



Review Article

Defining affordances in social media research: A literature review

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Abstract

An increasingly influential strand of research on social media relies on the concept of affordances to account for effects. However, hindering the possibility of a unified theory of affordances in social media is the conceptual blurring surrounding the concept. This article engages in a comprehensive review of the affordances literature in social media, aiming to provide an overview of the current state of the art and clarify the use of the concept. Through a systematic literature review, the characteristics of affordances research in social media are uncovered: the most prominent areas of application, research approaches, and dominant typologies and conceptualisations. Significant blurriness of the term 'affordance' is identified as well as an inconsistent use in research. To tackle these problems, a unified definition of affordances in social media is proposed based on the synthesis of knowledge on affordances in technology and social media. The suggested definition captures the core aspects of the concept to reduce ambiguity in the use of the concept and further the research on affordances of social media. The article provides the groundwork for future use of affordances theory in social media research.

Keywords

Affordances in social media, affordances theory, literature review

Introduction

Social media research has boomed in the last decade. Although there is still a long way to go to have robust theories of social media effects, one promising and an increasingly influential strand of research has focused on the concept and theory of affordances

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(Bimber and Gil de Zúñiga, 2020; boyd, 2010; Bucher and Helmond, 2017). The theory of affordances was originally introduced by Gibson (1977) in the domain of ecology and later applied to product design (Norman, 1988) and technology (Hutchby, 2001). With the proliferation of social media technology and especially the ubiquity of social network sites, the use of the theory of affordances in social media research has increased, with more scholars employing the concept of affordances as a useful theoretical lens for the study of the effects of the new media on society (see, for example, Bimber and Gil de Zúñiga, 2020; Vaast et al., 2017).

Affordances theory is already being actively used in the domain of social media and there have been some prominent attempts at theorising the role of affordances in social media effects (Majchrzak et al., 2013; Treem and Leonardi, 2013). A quick review of the literature reveals however that there is no shared use of the affordances concept; nor is there a unified theory of affordances that can help illuminate the processes and outcomes associated with the use of social media. A notable attempt at creating a shared basis of understanding was made by Evans et al. (2017), who developed the threshold criteria for defining affordances in communication research but stopped short of offering a definition. Most of the rigorous research dealing with defining and measuring affordances is conducted within the broader domain of communication studies (Fox and McEwan, 2017; Rice et al., 2017). Operationalisations developed for the comparison between communication channels, however, are only of limited use for comparison between platforms. Thus, there is a need for a common understanding of affordances in social media that goes beyond the criteria that can tell whether something is an affordance or not and can be useful for comparing different social media platforms and their effects.

To tackle some of these research needs, in this article, we engage in a comprehensive literature review of affordances in social media with the aim of clarifying the different approaches, conceptualisations and methods of affordances in the literature. Although there have been efforts to systematise knowledge on affordances or the use of the affordances theory in a specific domain (cf. Hollenbaugh, 2021; Stewart, 2015; Sun and Suthers, 2021), with the exception of a conference paper that was never developed into a full paper (Hafezieh and Eshraghian, 2017), we know of no recent systematic literature review undertaken in the domain of social media.

The objective of this article is to provide a comprehensive and detailed overview of the research conducted on the topic of affordances in social media and to systematise and synthesise the knowledge on affordances of social media. Following Carr and Hayes (2015), we define social media as Internet-based channels that ‘allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others’ (p. 54).

Based on a systematic literature review, which is the chosen method of enquiry, we first provide a nuanced understanding of the concept of ‘affordances’ as used in social media research, and identify the most used methods, approaches and conceptualisations. Second, based on this understanding, we elaborate a useful definition of affordances for the social media domain. Third, we analyse how the proposed definition fits some of the affordances that are most commonly associated with social media.

The objective of the article can be deconstructed into a list of research questions guiding the literature analysis and providing a structure for the discussion. These questions were initially outlined by the authors based on the preliminary literature review:

RQ1. What is the current state of research on affordances in social media? To answer this question, we review the approaches, research methods and theories used for studying affordances in social media, as well as some of their theoretical uncertainties and problems.

RQ2. What are the dominant conceptualisations of affordances in relation to social media? What understanding of affordances is prevalent in social media research? Are there agreed-upon typologies of social media affordances used by most researchers?

RQ3. What useful definition of affordances in social media can be formulated based on the theoretical developments so far? The definition of affordances we propose here is based on a synthesis of the existing literature on both affordances and social media research. The usefulness of the definition is illustrated in relation to existing typologies of affordances. Proposing a unified definition that integrates but goes beyond the threshold criteria formulated by Evans et al. (2017) as well as providing examples to illustrate the potential usefulness of this unified definition are the unique contributions of this study.

The remainder of the article is structured as follows: Section ‘Methodology’ describes the methodology of research and details the coding approach. Section ‘Affordances in social media research: review and discussion’ details the most interesting results of the analysis and provides the answers to the first two research questions. In Section ‘Defining affordances in social media’, we synthesise the findings and develop the definition of affordances in social media and apply this definition to commonly used social media affordances. Finally, a closing section summarises the findings and details the future avenues for research on the topic.

Methodology

Literature review

The main method used in this research is a systematic literature review as described by Kitchenham and Charters (2007). Using the methodology, the authors reviewed papers published on the topic of affordances in social media, coded the content and systematised the findings along several dimensions. The steps of the literature review are shown in Figure 1.

