchers also found higher levels of uninhibited verbal behavior (defined in this instance as hostile comments such as swearing, name calling, and insults) in each experiment when people used computers to communicate.

The highest levels of uninhibited behavior were recorded when people discussed anonymously using a real time (synchronous) computer-conferencing system.

Castellá *et al.* (2000) compared levels of flaming between groups discussing a dilemma using e-mail, video-conferencing, or face-to-face. They categorized flaming into "informal speech" (including "ironic comments" and "expressions which try to endow the written speech with certain characteristics of oral speech" (p. 148)) and flaming (aggressive and overtly hostile comments). They found that flaming occurred 94 times in the text-based discussions (4.72% of remarks), compared to 8 times (0.21%) and 16 times (0.39) in face-to-face and video conferencing conditions, respectively.

So, although flaming was rare, it was significantly more likely to occur in the text-based discussions than face-to-face or video conferencing. In further analyses of the data, Castellá *et al.* found no links between an individual's assertiveness or the familiarity of the group and flaming, although being more familiar with the other group members did predict levels of informal speech.

Aiken and Waller (2000) studied two groups of business students who discussed the impeachment of President Clinton and parking problems on campus (both judged as reasonably controversial issues). They found that flaming comments were written by a small but consistent group of people, who were all male. In one group, 20% of the individuals wrote flaming messages for the parking discussion, and 50% for the president discussion. All participants who wrote flaming messages in the first discussion also wrote them in the second. But, they found no links between the controversy or perceived importance of the topic and flaming, suggesting that "flames are probably due to the characteristics (such as gender, level of maturity, hostility, etc.) of the individual writing them" (p. 99). Indeed, Smolensky *et al.* (1990) found that uninhibited communication was related to an individual's level of extroversion, as well as the level of familiarity within the group.

Coleman *et al.* (1999) examined the discussions of 58 face-to-face and 59 CMC participants discussing a set topic in groups of 3–7 people. The subsequent discussions were rated on (among other things), negativity. Positive or neutral statements were scored as 1; statements containing overt disagreement or criticism scored 2; and profanity, hostility, and name-calling were scored as 3. The level of negativity between the two groups did not differ: For the CMC groups, it was 1.24, while for the FtF groups, it was 1.21. However. Coleman *et al.* do note that all cases of "level 3" negativity, while rare, occurred in the CMC condition.

A second type of study into flaming involves asking Internet users to report post hoc the number of flames they see FtF and during CMC. One such study was conducted by Sproull and Kiesler (1986) when they studied the e-mail communications of 96 staff working for a large organization in the United States. They studied the e-mail communication of 96 staff, as well as collecting questionnaire responses. In accordance with their predictions, Sproull and Kiesler found that their

participants reported seeing 33 flames on e-mail in a month, and just 4 in face-to-face interaction.

In summary, then, although flaming is relatively rare, there is evidence that it is more likely to occur in CMC than FtF encounters. However, part of the problem is the archival nature of much CMC—a single flame can be forwarded, saved, and re-read online. This might introduce a bias in favor of CMC as a location of flaming, because flames are more likely to be recalled under these circumstances.

DISINHIBITION AND THE WORLD-WIDE WEB (WWW)

Throughout this discussion, the focus of attention has been communication. However, there is also considerable evidence that behavior on the World Wide Web, while not necessary "deviant," can be seen (at least at times) as disinhibited. Psychological studies of the WWW tend to focus on three main areas: the use of the WWW for conducting psychological research (e.g., Birnbaum, 2004); interaction with WWW interfaces and usability; and psychological processes involved in WWW behavior.

However, despite its importance in popularizing the Internet outside academic and military circles, the psychological processes associated with information seeking (or "browsing") on the World Wide Web has received scant attention from psychological researchers. Of the few studies published that do not deal exclusively with its use as a research tool, the majority deal with the evaluation of WWW sites, or in rare cases, the use of search engines and/or navigation strategies from a human–computer interaction perspective. This pattern is repeated in medical research, with the majority of work that deals with the WWW focusing almost exclusively on the content of the Web sites rather than users' behavior in accessing information.

The omission of the WWW from the body of developing knowledge of social behavior on the Internet is problematic because the WWW drove much of the development on the Internet in terms of usage and application/innovation. While the almost limitless amount of information available on the WWW is often touted as one of the main reasons to access the Internet, little is known about the psychological processes that underpin the seeking of that information.

