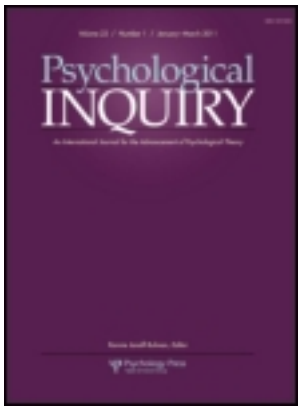

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Have We All Just Become "Robo-Sapiens"? Reflections on Social Influence Processes in the Internet Age

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Have We All Just Become "Robo-Sapiens"? Reflections on Social Influence Processes in the Internet Age

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The first author (Rosanna Guadagno) is old enough to remember the dawn of the World Wide Web. In 1994, she was working as a Human–Computer Interaction Engineer at a large Silicon Valley corporation. Her group was asked to learn the language of the web (HTML) in preparation for the web-based products—including a long-forgotten search engine—the company had in the initial phases of the software development life cycle. At this time, there was no Google, no Myspace, no Facebook, no Twitter, or any kind of social networking sites, nor were there any news or celebrity gossip sites to entertain individuals expecting a 24-hr news cycle. In the old days, REG usually ran out of links after *The Lurker's Guide to Babylon 5*,[1] *Captain Kirk's Sing Along Page*[2], and her teammates' pages. Unlike the Internet of today, where a person can literally spend hours following links from website to website or Google a topic or celebrity and find hundreds, if not thousands, of informative web pages, the early World Wide Web was static and finite.

The web has changed so much in such a relatively short time span. In 1994, most web pages comprised information, possibly some pictures, and perhaps some links, but afforded no integrated means of social interaction—at best there were contact forms and mailto: (e-mail) links, otherwise there were references to alternative interactive options such as usenet groups (similar to today's forums) or IRC channels, or offline contact details (phone numbers and physical addresses).

Today, the Internet offers many ways to connect with others (Facebook's "Like" button and its many imitations, integrated text, audio, and/or video chat and comment systems, e-mail, social media, a plethora of online conferencing and collaboration tools, blogs, microblogs, link-sharing sites, MMORPGs, online classes, etc.), and all of these provide different amounts of social and nonverbal cues. Thus, the Internet has become a dynamic, ever-changing, overwhelming source of information, news, knowledge, misinformation, companionship, and deception. Not only has the Internet become vast and dynamic, it has become ubiquitous and indispensable.

Even before the web existed, early researchers made a distinction between being "online" or "off-line" when discussing the social psychological implications of online interaction (e.g., Kiesler, Siegal, & McGuire, 1984; Matheson & Zanna, 1989). We take the perspective that—in the first world, at least—humans can almost always be online, thanks to smartphones, tablets, and the ubiquity of free Wi-Fi networks where even individuals in lower educational socioeconomic groups, such as homeless young adults, can access the Internet (Guadagno, Muscanell, & Pollio, 2013). Furthermore, given the record-breaking popularity of many of these new technologies, most of us are always online.

Sparrow and Chatman (this issue) question the impact that the pervasiveness of Internet access in today's first world society has had on social cognition. In their article, they review literature illustrating the striking psychological effects that the Internet has on individuals in domains such as memory, source credibility, and persuasion. In the current commentary, we expand on some of their discussion points. Specifically, we extend the notion that the vast amounts of information available at one's fingertips produces information overload and places individuals under chronic cognitive load (Cialdini, 2009), and as such they may be more likely to process information heuristically, relying on various social influence cues, as opposed to deliberate and effortful processing. Furthermore, as Sparrow and Chatman note, the Internet is now often used to connect with others. These social interactions have sometimes life-altering psychological implications for individuals (McKenna, Green, & Gleason, 2002) and should be of great interest to psychological scientists across domains. Thus, we next deepen Sparrow and Chatman's discussion of social interaction via the Internet by focusing on one way in which using the Internet for social

[1]Surprisingly still exists at http://www.midwinter.com/lurk/
[2]This search term now yields so many hits, the first author cannot identify the original.

