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Affordance Theory in Social Media Research: Systematic Review and Synthesis of the Literature

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AFFORDANCE THEORY IN SOCIAL MEDIA RESEARCH: SYSTEMATIC REVIEW AND SYNTHESIS OF THE LITERATURE

Research in Progress

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Abstract

Social media technologies continue transforming various dimensions of social and organisational life through possibilities they present for goal-oriented actions of diverse users/ user groups. The notion of affordances that explains these possibilities has witnessed popularity among IS scholars to study these technologies. However, since the concept itself has been under ongoing development, its use in studying social media technologies has been focused on identifying technical affordances, perception and actualisations of these affordances, or the social and organisational implications of such affordances. In this research-in-progress paper, we present our attempt to systematically review and synthesise the literature to examine the effects of social media affordances. In addition, we aim to systematically review the existing literature to explore how the concept of affordance has been employed in social media research, to uncover the effects of social media affordances and present a comprehensive framework of these affordances effects and identify areas for future research.

Keywords: Social media, Literature review, IT effects, Affordances theory, Social Media effects

1   Introduction

Social media technologies are continuously transforming and re-defining people's communication, collaboration, consumption and creation manners (Aakhus et al., 2014; Aral et al., 2013). These technologies have revolutionised not only the way that organisations relate to their customers and markets but also to their employees. For instance, social media has been shown to be integral in marketing practices such as customers social media participations and their behavioural outcomes (Goh et al., 2013; Rishika et al., 2013), social contagion and peer to peer marketing (Aral and Walker, 2011; Peng et al., 2014).

Social media are also rapidly changing the ways that organisations relate to their employees or sourcing new ideas. In particular, social media are transforming the communication and knowledge exchange patterns among employees within organisations. The role of social media in communication activities of employees within organisations and its implications has been researched (Leonardi, 2013; Treem and Leonardi, 2012). While several studies have also investigated the impact of social media on knowledge sharing and exchange among employees and the impact of its visibility on facilitating the interpersonal and knowledge-related interactions (Leonardi and Meyer, 2015) and on creating more innovative products and services (Leonardi, 2014), other studies suggested the paradoxical or adverse consequences of these actions (Majchrzak et al., 2013).

In addition to this transformational nature of social media in internal or external relationships of organisations, social media have disrupted several industries such as travel and tourism (Orlikowski and Scott 2014), retail (Borah and Tellis, 2016), and news and media (Dellarocas et al., 2013) and is reconfiguring others such as healthcare (Kallinikos and Tempini, 2014). Despite the widespread adoption of various types of social media and increasingly growing research on them (Van Osch and Coursaris, 2015), their social and organisational implications is still in its infancy (Aral et al., 2013; Kane et al., 2014). To avoid the deterministic perspective of technology impact and understand how social media use by human actors facilitates such changes in organisation and industry level, a theoretical perspective is required that does not prioritise material or social. To this end, the concept of affordances, that has been used in studies of IT and organisations (Robey et al., 2013; Zammuto et al., 2007) provides a useful theoretical lens to explain the relationship between social and material, and understand the consequences.

In this regard, several scholars have also proposed the concept of affordances as a useful theoretical lens to provide understanding of social media phenomenon in social and organisational life (Ellison et al., 2014; Majchrzak et al., 2013; Treem and Leonardi, 2012). Despite valuable and insightful findings of these studies, our understanding of social media technologies and their effects is still evolving and the extant research has not comprehensively addressed the effects of such technologies.

The notion of affordances, as a concept under ongoing debate, has been employed in variety of ways to study social media technologies. For example, while some studies have focused on the users' perception or actualisation of affordances, others have explored the affordances they provide for the users or the implications of such affordances. Notwithstanding the significance of social media technologies and their affordances, no research has tried to integrate and synthesise the findings from this extant literature. In this study, we adopt "affordance effects" based on Pozzi et al.'s (2014) proposed framework to explore the effects of affordance actualisation as a result of users' goal-oriented actions on social media. Therefore, the aim of this paper is to systematically review the existing literature to explore how the concept of affordance has been employed in social media research, to uncover the effects of social media affordances and present a comprehensive framework of these affordances effects and identify areas for future research.

