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A Social Turn for the Internet: Commentary on Sparrow and Chatman

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In their article, Sparrow and Chatman (this issue) argued forcefully and persuasively that psychology, and in particular social psychology, can contribute to our understanding of the Internet's effects on cognition. The study of the impact of technology on memory has a long tradition, with scholars in diverse fields such as history, cultural studies, anthropology, science studies, and sociology, as well as psychology, all weighing in on this issue. Probably the most widely studied "technology" is writing, with major works by Ong and Hartley (2012), Havelock (2009), and Goody (1975), all of whom explored the consequences of the shift from orality to literacy on cognition and "consciousness." Even though the issue does not, on the surface, seem to lend itself to experimental analysis, experimental psychologists also contributed substantially to the discussion, especially with Scribner and Cole's (1981) groundbreaking experimental investigations of oral cultures.

Of course, other technologies have been explored, from the lowly calendar to the resplendent use of art as mnemonic aids (e.g., Carruthers, 1990; Pillemer, Goldsmith, Panter, & White, 1988; Yates, 1992; Zerubavel, 2012). What each of these scholarly efforts has dramatically demonstrated is that technology does indeed change cognition. For instance, the widespread use of personal handheld computers, such as smartphones and tablets, has led to an increase in multitasking, which, in turn, the experimental evidence suggests, has produced more "shallow" processing (Ophir, Nass, & Wagner, 2009). As to the issue of literacy, Ong and Hartley (2012) and Havelock (2009) suggested that Western science could not have developed without the written word.

None of these scholars, nor did Sparrow and Chatman, claim that the basic biological makeup of the human mind changes with the introduction of new technology. Universal psychological principles are still at work no matter what technology is employed. What changes is how people think routinely. What the presence of handheld computers has done is promote practices that reshape the cognitive processing of individuals. High multitaskers can probably still focus on specific tasks. They just do not utilize the ability, for instance, when asked to attend to one line of

information while ignoring distracting stimuli. As to the role of literacy in the evolution of Western science, multiple possibilities exist, but, at the very least, being able to write things down decreases demands on working memory. The capacity of working memory remains the same in pre-literate and literate societies (Scribner & Cole, 1981).

For some, the failure to alter the basic, universal character of the human mind would suggest that the psychological impact of technology on cognition is fairly shallow. The technology "merely" acts as a scaffold or a script that enhances cognition but does not fundamentally alter it (Norman, 2012). But, at least for those who do not clearly differentiate between whatever occurs within the head and the external influences shaping this internal processing, such as those espousing an extended mind view, the presence of new technology does indeed represent a fundamental shift in mental life (Clark & Chalmers, 1998; Donald, 1991; Malafouris, 2004; Renfrew & Zubrow, 1994; Sutton, 2006). What all would agree on is that the introduction of technology can substantially and substantively change the way people see, think, and remember. Sparrow and Chatman ask: What are the changes that occur with the introduction of the Internet?

A Social Turn

Following Sparrow and Chatman, we divide the use of the Internet into at least two classes: uses that involve accessing information, what could be referred to as *epistemic uses*, and uses that involve interacting with others, what might be referred to as *relational uses*. Many of the technologies often cited as affecting cognition would involve epistemic uses. The work on the effect of multitasking mainly focuses, for instance, on performance of cognitive tasks (Ophir et al., 2009), and thereby the multitasking, at least when it comes to its effect on attention, involves an epistemic use. As for the effects of the growth of literacy on cognition, until recently, the emphasis has been on the way the written word represents knowledge, as opposed to the way it reshapes relationships (again, see Havelock, 2009; Ong & Hartley, 2012).

To a large extent, at least in its earliest stages, the Internet falls squarely into this large class of epistemic use—it was about ready access of knowledge rather than rapid communication with others (a relational use). Sparrow and Chatman discussed several influences on cognition that could arise when using the Internet in this fashion, for example, the reinforcement of biases, when limited to the tendency of search engines to tailor a search to the user's preferences, and the illusion of control. To some degree, these involve social factors, but the effects are mainly dealing with the way knowledge is captured or represented.

The second use—the relational use of the Internet—is considered such a radical departure from the more traditional epistemic use that pundits refer to it as a second generation development, or Web 2.0. Here is where the social really kicks in. Sparrow and Chatman reviewed work that bears on questions such as, Do people present themselves realistically in social media? What are the consequences of the relative paucity of social cues on the Internet? What are the consequences on the attribution of agency when cues such as voice are not present? Is there, for instance, less empathy for the source of a communication if the communication occurs over the Internet? For us, however, a critical question, one that Sparrow and Chatman entertained toward the end of the article, is, Do individuals' sense of "reality"—what they know about the world as well as their memories of the past—differ when communication occurs through the Internet? Here the issue is not how looking up information changes the "reality" of the web searcher. Rather it is how reality changes when communicating occurs over the Internet, as opposed to, for instance, person-to-person communication. A particularly interesting case involves not the acquisition of new information, but those incidents in which people communicate about what is already known. Talking about shared knowledge or the shared past may be a uniquely human undertaking. The frequently charged discussions that follow a web-based article, the exchanges on Facebook about a social or political event, or the blast across Twitter about a recent demonstration or protest do not necessarily introduce new information. They capture a previously known-about event from a distinctive perspective.

What are the consequences of getting your take on the world through social media? Will these differ from those of person-to-person communication? Will simply looking up information—even already known information—on the Internet differ from acquiring it through social media? Sparrow and Chatman hinted at answers, but we would like to be more explicit: We expect differences. Sparrow and Chatman discussed how the Internet can both implant new, often misleading memories and induce forgetting. The extant research suggests that both of these communicative effects on

memory should be sensitive in distinctive ways to different uses of the Internet.

