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**For a Sociology of Affordances:
the Social Situation across Digital Environments**

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Introduction

The interest concerning mediated social interaction has always been central in the sociological field. Similar efforts extended to digital media, driven by its pervasiveness in everyday interaction. However, the affirmation of a digital sociology (Lupton 2015, Marres 2017) is relatively recent. Far from an absence of interest in the popularity of information and communication technologies (e.g., Castells 2000), the lack of consideration for the study of the digital as its own subfield of sociology stems from a different focus: that on the virtual. A sociological focus on the virtual meant conceptualising the web as a space theoretically and empirically separated from daily life (e.g., Turkle 1995, Hine 2005). However, the ever-increasing intertwining of the virtual with everyday social interactions called for a new framework, one which could consider digital media and technologies in a new light, to consider their embeddedness into the fabric of society. The end of this digital dualism (Rogers 2009, Jurgenson 2012) brought with it the potential for great changes for social sciences as a whole, ontologically (Latour et al. 2012), empirically (Rogers 2015), and methodologically (Savage and Burrows 2007). Conversely, it called for the adaptation of traditional sociological frameworks and concepts, fitting them to this new environment (e.g., Knorr Cetina 2009, Burrows and Savage 2014). As similar efforts took place among different disciplines in the inherently multidisciplinary study of the internet, sociology lagged behind. Fields such as human-computer interaction, design, media studies, and anthropology - all tried to solve a variety of conceptual issues given by the new digital life, mainly the perceived tension between the social and the technological.

This has been exemplified by the interdisciplinary attention dedicated to socio-technical features, or *affordances*, intended as both the possibilities for action engendered by digital media and their macro-scale effects (Bucher and Helmond 2018). Affordances embodied, across a number of fields, a way to solve the newfound impasse given by the admixture of technology and sociality (e.g., McGrenere & Ho 2000, Evans et al. 2017, Bucher and Helmond 2018). However, the reasons that lent to the concept such academic fortune concurred to limit it from a sociological point of view. Due to its interdisciplinary origins, affordances have always been considered as composed by social *and* technical components, albeit to different degrees based on their context of use. Even when focusing on sociality, the traces of its lineage as based on non-human actors such as interfaces, buttons, and screens, lingered. Similarly, when abstracted to represent macro-level phenomena, affordances wandered towards techno-deterministic conceptions of sociality.

The conceptual tension lying within affordances is not only relevant per se. Rather, it also aptly reflects a broader hierarchical understanding of sociality as inextricably linked to technology on digital environments (Bucher and Helmond 2018). While this is partly motivated by the necessary interdisciplinarity involved in the study of web and social and digital media, it also extended to more sociological understandings. So, while societies are pervasively being mediated by platforms (van Dijck 2018), how individuals understand and act

on digital environments is still a contested topic. This is exemplified by the struggles to adapt a variety of concepts to said environments, as is the case for the social situation, especially given its traditional focus on face-to-face interaction (e.g., Goffman 1959). Attempts to consider how social situations translate and unfolds in digital societies have been plentiful (e.g., Carter 2016), going from contesting their very nature (Marres 2020) to the introduction of technical components (Knorr Cetina 2009). Such attempts to reframe the concept are powerful tools to understand society. However, they structurally incorporate technical components and infrastructures, have a methodological direction or, more generally, present an analytical focus that intertwines digital, physical, and technical components. This, I argue, substantially limited the ability to consider social action on digital spaces first and foremost.

In this context, a purely sociological conception of affordances has a lot to offer to fill this gap. A sociology of affordances is not only useful insofar as it solves broader tensions about said sociotechnical features. Rather, it also provides a tool to broadly consider social action on digital spaces at large, including how norms, cultural codes, and shared understandings relate to behaviour.

The contribution of this thesis is thus twofold: to contextualise affordances sociologically, and to use such a definition to consider how social situations unfold in digital environments. To this end, I propose a *sociology of affordances*, intended as an analytical framework able to consider social action in online social environments. It considers:

- The ability of affordances to create, structure, and manage social situations;
- Their ability to render visible and negotiable the social norms and cultural codes of said contexts;
- How they can be employed by individuals to affect or enact social action accordingly.

Affordances will be considered as eminently social features: flows of social information (see Meyrowitz 1985) that *affect and engender* behaviour at the intersection between individual, social, cultural, and technical features. Considering affordances socially, as intersubjective and co-constructed, allows to account for the broader social structures that take place exclusively on, as well as those transposed to, digital environments. Considering individual factors, such as affect, literacy, and experience, intends an instrumental use, and alleviates the pressure given by the consideration of a multitude of factors by leaning on the social understandings of individuals. Similarly, it allows to collapse technical features and infrastructures, which become relevant only insofar as those affect social action. The actual workings of affordances are subordinated to the use, deployments, and understandings that actors have of them (e.g., Nagy and Neff 2015, Bucher 2017).

