

# The Materiality of Impression Management in Social Media Use: A focus on Time, Space and Algorithms

*Completed Research Paper*

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## Abstract

*In this paper we take a practice-based lens and argue for the agentic role of materiality in social media use. We draw on Goffman's literature on impression management and focus on performances enacted through a variety of social media platforms. Supported by extensive qualitative fieldwork with social media users, we provide examples of practices that help us to improve our understanding of how the materiality of social media has the ability to translate sociomaterial practices across space and time together with the role of algorithms. We contribute to the sociomateriality literature by showing how online practices are affected by the agentic role of materiality, and how materiality affects practices, and we do so by discussing affordances and imbrications in social media settings. We also contribute to the social media literature more generally by questioning the tout-court applicability of Goffman's impression management theory to social media contexts.*

**Keywords:** practice perspective; sociomateriality; social media; impression management; Goffman; affordances; imbrications.

## Introduction

The last decade has witnessed a widespread proliferation of studies of technology-in-use which, stemming from a practice-based view (Bourdieu 1990; Schatzki 2001; Schatzki 2010), go under the umbrella of sociomateriality (Orlikowski 2007; Orlikowski and Scott 2008). This perspective accounts for the equal importance of people and 'objects' – in the IS (Information Systems) literature mostly referring to Information Technology (IT) artifacts, thus emphasizing (and even taking further) the sociotechnical apparatus where technology is seen as embedded in organizational processes and practices rather than being viewed (simply) as a tool utilized by actors to achieve objectives. Sociomateriality suggests that the 'social' (people) and the 'material' (objects) are interwoven rather than merely interacting, and are constantly imbued in practices (Orlikowski 2006). One of the most relevant achievements of sociomateriality relates to attributing agency to *both* social and material actors (Leonardi and Barley 2010). This means that material agents (object, but also more abstract entities such as concepts, ideas, symbols and the like) have agency; this implies that both human and material agency have the ability to reconfigure organizational practices (Leonardi 2012).

While at the time of writing there is a solid body of literature on sociomaterial practices in organizational settings – these involving technology development (Doolin and McLeod 2012; Henfridsson and Bygstad 2013; Svahn et al. 2009), adoption (Baptista et al. 2010; Mazmanian et al. 2013; Oja and Galliers 2011), use (Hultin and Mähring 2014; Mazmanian et al. 2014; Wagner et al. 2011; Wagner et al. 2010), strategy-making (Baptista et al. 2016; Huang et al. 2013; Marabelli and Galliers 2016) and even non-use (Stein et al. 2015; 2014), one emerging research setting – social media – has received relatively little attention by sociomaterial scholars. Current research has been confined to contributions related to comparing traditional social network analysis (SNA) with social media (Kane et al. 2014) and analyzing online social interactions with respect to mainstream social interaction research (e.g., Goffman 1959; Goffman 1967; Mead 1932; Stryker 1968), typically with very little theory building, within the IS community in general (Majchrzak 2009) and among sociomaterial scholars in particular.

Notable exceptions include the work of Wanda Orlikowski and Susan Scott (Orlikowski and Scott 2014; Orlikowski and Scott 2015a; 2015b; Scott and Orlikowski 2012a; 2012b; Scott and Orlikowski 2014). This literature highlights the role of material agency (the ‘materiality of social media’) by focusing on the hospitality industry and associated reviews, and involves consideration of the prominent role of algorithms, seen as materiality that “makes things happen” (Leonardi 2012).

With the aim to extend the literature on sociomateriality in social media contexts, in this paper we focus on how ‘matter matters’ (Carlile et al. 2013) by studying online practices, here defined as those sociomaterial practices emerging from the use of social media, with respect to a variety of platforms such as Facebook, Twitter, Instagram, LinkedIn and Snapchat. We do so by concentrating on a specific set of online practices: those related to users’ efforts to build one or more online identities (Schultze 2014). We therefore consider the impression management literature (Goffman 1959) described as a set of “techniques” and “arts” (in Goffman’s terms), or strategies which individuals, more or less consciously practice through (again in Goffman’s terms) a “performance” addressed at influencing the perceptions of others (audience) about a person or artifact. The HCI (Human-Computer Interactions) literature has developed the parallel between Goffman’s idea of performance and how social media users manage their digital identities, online interactions and the like (Barash et al. 2010; Ellison et al. 2006; Farquhar 2012; Hall et al. 2014; Hogan 2010; Krämer and Winter 2008). Goffman (1959) discusses impression management from a dramaturgic perspective, develops a theory of identity, self and society – further articulated in Goffman (1967) and inspired by Mead’s (1932) conception of social interactions – and uses the metaphor of the play to illustrate what performers *do* when attempting to ‘impress’ their audiences. While acknowledging Goffman’s (1959; 1967) theory as valuable, we note that his idea of performance remains at the social level, and material aspects (at least theoretically) are largely ignored. In our perspective, (social) interactions are not simply ‘mediated’ by IT artifacts but instead, as we articulate in this paper, are entangled with the materiality (physical and digital) of the various platforms.

Thus, in this paper we aim to explore the following research question: *How does the agentic role of materiality emerge in social media practices involving impression management?* We address this question making use of exploratory fieldwork and illustrate three aspects of online social interactions, which bring attention to the relevance of materiality for social media studies in the IS field. Time, space and algorithms are three aspects where materiality ‘shows up’, and reveals its *agentic* role. This provides us with an opportunity to contribute to the sociomateriality literature by 1) showcasing the emergent (and active) role of material agency in impression management practices, discussed in light of social media affordances and subsequent imbrications (two concepts that we attempt to extend, theoretically), and thereby 2) questioning the use of Goffman’s theory – *tout court* – in such contexts.

## Background

### *Origin of Materiality in Organization Studies*

Materiality is a concept developed in actor network theory (ANT)/postfeminist theories through the work of Judie Butler and Karen Barad (Barad 2003; 2007; Butler 1988). The central idea is that society should not be seen as defined by a gender binary or gender role: gender is not given (e.g., related to the physical attributes of the body) but is instead ‘performed’ in practice. This precludes the conceptualization of materiality (e.g., the body) as imbued in (rather than separated from) social practices (Butler 1988). Moving away from gender theory, Annemarie Mol (2002) further elaborates on the idea that materiality is

engaged actively in the enactment of reality. Around the same time, the seminal work of Orlikowski and Iacono (2001) unveiled the relevance for organizational studies and IS scholars to consider materiality such as IT artifacts, as constituting everyday organizational life. Orlikowski (2007) subsequently uses the term sociomateriality to describe the importance of examining organizational practices – approaching the issue using a practice-based lens (Bourdieu 1990; Schatzki 2001; Schatzki 2010) – by considering human as well as material agency, and their interwoven relationship (entanglement). While Orlikowski draws on Barad’s philosophy of agential realism (Mutch 2013), more recently, a spinoff of this sociomaterial theory with a substantially different ontological positioning, called critical realism, was developed by Paul Leonardi (Leonardi 2011; 2013). The most relevant difference between agential and critical realism is an ontological one (Leonardi 2013; Orlikowski and Scott 2015b; Scott and Orlikowski 2014). Agential realism is a radical view of the social and material (Gherardi 2000; Marabelli and Newell 2012; Nicolini 2011), or what some call strong materiality (Elbanna 2016; Jones 2014), according to which the material does not exist without the social (e.g., objects do not have their own identity until an enactment between human and material agency occurs). Critical realism, as well, sees practices as made up by social and material interactions. Yet, according to this latter perspective, materiality exists *per se* (Giddens 1984) and is entangled with human agency once people (intentionally) use ‘things’.