interaction affects social and cognitive processing: the social influence process. Communications between individuals (both online and off-line) often contain some element of social influence, where the participating individuals may experience attitude and/or behavior change based on the nature of the interaction. We propose that individuals who are constantly "connected" may be more likely to experience cognitive overload and thus may be more likely to rely on heuristic influence cues such as presentational style, communicator cues, other related cues, and affective responses when they are processing and sharing information online. In our discussion on how social influence factors impact social cognition, we first present research demonstrating the significance of social influence cues and their impact on information processing online. Second, we discuss how social influence factors affect information sharing and social contagion. Finally, we conclude with suggestions for the use of the Internet as an archive full of rich data that captures rich, second-to-second data on human social cognition and social behavior, and may also be archiving other details about life on the Internet that may be of interest to the broader community of psychological scientists.

Social Influence and Information Processing on the Internet

Cialdini (2009) has long argued that, with the introduction of each new technology (e.g., the television, the cellular phone, the Internet), the demand on individuals' cognitive resources increases. Further, he has argued that with this increased demand, there is a similar increasing expectation that people always be online (anecdotally, each of the authors have received e-mail[s] from students at 3 a.m. on a Saturday expecting an immediate response, and we suspect most of the readers of this article have as well). Cialdini argued that this constant barrage of information causes a chronic state of information overload that results in cognitive load, leading individuals to have fewer cognitive resources to carefully think through information they are evaluating and instead evaluate information based on the cues associated with the information (i.e., heuristic or peripheral processing; Is the source attractive? Is the source credible? Does the target know or like the source of the information? How have other people responded to the information?). Thus, Cialdini's perspective suggests that there are principles of social influence, a social cognitive process in which an individual's behavior, attitudes, or beliefs change in response to real or imagined external sources, which are likely to be particularly effective in online environments owing to the increased likelihood of heuristic processing resulting from information overload. Initial research indeed indicates that many heuristic cues associated with social influence (Cialdini, 2009) do extend to online settings (see Guadagno, 2013; Guadagno & Cialdini, 2005), particularly when the target of the influence heuristically processes information when responding to an influence request.

Sparrow and Chatman (this issue) questioned the media's perception that laypeople tend to believe whatever information they obtain from the Internet. To examine this, they first brought up an inflammatory piece published in Atlantic magazine entitled "Is Google Making Us Stupid?" (N. Carr, 2008). Sparrow and Chatman report that the media perception matches the data obtained in the lab (Sparrow, Liu, & Wegner, 2011). Although it is difficult to conclude whether the Internet is actually impairing our intelligence, we argue that the kind of Internet access first-world individuals have today (compared to previous generations) may increase the likelihood that individuals heuristically process information. Thus, there may be certain aspect of being online that result in less effortful thinking.

Just as Sparrow and Chatman (this issue) started their article with the quote "It's true, I saw it on the Internet," we too have observed this tendency both in our daily lives and in our research. For instance, we sought to examine whether receiving information via a computer would invoke the heuristic "If it comes from a computer, it must be true" (Guadagno, Muscanell, Sundie, Hardison, & Cialdini, 2013). In addition, we examined whether this heuristic was equally effective with topic-relevant novices versus topic-relevant experts. Specifically, we presented football novices and experts with a (fictitious) football scout's report about a football recruit and asked them to evaluate the future success of that player. We predicted that experts would perform better at this task than novices and would be less influenced by presentational style, as they would be able to better understand the statistics in evaluating the strengths of the recruit. All participants were presented with the same recruit information. The only difference was how they received the information: typed report, a printed-out series of charts that included the typed information plus a bar graph to illustrate the value, or an identical series of charts displayed on a computer screen. Given the similarity of the presentations, we expected to see a difference only if the heuristic "information via computer = good" was in effect. Results showed that the computer-based presentation produced higher ratings of the football recruit for both the novices and the experts, although the effect was stronger for the experts. Thus, we found initial evidence that people, even those individuals who are domain experts, can be influenced by information presented with technology. The extent to which this generalizes and the limits of this effect need to be further examined, but it does suggest that there is something to the anecdotal notion of "It's true because I read it

on Google," and these data support Cialdini's (2009) argument that the presence of a computer in the presentation of information produces heuristic processing even with experts.