This leads to the second contribution of this thesis. Considering social and cultural codes in relation to affordances entails a consideration for how these are declined into a specific context made of norms, rules, and customs. Sociologically speaking, affordances acquire meaning only when nested into a social situation.

Likes, comments, ties, pictures, messages: their social meaning varies not only based on the individual who deploys them and for what purposes, but based on the platform, on the culture, and on the social relationships those features subsume. Affordances are interpreted *and* instrumentally employed; they structure specific contexts *and* enable action within them. Affordances infrastructurally create digital spaces and, by managing flows of social information within them, allow for a shared definition of a situation, as well as enabling social action within them.

As the study of digital environments is extremely interdisciplinary, it is worth contextualising this work in relation to other disciplines. A sociological approach intrinsically privileges a point of view that is socially shared. This, however, clashes with different conceptions of digital spaces, ranging from the weight given to the technical infrastructures of the internet in Communication and Media Studies, to the social embeddedness of digital platforms in Science and Technology Studies.

Some of these approaches focus on infrastructures and the tangibility of platforms. The former, the physicality of infrastructures, is here intended in a broader sense, such as the possibilities of access to the internet, the nature of bits, or more general macro-scale structural factors. The latter, technical side of platforms, however, has more points of contact with this research. I intend it, broadly speaking, as the ways in which the structure of platforms, apps, and websites affect their individual use, often in relation to their political economy. It is the case, for example, of nudges designed to increment engagement with platforms (such as dark patterns, C.M. Gray et al. 2018), the centralisation of distributed data flows (Gerlitz & Helmond 2013, Helmond 2015, Dieter et al. 2019) or the emotional responses technical structures might elicit (Paasonen 2015). In this context affordances, such as Facebook's feed or the *like*, are not conceptually useful insofar as they represent an interface with Meta's data collection and distribution systems, but based on how they drive interaction at a social and individual level (Wohn et al. 2016, Bucher 2017).

To bracket the technical is not to undermine the importance of technological structures and infrastructures. In fact, the emphasis given to non-human actors aptly underlines the different configurations of agencies present on digital platforms. This is exemplified by an approach often adopted in Science and Technology Studies, that of Actor-Network Theory, which puts emphasis on the agency of technical, social, and cultural factors and their mutual influences (Latour 2005). As will be expanded during the literature review (cfr. Techno-Sociality and Methods), a sociological approach does not mean that the technical is discarded but, rather, that it is seen through a social lens. It will be argued how, by bracketing non-human agencies and technical factors, the focus can be reconducted both conceptually and methodologically on the social understanding of affordances and, in turn, platforms and social media. This leads, from example, to a shift from how Reddit's design, culture, and policies might foster toxic communities (Massanari 2015) to how said groups can interpret, manage, co-construct, and mediate social and cultural norms in online environments.

A similar line of thought extends to the social factors embedded within digital platforms. Social media incorporate specific points of views and ideologies (Marwick 2018), reproducing and reinforcing structural inequalities and reflecting the social understanding of specific social groups (MacKenzie and Wajcman 1999, Noble 2018). This, in turn, leads to specific expectations about how users should behave within specific digital environments (Light et al. 2016), then encoded into the materiality of platforms (Nagy & Neff 2015). This happens at a small scale, such as the change of the favourite button on Twitter (Bucher & Helmond 2018), as well at a more structural level, for example changes in the algorithmic curation of the feed (DeVito et al. 2017). However, it might prove difficult to disentangle technical, social, and cultural understandings: the ephemerality and anonymousness of 4chan strongly drives practices and culture within the platform, in a way that blurs borders within them (Lovink 2019). Here is where a social understanding of affordances can help, as the technical is subsumed into the social. On Reddit, what becomes relevant is not, then, how karma, upvotes, and downvotes, foster social behaviour based on the way in which they algorithmically promote, hide, and sort content. Rather, this research will consider the karma system based on how it is socially interpreted by individuals, leaning on its social and cultural value, and working heuristically for users and methodologically for researchers. The order in which pictures are sorted on a subreddit can thus be subsumed and absorbed by its socially shared, co-constructed, and fluid understanding. The order of pictures of nude bodies on *r/gonewild*, then, becomes the projection of a social world with its own social order and structures (see Esposito & Stark 2019), in turn driving the understanding of users about what is a body, how and when to present it - and *then* driving social behaviour (van der Nagel 2013).

