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Social identity cues to improve creativity and identification in face-to-face and virtual groups

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ABSTRACT

This research draws on the social identity approach to investigate group performance in face-to-face and virtual brainstorming settings. In particular, we display Social Identity Cues (SIC) on participants or on avatars to foster group membership. We compare four conditions in a factorial design: Brainstorming in Face-to-face or Virtual setting, With or Without SIC. Seventy-two students belonging to a population with a strong social identity participated in the experiment, using their traditional clothing as SIC. The results show that the presence of SIC led to increased creative performance both in face-to-face and virtual settings. SIC also increased group identification, but only in the virtual environment. These results highlight the potential of avatars to support teamwork in a meaningful way.

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Technological and organizational evolutions shape a new reality of teamwork: in a globalized world, distributed collaborators have to work together and achieve high performance (Gilson, Maynard, Young, Vartiainen, & Hakonen, 2015). Virtual environments may constitute a promising tool to support remote collaboration, as long as they foster engagement, efficiency and provide meaning to teamwork. The present research takes a social identity approach to investigate group identification and performance in a creative task.

Creativity is the ability to produce work that is both novel and appropriate (Sternberg, 1998). One of the most classical creative methods is group brainstorming (Osborn, 1953), which enables the group to benefit from creativity levers, such as *cognitive stimulation* (Dugosh & Paulus, 2005; Nijstad, Stroebe, & Lodewijkx, 2002) or *social comparison* (Dugosh & Paulus, 2005; Michinov & Primois, 2005). However, brainstorming also suffers from several limitations such as *social loafing* (Karau & Williams, 1993; Serva & Fuller, 1997) in which some participants tend to under-contribute when they are in group. This is particularly the case of computer-mediated contexts such as electronic brainstorming.

In electronic brainstorming, participants generate ideas on computers networked together. This was shown to increase idea generation with regard to spoken brainstorming (Dennis & Valacich, 1993; Gallupe, Bastianutti, & Cooper, 1991; Gallupe et al., 1992; Kerr & Murthy, 2004; Valacich, Paranka, George, & Nunamaker, 1993), in particular for large groups (DeRosa, Smith, & Hantula, 2007; Gallupe et al., 1992; Paulus, Kohn, Arditti, & Korde, 2013). In electronic brainstorming, participants can contribute anonymously (i.e., ideas are collected without being associated to each one's name or pseudonym), which further improves idea production (Connolly, Jessup, & Valacich, 1990). Moreover, with regard to brainwriting (idea generation on post-it notes), electronic brainstorming supports higher attention to others' ideas (Michinov, 2012). However, electronic brainstorming provides low levels in perceived importance of group membership and sense of belonging (McKinlay, Procter, & Dunnett, 1999). This analysis is consistent with early conceptions of computer-mediated communication (Kiesler, Siegel, & McGuire, 1984; Sproull & Kiesler, 1986), which considered that the reduction of social cues decreases social influence and remote collaborative work (Straus & McGrath, 1994).

To overcome these limitations, avatars (i.e., digital self-representations) may provide a means of introducing visually

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perceptible social cues and increase the motivation of participants to work together and combine their efforts. This could be explained in the social identity perspective (Tajfel & Turner, 1979), according to which social identity is part of the self-concept linked to group membership: depending on the situation, individuals feel more or less part of a given social group. In the current study, we use avatars to introduce Social Identity Cues (SIC, e.g., symbols of group membership, uniforms; Worchel, Rothgerber, Day, Hart, & Butemeyer, 1998) and switch from personal to social identity. Although avatars in virtual environments have recently been used in creativity research (Buisine, Guegan, Barré, Segonds, & Aoussat, 2016; Guegan, Buisine, Mantelet, Maranzana, & Segonds, 2016; de Rooij, van der Land, & van Erp, 2017), they were never used for improving brainstorming through a social identity perspective. To do so, SIC should be immediately perceptible in the situational context to enhance social identity salience, for example when group members wear the same uniform or when they embody avatars showing high visual similarity. Because they are expected to stimulate performance both in face-to-face and in computer-mediated context, our aim is also to compare groupwork in virtual and face-to-face settings, while keeping SIC constant.

Given the pervasiveness of computer-mediated communication and virtual teams (Gilson et al., 2015), understanding how to foster social identity processes in such contexts may be of importance to the design of more efficient organizational and technological settings. The present research aims to stimulate group creativity in a meaningful way, through highlighting what group members have in common.