Beyond the computer serving as a heuristic cue that information may be more valid, other cues related to the communicator or others' behaviors can be relevant heuristic information. For example, we examined how communicator and other related cues affect how persuasive communication is when reading an online blog. Specifically, we examined liking (a communicator cue) and social validation (other related cue—when an individual behaves in accordance with the behavior of others around him or her; Cialdini, 2009) processes online and found support for social validation but mixed results for liking (Guadagno & Cialdini, 2005; Guadagno, Muscanell, Rice, & Roberts, 2013). To examine liking and social validation online, Guadagno, Muscanell, Rice, et al. (2013) asked participants to read an ostensible student blog that varied in likeability and social validation. The blog owner (who was made to appear likable vs. not likeable) asked participants to volunteer for a canned food drive. There were also three social validation conditions: positive social validation information (in which fictitious students posted comments indicating their willingness to volunteer for the canned food drive), negative social validation information (in which fictitious students posted comments indicating their unwillingness to volunteer for the canned food drive), and no social validation information (in which there were no comments in response to the request). Results revealed that social validation affected participants' willingness to volunteer but communicator likeability did not. Specifically, participants volunteered more when other students indicated their willingness to volunteer and volunteered less when the other students indicated their unwillingness to volunteer. Furthermore, although the manipulation check data indicated that the likeability manipulation was successful—the likeable blog owner was rated as more likeable than the not likeable blog owner—this had no impact on volunteering. These results provide further evidence that individuals rely on heuristic cues—in this case, social validation or taking the lead from what others are doing when processing information online. Although we found no effects for communicator likeability, this may suggest that individuals rely on what they perceive to be the most relevant heuristic to the task at hand.

Other research provides further support that the behavior of others can be a useful heuristic guiding our cognitive processing and responses. A recent study demonstrated the role of normative information of others' behavior in online chats (Muscanell, Gitter, Guadagno, Murphy, & Brewer, 2013). In this study, small groups of three to four individuals discussed a topic. Half of the groups were exposed to profanity (a confederate utilized curse words multiple times in the chat), and half were not. We found that being exposed to profanity served as a cue that other non-normative behaviors were acceptable. In the groups that were exposed to profane language, we found that cognitive processes changed such that these groups were more likely to have off topic cognitions, the nonconfederate participants were more likely to use profanity themselves, and there was less formal language (i.e., laughter, text speak, grammatical errors) as compared to the groups who were not exposed to profanity.

Further research has examined the role of additional communicator cues in online information processing. For instance, one study demonstrated that the similarity was influential for attitude change in virtual environments (Guadagno, Blascovich, Bailenson, & McCall, 2007). Similarity, the degree to which individuals perceive themselves to be similar to another has been shown to be a heuristic that individuals rely in offline contexts (Cialdini, 2009). Specifically, individuals are more likely to be persuaded by or comply with a request if the communicator (influence agent) of the request is perceived as being similar. The heuristic or rule of thumb suggesting that those who are similar to an influence target are probably right and know best. Thus, when heuristically processing, the influence target will change their attitudes to match a similar other if that is the most salient heuristic cue. That was the case in Guadagno et al. (2007). Specifically, the researchers found that men and women placed in a virtual environment changed their attitudes from baseline only when they shared a salient similarity with the influence agent: gender. Thus, when the influence agent was a same-sex virtual human—in reality, a computer-controlled agent—participants were more likely to change their attitudes in response to persuasive communication from that agent.

Taken together, these studies demonstrate that there are social influence factors that individuals may rely upon to process information and decide how to respond in online settings. Heuristic cues relating to the communicator (i.e., likability and similarity) in addition to cues about others' behaviors (i.e., Are others volunteering to help? Are others engaging in antinormative behavior?) can be used as quick shortcuts that individuals rely upon when using the web. Furthermore, they may be more likely to rely upon such cues the more they are connected as cognitive load may increase, whereas only certain nonverbal information may be available online, thereby leading the individual to orient on the most salient heuristic cue and make decisions based on that rather than mindfully processing the information.