INTERNET PORNOGRAPHY

One area of WWW behavior that has received some research attention is the accessing of pornographic material. Pornography is considerably more accessible on the Internet than on paper. This increase in accessibility not only circumvents any locally held laws on obscenity (effectively reducing what is acceptable to the

lowest common denominator because that is where Web sites will be hosted), but it also removes many of the psychological inhibitions associated with, say, purchasing pornography in one's local shop.

It is commonly alleged that pornography has been at the forefront of technological developments on the WWW. To be sure, pornographers have been quick to use new technologies—the invention of photography, the telephone and telegraph, cinema and 8mm film, and VHS video has quickly been followed by the use of the technology for pornography. Moreover, as different technologies have been adopted, the consumption of pornography has become increasingly a private affair. The cost of producing and distributing cinema-quality film meant that, until the advent of video, most pornography was viewed by groups. The development of peep shows (where individual's watch pornography in a small booth relatively anonymously) served to privatize pornography (and was a massive success before the advent and widespread adoption of video in the mid to late 1970s). Indeed, back in the 1980s, it was similarly argued that pornography and horror movies were the "killer app" of video—and video "nasties" were implicated in negative social outcomes in the same way the Internet is today.

However, the content and quantity of pornography on the Internet has been under-researched by cyberpsychologists. In part, this is due to the controversy that followed the publication and ensuing publicity of a study by Rimm in 1995. Rimm, a researcher at Carnegie Mellon University, surveyed sexually explicit images available on Usenet and pay-to-view subscription services. The report was picked up by *Time* magazine, which ran a cover story on "CYBERPORN!" Based in part on the study by Rimm, the *Time* magazine story claimed that 83.5% of images on Usenet are pornographic in nature, and that trading in pornography is one of the most popular, if not the most popular, activity on the Internet. However, the data collected by Rimm didn't support this at all. Of the 900,000 occurrences of sexually explicit material collected, less than 1% came from Usenet—the rest from the subscription servers (that generally require credit card details). Following the ensuing outcry from Internet users who felt tarred by this allegation, independent investigations were conducted by both Carnegie Mellon and Georgetown University (who had originally published the study in their *Law Review*). *Time* magazine posted a partial retraction of their story. But, the idea that the Internet is awash with pornography still persists.

FORMATS OF PORNOGRAPHY ON THE INTERNET

Rimm's study of pornographic images attempted to analyze them for content by automatically collecting the descriptions of the images. As the description of the images is likely to be more linked to advertising than necessarily the actual content, it is likely that this method inflated the level of obscenity.

To counter this inflation of obscenity, Mehta and Plaza (1997) analyzed 150 sexually explicit images taken from 17 newsgroups on a single day in 1994. A majority of the images posted were by anonymous noncommercial Usenet users (65%). The main themes that emerged from the analysis were closeups of human genitalia (43%), erect penises (35%), fetishes (33%), and masturbation (21%). The amount of material most likely to be deemed illegal in most countries was also high: 15% of the images either contained children or adolescents or signified youth in the image or text. Other paraphelias were noted, including bondage and discipline (10%), the insertion of foreign objects (17%), bestiality (10%), incest (1%), and urination (3%). Mehta and Plaza note that the distribution of types of images is similar to that found by Rimm in his study of bulletin boards.

Mehta and Plaza also note that the content of Internet pornography seems to differ from that of magazines and videos. For instance, fellatio, homosexuality, and group sex were more often found on Internet sites (15, 18, and 11%, respectively) than in comparable studies of traditional media (8.1, 2–4, and 1–3%, respectively). Compared to the anonymous, noncommercial users, commercial users (i.e., those effectively posting advertisements) were significantly more likely to post explicit material (use of a foreign object, fellatio, and children/adolescents).

Mehta and Plaza (1997) conclude that the amount of explicit/illegal material posted by commercial users reflects an unregulated, fiercely competitive market where pay-to-view bulletin board and Web sites need to offer something different (i.e., increasingly explicit or unusual images). They also note that many of the images of children or adolescents gave the illusion of youth, but may well have been a model aged over 18. None of the images involving children or adolescents were sexually explicit—"the vast majority of the small number of images depicting children and adolescents probably come from nudist magazines…. We never came across an image depicting a sexual act between an adult and a child/adolescent, or acts between children." (Mehta & Plaza, 1997, p. 64). They further note that most of the images uploaded by users seemed to be scanned directly from magazines.