Scopus¹ was used as a search engine to identify relevant articles. Published journal articles, book chapters and conference papers were included, while book reviews, conference workshops, panels and posters were excluded. At the first step of the review, we searched titles, abstracts and keywords that included the term ‘affordance’ with at least one of the following terms: ‘social media’, ‘SNS’, ‘social networking’, ‘Facebook’,

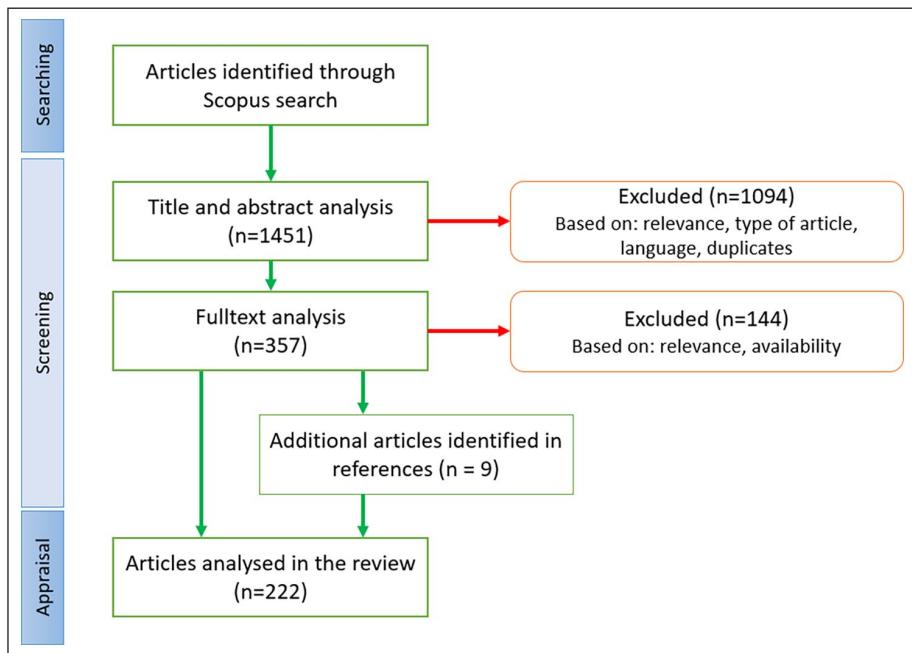


Figure 1. Literature review – research steps.

‘Twitter’ and ‘Instagram’. The language of the articles was limited to English. An initial search in the Scopus database was conducted in December 2021 and returned 1451 results with publication years spanning between 2005 and 2021.

In the second step, we applied the exclusion criteria by manually reviewing the metadata (titles and abstracts of the articles). Articles that did not deal with affordances as one of the main topics or used the word with a very different meaning (e.g. as a synonym of ‘advantages’), were excluded. This left us with 357 articles possibly relevant to the review.

Finally, in the third step, the full texts of the 357 remaining articles were analysed. At this stage of the literature review, it became apparent that there is certain conceptual blurriness in the use of the term ‘affordance’ across the literature. We excluded papers that were obviously not using ‘affordance’ as a theoretical concept as understood by Gibson, Norman and their successors. Some of these, use ‘affordance’ as a synonym for a function of a platform (e.g. ‘live streaming affordance’) or a sum of the functionality of a platform (e.g. ‘Instagram affordances’ without elaborating further). In some articles, ‘affordances’ are used as an antonym to challenges, for example, when saying that a specific platform offers a particular group of people ‘affordances and challenges’, without any theoretical grounding.

In many cases, affordances were mentioned casually in an abstract and barely anywhere else. In some cases, papers included affordances and social media in one of the search fields, however, the word ‘affordance’ related not to social media but to something else. For example, ‘an affordance of a mobile phone’, ‘organisational affordances’

or just ‘technological affordances’ as general terms describing what modern technology can offer its users without focusing on specific affordances of the social web. All such papers were excluded from the analysis.

At this stage, we also looked through the references included in the articles to identify other possible articles outside the Scopus sample. After the full-text analysis, 213 articles were left and nine additional articles were added to the sample. These 222 articles were coded by the authors and reviewed in this article.

Coding procedure

Inductive coding was used to define the subjects mentioned in the article. Starting with a list of initial rather general codes (based on the initial review of literature and authors’ expertise), additional more specific codes were identified during the coding stage of the research. Subsequently, the codes were combined as necessary. The codes were further refined through frequent discussions between the authors. During the process, the groups of codes dealing with specific aspects of the analysed articles emerged. The authors roughly delimited four groups of codes, discussed in the Section ‘Affordances in social media research: review and discussion’. Each article was coded with at least one code in each of the coding groups.

As most articles (82%) were coded by the first author, developing reliable codes was essential. As suggested by Campbell et al. (2013), a randomly selected sample of 15% of all articles was distributed to the second and third authors, who applied the same coding scheme to the articles. Gwet’s AC_2 was used as a measure of intercoder reliability (Gwet, 2014). The calculation of intercoder reliability is valuable not only in ensuring an appropriate coding scheme, but also as ‘a means of reflexively improving the analysis by provoking dialogue between researchers’ (O’Connor and Joffe, 2020: 11). In our case, for the first coding group, the initial reliability was low, so the codes were discussed, adjusted to be more unambiguous and clearer until authors were satisfied with the level of agreement (Campbell et al., 2013). Subsequently, all the articles were recoded with updated codes, reaching a high value of AC_2 . In the end, the overall reliability of 0.91 was reached, with a range from 0.89 to 0.95 for different groups of codes (Gwet’s AC_2 is measured on a scale from 0 to 1; 1 indicates perfect reliability).