Is It Time for a New Plan? Social Influence and Information Sharing

In 2000, McKenna and Bargh published their groundbreaking theoretical framework for online behavior entitled Plan 9 from Cyberspace: The Implications of the Internet for Personality and Social Psychology. In it, they proposed four key features of the Internet that made social interaction online unique: (a) increased anonymity, (b) decreased importance of physical proximity and appearance, (c) greater control over the time and pace of interactions, and (d) decreased importance of nonverbal cues. Although these features may be possible to encounter when interacting online, the landscape of the Internet has changed in these respects as well. While we have the utmost respect for this early theory that shaped much of our initial thinking and framed many of our early studies, the Internet of today is markedly different. Today, most people interact nonanonymously with people they know (Muscanell & Guadagno, 2012) and a sizable proportion of the first-world population communicate through video or audio or use their picture to represent themselves online.

From a social influence perspective, another key aspect of today's Internet is the rise and rapid transition of Internet memes (Guadagno, Cialdini, & Evron, 2010). One of the results of the previously discussed advancements and changes in Internet technology is that we can now easily share as much information as we want, and we can do so very quickly. Also, more diverse content can shared online such as multimedia videos or audio files. It is important to note that, once content is shared online it has the potential to read a much wider audience than typical face-to-face sharing. A single post on Facebook or Twitter can reach and potentially influence thousands of individuals in a matter of seconds, creating influence on a massive scale. Moreover, the identical influence processes and proliferation of the shared content can repeat itself for each individual who received the original shared content exponentially increasing the potential reach of the shared content. As such, characteristics like the extreme speed with which individuals can share content online and the wide potential reach of that shared content need to be better understood and integrated into current theories of Internet social interaction.

We argue that many social influence factors (including ones already discussed) are therefore quite relevant not only to how we process information but to how we choose to share information. We provide evidence for cues that individuals may rely upon to decide whether to share information with others online (including other related cues such as social validation and group membership, affective responses, and similarity), and we discuss how reliance upon such information can results in the rapid spread and popularity of information online, a process referred to as contagion (Cialdini, 2009). One of the main mechanisms behind contagion is social validation: If we see others doing it, we want to as well. The rapidity of communication on the Internet and the ease of sending a message to many people from one person's Twitter, e-mail, or Facebook account has dramatically changed the landscape of the Internet and introduced new terms into our vocabulary (Guadagno et al., 2010) such as "rick rolled"—a widely known Internet prank that occurs when a person clicks on a web page that links him or her to the music video of a long forgotten 1980s singer Rick Astley's one hit song instead of the purported destination.

For example, a large-scale (61 million participants) study of social validation online supported prior research (Guadagno, in press; Guadagno & Cialdini, 2005) and found that social validation operates similarly online as it does in traditional face-to-face contexts (Bond et al., 2012). Specifically, 61 million Facebook users were delivered a message urging them to vote and provided a link for further information. Half of the links contained information on whether the target's friends also clicked the "I voted" link. The other half omitted this information. Results indicated that individuals who received social validation information were significantly more likely to publicly declare they voted (by clicking the link), seek out information regarding the voting process, and engage in actual voting behavior.

Another cue that individuals rely on when processing information is their own affective response. How we feel in the moment can be a quick cue to how we should think and what we should do. Many studies have noted that affect plays a key role in the sharing of information (Heath, Bell, & Sternberg, 2001). Moreover, both positive and negative affect motivate the sharing of information (Guadagno, Rempala, Murphy, & Okdie, 2013; Heath, 1996). Recent research has shown that any general autonomic nervous system arousal appears to increase the motivation to share information with others (Berger, 2011). Across two studies participants were more likely to share content when they were highly aroused—even when that arousal was unrelated to the content being shared (e.g., running in place prior to viewing possible shared content). Large-scale examinations of the sharing of emotions on Facebook (e.g., affectively laden status updates) also indicates that emotions can also spread in online venues (Kramer, 2012). Specifically, when an individual shares an emotion related post on Facebook, those in the individual's network of friends are significantly more likely to share an affectively consistent post within the following 3 days.