2 Theoretical Framework: Affordances

Originally founded in ecological psychology, affordances explain how actors perceive the properties of the environment or the objects in the environment to perform actions (Gibson, 1966). Affordances, in spite of being inherent in the objects or artefacts, are not their properties and they are relational to the actors and are required to be perceived to produce intended actions (Gibson, 1979), otherwise might lead to 'false affordances' (Gaver, 1991). Although Gibson referred to man-made objects or tools, it was Norman's work that introduced affordances in technology design by focusing on everyday objects. Norman's (1988) original view of the concept as the perceived and actual properties of objects is in contrast with Gibson's perspective. He later distinguished between affordances and perceived affordances that these two should match in a good design (Norman, 1999). Subsequently, his view has been clarified further in the new edition of his book where affordances are explained as "the relationship between properties of the artefacts and capabilities of the users that establishes the way that the artefact would be used" (Norman, 2013, p. 11).

Despite the debates around it in its original field of ecological psychology as properties of the environment (Turvey, 1992) or properties of relationship between actors and the environment (Chemero, 2003; Stoffregen, 2003), the concept has attracted the attention of IS researchers. Since explaining and conceptualising the relationship between the social and the material have been the central concern for Information System (IS) researchers and more recent perspectives on this relationship reject the former dualism between people and material means (Orlikowski and Scott, 2008; Orlikowski, 2007), the concept of affordances has been proposed as a powerful notion in providing in-depth understanding of the dynamics of constitutive entanglement between social and material in organisational practice (Faraj and Azad, 2012; Fayard and Weeks, 2014; Robey et al., 2012). As Gibson incipiently noted, affordances cut across the subjective-objective dichotomy.

Although the concept has been proved helpful in circumventing social or technological determinism, the literature has focused on technological affordances (identifying existing affordances), particular users/ user groups (e.g. organisations) or specific aspects of relational nature of affordances (e.g. perception, actualization). In addressing this shortcoming, Pozzi et al. (2014), building on Bernhard et al.'s (2013) framework, developed a four-stage framework of affordances by integrating the literature of affordance theory in IS research. This framework includes four stages: 'affordances existence', 'affordances perceptions', 'affordances actualization' and 'affordances effects' explaining the cognitive process of affordances emergence. As a result of interactions between IT artefacts and actors, that are perceived and actualised as a result of goal-oriented actions that finally produce results/effects.

The concept of affordance has witnessed popularity in the context of social media as several scholars adopted the concept to explain the role of social media in organisations. For example, Treem and Leonardi (2012) in a comprehensive review of social media literature introduced four affordances of these technologies, visibility, editability, persistence and association to explain their implications for organisational communication processes such as 'socialisation', 'information sharing' and 'power relations'. In addition to the use of concept for social media in organisational context (enterprise social media) (Ellison et al., 2014; Majchrzak et al., 2013) to explain knowledge sharing mechanisms, it has been proved useful in the context of collective social action (Zheng and Yu, 2016) and social change (Mohajerani et al., 2015).

While Pozzi et al.'s (2014) framework is based on 25 studies, only four provided evidence about affordance effects. While their four-stage framework is more developed on the first three stages of existence, perception and actualisation (as most of the literature has focused on these areas), the final stage of effects as the short or long term effects of behaviours is lacking. This is particularly important in the context of social media technologies as according to Markus and Silver (2008, p. 627), "[t]he continual emergence of new technologies inevitably requires ongoing conceptual development". Thus, as they have suggested IS researchers to focus on the outcomes of actualization process, we aim to fill this gap

by exploring the strand of research on social media that employed affordances concept to provide a synthesis of literature and comprehensive framework for understanding of the effects of affordances related to social media technologies and areas for future research. This would provide significant contribution to the literature of affordances.