Affordances in social media research: review and discussion

In this section, the results of the literature analysis are presented to provide a comprehensive understanding of the research in the domain.

Areas of application

Table 1 shows the distribution of articles across the thematic areas. The coding is non-exclusive, and papers sometimes were assigned several categories. The approach was to make sure that each paper was coded at least with one of the codes. The distribution reflects the subject areas in the sample, where most papers were published in journals of social sciences, followed by computer science, and business and management journals and conference proceedings.

Table 1. Affordances theory and areas of application.

Thematic area of application	Articles
Political participation	24
Information/knowledge creation and sharing	21
E-Government/governance/non-governmental organization/non-profit	20
Education and learning	18
Work and business affordances	16
Discussion/sharing of opinions	15
Brand/marketing/business engagement	15
Collective action	13
Identity	10
Therapy and medicine	10
Relationships/social ties/leadership	9
Gender/feminism/LGBTQ+	7
Populism and disinformation	7
Other areas	10

The most widely studied area is *political participation* (24 articles), which includes papers on political participation, activism and political self-organisation. Interestingly, 46% of all articles in this category researched non-Western and particularly developing countries. The related *collective action* category (13 articles) includes both political and non-political collective action. Some articles deal with identifying specific social media affordances supporting collective action (Ahuja et al., 2018; Harindranath et al., 2015; Sæbø et al., 2020). Furthermore, 20 articles concerned the affordances of social media for *e-Government, governance* (including state governance (Chouikh et al., 2016), non-government organizations (NGOs; Raja-Yusof et al., 2016) and affordances for non-profits (Namisango et al., 2022). Articles in the *discussion/sharing of opinions* category (15) include articles on how information propagates on social media, using affordances as one of the dimensions of analysis (Meredith, 2017). The way information is shared on social media is facilitated and constrained by specific platform's affordances (Fu and Zhang, 2019; Oeldorf-Hirsch and Sundar, 2015), most notably persistence (Neubaum, 2021) and visibility (Ramirez, 2018). Most of the studies in this category look into Twitter and employ quantitative analysis of large datasets (Panda et al., 2020; Rodak, 2020; Walsh and Baker, 2021). Concerning *populism and disinformation* (seven articles), the searchability affordance of social media was found to be an effective tool to counter the spread of fake narratives as it can facilitate the self-correction of the users (Apuke and Omar, 2021; Eismann, 2021; Islam et al., 2020).

Information/knowledge creation (21) includes articles focused not so much on the propagation and exchange of information, but more on how the knowledge is created on the platforms, including the cooperation of users in the curation, creation and maintenance of knowledge (Fulk and Yuan, 2013; Gibbs et al., 2013; Majchrzak et al., 2013). Affordances of social media in *education and learning* (18 articles) exert both positive (Andersson et al., 2021; Stewart, 2015; Vezzoli et al., 2017) and negative influences (Day and Lloyd,

Table 2. Social media platforms in the research.

Platform	Articles
Comparison across platforms	14
Social media technology	15
Facebook	55
Twitter	38
Enterprise social media	24
Instagram	12
YouTube	9
WhatsApp	6
WeChat	6
Other mobile platforms	13
Other mainstream platforms	11
Alternative platforms	4

2007; Smith, 2016). *Work and doing business* (16) includes articles on work-life balance (Siegert and Löwstedt, 2019), building relationships with business clients (Weber and Haseki, 2019) and the use of social media for interactions within organisations (Mansour et al., 2013; Treem, 2015). Research shows the significant potential of social media for *user engagement* (15 articles) both for business and personal brands (Caliandro and Anselmi, 2021; Dolan et al., 2016; Wang et al., 2021). Papers in the *identity* category (10 articles) concern the formation of identities on social media, often through visibility affordance (Askay, 2014; Cirucci, 2015; Seidel et al., 2016). *Gender, feminism, and LGBTQ+* issues are discussed in seven articles, largely intersecting with the previous group. The bulk of the papers in this category are case studies studied through the affordance analytical lens (Hurley, 2019; Khazraee and Novak, 2018; Kitzie, 2019). *Health and therapy* (10) contains research on the way people can use social media to manage their conditions (Merolli et al., 2013, 2014), therapy (Bernardi, 2016; Lin and Kishore, 2021; Song et al., 2021; Yeshua-Katz, 2021) or acquire health-related information. Articles on affordances for *interpersonal ties* (9) discuss affordances both in work (Lee et al., 2019; Leidner et al., 2018) and in personal settings (Frampton and Fox, 2018; Zhao et al., 2012). Other areas of research that took advantage of the theory of affordances include *tourism and culture* (4), *social media in emergencies and crises* (2), *hate speech* (2) and *death and grieving* (2).

Social media platforms

The most popular platforms worldwide (Facebook and Twitter) are also the ones studied in most papers (55 and 38 articles, respectively), while research on smaller platforms is much scarcer (Table 2).