Another set of studies study provided further support for the influence of affect and social validation (in the form of the source of the video) in the spread of Internet memes (Guadagno, Rempala,

et al., 2013). In addition, this study examined other related cues—group membership information. Specifically, these researchers sought to examine what leads some Internet videos to spread to millions of viewers, while view counts remain below 100. This is a research question that has largely been unexamined empirically. The researchers examined the role of emotional response to videos and as well as the source of the video (an ingroup or outgroup member) on the likelihood of spreading an Internet video. The results revealed that people who reported experiencing strong affective responses to a video were more likely to report intention to spread the video. Furthermore, videos that evoked the strongest positive (e.g., cute and funny) and negative (i.e., anger producing, disgusting) emotions were the most likely to be spread. With regard to the role of the video source, videos that produced anger were more likely to be forwarded, but only when the video came from an outgroup member. It may be that the experience of receiving something anger provoking from an outgroup member enhances the level of anger experienced, which in turn influences the target to share their anger with others.

Finally, research on information spread has also shown similarity to be an influential factor. In one study, findings suggested that sharing behavior can be predicted based on the political orientation and that the targets of the shared content (Okdie, Rempala, & Garvey, 2013). The authors asked participants who self-identified with either the Republican or Democratic political party to watch one of four possible videos that varied by political viewpoint (Democrat or Republican) and by evoked emotion (positive or negative). Results indicated that Republicans were significantly more likely to share videos overall. Moreover, the personality characteristics of the targets of Republicans' forwards were more likely to be similar to themselves. Conversely, Democrats were significantly less likely to share, and when they did share, the people they shared with were not similar to them.

Taken together, these studies suggest that individuals rely on social influence factors and heuristic cues when deciding whether to share information with other online. Again, we argue that being online all the time and/or the expectation of this may increase cognitive load and cause individuals to rely more on such cues and thus understanding these social influence factors is important. Indeed, some research has more directly begun to examine how limited cognitive effort and visibility that may impact the sharing of information online. For example, research investigating the sharing of information on Twitter indicates that the more cognitive effort it takes to engage with content (a tweet in this case) the less likelihood it is to be passed on. Tweets found at the top of individual's news feed (requiring less cognitive effort to interact with) were significantly more likely to be shared (Hodas & Lerman, 2012). Overall, it seems clear that individuals rely upon cues related to those who they are communicating with, information about how many others are responding, and their own affective responses. These factors are influential in impacting not only how individuals process information online but also whether they choose to share it with others. In the next section, we suggest some future areas of research that will help us to more directly understand the way we process, think, and respond to and with others via the web.

Byproducts of Online Social Interaction: The Internet Is an Archive, Why Not Study It?

Although the Internet has long been embraced as a means for easy online data collection (Gosling, Vazire, Srivastava, & John, 2004), we suggest that there are even greater opportunities for the application of psychological theory and research in the analysis of the existing content online. Some past research has examined individuals' cognitive states through writing (and other means) in traditional offline contexts by prompting participants to write about events in their lives (see Cohn, Mehl, & Pennebaker, 2004, for a recent example) or by asking them to report their thoughts during an experimental task (e.g., thought listing measures of elaboration; see Petty, Wells, & Brock, 1976). Although these methods have provided much insight into the cognitive states of the text's authors leading to a greater understanding of domains such as information processing and the effects of self-disclosure, they are inorganic and scarce. Moreover, prior to recent computer-based text analysis programs (see LIWC; Pennebaker, Booth, & Francis, 2007, for an example) coding large amounts of text-based information (or other methods of self-expression) was expensive and labor intensive.