In this paper we take this latter perspective – critical realism. The reason behind this choice is that we are interested in examining online practices of users who access social media platforms (e.g., materiality) that are already being configured (e.g., with a certain amount of posts/contacts) by other users. For instance, someone accessing her/his Facebook page right now would find the social media site already shaped by others (Facebook ads, friends’ news feeds, events related to others’ posts already in the platform and the like). As a result, we found it difficult to conceptualize sociomaterial practices as being confined into “apparatuses” (Barad 2003), specific ontological *loci* where materiality (e.g., a social media site) comes into existence because of the enactment that is taking place (e.g., a user logs into Facebook). The network-mediated nature of social media – existing and exhibiting their content/structural characteristics and affordances in relation to contributions coming from other users – in our opinion can be better investigated adopting a humanist approach to sociomaterial practices (Cecez-Kecmanovic et al. 2014; Jones 2014), where the origin of such practices rests on human agency’s intentional identification of a materiality (with its affordances), which precedes its use in practice (Leonardi 2012; 2013). This sociomaterial approach has been already applied to social media contexts (Leonardi and Meyer 2015; Treem et al. 2015; Treem and Leonardi 2013), and thus we build on this previous literature, which we briefly outline next.

### ***Materiality and Social Media Research***

Although the sociomateriality literature aimed at understanding how social practices shape (but also are shaped by) IT is quite rich (cf. Doolin and McLeod 2012; Henfridsson and Bygstad 2013; Leonardi 2012; Oja and Galliers 2011; Orlikowski 2007; Stein et al. 2014; Wagner et al. 2011; Wagner et al. 2010), scholars have yet to fully engage in sociomaterial research involving the everyday use of social media (Urquhart and Vaast 2012; Von Krogh 2012). There is no doubt that Orlikowski and Scott’s work advances our understanding of the role played by material agency when considered in light of web 2.0 – websites and platforms based on user-generated contributions. They point to the relevance of analyzing social media through a sociomaterial lens and highlight some specific insights related to the role played by materiality in affecting offline practices, for instance by illustrating how online contributions such as reviews (on Tripadvisor) are taken seriously by business owners and, similarly, might constitute a source of competitive advantage (or disadvantage) as millions of social media users rely on these reviews (Orlikowski and Scott 2014; Scott and Orlikowski 2014) to make booking choices. They note that a particular role is played by the digital materiality which is embedded in algorithms (Svahn et al. 2009). These algorithms prioritize some online content (i.e., reviews) at the expense of others, thus playing an active role in shaping the users’ opinions about this or that hotel (Orlikowski and Scott 2015a).

It thus emerges that users have limited power over accessing details of the reviews which (as a collective) are produced through sociomaterial practices – for instance the prioritization of the reviews is given and the reason behind it is not disclosed, because it would involve an explanation of how the algorithms work. But given that the algorithms are secret – they represent an asset leading to competitive advantage – we do not know why John’s review (who complains about the room service of a hotel in Florida) is on top of our list while Matt’s review of the same hotel and service, which is much more positive is not even

amongst those we can access. This example is illustrative of the relevance of focusing on the materiality of social media, because it is not people who decide what reviews are visible or excluded. Neither does a Tripadvisor employee do this. It is an algorithm which, of course, attempts to provide outcomes that reflect whether it is worth choosing a hotel – what some call “algorithmic decision-making” (Newell and Marabelli 2015). In other words, algorithms, *do* things – these things often remaining beyond the control of those who feed the algorithms, the social media users, who leave digital traces (Hedman et al. 2013; Venturini and Latour 2010) and often also beyond the control of the creators of the algorithms (Leonardi et al. 2013; Wu and Brynjolfsson 2009).

In this paper, we argue that these critical aspects of the materiality of social media deserve further attention because they are relevant to understand, theoretically, how far the agentic role of materiality has consequences for those who enact such artifacts (the people who are the actual contributors and/or creators). Studying the materiality of social media is relevant, for instance, to understand practices associated with people’s ability to create/share knowledge and generate innovation using Enterprise Social Media (ESM) systems (Kane 2015; Treem et al. 2015); the (illusion of) apparent awareness (Leonardi 2015), transparency and visibility (Treem and Leonardi 2013) allowed by social media is contrasted by the unpredictable consequences of its materiality (and algorithms), which translates knowledge across contexts (space/time) often with no notice. Consequently, algorithms play a prominent role in making contributions available to people who knowledge creators may not have wanted or expected to be recipients, and similarly it is possible that those who are supposed to benefit from knowledge sharing processes will not actually be able to access this relevant knowledge. While social media represent relevant IT that allows remote interactions that go way beyond traditional IT-based communication tools (because of their user-generated content characteristics, the extremely interactive and appealing design and their numerous affordances), we need to focus on the materiality of social media to fully understand opportunities and constraints from these emerging technologies.

In order to pursue our aim and focus on the materiality of social media, in this paper we focus on a particular set of online practices: those involving the creation and management of one or more identities on social media, and this is unpacked next.

### ***Impression Management and Social Media***

Impression management was first conceptualized by Ervin Goffman (Goffman 1959) who illustrates what performers *do* when attempting to ‘impress’ their audience. Impression management performances occur in what Goffman calls the ‘front stage’ – a setting where we perform a role in relation to an audience, which for Goffman, equates with ‘society’. It is relevant to point out that the audience is identified with society because in such circumstances the performer is subject to judgments, and can feel accepted or rejected depending on whether s/he complies with generally accepted social norms. It is important to be strategic when employing impression management techniques. The ‘back stage’, in contrast, is a safe environment where the performer can “relax, drop his front, forgo speaking his lines, and step out of character” (Goffman 1959, p. 70). The social media literature – in particular that in the HCI area – picks up on Goffman’s idea of impression management and focuses on *cyberperformers* (Hogan 2010). Various studies demonstrate how social media users exhibit strategies to ‘look good’ to the particular audience represented by their network of links (Ellison et al. 2006; Hall et al. 2014; Krämer and Winter 2008; Leary and Kowalski 1990; Robinson 2007; Rudman 1998). One reason why Goffman is so evocative of the social media realm (cf. Farquhar 2012; Hewitt and Forte 2006; Kaplan and Haenlein 2010; Krämer and Winter 2008) rests on the ubiquitous nature of modern computing (Pinch 2010) which, nowadays, provides us with the possibility to be online (therefore to perform) at any time, and to inform our audiences of our whereabouts using the GPS capabilities integrated in all modern smartphones. In turn, social media has been investigated as an online form of front stage – or array of front stages if people decide to manage multiple identities, for example, on different platforms (Lyytinen and Yoo 2002). Thus, it is possible to create a digital profile, manage relationships (by building, shaping and even breaking links), and to contribute with more or less original content (by creating/sharing posts, uploading pictures, commenting, tagging, tweeting, and the like).