Recent Experimental Work

Consider first work on memory implantation and the related phenomenon of social contagion. As Sparrow and Chatman reviewed, this work suggests that if users look up information on the Internet containing unreliable information, this misleading information can become implanted in the users' memory, even if they knew the correct information before they began the search. They also suggested that, if users are employing the Internet purely for epistemic purposes, these users may be sensitive to the credibility of a website. That is, they may take epistemic factors into account. And, indeed, they do. As Sparrow and Chapman noted, social contagion is less likely to occur if users are suspicious of the credibility of the source (e.g., see Echterhoff, Hirst, & Hussy, 2005). But relational factors also matter. In the traditional Internet, the source of material is generally anonymous or institutional, for example, the National Institute of Health. However, social contagion will differ to the extent to which users are simply acquiring information through anonymous website or chatting, even asynchronously, with other people. As Meade and Roediger (2002) showed, social contagion is more likely to occur if the source of the misinformation is a person as opposed to a narrative without any specifiable source.

As for induced forgetting, recent work in our laboratories clearly bears on the issue. Work on so-called *within-individual retrieval-induced forgetting* (WI-RIF), in which one individual retrieves memories selectively, has shown that unretrieved memories related to retrieved ones are more likely to be forgotten than unretrieved, unrelated memories. *Socially shared retrieval induced forgetting* (SS-RIF), the phenomenon discussed by Sparrow and Chapman, involves the same pattern of forgetting, but now for those that simply attend to others remembering. As we have argued elsewhere (Cuc, Koppel, & Hirst, 2007), SS-RIF occurs because an attendee (in most of the cases studied in the laboratory so far, a listener; in the case under consideration, the user of the Internet) concurrently retrieves with the speaker (for the Internet, the Internet user reading through the provided information). A salient difference between WI-RIF and SS-RIF is that retrieval is mandatory for the rememberer in a WI-RIF experiment. After all, the experimenter instructs the participant to retrieve specific memories. Concurrent retrieval is, however, optional for attendees/listeners/Internet users. Attendees do not have to retrieve memories along with the rememberer. They do so only if they are motivated to. Inasmuch as retrieval can become quite demanding, one might expect that

attendees will rarely make the effort to concurrently retrieve. What is striking about the consistent findings of SS-RIF is that they suggest that, in many instances, listeners do make the effort.

The recent work in our laboratories has sought to specify why and when attendees make the effort. Again, it appears to depend on the use people are making of the selective remembering provided by a speaker, or, in the case under consideration, of the information provided on the Internet. In some cases, people are treating the source as an information provider. In such instance, the perceived credibility of the source is important. Koppel, Wohl, Meksin, and Hirst (2014), for instance, found that SS-RIF was less likely to occur as the credibility of the source of a message increased. They accounted for this finding by referring to an epistemic motive: the more credible the source, the more likely the recollection is accurate, and the less likely it should be that a listener would make the effort to concurrently remember along with the speaker.

However, at times, relational motives seem at the forefront. For instance, it appears that people are more likely to manifest SS-RIF if they have a visual representation of the human source of a conveyed message. Fagin, Meister, and Hirst (2013) asked participants to first study a story about the day in the life of John and then attend to a retelling of the story. In the various conditions they tested, the retelling took the form of a simple narrative presented in different ways: (a) as text on PowerPoint slides; (b) as text, but preceded with a statement that the author was a young man from New York; (c) as text, with a picture of the author on the side; (d) as an audio recording; and (e) as a video recording with the audio. Although other conditions could also be explored, the results for these five conditions are suggestive: SS-RIF was observed only in the final memory test when there was a picture present or when the presentation took the form of a video. Neither audio alone nor text alone may be sufficient, at least in the situations studied by Fagin et al. One apparently had to “see” the person responsible for the narrative. These results follow in broad outline the persuasion literature Sparrow and Chapman reviewed. This literature showed, for instance, that both video and audiotape formats of messages lead to greater attitude change than text alone (Chaiken & Eagly, 1983). Unlike the work of Fagin et al., the extant persuasion literature suggests that there may not be a difference between audio and videotape recordings.

Coman and Graeupner (2013) also examined what might reasonably be thought of as a relational motive. Specifically, they investigated the effect of group membership. Princeton students first studied a story and then listened to an audio (paired with photo and background information) of a young person selectively recalling the story. Group membership appeared to matter. SS-RIF was found when the rememberer was identified as a

Princeton student but not when he or she was identified as a Yale. We do not suspect that the Princeton student thought the Princeton or Yale speaker was more or less credible. Rather they were more likely to see themselves as related to the Princeton speaker. This explanation is underscored by the finding that this SS-RIF pattern was more likely to be found if the participants were primed to think about their identity as a Princeton student.

This brief review of recent work indicates that the medium of an act of communication matters. The cognitive effects of obtaining information through Web 1.0 may be governed by different factors than those concerning the acquisition of information on Web 2.0. The exquisitely tuned manner by which epistemic and relational factors affect the cognition of a user suggests that even this distinction—between Web 1.0 and Web 2.0—may not be fine-grained enough. In many instances, one knows the user of a Facebook account personally. This personal relationship might increase the level of social contagion and SS-RIF. The source of a Twitter message, however, may not be known personally, but it may still have agentic characteristics that would trigger both communicative effects. But what about Tumblr, Vimeo, and so on? In many cases, the author of the message is unknown; Vimeo presentations may be like visual text messages. As a result, they may have quite different effects on users than other forms of social media. It is clear that Sparrow and Chapman’s message needs underscoring: We need good psychological experimentation on the effects of the Internet on its users’ cognition. The present authors would add that we also need a good theory.

Note

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