In contrast, as individuals interact socially online they leave clues to their cognition behind. For example, e-mail conversations leave clues to the correspondents' cognition not only in the title and text but in which portions of messages they choose to respond to, and whom they choose to include in discussions, and Facebook users attempting to communicate their cognitive state to their followers often leave more explicit clues to their cognition in the form of emoticons and verbal expressions of affect (e.g., "feeling optimistic"). As Sparrow and Chatman (this issue) note, "the most popular uses of the Internet are for finding information using search engines (91% of U.S. adult Internet users) and e-mail communications (88% of U.S. adult Internet users)" (p. 274). Thus, it is clear that there are vast amounts of communication data available to social scientists in various formats. For example, some individuals choose to express themselves and communicate to others using personal blogs (i.e., a website similar to a diary that is updated in reverse chronological order) in which they are likely to disclose their

cognitions on the daily happenings of their lives. Others choose to communicate online in more brief ways such as posting a tweet on Twitter.com.

Recent research has shown that these byproducts of online self-expression and interpersonal communication can be reflective of real-time cognitive states. For example, Cohn et al. (2004) analyzed more than 1,000 individuals who wrote online blogs before and after the September 11, 2001, terrorist attack in the United States. The authors downloaded and examined blog entries occurring before and after the attack. Linguistic analyses of the individuals' online writings revealed that after the attack, individuals wrote with more psychological distance, negative emotion, and engagement. Two weeks later, linguistic analyses revealed that the content of the blogs returned near baseline and that even those who barely wrote about the attack showed changes in their writing style likely reflecting changes in cognition.

More recently, researchers have become interested in analyzing "big data" collected from popular social media sites. This approach makes use of individuals' online writings by analyzing the content of vast numbers of posts from social media websites. Although new, much of this research currently focuses on linguistic aspects and use of affective language on sites like Facebook and Twitter. For instance, a recent study examined the types of speech acts that individuals typically use within Facebook status updates (C. T. Carr, Schrock, & Dauterman, 2013), and another recent study examined the relation between religiosity and the use of positive versus negative words in posts on Twitter (Ritter, Preston, & Hernandez, in press).

Similarly, members of our lab group were uniquely situated to examine the role of social networking in the cognitions of individuals affected by an EF4 tornado. Student housing was hit particularly hard, as were several cell phone towers. Thus, according to our sample, more than 55% of students in our sample ended up using Facebook as a means of communicating to friends and family (Goodwin, Muscanell, Guadagno, Barth, & Yang, 2013). This provided us with a unique opportunity to examine student cognitions at multiple time points before and after the tornado by directly accessing their Facebook accounts. In addition to the Facebook posts, we collected data from participants at two time points to assess psychosocial outcomes such as perceived social support, coping, and resilience. Thus far, we have only conducted an LWIC analysis of the first status updates after the tornado (Guadagno, Muscanell, Goodwin, Barth, & Yang, 2013) As in previous research (Gortner & Pennebaker, 2003), we assessed emotional and cognitive processing, interpersonal and social concerns, and psychological closeness to the disaster being discussed. We used gender and perceived social support to predict words as categorized by the LIWC. Overall, and consistent with prior research (Pennebaker & Lay, 2002), we found that people who perceived themselves to have a strong social support network used the word "we" more in their posts. Finally, women who perceived their social support networks to be small expressed more sadness than did women with larger perceived social support networks or men with perceived social support networks of any size. Thus, there is initial evidence that social support factors may influence individuals' thought processes such that they utilize more collective language and that there may be moderating variables, such as gender, which can tell us more about cognitive processes via the thoughts people share on Facebook. The research team is still working with the cognitions captured by the Facebook posts so these results are preliminary in nature but serve to illustrate what psychological scientists could do with the kind of data available online.