1. Theoretical background

1.1. Social identity perspective and group performance

Social Identity Theory (Tajfel & Turner, 1979) posits that identity varies along a continuum referring to interpersonal behavior on one side ("I" vs. "you"; personal identity) and intergroup behavior on the other ("us" vs. "them"; social identity). Social identity relies on common features that are shared by the group members and distinguish them from relevant other groups. In this perspective, group membership leads members to make intergroup comparisons promoting the in-group (in-group favoritism) because a positive evaluation of one's in-group may contribute to a positive evaluation of the self, even for groups based on trivial criteria (Tajfel, Billig, Bundy, & Flament, 1971).

As an extension of the social identity theory, Self-Categorization Theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) suggests that, depending on the situation, the individual will feel more or less part of a given social category. SCT views the self as a variable, multi-faceted cognitive structure (i.e., different social groups organized in a system of inclusion levels). Social categories are internalized to define the self by combining individual components with elements of a salient category in a given context. As a function of the context (*accessibility* and *fit*; Turner et al., 1987; Turner, Oakes, Haslam, & McGarty, 1994), social categories may be salient and individuals see themselves and the others not on the basis of personal characteristics but as representatives of salient groups (*depersonalization process*; Turner et al., 1987). Thus, in line with SCT, a common characteristic/appearance among group members (e.g., group name, uniform) is conducive to the activation of a social identity by enhancing the process of categorization within the in-group (Oakes, Haslam, & Turner, 1994). Moreover, because groups exist in relation to other groups, the presence of an out-group (allowing intergroup comparison) is important to define group boundaries and to enhance social identity salience (e.g.,

Haslam & Turner, 1992; Wagner & Ward, 1993). Therefore, the characteristics of an individual hinge upon personal identity (and idiosyncratic attributes) and multiple social identities.

These propositions highlight some of the processes related to group performance. Indeed, meaningful membership and social identity salience may increase the motivation of people to work together and combine their individual work efforts. Because depersonalized individuals share the same salient social identity, they may no longer perform for their own sake, but on behalf of the group (James & Greenberg, 1989). This may even lead to *social laboring* (Haslam, 2004; Worchel et al., 1998; van Dick, Tissington, & Hertel, 2009), in which individuals working as a group and for the group exhibit increased performance. Several studies have shown how salience of group membership may lead to improved performance. For example, Social Identity Cues such as group name (Alpha and Beta) and lab coats (Worchel et al., 1998; Study 3) are conducive to group salience in an intergroup context and improve group performance in a manual task. However, interestingly, the same SIC produce reverse effects in the absence of out-group and decrease group performance (Worchel et al., 1998; Study 3). More recently, van Dick, Stellmacher, Wagner, Lemmer, and Tissington (2009, study 1) manipulated social identity salience in schoolteachers performing a brainstorming. High group salience (information that group performance would be compared to another group) leaded to better creative performance than low group salience conditions.

Based on these results, it is not surprising that laboratory-based or transient groups are less efficient than everyday work groups (e.g., Erez & Somech, 1996), where people have high meaning group memberships linked to relevant social identities. Leading people to perceive themselves primarily as members of a group is therefore a relevant means to improve group performance. The present study intends to extend previous literature in several ways. First, we will use meaningful preexisting Social Identity Cues instead of ad-hoc laboratory SIC. Moreover, as Worchel et al. (1998) have shown that ad-hoc SIC improve group performance only in an intergroup context, we will focus on the effects of meaningful SIC by themselves, which requires disentangling them from the implicit or explicit presence of out-group. Finally, we will investigate whether these effects are similar in face-to-face or in a virtual setting.

1.2. Computer mediated communication and social identity

Following a social identity perspective, some specific features of Computer-Mediated Communication (CMC) - physical isolation and visual anonymity - may strengthen group processes related to group membership and performance. CMC introduce the possibility to communicate in technical anonymity (when identifying information are removed from any material exchanged) and social anonymity (perception of unidentifiability; Hayne & Rice, 1997). Indeed, the *Social Identity Model of Deindividuation Effects* (SIDE; Reicher, Spears, & Postmes, 1995; Spears & Lea, 1994) posits that the scarcity of individuating information combined to relevant membership cues (e.g., the name of the group) may lead to depersonalization (Turner et al., 1987). Interlocutors cease to pay attention to individual differences or personal characteristics of individuals, tend to reason on the basis of social categories and see themselves and others as prototypical group members. This cognitive effect fosters group influence, adherence to group norms (Postmes, Spears, & Lea, 2000), social attraction between group members and in-group favoritism (e.g., Postmes, Spears, & Lea, 1998). Although few studies have linked these cognitive effects to group performance, some findings indicate that anonymity may improve group identification in a collaborative task (Michinov, Michinov, & Toczek-Capelle, 2004). Tanis and Postmes (2008,