Manning *et al*. (1997) presented some early evidence from the HomeNet study that suggests that although many Internet users might have once looked at sexually explicit material on the Internet, few return to do so again. Curiosity, then, rather than any other variable would seem to drive many initial visits to Internet pornography sites.

However, the perception of anonymity of Web browsing may well make the accessing of pornographic images socially and psychologically safer online than offline. Of course, it is also considerably more convenient, as well as providing, at least for home users, privacy of consumption (something pornography distributors aim for much of the time).

Anonymity, or at least the perception of anonymity, is the usual explanation for disinhibited Web behavior (e.g., Joinson, 1998). However, to fully understand the impact of anonymity on Web behavior, we need to take into account the

various types of anonymity and differential impact on behavior. So, perhaps a home user with an anonymous ISP account or direct dial in to a bulletin board will feel anonymous when seeking online pornography. But, for the vast majority of users, anonymity is also associated with the recognition that their privacy is an illusion when online.

When we talk about anonymity, we need to think of to whom the user is anonymous. Not the Web site, to be sure, which may have not only his or her credit card details, but also details of their IP address or at least their ISP.

In this case, the user may well be seeking information or images away from the gaze of friends, family, or local community, and willingly accepts (or ignores) other privacy concerns. The perception of anonymity is something to be designed into systems, rather than something that the Internet provides as a birthright. Sites that design in a clear lack of anonymity (e.g., compulsory registration procedures) are effectively entering a negotiation with potential users that may well limit the potential benefits of anonymity on Internet behavior. When we think about anonymity and Web behavior, we also need to factor in the actual content sought and, as such, the users' concern about how willing they are to suspend privacy concerns in seeking information. For someone browsing health information sites, perhaps the balance between relative anonymity (compared to, say, picking up leaflets in a local medical center) and privacy concerns wins out. For someone seeking potentially illegal or vulnerable material, privacy and anonymity concerns need to be addressed through the design of systems or protocols that address these concerns before we see a disinhibitory effect.

EXPLANATIONS OF DISINHIBITION ON THE INTERNET

DEINDIVIDUATION

The concept of deindividuation can be traced to French researcher Gustave Le Bon in 1895. Le Bon argued that being a member of a crowd led to submergence, a state where the normal constraints on individual behavior are removed. Within modern experimental social psychology, the term deindividuation was coined by Festinger *et al.* (1952) to explain why males who remember less individuating information show more hostility toward their parents. According to Festinger *et al.*, when a person is not individuated in a group, "there is likely to occur for the member a reduction of inner constraints" (p. 382). This approach was extended by the research of Zimbardo (1969). According to Zimbardo, anonymity, arousal, sensory overload, mind-altering drugs, and a reduction in self-focus lead to deindividuation and thence to disinhibited, hostile behavior. During the 1970s and early 1980s, deindividuation

theory was subjected to a series of reformulations, variously taking into account the role of reduced internal focus (Diener, 1980) and reduced awareness of the public component of one's own behavior (Prentice-Dunn & Rogers, 1982). Prentice-Dunn and Rogers suggest that deindividuation is caused by two factors: a reduction in accountability cues (e.g., anonymity or membership of a group leads to reduced concern about others' reactions) and reduced private self-awareness (and therefore decreased self-regulation and use of internal standards). According to some CMC researchers, people communicating via computers may be deindividuated. For instance, Kiesler *et al*. (1984) argue that when a CMC user is anonymous, and perhaps he or she is focused on the task at hand, and not the recipient of their internal standards, then he or she is deindividuated. However, this view of the average CMC user as deindividuated has been strongly criticized (Lea *et al*., 1992; Postmes & Spears, 1998; Reicher *et al.,* 1995). Lea *et al*. (1992) argue that CMC is not antinormative (as suggested by the deindividuation explanation), but rather is sometimes under the control of norms derived from an active social identity.

AU: As meant?