Most of the theoretical apparatus of Goffman’s impression management revolves around symbolic interactions (Kietzmann et al. 2012; Ross 2007). According to this theory (Dewey et al. 1917; Mead 1932),

the world is conceived as social and constituted by interactions among individuals, and people do not produce (and respond to) ‘real’ stimuli. Instead, social interactions reflect the interpretation that one individual (or a collective) has created around a specific stimulus. One interesting implication is that individuals do not exist in a physical space formed by ‘realities’ but rather in a world composed by objects – physical, social and abstract. Mead’s pragmatism clearly has much in common with a practice-based view (Blumer 1986; Ross 2007). Moreover, the attention paid to symbols (nonverbal elements) as constituting to social interactions is relevant to the social media domain: think how the symbolic meaning behind a ‘Like’ given to a picture, or comment of a Facebook friend to whom we do not talk often, reveals that “we are still here” and “still” care about that person (Page et al. 2016). However, according to the literature on symbolic interactions, the ‘physical’ is treated as (exclusively) social, and the role played by artifacts (or more generally by materiality) is largely overlooked. What is interesting in Goffman is that he acknowledges that not all performances are planned; people attempt to ‘look good’ when in a front-stage setting, but nevertheless it is not always possible to plan when an audience is attending (Goffman 1959).

Here, we attempt to understand how (online) practices emerge and are reconfigured over time when human agency presents the self in social media, and what is the (agentic) role of materiality within these interlocked relationships between human and material agency (Leonardi 2011). Therefore Goffman is helpful because, as we will show through our fieldwork, social media users face unpredictable exposure to unforeseen audiences. However, the difference here is that in our study we highlight how materiality matters; thus we draw on – but also question – the impression management theory proposed by Goffman (if applied to social media *tout-court*) because our aim is to highlight the role of material agency. We next describe the research setting and method employed.

## **Research Setting and Method**

We analyze 50 interviews with social media users resident in the United States (citizens or permanent residents) who had been using one or more social media platforms for at least 12 months, and who had checked them (with or without actively contributing) at least once a week<sup>1</sup>. The broad sample includes females (n=31) and males (n=19) aged 18 to 71. Most participants in the 18-24 age bracket are undergraduate college students (n=12), while older participants are either Master’s students (n=7), professionals employed in various profit and non-profit organizations (n=27), or retired individuals (n=9). The remaining five participants are young adults (18-24 years old) who, at the time of the interviews were not enrolled in college.

### ***Data Collection***

In order to identify study participants we relied on an existing contact (a top manager) in a global company headquartered in Greater Boston, who connected us with four individuals who volunteered to be interviewed and to support our research/pilot project. Since the over-arching aim was obtaining an in-depth understanding of how social media users enact social media materiality in their everyday practices, the pilot (4 interviews) followed no specific protocol. Instead, informed by past research aimed at capturing practices through interviews (Orlikowski and Scott 2015a; Scott and Orlikowski 2014) we conducted informal, open-ended and unstructured interviews aimed at collecting as much detail as possible through carefully listening to participants’ “stories” around their use of social media as part of their everyday lives (Kaplan and Orlikowski 2013). We began each interview by stating that an ideal conversation would allow the participant to tell us about her/his typical social media “session”, involving actively creating online content (tweeting or re-tweeting, as well as uploading pictures, sharing the ‘mood of the day’, commenting, ‘liking’ and so on – depending on the social media adopted) as well as “lurking” (reading feeds, scanning second degree connections – for instance, on Facebook looking at ‘friends of friends’, browsing others’ contents and the like). We were interested in practices that do not necessarily underpin the creation of content because our ultimate aim was to uncover how impression management strategies are set up (by the performer) and received – by the audience who might react by active

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<sup>1</sup> These were deemed the minimum criteria to ensure participants had sufficient familiarity with social media; however, the majority of our interviewees had been using social media for several years and generally contributed on a daily basis, mainly from portable devices (smartphones and tablets).

engagement in the platform (e.g., commenting and re-tweeting) or by judging the performance. Therefore ‘lurking’ on social media to some extent, equates with ‘listening’ and ‘watching’ (and forming opinions). We asked the pilot participants to provide examples of incidents that make them like (or dislike) one or more social media platform.

After conducting the pilot, we created an open-ended interview protocol (not provided here for space reasons), which lists a set of relevant aspects of social media use to understand how practices surrounding social media use unfold. In line with the idea that social media actions are performed with respect to content and networks (Kane et al. 2014), we tried to focus in each interview on capturing details involving how users 1) create (or lurk) more or less personal *content*, and 2) how they perform their online interactions with their *network structure* (peers, second degree connections, others) by scanning, building, destroying and changing/shaping their online links, including links with people (first and second degree links), webpages (news, associations), and with other social media – one example being making Facebook friends available ‘for grab’ by Instagram. The pilot (4 interviews) was conducted in early 2015 while the follow up (46 interviews) occurred during summer and fall 2015. Recruitment was via emails, addressed initially to college students (Bachelor’s and Master’s students) then, following a snowball approach (Rankin and Bhopal 2001) (using the networks of the initial participants), we shifted to full-time employed individuals and retired people. All interviews were audio-recorded and professionally transcribed.

### ***Analysis***

Data analysis was performed using Nvivo, and began soon after the pilot. Consistent with prior practice-based research, the analysis was aimed at interpreting and making sense of how phenomena unfold in practice (Nicolini 2011; Orlikowski 2002). This is in line with the exploratory nature of our study, which was aimed at understanding how the agentic role of materiality emerges in impression management practices involving social media use. The several back and forth interactions between data analysis and fieldwork allowed us to refine the interview approach, and through probing, helped us to encourage participants to share rich examples of their online practices (Dougherty 2002; Yanow and Schwartz-Shea 2006). The analysis followed an open coding approach (Miles and Huberman 1984). The ultimate effort of theory building, one of the contributions of this paper, was undertaken inductively, with respect to the themes emerging from the interviews and to the literature on sociomaterial practices in online contexts (Orlikowski and Scott 2015a; Scott and Orlikowski 2014). We decided to stop interviewing individuals once most of the emerging themes (e.g. practices) became recurrent allowing theoretical data saturation (Bowen 2008).

We chose ‘sociomaterial practices involving impression management performances’ as the unit of analysis. This focus helped us to delve into the data in great depth: we were able to identify over 300 practices which we collapsed into broad themes, in turn broken down into content-related and network-related themes (Kane et al. 2014). Content-related themes involve, e.g., “posting comments”, “uploading pictures” (Facebook and/or Instagram) and “sending a ‘snap’” (Snapchat). Network-related themes refer to first/second degree creation/change practices associated with (online) social networks. Platforms such as Facebook, Instagram, LinkedIn, Whatsapp, Instagram, and Pinterest (among the many that we dealt with) allow the reconfiguration of networks, and access to new links. By investigating sociomaterial practices aimed at performing one’s identity we were able to shed light on the agentic role of materiality. In particular, we examined issues that emerged from user-generated content in the social media realm, some of which is described next and is used to build our theorizing around the materiality of impression management in social media use.