3   Research Method

This study employs a systematic literature review approach (Boell and Cecez-Kecmanovic, 2015) to review the research on social media affordances to investigate the wider effects of their affordances. This approach is in line with the aim of our study to comprehensively review and summarise the extant literature that applies affordance theory to study social media. In this regard, we followed the guidelines and steps that have been presented for systematic literature reviews in the field of information systems (IS) (Boell and Cecez-Kecmanovic, 2015; Okoli and Schabram, 2015). Figure 1 depicts the primary phases and specific tasks in each phase for this study.
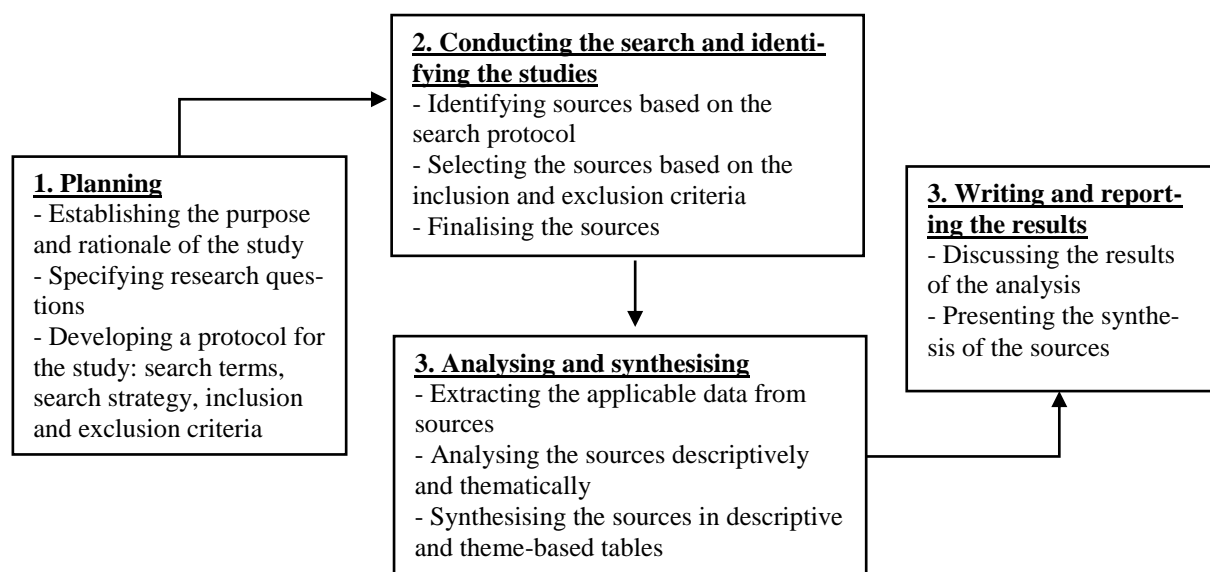

Figure 1.   Methodological process of the review

3.1   Planning phase

As established in the introduction section, the purpose of this study is to integrate and synthesise extant research on social media affordances to shed light on the effects of social media affordances and present a comprehensive framework of these affordances effects. Thus, the study is seeking to answer the following research questions:

1- What research has been conducted on social media affordances? (Who (which authors) have published, when (year), and where (journal, conference) in which context (field, user))?

2- What are the research designs and methods that have been adopted for research on social media affordances?

3- What social media categories has the research on social media affordances focused on?

4- What are the main findings of this extant literature? Or in other words, what are the consequences/ effects of *social media affordances*?

