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## **Knowing, remembering and relating to others online: a commentary**

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## ABSTRACT

This article is a commentary on two articles published in this special issue (Stone & Wang, *this volume*; Alea et al., *this volume*), written from the point of view of research in interactionist and ergonomic psychology on the processes of meaning making in epistemic situations (work and education). We propose that a deeper understanding of the results reported in these articles could be elaborated by contextualising them within societal and historical perspectives on the changes in the status of legitimised knowledge in the Internet Age, and within social interactions in which identities and affects are negotiated.

The two articles on which we comment here (Stone & Wang, *this volume*; Alea et al., *this volume*) have the common general theme of the study of the influence of computer-mediated communication on remembering, knowing and relating to others. Since our own research bears on the analysis of computer-mediated collective activities, we think it useful to describe at the outset our perspective, against the backdrop of which our commentary is written. We hope that it is obvious that there is no question here of judging the validity of alternative paradigms, our aim being simply to explore and broaden research perspectives.

Very briefly, — since this is not the primary subject of this commentary — our own research aims to analyse, firstly, how new knowledge emerges from communicative interactions produced in situations of collaboration, in both work and education. The relevant domains of study are collaborative design (e.g. Détienne, Baker & Burkhardt, 2012), group creativity (e.g. Mougenot et al., 2017) and collaborative learning (e.g. Baker, 2015b). What such analyses have in common is that they all bear on *epistemic* situations, organised specifically to favour the co-elaboration of new problem solutions, knowledge or conceptual understanding, often reified as semiotic or physical “knowledge objects” (Hakkareinen et al., 2004). Our theoretical approach is psychological, linguistic and *interactionist*, in that it focuses on analysing the processes by which meanings are co-created in social, symbolic, interpersonal interactions. Secondly, many of our situations of study involve computer-mediation (e.g. discussions underlying controversial Wikipedia texts: Détienne et al., 2016); but in this case, technology is not considered as a simply ‘add-on’ to already pre-formed activities, but rather as something that transforms activities over long timescales, within a process of appropriation. In sum, we study complex collaborative epistemic activities involving technology mediation, focussing on the processes of meaning-making in interpersonal interaction. Specific themes include analysis of argumentative interactions (e.g. Baker, 2015a) and the interactive regulation of affect (e.g. Baker, Andriessen & Järvelä, 2013).

The paper by Stone and Wang (this volume) distinguishes the mnemonic consequences for “consumers” (e.g. readers and re-posters) of information posted on social media (such as Facebook) from such consequences for “producers” (those who posted it). Research is described which shows that selective remembering online relates to (amongst other factors) the degree of coherence between information and the “working virtual self”, or “online identity” of the produced and/or consumer, understood, for example, in terms of personality traits such as “extravert”. Such online identities are also crucial in shared online workspaces, developed within the “open” movement, such as Wikipedia, where knowledge has to be co-constructed and reified in the form of a text available to the whole world. In an analysis of Wikipedia discussions ‘behind’ texts, we showed (Détienne et al., 2016) that, notwithstanding the policy of openness to all contributors and the possibility of anonymity, participants in fact *negotiate interactively* the images of themselves and of others as being more or less competent. Such negotiations often lead to interpersonal conflicts, including insults. The fact that such open online collectives are in fact communities (in the sense of sharing values, rules and tangible object(ive)s is shown by the emergence of participants who spontaneously take on the roles of regulators of such interpersonal conflicts. The mnemonic consequences of such online identities in interactive, computer-supported knowledge co-construction situations, beyond the “(information) producer versus consumer” paradigm, remain to be explored.

Stone and Wang also review a wealth of important results concerning the effects on memorisation of information, relating to sharing and consulting it on the Internet and via

social media. We focus attention here on two main results reviewed by these authors that appear to us to be of particular import, in resonance with our own research.

Firstly, people remember personal information better when it is presented as a Facebook post in comparison with actually seeing a human face or else a book. The question is raised as to why Facebook posts are therefore so “cognitively sticky”. Secondly, on the issue of memorability of posted false information, or “fake news”, people tend to believe and memorise information to a greater extent when it is accompanied by pictures and socially endorsed (by “likes”). Furthermore, — and even more worrying — attempts to ‘winkle out’ fake news from memories can backfire, in fact reinforcing them.

We propose that the consideration of the “cognitive ecology” underlying information producers and consumers on social media (the external devices that support memory), referred to by Stone and Wang, could be broadened usefully with reference to historical and societal perspectives on the changes that have accompanied the rise of Internet technologies. People who are part of the generation that has always lived under such technologies have been referred to as “digital natives” (for a critical review of this notion, see Bennett et al. 2008); and this purported fact has been accompanied by calls to fundamentally change education to adapt to cognitive characteristics — such as multitasking, short attention span, ... — of the “native” generation. In simple terms, this generation is more used to seeing personal information on Facebook than in the form of, for example, a handwritten letter or even a printed newspaper. Such ubiquitous social media-mediated practices could explain some aspects of cognitive stickiness. But it seems that we have little understanding at present as to why sensational fake news is more interesting than straightforwardly true factual information.