Comparison across several platforms (14 articles) is often conducted when a more general topic is researched, and the results are expected to be generalisable across social media. Articles in this category include research of affordances for a specific field (e.g. O’Leary et al., 2020; Valenzuela et al., 2018) and the analysis of one affordance (or a few) across multiple platforms (e.g. Duffy et al., 2017; Kligler-Vilenchik et al., 2020).

Table 3. Research types used in the articles.

Research type	Articles
Qualitative	97
Quantitative	67
Mixed methods	10
Theoretical work	27

In *Social media technology* (15 articles) are papers that are not comparing the different platforms but view social media holistically as a phenomenon: either by studying its effect on society or specific industries, or by trying to find general principles of what social media affords its users (Cammaerts, 2015; Treem and Leonardi, 2013).

The number of papers discussing *enterprise social media* (24 articles) shows that the use of affordances as a theoretical lens is well established in the organisational setting and applied to various questions of enterprise social media use: from adoption (Li et al., 2019), to knowledge sharing (Oostervink et al., 2016) and employee socialisation (Leidner et al., 2018).

At the same time, while primarily mobile platforms like WhatsApp, Snapchat and TikTok are increasing in popularity, there is still an apparent paucity of research on them. The social aspect of YouTube is also relatively understudied, considering the popularity of the platform. Less mainstream social media (such as YikYak, Gab or even Reddit), while likely offering unique affordances for their users, remain largely unexplored.

Research methods

Table 3 shows the breakdown of research approaches used in the papers. Most of the papers used empirical data to answer the research questions and 44% employed qualitative methods of analysis: content and discourse analysis of social media messages, observation and interviews were common.

Quantitative methods (30%) included statistical analysis of message datasets, quantitative surveys and statistical modelling. A combination of qualitative and quantitative methods was used in 5% of all papers. The most common combined method was supplementing the quantitative survey with an interview to discuss specific issues encountered in the questionnaire. It is also common to use the analysis of the platform in addition to the interview with the platform users. Theoretical papers accounted for only 12% of the articles in the analysis. These papers largely focused on how the affordances lens can be applied to a specific domain of interest.

Looking into the specific research methods, the most popular approach was interview research, which formed the bulk of qualitative studies. The analysis of messages, postings or other social media was used in 54 papers, followed by survey research (both qualitative and quantitative surveys). Case study was explicitly mentioned as a methodological approach in 24% of all papers. Another prominent research method is statistical modelling, found in 31 papers. Among less popular methods were the analysis of platforms, observation (including field study), experiment and design science approach.

Table 4. Conceptualisations most often used as primary in articles.

Conceptualisation by	Articles
Treem and Leonardi (2013)	42
Gibson (1977)	14
boyd (2010)	10
Norman (1988)	7
Majchrzak and Markus (2012)	6
Faraj and Azad (2012)	6
Own definition	25
No specific theory	13
Other	51

Regarding the research question tackled, a significant number of papers (96) deal with the topic of *identification of affordances* either of a specific platform or of social media as a phenomenon within a specific area of interest (see the ‘Areas of application’ section). In 85 articles, the theory of affordances is used *in combination with other theories*. For example, applying the affordances lens to the questions of social capital, business engagement or effective use. Articles dealing with the *evaluation of affordances* (51) focus on one or more affordances within a specific platform or concerning a specific area of application (e.g. ‘anonymity affordance for political engagement’). These papers frequently include cross-platform comparison. Finally, as the theory of affordances within social media is still being developed, 36 articles deal with *extending the theory of affordances*, that is, their primary aim is a theoretical contribution.

Dominant understanding of affordances

Based on the review of the theory sections of the papers, we identified the ‘core reference’ for each paper. By that we mean the source, whose definition or taxonomy was adopted by the paper’s authors to conduct the research (e.g. as evidenced by phrasing like ‘we use the definition provided by . . .’ or ‘we adopt the understanding of . . .’). For some papers identifying such core reference is open to interpretation, however, in general, the distribution provides an illustrative measure of the relative popularity of different definitions and taxonomies. The review revealed (Table 4) that there is only a handful of highly respected and cited affordance theory articles and many others that are referenced only a few times. Again, it should be stressed that these are not the mentions of the respective authors, as by that measure Gibson (1977) far outnumbers any other paper, followed by Norman (1988). In many cases though, mentioning Gibson’s definition is followed by describing the critique and revisions of his definition.

The four-item taxonomy of social media affordances (visibility, editability, persistence, association) introduced by Treem and Leonardi (2013) dominates the scientific discourse. The main reason is probably that they devised a concise and efficient typology. These four affordances are general enough to be applicable to a range of different platforms but cover the most significant

and controversial aspects of the use of social media. Furthermore, Rice et al. (2017) provided the operationalisation of the four affordances, which is also frequently cited.

An earlier and similarly concise four-item typology (persistence, replicability, scalability, searchability) by boyd (2010) is less widely used, likely because it focuses exclusively on the content of social media and not on the affordances which relate to the interactions between users (visibility, association), while the latter ones are defining for social media (i.e. web 1.0 was already scalable and persistent).

A considerable number of papers rely on conceptualisations by Gibson or Norman, this is particularly often seen in papers that use affordances as one of the dimensions of research or as a supporting theory, rather than researching them as the central focal point of the paper. Neither Gibson nor Norman provide a taxonomy of affordances and do not use affordances to describe the interplay between information technology and society, thus their definitions are almost always adapted or supplemented by the authors for the social media domain. This repeated re-conceptualisation produces noise in definitions and highlights the need for a specific common definition of affordances of social media.