### **When the Social Goes Online: Examples of Impression Management Strategies**

People perform with respect to the audience they face (Goffman 1959; Goffman 1967). This is an impression management strategy, which leads individuals to behave in ways that help them to gain approval from others (society). Because different social media platforms afford different features, impression management strategies involve the challenge of choosing the ‘right’ materiality to deliver a specific performance. Jodie, a 22 year old college student majoring in accounting, provided an example:

*When we go out at night with my friends, I usually post that on Instagram, not Facebook. Because of the fact that you can do it in albums. That's why I use Facebook mostly to post albums, so I'd post an album of an event in my life. When I graduated, for example I did an album with my graduation. Another for my Bahamas trip. And on Instagram, I post more the daily things. So, I'll post if I go out with my friends on a weekend, I'll take a ... we'll take a picture, and then I'll post it on Instagram. I won't post it on Facebook.*

Social media companies that own more than one platform attempt to maximize the overlap in connections within 'their' social media (for instance, Instagram suggests following Facebook friends). The variation in audiences across platforms leads users to choose a specific materiality carefully with respect to the affordances it offers (these involving choices related to the audiences that it reaches). This is exemplified by another extract from the interview with Jodie:

*Twitter is probably better for sharing my personal opinions. And I do not know why I am more comfortable with Twitter ... I think, well, I know why, it's because I have less people, I have less followers, I do not know if I have any followers at all on Tweeter. So, it's a part of it too. If I'm gonna post something on Facebook, a thousand people can see my post and it could potentially open up a lot of random different people commenting and replying and I'm not interested in that. So Twitter, I feel like I still can get just two my cents in and put my thought out there maybe with less people seeing it.*

In contrast to what Jodie believes, tweets can have a visibility that goes beyond users' expectations (one example involving re-tweets, and the Justine Sacco case is discussed below). However, here what matters is the user's perception of intimacy when enacting social media. This is also illustrative of the 'traps' that the materiality of social media affords, by not fully disclosing their ability to spread a performance across networks (and often across different social media sites). Posting pleasing pictures (and adding their location) might underpin an attempt to attract others' attention. To this end, approval feedback from the network is articulated below by Lisa.

*Well, being successful with a post [of a picture] depends on how many followers you've got. If you get, like, 50 "likes" but you only have 80 followers, that's good, but if you get 50 "likes" and you get 200 followers, it's not good. So, I think it has to do with the amount of followers you have. Sometimes I check, if they have a lot of "likes" and I like, "wow" how they got so many likes and I check that they have about 1,000 followers, so that's why.*

This pressure for online social affirmation leads users to be very strategic in obtaining "positive feedback". The associated practices show how creative social media users can be to promote the self successfully, as Lisa's further clarification of her "Likes strategy" reveals:

*I know that my cousins and I, we're posting it at a good time [when] we know [they] would be on their phones or we make sure, that it's edited well and stuff. Like we're always trying to post at a good time, it's easier during the school year, because ... at night everyone's on their phones. But if you do it during the summer, they're less busy at night so they're probably out and not on their phones as much. But we think, that the best time to post would be Sunday night ... [when] most people are on their phones, because during the school year they have school the next day, so they're all on their phones talking to their friends. So, we assume that they're on their phones on Instagram, so we would post it Sunday night. And then we always track how many "likes" we've got per each minute. Yes, sometimes we do that.*

From the above it is clear that online performances are not always impulsive but are often underpinned with careful reflections related to the (expected and actual) reactions of an audience. Moreover, a successful performance, in this case, is based on the number of approvals (e.g., number of Likes) rather than on the type and quality of approvals, which can refer to a sensitive comment in response to a post/picture. In addition, it is worth noting that performances enacted over time contribute to the user's construction of her/his perception of whether they are 'in good standing', at least according to the feedback received by their audiences (e.g., by obtaining Likes that represent a good ratio with respect to available links/connections).

Enacting impression management through social media is not just aimed at becoming popular with (or being accepted by) peers/friends. LinkedIn offers affordances (and carries symbolic meanings) that tend to be exploited to achieve professional advancement. It is in this context that users often attempt to provide original contributions to impress others, as Jason, a 40 year old financial analyst explains:

*Part of it is to position myself as someone who's a contributor, a knowledgeable contributor, and be able to get some sort of, I don't know if notoriety is the right word, but just kind of helps build my reputation, builds credibility. Certain topics that I'm quite familiar with and I feel very comfortable speaking in detail about. When I do provide that detail, I've noticed that folks have commented, "As John said," or, "Just to build off of what John was saying earlier," and I think that adds a little bit to that reputation/credibility piece. That's one thing, is to build that up a little bit more. That's what I did, so ... early on, I did it strategically to try to build credibility and a reputation for myself as someone who's knowledgeable in this space. As I phased out of client engagements, maybe about six months to a year ago, I still see myself participating in some capacity or another. I think that for me in the beginning, it was more or less to help build my practice, build credibility through LinkedIn ... to participate on some of these forums.*

In sum, individuals (human agency) aim to perform with respect to a specific audience (e.g., their network), in specific moments of their day, or their night (see the 'Likes' strategy) and with an implicit assumption that these performances will show up to their audience/s as planned. To this end, the materiality of social media becomes part of the performance, while others, by enacting the same (or even a different) social media software using similar devices, are the recipients of the performance. However, the materiality of social media is far from being controllable by those who enact it, as we explain next by focusing on three issues: space, time, and algorithms.

## **The Emerging Agency of Materiality: Space, Time and Algorithms**

Impression management in social media rests on the users' ability to reach their audiences, and this can involve sophisticated techniques related to posting, because gaining 'Likes' (e.g., on Facebook or Instagram) is an accomplishment illustrative of a successful impression management strategy (cf., Lisa's comment regarding posting on Sunday night – see above). However, it is not uncommon for social media users to lose control of their networks (who is inside/outside the boundary of a social media network of connections). Our study shows that social media users do not maintain or update their networks. For instance, Melanie explains that:

*Usually if I'm looking for a specific person and I happen to be in there looking at my friend list and I'll be, like, I don't remember who this person is and why they're connected to me and I'll get rid of them. But I won't ... I don't necessarily go through and clear people out or, you know, look for specific people or, you know, it's just kind of as I go.*

This attitude contributes to the loss of control of one's audience, first examined in social media in the study by Hewitt and Forte (2006), which somewhat surprisingly, has not been taken any further in subsequent research. The literature on sociomateriality discusses control issues only marginally, including Robey and colleagues (2012), whose study suggests that human actors might lose control of what materiality *does*, giving the example of a software compiler undertaking a set of instructions to elaborate a source file and creating a program (binary file) that can be executed by a machine. Thus, materiality exhibits agency by pursuing its own goal (i.e., by translating programming language into a binary file). Albeit social media (materiality) needs to be instigated by human agency, and then the two become interlocked (Leonardi 2012), the agentic property of materiality make it difficult for users to fully manage the subsequent interactions with social media, therefore controlling a performance with respect to a specific audience might be challenging, as we illustrate next.

### **The Issue of Space**

The materiality of social media is able to translate a performance across audiences on a platform, using multiple platforms and beyond social media (i.e., offline). For instance, on Facebook, tagging individuals in pictures exposes those tagged to other audiences. Daniel, a 31 year old part time MBA student, highlights this issue:

*If you're on Facebook and you're posting and someone else is posting and they're tagging in a picture and now, all the sudden, everybody knows where you are. That could be a bad thing, depending on if you do not want people to know where you are or things like that. I used to travel a lot for work and [my wife] is home alone and she just wouldn't want me to post that «oh, we are in Kansas City for a week», because anyone that's on Facebook goes and sees that and knows that she's home alone for a week.*

This is an example of how social media enable 'back to front stage' shifts. Clearly, Daniel was living in his private sphere when traveling to Kansas City but the ubiquitous characteristics of materiality such as smart phones (here equipped with GPS systems) afford properties that allow humans to affect others' performances (or in this case, avoiding giving a performance). Similarly, an audience can expand or change, and this happens when a functionality affords performance of an action across platforms (for instance, we can upload a picture on Facebook and have it appear simultaneously on Instagram).