REDUCED SOCIAL CUES

An associated explanation of disinhibited online behavior comes from the limited bandwidth of CMC networks, and an alleged subsequent reduction in social cues during interaction. This, according to the reduced social cues approach, leads to a reduction in the influence of social norms and constraints (Kiesler *et al*., 1984; Siegal *et al*., 1983) and thus leads to antinormative and deregulated behavior.

AU: Please add to Refs

According to the reduced social cues (RSC) model, lower social and contextual cues leads to (a) an attentional shift toward the task rather than the recipient, (b) a reduction in the normal hierarchy by removing status cues, leadership cues, and so on, and (c) deindividuation, caused by a combination of anonymity, lack of self- and other-focus, and lowered self-regulation (see Spears & Lea, 1992, for a summary of this approach).

However, the RSC approach has been strongly criticized for taking the "socialness" out of CMC (see Spears & Lea, 1992). According to the RSC model, social influence in CMC will be primarily based on the balance of information exchanged (Kiesler *et al.*, 1984). However, Spears and Lea (1992) summarize group polarization research that suggests that CMC, in certain circumstances, adheres to normative influence rather than lending itself to antinormative behavior.

However, the development of online relationships, alongside the development of interpersonal social cues (e.g., smilies, action signs) and category cues contained in e-mail headers and signatures (e.g., gender, location, occupation), suggests that CMC does not lack "socialness" (Spears & Lea, 1992).

Two–Component Self–Awareness Model

It has also been argued that the disinhibition often seen in studies of CMC may be due to higher rather than lower self-focus (Joinson, 2001; Matheson & Zanna, 1988). According to Duval and Wicklund (1972), conscious attention can be directed toward the environment (termed "public" self-awareness) or toward the self (termed "private" self-awareness). Public self-awareness is induced by situations in which an individual is aware of the possibility of being evaluated (e.g., when being videotaped or assessed) or when they are socially distinctive (e.g., when they are a minority in a group). Private self-awareness is when the person is aware of their inner motives, attitudes, goals, and so on, and can be induced, for instance, by having people look into a mirror. Being privately self-aware should lead to behavior's being regulated by individual goals, needs, and standards (Carver & Scheier, 1981). According to Matheson and Zanna, private and public self-awareness are considered to be "relatively orthogonal" (p. 222), that is, one can be aware of "both, one or neither aspect of the self " (p. 222).

Matheson and Zanna argue that evidence from CMC suggests that people may have increased private self-awareness, and reduced public self-awareness, during CMC. As greater self-disclosure is associated with heightened private self-consciousness (Franzoi & Davis, 1985), this would suggest that computer users experience increased private self-awareness since we see increased self-disclosure online. Furthermore, people tend to respond in less socially desirable ways when communicating via a computer compared to pen–and–paper tests (Kiesler & Sproull, 1986), regardless of their level of anonymity (Joinson, 1999). This suggests that an increase in private self-awareness is likely to be linked with a decrease in concerns for evaluation, or public self-awareness.

Matheson and Zanna (1988) tested this notion in a study comparing the levels of self-awareness of 27 introductory psychology students discussing a topic using computers and 28 students discussing the same topic FtF. They found that "users of computer-mediated communication reported greater private self-awareness and marginally lower public self-awareness than subjects communicating face-to-face" (p. 228).

This suggests that while self-presentation concerns are reduced (via lower public self-awareness), self-regulation and focus on internal states and standards may be enhanced (via higher private self-awareness). Matheson and Zanna themselves raise the two main criticisms of this study: First, participants only discussed for 15 minutes; second, the two items comprising the measure of private self-awareness seem to lack internal reliability.

Joinson (2001, Study 3), rather than relying on measures, instead manipulated private and public self-awareness while dyads talked using a CMC system. Private self-awareness was increased by using a video feed of the participant onto their own screen as an equivalent of a mirror. It was reduced by replacing this video feed with

a cartoon. Public self-awareness was reduced by stressing anonymity and increased by increasing accountability cues. The results showed that the condition in which high private and low public self-awareness were combined led to high levels of self-disclosure, similar to those seen in naturalistic CMC environments.