More complicated and detailed typologies are usually constructed for the purposes of a specific research, they are rarely re-used in future works (unless by the same authors). Thus, more general and simpler typologies of affordances are adapted more often as they allow customisation and adaptation for a specific purpose. Finally, 25 papers developed their own conceptualisation of affordances specific to the research at hand, while further 13 articles did not provide any theoretical justification or definition of the concept.

To illustrate the theoretical blurriness of the concept of affordances, one can look at the efforts to systematise the different typologies and approaches (Bucher and Helmond, 2017; Sundar and Limperos, 2013). Karahanna et al. (2018) attempted to generate a comprehensive list of social media affordances based on both prior research on the topic and the analysis of various social media platforms. Their work uncovered two interesting aspects of the research: (1) the same affordances are often named differently by different authors ('self-presentation' vs 'identity' to describe the same thing) and (2) different authors employ distinct levels of abstraction when viewing the same affordance ('self-presentation' vs 'rendering' affordances, the latter being a more specific case within the former; Karahanna et al., 2018). Other authors suggest structuring the affordances hierarchically (McGrenere and Ho, 2000) or talk about nested affordances (Gaver, 1991). Often, however, when using a hierarchical structure, lower level affordances correspond to the individual functionalities of the system (O'Riordan et al., 2016), which makes the application of the term 'affordance' to them dubious. Similarly, the mechanical affordances of Ostertag and Ortiz (2017) constitute an aspect of the materiality of a system, rather than a type of affordances.

Defining affordances in social media

Previous literature reviews noted the ambiguity of the 'affordance' as a concept used in social science and even more so in technology and design, where it gets entangled and confused with other concepts, such as technology features, use or action (Leidner et al., 2018; Nagy and Neff, 2015). This observation was also confirmed by our review described in the previous section. In this section, we systematise the literature on affordances and

formulate the definition of affordances in social media research. To do that, we start from the initial definitions offered by Gibson and Norman and work our way to today's articles to see what useful insight can be extracted for defining the affordances of social media.

The first definition of affordance was provided by Gibson (1977: 75) who coined it as a 'unique combination of qualities that specifies what the object affords us'. Originally, Gibson discussed affordances in an ecological context and spoke about the relations of an animal with its environment. Affordances became widely known when Norman used them in his work on design, defining them as 'the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used' (Norman, 1988: 9). The conceptual difference between Gibson's understanding of affordances as existing independently from the actor and Norman's understanding of affordances, which exist as long as they are perceived by the actor, led to two theoretical streams emphasising this difference (Bower, 2008; Islam et al., 2020) and to distinguishing between real and perceived affordances in some cases (Norman, 2008).

After Norman introduced affordances to the domain of product design generally (in his book, he focused on physical objects), later researchers examined specifically technology affordances. Gaver (1991) discussed affordances of the user interface and Hutchby (2001) proposed affordances as a possible middle ground between technological and social determinism, as a way to describe how technology enables and constrains specific actions of humans using the technology without technology necessarily 'causing' the human actions.

Usefulness or utility of definition depends on the definition criteria (Jax, 2007): they need to be specific enough to be applicable to the individual cases, and general enough to describe the range of possible cases in the domain. The purpose of formulating a definition is 'to extract and describe the established meaning of a concept already in use and (analyse) its components' (Jax, 2007: 343). With this in mind, we extracted the main aspects of the affordance concept and described how these aspects are relevant for social media research. We identified the core positive (what affordances are) and negative (what affordances are not) properties of the affordances as used in the domain, and using them we developed the definition of affordances in social media.

What affordances are not

By analysing a range of conceptualisations of affordances found in our sample, we extracted several recurring patterns in (mis-)understanding of the affordances. These patterns are mostly dependent on the primary source for the concept (e.g. Gibson or Norman) and the domain of application. First, we will delineate what the affordances are not, peeling off the viewpoints on the concept not useful for the investigation of social media.

Affordances are not properties of technology exclusively. Already in the first definition by Gibson, the core property of affordances is that they exist as a relation between actor and environment, human and materiality of environment. That is, they do not reside in the environment only, but exist between the environment and its inhabitant. Quite early in the life of the concept, Gaver (1991: 80) defined affordances as 'properties of the world defined with respect to people's (and social) interaction with it', putting the spotlight on the properties of the environment as the 'source' of affordances. Norman also

contributed to the conflation of the design features and affordances (Curinga, 2014), leading to some confusion about the source of affordances. Still, the relational understanding of affordances remains more prevalent (Rice et al., 2017; Treem and Leonardi, 2013; Wellman, 2001).

Affordances are not technology features or functionalities. As a result of the previous aspect, affordances cannot be equated with specific functions or features of technological products. Not only that, there rarely can even be a 1:1 correspondence between a feature and an affordance. Still, some authors conflate technology features with affordances saying that affordances ‘describe the ways in which a platform is engineered’ (Davis and Chouinard, 2016: 241) or ‘are elements of software systems’ (Curinga, 2014). Such equating of affordance to system structure or functions, or even focusing primarily on the properties of the system as a source for affordances, limits the usefulness of the concept. That is, if affordances can be reduced to functions, why should this concept be used at all, why not discuss platform design and functions instead? Thus, methodologically, affordances have to be distinguished from the uses of technology features and outcomes of such uses (Leidner et al., 2018). Furthermore, a common observation is that users often use systems in a way that was not intended by the system’s developers (Majchrzak and Markus, 2012) and conversely some affordances perceived by the users may not actually be provided by the system (Curinga, 2014).