A similar example of the materiality of social media that enables a change of audience is related to Twitter, where people express their opinion to their followers but the breadth of a Twitter post can be amplified exponentially via re-tweets. The consequences can be huge, as the Justine Sacco case illustrates. After sharing inappropriate and racist tweets with her very small network of followers, Ms. Sacco embarked on a 14 hour flight and on landing, she found herself at the center of a worldwide attack on her person; some of her 170 followers had re-tweeted her post, one of which had reached Sam Biddle, editor at the time of Valleywag, the media blog of Sacco's employer. Biddle re-tweeted Sacco's tweets (to his 115,000 followers) and posted it on the company's blog. Within hours, millions of Tweet accounts were discussing the "incident", with celebrities all over the globe denouncing her and encouraging their fans/followers to do the same. Sacco lost her job, and perhaps the possibility to be hired anywhere else – at least in the near future<sup>2</sup>, for what is known as "online shaming", a social phenomenon of targeting individuals who are publicly humiliated using social and news media. Here, too, the materiality of social media enables a network of users to turn an inappropriate back stage behavior into a disastrous front stage performance.

The Sacco incident, where tweets were posted on blogs, Facebook news feeds, and other social media platforms, is illustrative of the number of audiences that this materiality can hit at the same time – a phenomenon that has been referred to as a collapsed context (Baym and boyd 2012; Marwick and boyd 2011), where multiple distinct audiences are brought together. Interestingly, these audiences have the ability to interact with each other, amplifying positive (or negative, as in the Sacco case) comments and judgments. This represents a challenge for the performers, which could not have been captured by Goffman's conceptualization of impression management if conceived as an "offline" and solely social practice (namely not acknowledging its materiality).

Snapchat, unlike other platforms, does not seem (at least on the surface<sup>3</sup>) to allow storing, sharing or even replaying a contribution. Snapchat is a 'live' diary. Lauren, a 27 year old assistant executive of a private company, describes her use of Snapchat as follows:

*I use Snapchat as a way to be creative, funny. I'll take a photo of something and then draw something on it, and then send it to probably 5 or 6 people. I don't have many people I interact with on Snapchat. But my sister and I, we're 5 years apart, we're very close, and we basically Snapchat each other all day, every day. And if I don't check out my phone till after work, I'll have like 40 snaps from her and basically get to watch her entire day player. That's really the person I interact with most on Snapchat, it's kind of, my sister and I, we're just staying in each other's lives ... Maybe because it's a little more intimate. If I post something on Instagram and tag my sister, then everyone else can still see that. And sometimes it's just something that I only want to show her. Sometimes I'm just sitting at my desk and I just want to snap ... It's kind of a boring picture, but my sister, she finds it amusing or interesting, because we want to know what each of us are doing all day. That's why I think we want specifically to send this kind of greet.*

It is interesting that Snapchat, although less 'dangerous' in terms of being a materiality that has the ability to compromise a performance by translating it across (unwanted) spaces/audiences, is used for a smaller and more intimate audience. The consequences of 'screwing up' (posting something inappropriate) are less likely to undergo the judgment of society (unlike Twitter – see the Sacco case, above). Allen (a teenager from Massachusetts in his freshman year in a local university) corroborates this point:

*I don't post that much on Facebook. On Snapchat, on the other hand, I do post quite a lot. I regularly update it, regularly update my story, or if I see something that someone will recognize or maybe an inside joke between me [sic], I quickly take a snap of it and send it to the person. I*

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<sup>2</sup> [http://www.nytimes.com/2015/02/15/magazine/how-one-stupid-tweet-ruined-justine-saccos-life.html?\\_r=0](http://www.nytimes.com/2015/02/15/magazine/how-one-stupid-tweet-ruined-justine-saccos-life.html?_r=0)

<sup>3</sup> Several software packages have been developed to try to circumvent the platform's characteristics which do not allow users to download "snaps" (see <http://social-hacks.com/snapchat-hack/>)

*think that's because Snapchat is more—you add people who you have a more intimate connection with. And it's more like immediate friends, rather than the 700 that I have on Facebook. And so of the 700, I have maybe 70 or 100 people on Snapchat. Snapchat is more—it's sharing, but with a more intimate crowd. And Facebook, it's I guess, the access of—Facebook is more just kind of staying in the loop, I guess.*

Of course, human actors try to make choices that do not undermine their reputation by carefully selecting platforms that can be appropriated for different performances and audiences – a social media behavior known as multiplexity (Kane et al. 2014). However, Snapchat can overcome space barriers when its materiality is shared with audiences that the creator of the performance explicitly wants to avoid, as Linda, a senior student at a private university in New England, points out:

*One time a friend of mine said, 'I can't hang out. I'm going there, I'm busy with somebody,' and then my friend went to a restaurant and she found her with other friends. So she sent me a Snapchat of her. She said, 'Oh, look who's here.'*

Snapchat can provide hard *evidence* of someone else's whereabouts, while other social media afford the possibility to simply communicate about others (a partial exception being the check-in functionality that most social media support and which requires GPS-equipped devices).

In sum, the materiality of social media clearly 'matters' (Carlile et al. 2013). When impression management 'goes online', applying Goffman's theory to social media contexts becomes problematic, as we will discuss later. But the materiality of social media affords the ability to record and store performances as digital traces, and this poses additional issues – (again) illustrative of the agentic role of materiality – which relate to the time dimension, which we discuss next.

### ***The Issue of Time***

The time dimension of social media has two relevant aspects related to impression management: first, a performance can be repeated over and over again (this refers to digital traces), and second, (and consequentially) past performances can be accessed and interpreted according to norms and values that might not apply to the context of the original performance (context translation).

In terms of digital traces, social media practices afford user-generated content that, "can be easily recorded, massively stored and inexpensively retrieved" (Venturini and Latour 2010, p. 3). One obvious consequence is that our performance can be translated not only in space but also in time. The underlying issue relates to the fact that digital traces are permanent, or "there to stay" (Hedman et al. 2013). In terms of context translation, Hogan (2010) distinguishes between ephemeral and recorded acts. Offline performances are generally one-off, while for reasons described above, online performances can be revised and replayed for different (often larger) audiences at different moments in time. However, if we consider contexts, while space issues relate to the breadth of a performance, time issues relate more to its depth. The depth of a performance is dictated by the possibility to scrutinize (over and over) a Facebook comment, the details of a picture, the nuances of a post or the dialog captured in a YouTube video. Even Likes are relevant, and thus, can have a symbolic meaning over time, as David explained when discussing the importance of complying with "Facebook official":