Sassenberg *et al.* (2005) examined the role of private self-awareness in attitude change during CMC. They found that the impact of media (CMC versus FtF) on attitude change was mediated by private self-awareness—that is, reduced attitude change during CMC compared to FtF was dependent upon increases in private self-awareness during CMC. In a second study, they also found evidence that trait private self-awareness moderated the impact of medium on attitude change. Together, these studies confirm the role of self-awareness in understanding the impact of CMC on behavior.

The work of both Joinson and Sassenberg *et al.* suggests that online behavior can be understood in an interpersonal sense. That is, our focus on ourselves relative to other people explains (some) aspects of online behavior. However, in common with the next model (SIDE), the self-awareness approach suggests that online behavior is regulated—by either our own attitudes and beliefs (through increased private self-awareness) or our group memberships and associated attitudes (through salient social identities).

SOCIAL IDENTITY EXPLANATION OF DEINDIVIDUATION EFFECTS (SIDE)

A further explanation of CMC behavior comes from a SIDE model (Reicher *et al.*, 1995). According to this model, most deindividuation effects, from those reported by Zimbardo (1969) onward, can be explained without recourse to deindividuation. Anonymity, because of the lack of focus on the self as an individual, tends to lead to the activation of social identities rather than the activation of personal identities (Reicher *et al.*, 1995). This leads to the regulation of behavior based on the norms associated with the salient social group. For instance, Reicher *et al.* (1995) report a study on group polarization in which the salience of a group membership (in this case, as a psychology student) and the anonymity of the participants was manipulated. Group polarization is the tendency for a group's attitudes to become more extreme (in the direction of the average attitude) following group discussion. Reicher *et al.* predicted that there would be an interaction between group salience and anonymity. In other words, when participants were visually anonymous and their group membership was salient, there would be greater polarization of attitudes following group discussion. This is because the participants are using group norms to direct their behavior. When they are identifiable and the group membership is salient, it was predicted that no group polarization would occur. This is indeed what they found, suggesting that "the combination of psychological group membership

and anonymity in the group results in enhanced conformity to group norms, rather than anti–normative behavior" (Reicher *et al.*, 1995, p. 182).

The SIDE model has slightly more difficulty explaining general disinhibition, rather than group polarization, during CMC. One explanation is to discount the existence of uninhibited verbal behavior, and argue that it may be both context-dependent and normative within CMC (e.g., Lea *et al.*, 1992). However, this requires a social identity to be salient, and that the norms associated with that social identity are toward disinhibition. Certainly, that disinhibition in CMC can be characterized by both flaming and excessive self-disclosure suggests that the SIDE model is right in predicting that behavior on computer networks is context dependent. However, that it exists when the user is non-anonymous, and that much of the information is self-relevant, suggests that it might not always be caused by the activation of a social identity.

MULTI–FACTOR EXPLANATIONS AND DISINHIBITION

Suler (2004) identifies six main factors that lead to an "online disinhibition effect," some previously well established, other based on psychoanalytic theory. These are dissociative anonymity, invisibility, asynchronicity, solipsistic introjection, dissociative imagination, and minimization of authority. Suler argues that anonymity online allows people to compartmentalize their online selves and argue that their online behaviors 'aren't really me at all" (p. 322). Invisibility, according to Suler, is visual anonymity (as used by the SIDE researchers)—that is, although many online interactants know each other, visual anonymity leads to a situation akin to the traditional psychotherapist sitting behind the client to encourage disclosure. Asynchronicity enables people to engage in "emotional hit and run"; they don't need to face the immediate reaction to their behavior. Meanwhile, solipsistic introjection is due to the lack of visual or verbal cues—Internet users read e-mail messages in their own voice in their head, leading to processes of merging and possibly transference. When combined with dissociative imagination—that we can leave imaginary world of the Internet behind when we switch off the computer—according to Suler, we can also leave behind any responsibility for our behavior in this different realm. Finally, Suler claims that the Internet causes the minimization of authority, again encouraging disinhibited behavior.