In order to develop our protocol and set the boundaries for the search, in line with the study's purpose, we defined the overarching criterion as 'seeking for the research on social media that has employed

affordances as a conceptual lens'. In this regard, the initial keywords list and protocol was generated. They were consulted with two other experienced scholars in systematic reviews in information systems (IS). Moreover, we did pilot searches to revise our keywords until the keywords list was finalized in an iterative process. The list of 32 keywords[1] includes: ("social media" OR "social software" OR "web 2.0" OR "enterprise 2.0" OR "online social network" OR "microblogging" OR "collaborative projects" OR "blogs" OR "content communities" OR "online communities" OR "social networking sites" OR "Virtual game worlds" OR "virtual social worlds" OR "virtual worlds" OR "virtual community" OR "enterprise social media" OR "common interest sites" OR "customer review sites" OR "user generated content" OR "mobile phone application" OR "smartphone application" OR "social technology" OR Facebook OR Google Plus OR Google+ OR Twitter OR YouTube OR LinkedIn OR wiki OR Wikipedia) AND (affordance OR affordances). We did not impose any limit regarding the year of publications as social media is considered as a new phenomenon and the majority of the studies have been conducted over the past decade. Moreover, for the purpose of being as comprehensive as possible, we did not limit the results to any particular type of publication or research method. The inclusion criteria were based on firstly 'core topic of the study' that should be on social media (platform or a category of social media listed in the keywords) and secondly on the 'concept of affordances' in researching social media in that study.

3.2   Conducting phase

As the largest database of peer-reviewed literature, 'Scopus' was selected as the resource for searching the studies. The search for the above set of keywords (the titles, keywords and abstracts) produced 749 results on Scopus. The next step was to screen the results and exclude the items that did not meet our criteria outlined above. Thus, the results were initially examined by title and abstract (both) and then by full-text[2] providing the title and abstract would not be sufficient for excluding the source[3]. To ensure the relevance of all included results, this screening process was conducted by both authors independently. The initial agreement between authors was 95%, therefore, the disagreements were discussed toward the unanimous agreement for the relevance of each source. This process led to exclusion of 600 sources. For further scrutiny, we also examined references of 149 included sources, which has resulted in three additional sources at this stage. This process of screening the references is being continued until it does not reveal new relevant sources.

3.3   Analysing and synthesising phase

The next step of the review was to extract relevant data from 152 selected sources, which includes demographic and research-related data. Demographic data includes title of the publication, author(s)'s name and institution, year of publication, publication type, name of the source in which the publication has been published. Research-related data includes type of study (empirical, conceptual, literature review), research context (organisational vs. non-organisational), intra or extra organisational, social media category (e.g. social network sites, Enterprise social media (ESM), microblogging, virtual words), social media platform(s) (e.g. Facebook, Twitter, Second Life), user/ user groups, methodolo-

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[1] The selected keywords are based on literature of social media to cover various categories of these technologies. We also add smartphone/mobile phone applications to include mobile social media and also several of more populated platforms based on Pew Research Centre reports.

[2] In majority of cases, we had to investigate the full text to ensure the 'affordance' has been used as a concept not general sense of capability of technologies.

[3] By source, we mean each individual article or study. Since we have not filtered the search results by the type of the publications, our dataset includes journal article papers, conference papers and book chapters. Therefore, we refer to them as sources in this review.

gy (quantitative, qualitative, mixed), data collection methods, other theories used, affordances identified in the study, area of focus based on Markus and Silver's (2008) technical objects/ functional affordances/ symbolic expressions, stage of focus based on Pozzi et al. (2014)'s four stage framework, consequences/ outcomes or effects of affordances explored in the study.