*Facebook official basically just means if you want; it's kind of like a joke nowadays, but it's it doesn't really exist until you've posted it on your social media page. Like no one acknowledges it because no one is commenting on it. You don't see people actually being, like, 'congratulations you did awesome'. Someone could say that to you, but when it's written down it feels more gratifying because whenever you want to go back and get that feel good feeling again, you can go back and be, like, yeah, everyone loved all the work I did in achieving that goal or something. You get to go back, you can relive your glory, basically, through the text and pictures.*

While this way to review accomplishments pleases the performer, much deeper (and at times worrying) consequences are associated with the review of a performance by an audience for which it was not intended. It is not uncommon for potential employers (to try) to investigate an individual's past using digital traces (Coutu 2007). We teach our students that they should be careful about posting content that might be inappropriate (at least to some people). Nevertheless, going back in time is not a practice used solely to reveal negative aspects of our lives. For instance, during her freshmen year, Jodie used Facebook's history to get to know her new roommate better:

*My roommate, I just—my freshman year I just met her. It was a random roommate, so I just met her. So, we added each other on Facebook the first day because I think the—I wanted to know more about her, who she is, where's she coming from, now that I'm living with her. And I think she wanted to—she probably wanted to do the same.*

An interesting aspect of the recording capabilities of social media relates to reflective practices (Levina 2005; Schön 1983), emerging here when people look into their past through this materiality. One example was provided by Jimmy, a 37 year old project manager from Maine:

*So, sometimes a lot of people post for...because they want to show everyone else what they're doing and that's a big part of it. But I also like this kind of document, what me and my wife have done and where we've gone and things we've seen. 'Cos sometimes you forget, you look back and you say 'oh, what did I...where we were last year at this time?' And sometimes you can go into your Facebook and you can see 'Yeah, it was a year ago that we did this, we were at that wedding.' So, I kind of like that, too, because it kind of reminds you, what you've done and documents what you've done.*

While digital traces are helpful to understand how materiality can make our performance(s) durable, the time issues which associate the inappropriateness of a certain context to a performance lead users to seek privacy by breaking into different platforms (boyd 2014), some of which 'protect' performers from unwanted context translations. In other words, treating impression management as an online phenomenon helps us to understand why users choose performance-specific platforms. These choices, to some extent at least, relate to the affordances that a materiality can offer in terms of the extent to which time issues (related to context translation) can be controlled, or at least mitigated. This is quite evident if we think of the difference between (most) social media, which allow content to be revisited over time, and Snapchat, the social media that (supposedly) allows the possibility of a one-off performance (more similar to Goffman's offline idea of performance). For instance, Thomas, a teenager from Massachusetts, explains that he sees his peers preferring Snapchat to Facebook for particular (and ephemeral) performances:

*Like I see some guys being, I see some girls like drinking and like getting ready to go out and have a good time, that kind of thing. They put it on their Snapchat. You go on their Facebook, none of that's there. Because again, part of that is also they have people that aren't their close friends or that aren't within their, like, they're not part of their generation, they're not on their Snapchat. So Snapchat, I like it because people can't Like or Favorite and because none of it really gets shared.*

In relation to time, Snapchat uncovers sociomaterial practices, which are illustrative of the unique affordances offered by the platform. Alan, a 19 year old college student from Connecticut, articulated this point:

*What I like about Snapchat is that I can send pictures instantly. So, I don't need to write, I just can take a picture and my friend understands it. And also I can send a video instantly and I also can chat in Snapchat. It's very convenient. I think this is the convenience that I like. The other feature of it is that I can see what is happening in people's life instantly in that moment ... And I can also see some interesting Snapchat stories from celebrities or pages, like BuzzFeed or Knowhow or news or cities. So, I can know if series are happening, I can watch the video and learn. It's so much faster than Instagram. And it's not fabricated. On Instagram people always choose the best picture and the best pose and the best picture on the best event, where on Snapchat, it's more ... real stuff.*

Snapchat affords sociomaterial practices, which enhance online social interactions because of their ephemeral nature – thus, these interactions need more focus for the very reason that they cannot be revisited at a later time (boyd 2014). As Jimmy highlights:

*Yes, right, you have to see it and then it's gone. I do like that, it's just different and it makes you grab now, not value it more, but it's cool that you have only kind of one chance to see and then it's gone.*

Here, materiality tends to be a clean and transparent 'glass' between individuals, yet the entanglement between the social and the material is generative of relations (between *snapchatters*) and feelings (ability to *quasi* experience others' emotions by watching their everyday life). To this end, Snapchat is a materiality that can be seen as an emergency exit for users who feel trapped by the time issues described here.

## Algorithmic Decision-making

The algorithms that govern social media manage the exposure of the performances to different audiences in ways which tend to increase the users' ability to identify new connections while attempting to 'please' social media users with content which is consistent with prior performances, or which have been initiated by the connections with whom we interact the most (Pariser 2011). Algorithmic decision-making can affect space/time issues. Most social media algorithms tend to help (or push) users to over-contribute and/or expand their networks by adding new links (whether they are Likes on pages, friends, connections, or followers) because the number of users often translates partially into the value of the company that owns the social media site (because of the potential to pull personalized ads and charge retail companies for visibility of these ads).

However, the ways algorithms manage how we see news feeds for instance are often beyond the users' control. On Facebook users can decide to prioritize certain feeds or connections at the expense of others (by following or hiding). Yet, most of the feeds' 'suggestions'<sup>4</sup> (potential contacts, such as the 'you might know' feature) and ads are not solely the product of our actions (Ellison et al. 2014), and opting out is not an option. This could be interpreted as an attempt by the algorithms to 'take over' (Bakshy et al. 2015) and to predict what users *should* (be pleased to) see, read or Like. This algorithmic decision-making characteristic of the materiality of social media might well frustrate users, as Kayla, a 37 year old healthcare manager, explains:

*So, basically with Facebook, I have all the friends there. They post their pictures. I know what they do. And I usually start liking things. But because I know that people follow Facebook and then companies collect information on Facebook, what I do is I usually, if I like pictures, let's just say I like ten pictures, so five of them I say that I like, which is true, and then the other five I say that I don't like, which is not the truth, because I don't want the companies to collect my profile on Facebook.*

However, she attempts to challenge the power of algorithms by trying to confuse them, as the following illustrates:

*If there were anything to make me not want to use Facebook anymore it would be that, it would be how annoying that is and how limiting that is. Because obviously you know you have to be pretty blind not to see that that's what's happening. But it makes you feel like, you know, trapped, like they're limiting what it is that you could possibly stumble upon just because there's an algorithm out there that says that you'd maybe be less likely to click on it. So for whatever reason it's not presented to you. And that's frustrating and it's annoying.*

Similarly, Sonny who had just graduated from college and is trying to open his own start-up company in the digital economy realm, is aware of the power of 'algorithmic decision-making' but believes that he can deal with it just by feeding the algorithms in a way that allows him to see what he wants:

*I want to celebrate life for people and alongside people. If they're doing well and they're happy and they have something happen, then I want to contribute to that. But it's definitely hard and I think the algorithm, it doesn't, I don't really mind that that's in place because I'm very young and millennial and technology oriented and so things related to privacy or the use of algorithms, it doesn't really bother me, I think because I've grown up with that all my life, it's the world that I know. But also I know that there's algorithms (sic.) and so I try to like as many diverse things as possible. So if I see something of a friend pops up that I haven't really liked in say six, seven months, something from them, then I'm going to try and engage with them so Facebook remembers and tries to pull the content from that individual.*