Affordances are not an outcome of interaction between humans and technology. The result of the interaction is the actualisation of affordances. Affordances can be left unactualised, in this case, there is no ‘outcome’ to speak of. Thus, for example, ‘collaboration’ or ‘service innovation’ (Zammuto et al., 2007) are not useful examples of affordances (Curinga, 2014). Furthermore, equating affordances with their outcomes effectively leads to the technological determinism, when the properties of technology determine its use by human users (Markus and Silver, 2008), while affordances are seen as an alternative approach to the technological determinism (Nagy and Neff, 2015).

The two latter patterns described in this subsection are in line with the findings of Evans et al. (2017) and echo two of their threshold criteria. The first one is distinct as it underlines the relational nature of affordances. Affordances not only cannot be equated to functions but they also cannot be derived from the technology alone, without considering the actor, the user of the technology.

What affordances are

Understanding what affordances are, necessitates going back to the original definition by Gibson and seeing how it can be usefully applied to the research of social media.

Affordances are relational. Initially, Gibson (2014) suggested that affordances ‘have to be measured relative to the animal’ (p. 120). Again, affordances are not properties of the environment or the characteristics of the individual but are relative to their interaction (Chemero et al., 2003). The relational property of affordances is widely accepted in the literature (Rice et al., 2017; Treem and Leonardi, 2013). Importantly, as a result of the relational property of the affordance, the same technology may provide different

affordances to different users (Treem and Leonardi, 2013). The other outcome of this property is that affordances are well anchored to a specific domain (Cabiddu et al., 2014; Majchrzak and Markus, 2012). That is, it makes sense to talk about domain-specific affordances, however, widely or narrowly, we define the ‘domain’ of application; we can talk about ‘technology affordances’, ‘social media affordances’ or even ‘Facebook affordances’.

Affordances are perceptual. As defined by Norman (1988), affordances are the properties of the object perceived by the actors. And so, they are tied to the values, thoughts and capabilities of the actors (Islam et al., 2020; Norman, 1988). Hogan (2009) noted the role of individual perceptions and defined social affordances as ‘the perceptual cues that connote aspects of social structure to individuals thereby creating a functional difference for the individual’ (p. 27).

A related concept of *imagined affordances* describes affordances that users imagine as existing in the technological product, an expectation that may not be realised in rational knowledge (Nagy and Neff, 2015). Users of technology systems may have their mental image of how the system works and that mental image may enable or constrain how they use that system. Believing that the system is secure may lead to users sharing sensitive information and actualising corresponding affordance, even if the system may not be actually secure by any objective measure. The concept of imagined affordances underlines the most prominent difference between affordances and system properties and functionalities; and why affordances cannot be reduced to the properties of the system.

Affordances are contextual. Specifically in relation to technology, Caliandro and Anselmi (2021) conclude that affordances ‘consist in a set of contextual constraints and props that shape the usage of technology’ (p. 3). From this point of view, the actor component of affordances is relevant as the use of technology is further constrained by the properties of an actor, for example, cultural norms. Zheng and Yu (2016: 292) view affordances as ‘emergent from sociomaterial practices that involve technology’ and dependent on both the purpose of human agency and the historical and social context. Treem and Leonardi (2013: 146) also underline the emergent properties of affordances saying that they emerge as a result of ‘the relationship between the people and the materiality of the things with which they come in contact’. This relationship might not be amiable and affordances can become ‘sites of contestation’ when the conflicting intentions of users and platforms can lead to various outcomes (Jones, 2020).

Affordances are potentials for action. The influential conceptualisation of technology affordances is provided by Majchrzak et al. (2013: 39) based on work by Faraj and Azad (2012) as ‘the mutuality of actor intentions and technology capabilities that provide the potential for a particular action’. Such understanding of affordance as a potential or possibility for action has been applied to social media by Ellison and Vitak (2015) and boyd (2010). This view is often reflected in the names of identified affordances, which often include words ending with ‘-ability’: reviewability, combinability (Faraj et al., 2011), presentability, recordability (Argyris and Monu, 2015) and editability (Treem and Leonardi, 2013) to name a few. Karahanna et al. (2018) also reject ‘general’ affordances,

which do not contain action possibilities, listing among examples of such affordances *persistence*, which is included in some more influential affordance taxonomies, most notably that of Treem and Leonardi (2013). Similarly, when determining if an aspect of the system can be classified as an affordance, Merolli et al. (2014) use the presence of ‘actionable possibility’ as the main criterion.

Affordances also constrain action. Evans et al. (2017) underline the constraining aspect of affordances: affordances enable and constrain potential behavioural outcomes, importantly, relative to the agent’s needs and within a given context (Gibbs et al., 2013; Giermindl et al., 2017). For example, Vaast and Kaganer (2013) concluded that certain affordances of social media generate risks for organisations and by that conceivably shape the behaviour of the users and their outcomes. From this point of view, constraints are seen as complementary to affordances and not opposite to them, and even ‘equally necessary for activity to take place’ (Kennewell, 2001: 106). Siegert et al. (2020), building upon Ellison and Vitak (2015), underline the necessity to discuss and define ‘negative’ counterparts to the existing affordances; for example, including invisibility affordance along the visibility.