A PRIVACY–BASED APPROACH TO UNDERSTANDING DISINHIBITION

AU: Please update

Joinson and Paine (in press) have argued that the increased surveillance of Internet activities renders explanations based solely on anonymity unviable. Instead, they have argued that we need to ask to whom is a user non-anonymous, and in

what form? For instance, the Internet, and new media in general, have tended to erode privacy through, among other methods, data mining, cookies, and data footprints. Often, the impression of privacy is a mirage; high levels of personal information are held by a number of gatekeepers through the processes of registration, caches, and logs kept on various servers or even locally based records. It therefore becomes critical to grasp the role of these gatekeepers to understand fully disinhibition online. Joinson and Paine (in press) propose that as well as looking at the micro-level impacts of the media environment on disclosure, one also needs to look at the macro-level—the wider context in which the micro-level behavior is enacted. Specifically, Joinson and Paine identify trust, control, and costs and benefits as critical to understanding any disinhibitory effect. Specifically, they point out that often we "purchase" access to an environment in which we can act in a disinhibited manner by leaving our personal information with a trusted gatekeeper (e.g., a website owner via a registration form). Joinson and Paine argue that this enables users to purchase pseudonymity, for instance, through the use of nicknames on a chat server. A second process that Joinson and Paine identify relates to the costs and benefits of an activity. Many "disinhibited" activities conducted online (e.g., cybersex, self-disclosure, accessing pornography) carry a cost in real life. Self-disclosure can make the discloser vulnerable to others, while accessing pornography can be a cause of embarrassment or shame. The Internet may well address this balance of costs and benefits by reducing the likely cost of a behavior—disclosing secrets is easier if the recipient doesn't know who you are. Finally, Joinson and Paine argue that control is also a critical issue. Walther (1996) argues that hyperpersonal social interaction online occurs, at least in part, because of the increased control afforded by asynchronous, visually anonymous CMC. For instance, we can control what information we choose to disclose, in what manner, and how we disclose it. By removing control from CMC (for instance, by introducing video or synchronicity), we also remove control, and thus compromise privacy. Clearly then, according to this approach, we need to fully appreciate not only the aspects of the media that enable disinhibited behavior, but also the motivations and psychological processes of the individual users and their particular social context.

CONCLUSIONS

Disinhibition is one of the few widely reported and noted media effects of online interaction. However, despite the evidence that disinhibition occurs in a number of different contexts online, including CMC, Web-logs and submission of Web forms, most approaches to understanding the phenomenon confine themselves to considering the impact of a single factor—anonymity. I would argue that by focusing solely on this micro-level media effect, the wider context in which the behavior is conducted is ignored – and that ignoring this context limits how we

can conceptualize online behavior. By considering the wider context, and in particular, its implications for privacy, it is possible to develop a more nuanced picture of disinhibited online behavior across situations.

REFERENCES

Aiken, M., & Waller, B. (2000). Flaming among first-time group support system users. *Information and Management, 37,* 95–100.

Altman, I., & Taylor, D. (1973) *Social penetration: The development of interpersonal relationships.* New York: Holt, Rinehart and Winston.

Berger, C. R., & Calabrese, R. J. (1975) Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Theory, 1,* 99–112

Birnbaum, M. H. (2004). Human research and data collection via the Internet. *Annual Review of Psychology, 55,* 803–832.

Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control theory approach to human behavior.* New York: Springer Verlag.

Castellá, V. O., Abad, A. M. Z., Alonso, F. P., & Silla, J. M. P. (2000). The influence of familiarity among group members, group atmosphere, and assertiveness on uninhibited behaviour through three different communication media. *Computers in Human Behavior, 16,* 141–159.

Chesney, T. (March, 2005). *Online self disclosure in diaries and its implications for knowledge managers.* UKAIS Conference, Northumbria University, United Kingdom.

Coleman, L. H., Paternite, C. E., & Sherman, R. C. (1999). A reexamination of deindividuation in synchronous computer-mediated communication. *Computers in Human Behavior, 15,* 51–65.

Diener, E. (1980). Deindividuation: The absence of self-awareness and self-regulation in group members, In P. Paulus (Ed.), *The psychology of group influence* (pp. 209–242). Hillsdale, NJ: Lawrence Erlbaum.

Des Jarlais, D. C., Paone, D., Milliken, J., Turner, C. F., Miller, H., Gribble, J., Shi, Q., Hagan, H., & Friedman, S. (1999) Audio-computer interviewing to measure risk behaviour for HIV among injecting drug users: A quasi-randomised trial. *The Lancet 353* (9165): 1657–1661.

Duval, S., & Wicklund, R. A. (1972). *A theory of objective self-awareness.* New York: Academic Press.