Others found out that algorithms are not so smart as they are supposed to be. For instance, Cindy, a 41 year old US citizen who grew up in the Middle East, noted that:

*I learned that for example on this particular site at least the algorithm ignores the word no, so when you say I don't like the Red Sox, you get matched with a lot of people who do like the Red Sox because the algorithm only sees that you mention Red Sox and it doesn't look at the fact that you said I don't like it. I don't like all this ... artificial intelligence when the computer tries to decide for us what we want because I still know much better what I want than any algorithm.*

<sup>4</sup> E.g., EdgeRank, the Facebook algorithm which sorts and prioritizes the posts we are allowed to see (<http://edgerank.net>)

It is debatable whether algorithms actually attempt to please us or they, rather, force us to do things that make us traceable or that support commercial intents of social media owners – for instance, the ‘you might know’ feature on Facebook is clearly an attempt to push users to expand their networks exponentially, which would increase the algorithm’s ability to understand what we like (and what we don’t like) because we are exposed to many more news feeds (in the case of Facebook) with consequences on switching costs, here related to stay on social media rather than dismiss them. Research suggests that the more people connect with other people the more they feel ‘obligated’ to keep using a platform, because of the accumulation of social capital (Ellison et al. 2007; Ellison et al. 2011; Steinfield et al. 2008). Thus, algorithms have power (Beer 2009) and this, once again, reflects the agentic role of materiality which is more – or less – under the control and the awareness of users (Newell and Marabelli 2015). We next discuss our findings and attempt to build theory on two key sociomaterial concepts: affordances and imbrications.

## **Discussion**

As we pointed out earlier in this paper, the sociomaterial perspective views human agency as being the initiator of online practices (Robey et al. 2012; Treem et al. 2015). We discuss the interlocked relationships between human and material agencies as imbrications – interwoven relationships that account for the time dimension, because they happen over time and represent configurations and reconfigurations of practices and the technology at hand. Human and material agency are imbricated in that, albeit being considered two ontologically distinct entities (Giddens 1984), they modify, adapt and reconfigure each other in the unfolding of practices. Imbrications underpin the arrangement of distinct elements (here human/material agency) in overlapping patterns, which can be seen as routines, so that these elements function interdependently. In turn, at times, human and material agency interweave in ways that create or modify routines; while other times, human and material agency weave together in ways that produce or modify technology (Leonardi 2011). This perspective, we argue, sits well with the study of social media because it acknowledges that the ‘trigger’ to an imbrication is human agency, which is goal oriented – people enact materiality to perform specific actions (Markus and Silver 2008) related to the ‘celebration of the self’ (i.e., impression management strategies).

Moreover, the imbrication metaphor revolves around the concept of affordances (Gibson 1977), which in our opinion is essential to understand social media behaviors. Technologies such as social media have material properties, which afford different possibilities for action based on the context in which they are used. This is illustrative of the relational nature of affordances, which, as our study unveils, exist because people enact social media through network-mediated practices. The goal oriented actions of individuals (against materiality) lead humans to (attempt to) use objects (thus being imbricated with them) for various purposes (here for impression management purposes). However, imbrications might lead to material constraints (e.g., at some point an object might not be able to do something people need to do – a goal – at least according to the actors’ perceived affordances of the object at hand). In turn, actors (human agency) might decide to try to modify the object (material agency), and this would originate a new imbrication, where an existing human and a new material agency are interlocked. Subsequent affordances of the object at hand might create new (emerging) goals, which might change existing routines, therefore generating a subsequent imbrication, this time between an existing material agency and a new routine. Here we aim to discuss and extend this theory using impression management techniques considered as the ‘goal oriented’ activity of human agency when performing online practices (on social media).

### ***Network-mediated Affordances***

Our data show that online impression management is a practice that relates heavily to the choice of the most appropriate social media to deliver a particular content (e.g., a check-in in a prestigious restaurant or a photo of a fancy vacation beach). However, this choice is not solely related to specific affordances (e.g., some social media give the opportunity to ‘check in’, while others do not). The choice of a specific social media for a performance is also dictated by the availability (or non availability) of certain audiences, which in social media represent the structural aspect (connections available and engaged such as ‘contacts’) of the platform (Kane et al. 2014). To this end, here we suggest that the concept of affordances, especially if referred to social media contexts, should not just include the features of a certain materiality if examined *per se* (e.g., what it can do), but we also need to account for contexts (with whom it can

connect). For instance, several of our study participants told us that the main reason why they use different platforms is because of the connections that each platform offers – what we would like to call ‘network-mediated affordances’, here defined as set of properties of a material agent which do not relate directly to what it actually can offer to human agency (in terms of an action that can be ‘performed’) but depends, instead, on indirect effects that can be obtained by using a certain materiality. In the social media context, the network available to users (connections) is a network-mediated affordance. This is not a feature of the materiality *per se* but it is something that is associated with the way this materiality has been built and shaped by human agency. Thus, with social media, this relates to the opportunities that they offer to connect with other human or material agents (these can include contacts, news, job opportunities, multimedia contents and the like). In turn, social media (like most digital materiality) are not simply user-generated content platforms but are also a networked-mediated materiality, as their agency emerges not simply because of what they do but also because of what they relate to: the *doings* of this materiality go beyond physical or digital affordances. Network-mediated affordances are dynamics (as connections are generally) and to some extent reflect the agency that is incorporated in relationships and networks (D’Andreta et al. 2016). Thus, the symbolic meanings attributable to this materiality vary over time, and reflect the unpredictable changing nature of agencies and practices.

The notion of network-mediated affordances is helpful to understand space and time issues. Facebook offers network-mediated affordances to the extent that it provides the possibility to give a performance to a more or less wanted audience (space). To this end, affordances vary not just with respect to the functionalities of a social platform – or even to their symbolic values such as ‘Facebook official’ (as David pointed out). This would represent, in our opinion, a relatively narrow way to describe the affordances of the materiality of social media. Instead, social media affordances are network-mediated in that they enable (or constrain) one’s access to a variety of audiences, thus providing opportunities (or threats). As we have seen, people shift from Facebook to LinkedIn not because LinkedIn is more appealing (it is less rich in functionalities than most other social media); instead, LinkedIn has affordances that can be enacted by using it in relation to the more professional contents and links that it makes available. Snapchat, instead, has affordances that are mainly related to time issues because it limits the extent to which digital traces stay, therefore constraining its relations with other media (we cannot ‘cross-post’ Snapchat videos) while at the same time deepening the relations and impact of an interaction with other users, as videos shared on Snapchat are watched with much more attention, because of their ephemeral nature (boyd 2014) – as noted by Jimmy. Thus, the notion of network-mediated affordances is helpful to understand strategic choices associated with the adoption of a certain materiality and how users practice online impression management with respect to the breadth (space) and depth (time) of interactions with audiences.