Affordances are discrete. To be useful, affordances should be discrete, that is, not be defined too broadly or loosely (Curinga, 2014). When talking about specific technological products (like social media platforms), affordances must be compact, that is, to refer to specific aspects of the product, not to the general purpose or use of the technology. Thus, using general buzzwords like ‘sharing’, ‘interaction’ or ‘communication’ is not conducive to the use of affordances as an analytical lens in the domain.

Definition of affordances for social media research

What does this mean when applied to social media research? Obviously, a good actionable definition needs to incorporate all the aforementioned properties. Therefore, we suggest the following definition for affordances of social media:

Social media affordances are the perceived actual or imagined properties of social media, emerging through the relation of technological, social, and contextual, that enable and constrain specific uses of the platforms.

As was mentioned earlier, the main advantage of employing the affordances perspective in social media research is that, in contrast to technological determinism, it recognises and underlines the role and agency of humans in the use of technology. It does this by incorporating the contextual and individual aspects of technology use: how social media usage is shaped by the properties of actors and their context.

The first part of the definition ‘the perceived actual or imagined properties’ stems from Norman’s (1988) definition and underlines the perceptual quality of the affordances. In the original definition, Norman (1988) includes only ‘actual properties (*of the thing*)’ (p. 9), however, as Nagy and Neff (2015) pointed out, affordances may stem also from the properties of the system that are only ‘imagined’ by its users. The relational property

of affordances is reflected in stressing the importance of the three aspects of the human-technology relationship: properties of technology (i.e. materiality), properties of human actors (i.e. values and attitudes) and context (i.e. how and when the relationship unfolds). Finally, the last part of the definition highlights that affordances both provide the potential for action and constrain human action on social media. Importantly, the same affordance can and will both enable and constrain how the users interact with the system. This also includes the non-use of the platforms, absent from Norman's definition (cf. '[affordances] determine just how the thing could possibly be used' (Norman, 1988: 9)).

Furthermore, the suggested definition is not limited to human actors only. There has been an increasing demand for examining the role of algorithmic agents in social media (Albu and Etter, 2020; Bucher and Helmond, 2017; Sharma et al., 2016), responding to this research gap, this definition is formulated in a way to be applicable to non-human agents as well. That is, affordances of social media may also enable and constrain the uses of social media by computational agents. The discussion of algorithmic agents and their relation to social media affordances, however, is outside of the scope of the present article and can be a fascinating topic for future research.

Finally, we would like to contrast our conceptualisation to that of Evans et al. (2017) who attempted to define affordances more rigorously by describing a set of requirements that an affordance has to fulfil. In comparison to Evans et al. (2017), who define affordances by describing mostly what they are not (not a technological feature, not an outcome), our suggested definition is a positive one, describing instead what affordances are. As discussed earlier, the relational nature of affordances already precludes equating them with technological features, while the actualisation of affordances (their 'outcome' as per Evans et al.) should be distinguished from affordances. Furthermore, Evans et al. (2017: 39–40) suggest that affordances 'vary in degree from enabling to constraining', which in our opinion, unduly simplifies the effects of an affordance on user behaviour. The affordances of visibility and persistence may constrain some user behaviour, for example, through user's self-censorship, but at the same time, they also enable different types of behaviour like identity construction on the platform. Thus, there is no need to contrast affordances with constraints (Majchrzak and Markus, 2012) or negative affordances, as the definition already acknowledges that affordances may constrain some uses of technology.

The main contribution of the definition to the academic discussion of affordances is that it emphasises the core properties of affordances, going back to the original conceptualisations of Gibson and Norman (the relational, perceived nature), and includes more recent aspects of affordances (contextuality), while considering social media-specific elements: like non-human, algorithmic actors. Finally, we believe that a succinct standalone definition has an instrumental value, as it allows for more focused and productive discussions on the topic.

Definition and the types of affordances

As a final step of our conceptualisation of affordances in social media, we would like to discuss how different typologies of affordances (see Section 'Dominant understanding of affordances') fit with the suggested definition. The development of the taxonomy of

affordances in social media is beyond the scope of the article, this is an exemplification of how the definition can be used to evaluate the affordances and an illustration of the usefulness of having the definition of affordances in social media.

The affordances of *visibility* and *editability* suggested by Treem and Leonardi (2013) are good examples of social media affordances fitting the definition. Both *visibility* and *editability* are properties that emerge through the interaction of the human actor and the social media system; they shape and constrain the practices of users on the platforms. *Visibility* can be thought of as the most general affordance (Lane et al., 2018). ‘Social’ in social media by definition requires that content created by users will become visible at least to some of the other users. The degree to which visibility is realised on a platform may be conceptualised through more specific (lower level) affordances like ‘anonymity’, ‘pseudonymity’ or ‘association’. These affordances are used to describe how much visibility is afforded by a platform concerning different aspects of the platform (user identity, content, etc).

The *editability* affordance is connected to *persistence* (listed both by boyd (2010) and Treem and Leonardi (2013)). The *persistence* affordance relates to the property of the content to be preserved in time. To be persistent, content needs to be *accessible* (the user needs to be able to access it) and *immutable* (it should be the same message). If a platform allows editing the content after it is published (Twitter does not allow editing posts, while Facebook does), then it may be impossible to know whether a user accesses the same content as originally published. Thus, *accessibility* and *immutability* can be understood as lower level affordances relating to persistence.