Epstein, J. F., Barker, P. R., & Kroutil, L. A. (2001) Mode effects in self-reported mental health data. *Public Opinion Quarterly, 65,* 529–550.

Ferriter, M. (1993). Computer aided interviewing and the psychiatric social history. *Social Work and Social Sciences Review, 4,* 255–263.

Festinger, L., Pepitone, A., & Newcomb, T. (1952). Some consequences of deindividuation in a group. *Journal of Abnormal and Social Psychology, 47,* 382–389.

Franzoi, S. L., and Davis, M. H. (1985). Adolescent self-disclosure and loneliness: Private self-consciousness and parental influences. *Journal of Personality and Social Psychology, 48,* 768–780.

Frick, A., Bächtiger, M. T., & Reips, U. D. (2001) Financial incentives, personal information and dropout in online studies. In U. D. Reips & M. Bosnjak (Eds.), *Dimensions of Internet Science*, (pp. 209–219). Lengerich: Pabst: Germany.

Greist, J. H., Klein, M. H., & VanCura, L. J. (1973) A computer interview by psychiatric patient target symptoms. *Archives of General Psychiatry, 29,* 247–253

Joinson, A. N. (1998). Causes and effects of disinhibition on the Internet. In J. Gackenbach (Ed.) *The psychology of the Internet* (pp. 43–60). New York: Academic Press.

Joinson, A. N. (1999) Anonymity, disinhibition, and social desirability on the Internet. *Behaviour Research Methods, Instruments and Computers, 31,* 433–438.

Joinson, A. N. (2001) Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity. *European Journal of Social Psychology, 31,* 177–192

Joinson, A.N. (2003) *Understanding the psychology of Internet behaviour: Virtual worlds, real lives*. Basingstoke and New York: Palgrave Macmillan.

AU: Please update Joinson, A.N. (2004). Self-esteem, interpersonal risk and preference for e-mail to face-to-face communication. *CyberPsychology and Behaviour,* 7 (4), 472–478.

AU: Please update Joinson, A.N., Woodley, A., & Reips, U.-R. (in press). Personalization, authentication, and self-disclosure in self-administered Internet surveys. *Computers in Human Behavior*.

Joinson, A. N., and Paine, C. B. (in press). Self-disclosure, privacy and the Internet. In A. N. Joinson, K. Y. A. McKenna T. Postmes, T., and U.-R. Reips (Eds). *Oxford Handbook of Internet Psychology*. Oxford: Oxford University Press.

Kiesler, S., Siegal, J., & McGuire, T. W. (1984). Social psychological aspects of computer mediated communication. *American Psychologist*, 39, 1123–1134.

Kiesler, S., Zubrow, D., Moses, A. M., & Geller, V. (1985). Affect in computer mediated communication: An experiment in synchronous terminal-to-terminal discussion. *Human Computer Interaction*, *1*, 77–104.

Kiesler, S., & Sproull, L. S. (1986). Response effects in the electronic survey. *Public Opinion Quarterly*, *50*, 402–413.

Lau, J. T. F., Tsui, H.Y., & Wang, Q. S. (2003) Effects of two telephone survey methods on the level of reported risk behaviours. *Sexually Transmitted Infections, 79*, 325–331.

Lea, M., O'Shea, T., Fung, P., & Spears, R. (1992). "Flaming" in computer-mediated communication. In M. Lea (Ed.). *Contexts in computer-mediated communication* (pp. 89–112). London: Harvester Wheatsheaf.

Lessler, J.T., Caspar, R.A., Penne, M.A., and Barker, P.R. (2000) Developing computer assisted interviewing (CAI) for the National Household Survey on Drug Abuse. *Journal of Drug Issues*, *30*, 19–34

Le Bon, G. (1995). *The crowd: A study of the popular mind*. London: Transaction Publishers. (Original published 1895).

Manning, J., Scherlis, W., Kiesler, S., Kraut, R., & Mukhopadhyay, T. (1997). Erotica on the Internet: Early evidence from the HomeNet trial. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 68–69). Nahwah, NJ: Lawrence Erlbaum.

Matheson, K., and Zanna, M. P. (1988). The impact of computer-mediated communication on self-awareness. *Computers in Human Behaviour, 4,* 221–233.