Not surprisingly, 89% (135) of all sources, of which 75% (114) are journal articles, 22% (33) are conference proceedings and the remaining 3% (5) are book chapters, have been published in 2010 onward. Both authors conducted the initial coding based on open and mainly structured coding (using codes mentioned above) independently. The coding procedure encompassed reading the full text of the sources (with more emphasis on theory, findings and discussion sections) to extract the codes. We calculated both the coder agreement rate and Cohen's Kappa, 85% and 78% respectively, which provided validity and reliability of coding scheme and process. Out of 152 sources, 34 were focused on organisational context, 116 on non-organisational context, and two on both. In terms of social media category, the sources have studied diverse categories of these technologies including social network sites, collaborative projects (wiki), mobile social media, virtual worlds and virtual game worlds, media sharing, microblogging and voice microblogging, enterprise social media, and online communities.

Then, in the second round of the coding process, we adopted the method of 'axial coding' (Corbin and Strauss, 2008) in order to rearrange and reduce the codes generated at the first stage of our coding attempt. Using this method, by assigning the earlier codes to the key and underlying categories, we could recognise the main attributes and dimensions of each category (Charmaz, 2006) in our analysis. All the papers were coded using NVivo 10 software package. Its capabilities regarding the coding process and tabulating the categories significantly facilitated the analysing process of this study. As a result of this coding process, all affordances identified in the studies were categorised to seven classes of navigability, socialisation, information sharing, collaboration, association, ubiquitous communication, and personalisation. The result of analysis of social media affordances for each category of effects/outcomes and the main affordances in each category are presented in Table 1.

As we stated above, the studies cover a range of different types of social media platforms. The most researched category of social media is social network sites, particularly Facebook. The combination of various social media platforms constitutes the next most widely studied category (i.e. several social media platforms including social network sites, microblogging, wiki, media sharing). While the affordances of these platforms have been investigated across different contexts and disciplines, the category of virtual worlds has been researched in education context (primary, secondary or higher education). As our analysis shows, the body of literature lacks research on affordances of online communities, particularly the Q&A systems.

Effects/outcomes category	Context: organisational/non-organisational	Intra/extra organisational	User group example	Main affordances discussed
fostering collaborative and social learning and augmenting learning experience	non-organisational	n/a	students and pupils	collaboration, information sharing, socialisation
privacy, disclosure, self-presentation	non-organisational	n/a	teenagers, university students	navigability, socialisation, association
social change	both	extra	SMEs, NGOs, protesters and activists	navigability, association, information sharing, ubiquitous communication

higher levels of engagement, knowledge sharing and reuse	organisational	intra	employees	association, socialisation, navigability
increased ambiguities and tensions, decreased engagement	organisational	intra	employees	association, navigability
enhancing or changing relationship with external stakeholders	organisational	extra	organisations	personalisation, socialisation, navigability
new forms of publishing, collaborative authoring and sharing expertise	non-organisational	n/a	experts, bloggers	socialisation
perception of spatial or temporal presence	non-organisational	n/a	general user	navigability, ubiquitous communication
social support and self-care for users with special conditions	non-organisational	n/a	sufferers of specific conditions	navigability, personalisation, information sharing
government citizen relationship	organisational	extra	government bodies	personalisation, navigability, ubiquitous communication
supporting teaching development	non-organisational	n/a	lecturers and students	collaboration, information sharing, socialisation
moral economy	non-organisational	n/a	travellers	association, collaboration
establishing new control and governance mechanisms in the organisation	organisational	intra	employees	association, personalisation, navigability
crisis management	both	extra	media, organisations, public	association, socialisation
social capital	non-organisational	n/a	general user	association
information for professional practices	organisational	extra	hiring professionals	association, socialisation, navigability

Table 1.   Categories of social media outcomes from synthesis of the literature

4   Findings and Discussion

As we outlined previously, the purpose of this study is twofold: to understand social and organisational effects of social media as technological phenomenon, and contribute to discussions of affordances by exploring the affordances effects. In what follows, we report the findings based on our analysis of 152 sources and discuss how this body of research has used affordance theory. Using the constructs from Markus and Silver (2008), we have found that the majority of studies (over 70%) in each category of effects/outcomes have focused on 'functional affordances' that shows the studies have focused on users' goals and capabilities in relation to the technology. Several studies in each category have also drawn to 'technical objects', but about 50% of such studies have used 'technical objects' along with 'functional affordances'. In addition, while the implied reference to 'symbolic expressions' construct is varied across categories, it has the highest reference in intra-organisational use of social media by organisations. This category of studies is concerned about the values and intents of users (employees or organisation itself) in the use of social media in organisations such as studies in the category of 'establishing new control and governance mechanisms in the organisation' (e.g. Vaast and Kaganer (2013)).