Algorithms represent the ‘dark side’ of social media affordances (cf. Galliers et al. 2015; Newell and Marabelli 2015) because they do not explicitly offer possibilities to use a platform (a ‘traditional’ way to view affordances), nor do they tell us about the rationale that will be used to expand performances across space and time. While the Sacco case was clearly a set of online (sociomaterial) practices initiated (and perpetrated) by human agency, other examples that we identified and analyzed that draw from our fieldwork are illustrative of the ambiguities associated with what algorithms can *do*. However, both Kayla and Sonny identified affordances that algorithms offer that are related to things that the materiality of social media do to put users more or less in contact with other users – therefore, again, the concept of network-mediated affordances becomes helpful. However, Kayla aims to confuse the algorithm with her random ‘clicks’ while Sonny attempts to exploit the algorithm having assumed that he has understood the decision-making techniques behind it.

In sum, network-mediated affordances make the agentic role of materiality even more relevant, because social media that afford the ability to translate user-generated content across space and time (online or offline) perform actions and provide unpredictable opportunities to share (or over-share – as in the case of ‘viral’ posts) content, information and knowledge (e.g., an interesting article shared on someone’s news feed, a ‘you might know’ suggestion or even a tweet ‘out of control’ such as with the Sacco case). In the case of algorithms, network-mediated affordances become unpredictable and can be seen as associated with (automatic) decision-making processes that have consequences in terms of space/time issues. However, we would like to take these algorithmic decision-making issues further by next delving into the imbrications that underpin social media affordances.

## ***Algorithms-based Imbrications and the ‘Sneaky’ Role of Materiality***

Viewing online practices as a series of imbrications between human and material agency is a way to overcome the somewhat ‘siloe’d’ approach to the sociomateriality literature, which refers to ‘apparatuses’ (Barad 2003), while limiting a temporal analysis of practices (Mutch 2013; Wagner et al. 2010). Our findings are very much illustrative of these imbrications that happen over time. For instance, people in need of social affirmation (those who ‘like to be liked’ – in terms of posts/photos) reconfigure their practices (timing postings, such as early morning, weekdays or Sundays) with respect to their emerging needs – one being the need for attention (Kende et al. 2016; Marabelli et al. 2016). The network-mediated affordances of social media give them feedback (from other users, such as when – day or night – they are more likely to access social media). In this example routines are reconfigured because of specific needs (more than constraints), here related to social affirmation associated with a performance aimed at impressing others (Goffman 1959). However, technology shows network-mediated affordances in that the constraint that it exhibits refers to others’ online practices (not to the technology itself, and its features). These affordances are network-mediated, and are identifiable because of space/time issues, as we explained above. Once a routine has changed (e.g., Candy found that Sunday night is a good time to post her pictures), the technology might change accordingly. Instagram (or, better, its algorithm) might become more ‘fair’ and show someone’s posts randomly and not on the basis of the time of day it was posted to make sure to include those who are not ‘strategic’ – like Candy – or, if we see it differently, to punish these who try to game the algorithm, or to please more people, including people who do not have time to think strategically. While imbrications are generally described as mutual adaptations (Leonardi 2011) where routines and technologies are reconfigured because of constraints represented by practices that cannot be accomplished with current configurations (Kautz and Jensen 2013), algorithms technology is reconfigured in what might be said to be a more ‘sneaky’ way, illustrative of the agentic role of materiality which is seldom identifiable in other (non algorithm-related) contexts. In other words, algorithms react to our changed practices and, in addition, they change what the materiality of social media *does*.

In sum, when social media users attempt to give impression management performances, they are imbricated with the materiality at hand in ways that are not just related to the ‘traditional’ affordances of digital materiality (Leonardi 2010; Svahn et al. 2009; Yoo 2012) that involve technical or technological limits of a certain medium, leading to people modifying their actions (e.g., videos cannot be sent with Instagram, so people switch to Snapchat). Here, imbrications involve people setting up strategies to circumvent materiality constraints because algorithms very often do not reflect what users want (as per Cindy’s example), but this has very little to do with what a platform can offer (functionalities).

Instead, this is related to what an algorithm ‘thinks’ is best for users (or for the company that owns the platform), and this might well be in contrast with what a user wants (Markus and Silver 2008). Therefore, imbrications are still illustrative of the goal-oriented performances that govern sociomaterial practices – where people instigate such practices. However, reconfigurations of technology do not occur because of the flexibility of some sort of software, but instead they emerge as algorithmic ‘choices’. These choices are less predictable than software flexibility, because algorithms are designed to think like humans (Zuboff 1988). Therefore, here we end up analyzing imbrications between human and material agency, where the latter attempts to behave as humans ‘would’. In turn, we do not find the ‘typical’ constraints, which are related to the lack of flexibility of a technology or to routines (e.g., people’s needs) evolving faster than technology designers predict (e.g., people temporarily adapting to some technology features, while thinking of how to replace or modify the artifact). This is why using imbrication to understand impression management is helpful to shed light on current struggles of social media users when they attempt to enact impression management strategies through various social media. This is also illustrative of the problematic application of Goffman’s theory regarding performance because clearly social media (and space, time and algorithm-related issues) pose challenges, which do not reflect the original theory. We next attempt to synthesize our discussion and highlight implications.

## **Conclusions and Implications**

In this study we aimed to show the active role played by materiality in social media settings, using impression management as an example of online practices performed by users. Field-based evidence

illustrated spatio-temporal issues and highlighted the ‘power of algorithms’, seen here as the manifestation of the agentic role of materiality. Fieldwork and analysis supported our initial assumptions. We also suggested reconsidering *tout-court* applications of impression management (and more broadly Goffman’s theory) in the context of social media use, as Goffman does not account for materiality (i.e., not just IT artifacts but any physical or conceptual entity that does not relate to human agency). While the HCI literature has provided meaningful contributions to our understanding of social media use, theoretical reflections on the agentic role of materiality (and therefore the appropriateness of using Goffman as a theoretical framework) are currently lacking.

We took a critical realist approach to sociomateriality (Jones 2014; Leonardi 2013) and focused on affordances and the metaphor of imbrications to interpret our findings with respect to time, space and algorithms. This gave us the opportunity to expand on this theory and propose the notion of network-mediated affordances, which in our opinion reflects the characteristics of such materiality as social media. Consequently, we brought to the surface a potential issue related to the examination of routine technology relationships. In social media contexts, if we consider space and time issues, reconfiguration of routines occur mainly because of the network-mediated affordances that characterize social media – for instance, people change posting habits because a social media affordance that reflects other people’s online practices (e.g., accessing social media at a particular time), and similarly, technology changes because it is enacted by users, thereby displaying certain content at the expense of others. More importantly, if we examine the role of algorithms in social media, we find that technology adapts in ways that are neither similar to the spatio-temporal issues (where technology actually reflects people’s behaviors), nor does it reflect what a ‘typical’ technology would do – which would involve being plastic to the extent to which it was designed for *doing* something. Algorithms shape technology in ways that aim to reflect what human beings *would* do, and this represents a discontinuity with the theory of imbrications – at least to the extent to which it has been applied thus far. It has thus been meaningful to observe how imbrications in the context of social media exhibit such unique nuances – such nuances reflecting the ‘power of algorithms’ that generate machine-based content but that are trained (and will learn) to act ‘as’ human beings.

As a concluding remark, we would like to call for a reflection on how far we will be able to talk about routines and technologies with respect to imbrications theory when algorithms are increasingly substituting human beings. Emerging characteristics of technology will no longer be the result of design-related limitations but, instead, they might well be the subtle outcome of human-designed, technology-led materiality, which purposely offers constraints to lead users to act as they (algorithms, thus human beings) want.

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