It is apparent that individuals leave byproducts of their social interactions online and that these byproducts have been empirically shown to be reflective of psychological states. Therefore, the amount of social interaction occurring online is leaving an enormous amount of information about its users behind. For instance, this stored information can inform social scientists about the realtime cognitive states of individuals with respect to a variety of attitude objects such as their personal relationships, sociocultural events, and so on. We have learned a lot about cognitive processes by directly examining actual cognitions in the past—for example, the classic social influence literature (see earlier; Cacioppo & Petty, 1981) utilized the thought-listing task to examine individuals' moment-to-moment cognitions across various contexts. We argue that these analyses, although tedious in nature (e.g., Ritter et al., in press, examined nearly 2 million tweets) are still relatively untapped when it comes to learning more about individuals' cognitive processes. These methodologies may be utilized to further examine cognitive processes on such platforms (i.e., elaboration, associative thought processes, etc.). For example, analyses could be conducted to determine whether individuals' messages are more self versus other directed, and to what extent they elaborate on specific types of information. Also, there should be examination of cognition more specifically within dyadic or group interactions. Sites such as Facebook and Twitter leave not only traces of an individual's cognitions but also traces of the cognitive states of commenters. Examining actual interactions online between dyads and groups can provide us with rich, time-stamped data that has the potential to provide psychological scientists with more insight on people's actual thoughts as they occur during online—and even face-to-face—social interactions.

Summary

In sum, the literature just reviewed supplements and expands upon Sparrow and Chatman's (this issue) discussion of the social and cognitive psychological implications for Internet use by demonstrating that interactions taking place online may lead to unique cognitive states that affect such things as how we store information and what we consider as expert. We argue that the expectation and, in some cases, the reality of being constantly connected to the Internet may produce cognitive load resulting in greater heuristic processing of information. In this case, social influence factors, particularly social validation and the contagion-induced rapid sharing of related information, may play a significant role in how individuals think about online interactions and process online interactions, and it may affect how individuals respond to information online. Specifically, individuals may be more likely to rely upon heuristic cues such as source cues (i.e., "information from the computer = good" as previously illustrated; Guadagno, Muscanell, Sundie, et al., 2013), other related cues, and affective responses, and these may affect one's likelihood to think very deliberately about communication online.

Finally, we urge psychological scientists to study the media more broadly (e.g., books, Internet, video games) and to utilize more observational approaches to studying social cognition online. Now more than ever before, psychologists have access to individuals' cognitive states through their writing (e.g., blog posts, status updates, e-mails), their emotional states through explicitly stated mood (e.g., use of emoticons, outward written expressions of emotion on social media web sites), and preferences through online behavior (e.g., liking content on Facebook, sharing digital content via e-mail or other means). Sparrow and Chatman (this issue) end their article with the statement, "We need to understand the variables that will make the most of our use of the incredible amount of information at our disposal" (p. 288). To this end, some researchers have proposed new attribute frameworks for examining this plethora of new data and for making predictions about the psychological effects of new media such as interactive web pages (Okdie et al., 2013). These frameworks identify the critical attributes by which media vary and use these attributes to categorize emerging and existing media affording the prediction of human cognition and behavior.

There are still many unanswered questions about how Internet use will affect human social cognition, social interaction, and other aspects of psychological inquiry. Sparrow and Chatman (this issue) bring up some intriguing discussion points and we have shared our reaction, yet we still maintain that there is much left to be discovered. For instance, all three of us have been long intrigued by the question of why people overshare information online even when they are in nonanonymous settings (e.g., a colleague out on disability posts pictures of himself on Facebook taking shots of tequila in Mexico when he is supposed to be bedridden). Thus far, our research suggests that part of the puzzle can be answered by individual differences such as gender and personality (Guadagno, Okdie, & Eno, 2008; Guadagno & Sagarin, 2010; Muscanell, Guadagno, & Gitter, 2013; Muscanell; Guadagno, & Hamilton, 2013; Okdie, Guadagno, Rempala, & Eno, 2011). This is just one of many ways in which psychological science can build our understanding of how and why people behave the way they do on the Internet.

Conclusion

The Internet is here to stay. In another 19 years, it may look very different from the world described by the articles in this issue of Psychological Inquiry. No matter how it looks, we implore our colleagues to think as we do and as Sparrow and Chatman (this issue) do: The Internet is an important part of human social and cognitive daily life. As it continues to grow, change, and affect the way in which individuals view themselves, others, and the world around them, it is up to social scientists to continue to examine the impact of the Internet on the psychological processes described in Sparrow and Chatman (this issue) and in the present article.

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Note

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