Fake news needs to be understood in the context of other phenomena relating to the rise of Internet. The first is the demise of the author and, concomitantly, the expert, associated with the “open” ideological and technological movement — open source, open data, ... — of which Wikipedia is a well-known example. Texts available on Internet do not always have clearly identifiable authors, whose credentials may be more or less legitimated, especially when they have been created by undefined groups of participants. This has led, for example, many students to assume, on the one hand, that they can appropriate (copy/paste) all texts that are freely available on Internet (understanding of the notion of plagiarism is absent here) and that all or anything that is written, available on Internet, is “true” — or rather, the true/false distinction becomes no longer relevant (a new relativism). In sum, the democratisation of ‘knowledge’ associated with Internet poses problems for validity. Fake news is not a new phenomenon: historians have never been able to find evidence that, prior to the French Revolution, Marie Antoinette did in fact say *Qu’ils mangent de la brioche !* (“Then let them eat cake!”), when informed that the peasants had no bread to eat. However, Internet allows the propagation of information in a ‘viral’ manner that represents a qualitative shift with respect to the means of communication (e.g. broadsheets) of previous centuries.

A second aspect of the Internet Age and its digital natives is that it has been described as a “social” or “groupal” society, as even a cursory study of use of social media would show. This provides the broader societal and historical context for the results reported by Stone and Wang, such that individuals tend to follow collective judgements: “If a majority of people rated the statement as false or were likely to share the statement, the participant would be more likely to believe the statement is false or to share it respectively” (p. 19). Furthermore users of social media such as Facebook tend to form groups containing like-minded people, where they polarise their opinions, resulting in an “echo chamber effect” (Shu et al. 2017). This is perhaps an inevitable consequence of the “open” movement discussed above, whereby

consensus in homogeneous communities replaces the legitimised expertise of authors of texts. This becomes the primary driver of information diffusion that further strengthens polarisation (Del Vicarious et al. 2016).

The article of Alea, Bluck, Mroz and Edwards (this special issue) provides very interesting results on how technology mediated communication, that forms a large part of many people's lives today, transforms our relations to each other. Firstly, it was shown that people liked a stranger more and felt more compassionate empathy towards her after receiving her autobiographical story in person, in comparison with receiving the story via Instant Messaging. With respect to the nature (polarity) of such stories, people like others who tell positive stories more than those who tell negative ones and negative stories receive more empathy. As Alea et al. point out, the ecological validity of their study was reduced by the fact that it did not involve reciprocal, dyadic communication, in sum: communicative interaction. It may be interesting, therefore to discuss some aspects of research on emotion in interactions between people, whether computer-mediated or face-to-face, especially when they are engaged in collaboration with respect to knowledge-rich tasks.

Although research on emotions is dominated by physiological approaches, there is a growing body of research that deals rather with the analysis of *affect* (a term that insists on social dimensions of emotion), as it 'circulates' within social interactions (e.g. Peräkylä & Sorjonen, 2012; Baker, Andriessen & Järvelä, 2013). The emphasis here is on the study of indicators of "emotivity" in interactions (e.g. Quignard et al., 2016), such as change in rate of speech, pauses, degree of overlap and interruption, non-lexicalised interjections ("Ahhhh!") and marks of persons (alternation of "you" and "I" can indicate conflict). In this case, the circulation of affect is part of the 'order' of interaction: rather than being preformed by individuals, its shared meaning is negotiated. Furthermore, affect can be considered as a form of social (inter-)action situated in cultural contexts (Boehner, DePaula, Dourish & Sengers, 2007). A major research goal is to understand how the circulation and social regulation of affect 'interacts' with cognitive dimensions of group work and how these in turn relate to interpersonal relationships. For example, in a recent study of trainee teachers working together face-to-face in groups of four, on curriculum design, Isohätälä, Näykki, Järvelä & Baker (2018) showed that participants tended to avoid disagreement and deepening understanding of the task in order to maintain a positive emotional climate, thereby maintaining existing friendly interpersonal relationships.

With respect to affect in computer-mediated, task-oriented interactions, emoticons emerged as a means of obviating the restrictions of text-based communication. Between anonymous strangers, distant communication can also have a disinhibiting effect, leading to negative emotional expression, such as flaming (Lea et al. 1992) or even harassment. It seems clear that the results of Alea et al. (this special issue) on anonymous computer-mediated communication and empathy would most probably be modulated once people are situated in an interactive situation and have developed an interpersonal relationship. Research on online support communities (Pfeil & Zaphiris, 2007; Preece, 1999; Prost et al. 2016), e.g. for medical health or for elderly people, shows that people exchange both informational and emotional support. Empathy is an essential ingredient in participants' discussions. Whereas participants manage a balance between anonymity and self disclosure (text units in which people post information about themselves, Pfeil & Zaphiris (ibid.) and Prost et al. (ibid.) point out that constructing trust and interpersonal relationships are important for sharing experiences.

To conclude, the two papers on which we have commented present a wealth of important results on how use of Internet-based communication technologies influences the way that

people relate to information, (putative) knowledge and to each other. A number of these results appear in fact worrying, in societal terms, and from a Rationalist-Enlightenment point of view: people remember personal information better if it is on Facebook; people accept and firmly fix false information in their memories under the influence of group approval, as reified in social networks (“(dis)likes”); we feel less empathy for others whom we perceive to be at a physical and communicative distance. All this points, on one hand, to major societal and personal changes having taken place concerning the status of knowledge and the phenomenon of extended human memory, under the impetus of globalisation and the rise of Internet, and on the other hand, to the continued preference of human beings for physically/spatially close interpersonal relations. We have proposed that situating such results within a broader historical and societal perspective, the analysis of social interaction and an extended vision of technology-mediated collective activity, could lead to both further contextualisation of results and to the definition of new research perspectives.

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