Moreover, we have found interesting trends in the sources according to Pozzi et al.'s (2014) constructs (existence, perception, actualisation, and effect). The majority of studies in each category have fo-

cused on the 'perception' stage, this result is not surprising as about 80% of sources cite Gibson or Norman as the primary reference for the concept. The second most discussed stage is 'existence', followed by 'actualisation'. Only few studies have explicitly discussed the effects of technology affordances. The main outcome categories that discuss the actualisation process include 'social change', 'fostering collaborative and social learning and augmenting learning experience' and 'enhancing or changing relationship with external stakeholders'. Our analysis on these constructs are ongoing.

One interesting observation in our analysis is that the studies on social media affordances have primarily focused on the positive outcomes or effects of using these technologies in different contexts. Only a few studies in intra-organisational use of social media (or enterprise social media) have found conflicting outcomes that have been categorised as 'increased ambiguities and tensions, decrease engagement'. For example, Majchrzak et al. (2013: 41) identified four affordances of "metavoicing", "triggered attending", "network-informed associating", and "generative role-taking" for enterprise social media in getting involved in knowledge conversions beyond the boundaries of an organisation and found that these affordances, which provide different ways for engagement, trigger theoretical mechanisms leading to positive or negative (unforeseen) outcomes. Gibbs et al. (2013) studied tension in "visibility-invisibility, engagement-disengagement, and sharing-control" and the way that employees strategically handle these tensions "to preserve both openness and ambiguity" (p. 102). Leonardi et al. (2013) also note that social media affordances lead to "enhanced opportunities for social learning within organizations which have (positive or negative) implications for at least four common processes within organizations: Social Capital Formation, Boundary Work, Attention Allocation, and Social Analytics" (p. 6).

5 Conclusion, Future Steps and Expected Contributions

This research-in-progress study is to examine the literature of social media affordances to understand how the concept of affordances has been used and to synthesise and classify the effects of social media affordances. This is to address Markus and Silver's (2008) conceptualization of affordances to study IT effects and also to build on Pozzi et al.'s (2014) framework of affordances in IS discipline. The results of analysing 152 studies portray varied use of affordances as a theoretical concept in social media research. For the next steps of our analysis, we focus on two areas. First, we are exploring what other theories have been used alongside affordances theory in studying social media. This will also build on previous literature reviews on social media, particularly the meta-analysis by Van Osch and Coursaris (2015) that explored dominant theories on social media research. Second, we also continue our research to analyse the studies based on affordances identified and affordances actualised to examine what affordances predicted for social media and what actually realised and the reasons for unrealised affordances.

The contribution of this study is twofold. First, our systematic review contributes to the body of research on social media technologies and their effects and particularly to other insightful reviews conducted on social media such as the meta-analysis by Van Osch and Coursaris (2015). Since Van Osch and Coursaris' (2015) meta-analysis has focused on the period of 2004-2011, our study can contribute to their work by exploring the development of social media studies after 2011 (as 74% of studies in our review were published during 2012-2016). Second, this review contributes to the affordance-based studies of social media by suggesting several areas for future research. One area that deserves more attention is the role of 'symbolic expressions' to understand what role the users' values and intents, and their social context play in affordances perception and actualisation processes. Our analysis reveals further investigation should be particularly in non-organisational context. Another area that we suggest more research is needed is the negative effects or outcomes of social media affordances.

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