McKenna, K.Y.A., & Bargh, J. (1998). Coming out in the age of the Internet: Identity demarginalization through virtual group participation. *Journal of Personality and Social Psychology*, 7*5*, 681–694.

Mehta, M. D., & Plaza, D. E. (1997). Pornography in cyberspace: An exploration of what's in USENET. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 53–67). Nahwah, NJ: Lawrence Erlbaum.

Parks, M. R., and Floyd, K. (1996) Making friends in cyberspace. *Journal of Communication, 46,* 80–97.

Prentice-Dunn, S., & Rogers, R. W. (1982). Effects of public and private self-awareness on deindividuation and aggression. *Journal of Personality and Social Psychology*, *43*, 503–513.

Postmes, T., & Spears, R. (1998). Deindividuation and anti-normative behavior: A meta-analysis. *Psychological Bulletin, 123*, 238–259.

Reicher, S. D., Spears, R., & Postmes, T. (1995). A social identity model of deindividuation phenomena. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology,* (Vol. *6*, pp. 161–198). Chichester: Wiley.

Rheingold, H. (1993) *The virtual community (rev. edn)*. London: MIT Press.

Rimm, M. (1995). Marketing pornography on the information superhighway. *Georgetown Law Review, 83*, 1839–1934.

Robinson, R., & West, R. (1992) A comparison of computer and questionnaire methods of history-taking in a genito-urinary clinic. *Psychology and Health, 6*, 77–84.

Rosson, M. B. (1999). I get by with a little help from my cyber-friends: Sharing stories of good and bad times on the Web. *Journal of Computer-Mediated Communication*, *4* (4). Available at http://jcmc. indiana.edu/vol4/issue4/rosson.html. Accessed 10 December 2005.

Sassenberg, K., Boos, M., & Rabung, S. (2005). Attitude change in face to face and computer-mediated communication: Private self-awareness as mediator and moderator. *European Journal of Social Psychology, 35,* 361-374.

Selfe, C. L., & Meyer, P. R. (1991). Testing claims for on-line conferences. *Written Communication, 8,* 163–192.

Smolensky, M. W., Carmody, M. A., & Halcomb, C. G. (1990). The influence of task type, group structure, and extroversion on uninhibited speech in computer-mediated communication. *Computers in Human Behavior, 6,* 261–272.

Spears, R., & Lea, M. (1992). Social influence and the influence of the "social" in computer-mediated communication. In M. Lea (Ed.). *Contexts in computer-mediated communication* (pp. 30–64). London: Harvester Wheatsheaf.

Sproull, L., & Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science*, 32, 1492–1512.

Sproull, L., Subramani, M., Kiesler, S., Walker, J. H., & Waters, K. (1996). When the interface is a face. *Human-Computer Interaction, 11,* 97–124.

Suler, J. (2004). The online disinhibition effect. *CyberPsychology and Behavior*, 7, 321–326.

Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations: Getting to know one another a bit at a time. *Human Communication Research*, *28*, 317–348.

Tourangeau, R. (2004). Survey research and societal change. *Annual Review of Psychology, 55*, 775–801.

Tourangeau, R., Couper, M. P., & Steiger, D. M. (2003). Humanizing self administered surveys: Experiments on social presence in Web and IVR surveys. *Computers in Human Behaviour, 19,* 1–24.

Tourangeau, R., & Smith, T. W. (1996). Asking sensitive questions: The impact of data collection mode, question format, and question context. *Public Opinion Quarterly*, *60*, 275–304.

Wallace, P. (1999). *The psychology of the Internet*. Cambridge, UK: Cambridge University Press.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*, 3–43.

Weisband, S., & Kiesler, S. (1996) Self-disclosure on computer forms: Meta-analysis and implications. *Proceedings of CHI96*. Retrieved June 20, 2005 from (http://www.acm.org/sigchi/chi96/proceedings/papers/Weisband/sw_txt.htm)

Zimbardo, P. G. (1969). The human choice: Individuation, reason, and order vs. deindividuation, impulse, and chaos. In W. J. Arnold & D. Levine (Eds.). *Nebraska Symposium on Motivation* (pp. 237–307). Lincoln: Univ. of Nebraska Press.

Zimbardo, P. G. (1977). *Shyness: What is it and what to do about it*. London: Pan Books.