Likewise, the *searchability* affordance in the sense presented by boyd (2010) can be viewed as a lower level affordance and can be considered as a component of *visibility*. Users can reach a visible piece of content by using the search function of the system. Some authors further distinguish other elements of *visibility*, like *viewability* (Mansour et al., 2013), *addressability* (Hennebert et al., 2021) or *reachability* (Sharma et al., 2016).

In a similar manner, it is possible to decompose general affordances into more specific ones. The actual level at which affordances are viewed depends on the purposes and objectives of each research. We would, however, suggest avoiding mixing the different levels of affordances to avert confusion. The proposed understanding of high- and low-level (general and specific) affordances differs from the use of these terms by Bucher and Helmond (2017).

Importantly, in line with Evans et al.’s (2017) understanding, we clearly separate affordances (emergent properties of social media) from the outcomes of the actualisation of affordances. Thus, we believe that ‘content sharing’, ‘collaboration’, ‘evaluation and feedback’, ‘communication’ and similar are not affordances and should not be included in the typologies of affordances. Similarly, the properties created through the use of social media (e.g. ‘solidarity’, ‘motivating environment’) are not affordances but also outcomes of affordances actualisation (e.g. solidarity can be an outcome of association affordance actualisation by the users).

Summary and conclusion

Using a systematic literature review as a method, we have analysed the academic body of knowledge on affordances in social media. The in-depth analysis of the final dataset of 222 papers allowed us to answer the research questions posed at the beginning of the article.

Answering RQ1 about the state of the art of research, revealed the variety of research conducted on social media across different thematic areas, platforms and theoretical angles. Most of the research is conducted in social sciences and focuses on Facebook and Twitter. Empirical research is conducted with primarily qualitative methods, while around a quarter of all papers are case studies.

For RQ2, the analysis of various conceptualisations and typologies revealed that in the domain of social media, the four affordances of Treem and Leonardi (2013) are the de facto standard and are used far more than any other typology, especially when the organisational setting is studied. Their conceptualisation is frequently used as a basis for more detailed and specialised typologies and taxonomies. However, Treem & Leonardi neither offer a definition of affordances that unites the four affordances they identify nor discuss the additional affordances or the possible hierarchical structure of affordances of technology. Despite being formulated for other domains and being too general, Gibson's and Norman's definitions of affordances are still widely used in social media research.

Finally, for RQ3, we developed the definition of affordances in social media, synthesising important properties extracted from the literature review. Social media affordances are defined as perceived actual or imagined properties of social media, emerging through the relation of technological, social and contextual that enables and constrains specific uses of the platforms. We subsequently discussed different typologies of affordances in the context of our definition and clearly delineated which affordances are consistent with the definition and which refer to some other aspect of the platforms.

This article contributes to the body of knowledge of affordances in two ways. First, by providing a detailed overview of the use of the affordances theory in relation to social media, outlining the research directions, approaches and methods used to study affordances. Second, by contributing to the research by proposing a unified definition of affordances in social media based on the synthesis of the literature on the topic. The definition, which is long overdue, considering the popularity of the affordances theory in the domain, is meant to be used in future research as a basis for the common understanding of the affordances in social media research, which as we have seen in the review are often used casually or imprecisely.

While this article presents the most comprehensive systematic literature review of affordances in social media to date, there are inevitable limitations. First, our sample was based on a search of the Scopus database. While Scopus is a large and respected database, it is inevitable that some relevant journals or conferences were excluded from the search. Furthermore, we used keywords in English, so papers in different languages were excluded as well. Papers discussing emerging or lesser known social media sites might have also been excluded if they did not contain the relevant keywords (e.g. social media). Still, despite these limitations, we believe that the review provided a useful overview of the domain and sufficient input to develop a definition of social media affordances.

Providing an adequate definition of social media affordances is not an endpoint but rather a platform on which future research can be built. We suggest two research directions that can be explored. First, there is a question of measuring the affordances. When speaking about the more general affordances, the degree to which a specific affordance is present on the platform can be measured (Van Osch et al., 2021): that is, it makes sense to say that a specific platform affords more visibility, anonymity or even persistence.

While there have been efforts to operationalise affordances for quantitative research in communication (Fox and McEwan, 2017; Rice et al., 2017), they focus on the comparison between the different communication channels, while their usefulness for studying the differences across social media platforms is limited. The second underexplored area is the affordances of social media outside the big platforms. As seen in section ‘Social media platforms’, most of the empirical research is conducted on the four major social platforms: Facebook, Twitter, YouTube, and Instagram, and even among them the first two are overrepresented. Exploring less popular or alternative platforms may provide interesting results, both empirically and theoretically, by improving our understanding of affordances. It is likely that the whole reason why alternative platforms emerge is because they aim to provide affordances that are not present on the major platforms.

For the realisation of both research directions, it is crucial to have an agreed-upon and theoretically grounded definition of affordances in social media. Our hope is that this article lays the groundwork for a common understanding that will allow future researchers to build upon, and avoid the current ambiguity of the usage of the term ‘affordance’, which is so evident in our review.

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Note

1. <https://www.scopus.com/>.

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