The strength of a sociology of affordances lies in how it allows to emphasize sociality, by unpacking it from technical and infrastructural components. Any feature or cue, then, becomes powerful insofar as it transmits, or allows to flow, social information. To return to a previous example, algorithms do so based on *how* they are socially perceived. This, at once, subsumes both technical and individual factors; if an individual is not aware of how, technically speaking, a feed is ordered, or even of what an algorithm is, it holds no social value for her. Similarly, a tweet could be perceived socially as an utterance, or discarded as a meaningless bot retweeting, or as an ad, as partially based upon factors such as digital literacy or instrumentality. This allows to consider how individuals and groups socially coordinate in digital environments, putting emphasis on social norms and cultural codes. Focusing on the social allows to account for the fluidity with which digital environments are interpreted and employed by different social formations, how imaginaries are negotiated and established, and how social action is enacted within those spaces: it fosters ways to account for social situations on digital spaces. It aims to shed light on how individuals socially infer proper behaviour in relation to individual and social factors. Such a conceptualisation of affordances has methodological implications, as it provides an entry point into situated social and cultural understandings. Taking metrics as an example, it allows to quantify the reception of social action within specific environments, considering how users modulate their behaviour accordingly. Not, then, how views and subscribers concur to the distribution of

content on a platform (Rieder et al. 2018), but how views can be understood by individuals as a popularity index, and how this in turn intertwines with social action and identity-building based on the user (see hipster authenticity, Maly & Varis 2016).

This dissertation begins with a chapter of Literature Review & Theoretical Framework (p. 4). It will briefly outline relevant work concerning affordances since its inception, by drawing on a variety of fields and perspectives. A particular focus will be on the ways in which affordances have been employed to consider sociality at large, particularly in relation to social media and digital platforms; such understandings will be put in relation with the broader tensions between social and technical aspects of interaction, and how these have been addressed both theoretically and methodologically. In turn, this leads to how the heuristics of the social situation has been considered in mediated environments, especially in relation to how it coordinates social and cultural expression. These two components, affordances and social situation, will then inform a broader theoretical framework: a sociology of affordances. Then, this framework will be put in relation with the complex intertwining of physical and digital contexts, and situated as a broader epistemological approach.

The following chapter will outline the methodology driving this dissertation (p. 26). The case study approach will be introduced, motivating the qualitative and quantitative techniques employed, including interviews, discourse analysis, topic modeling, and automated content analysis. Additionally, the choice of the platform and its specific features and characteristics – both technical and cultural – will be detailed. Particular attention will be given to data collection, consisting of an extensive dataset of comments nested into an ethnographic perspective. Closing, potential downfalls and limitations will be presented.

Foreshadowing the methodological section, the case that will drive this research is the website Reddit. A social content aggregator, Reddit is particularly suited to explore the social dimension of affordances due to its combination of features. Firstly, one of its main affordances, the karma system, provides a consistent quantification of the reception of content; in turn, this concurs to visualize the social norms and cultural codes shared by a community. Second, it is structured in subreddits: a massive number of sections, and therefore contexts, sharing fluid and interconnected boundaries with one another. Finally, pseudonymisation and a low technical barrier to contribute on the website provide an apt separation between online and offline contexts, and consequentially limit the transposition of social and cultural factors among them. Part of the focus will be on one subreddit: *r/coronavirus*. Similar to the phenomenon that it has been created to discuss, the COVID-19 pandemic, its emergence has been sudden, exogenous, and transversal to the broader logics of Reddit as a whole. This, among other factors, is central in determining a further disconnection of the subreddit from the existing norms and codes of the platform.

The bulk of this research is composed by three sections, in an article-based form. Each component expands on one of the central themes of the thesis, tackling the issue from different angles. The articles dialogue with

one another, building and validating the concepts proposed: they are connected by a focus on the role of affordances in a variety of contexts, uses, and publics. These sections will lean on Reddit's affordances, with a specific focus on the karma system and its components: upvotes, downvotes, and the karma score; as such they will consider how karma is socially understood by users, how it intertwines with moderation and governmentalities of the self, and how it is employed to navigate complexity. Aside from their empirical contribution, they will underline how a sociology of affordances can be methodologically declined in the context of a digital platform.

The first section (p. 42) will propose the concept of affordance imaginary. It aims to consider how affordances can be socially constructed, going over technical aspects such as infrastructures and features. It will show how they have multiple, shifting social meanings based on individual aspects, such as imagination, perception, literacy and affect, as well as social ones such as context, norms, and structures. It will underline how affordances can make social norms and cultural codes visible and negotiable by users due to their social nature, based on intersubjective and co-constructed imaginaries.

The second section (p. 55) will consider affordances in relation to moderation practices and governmentality of the self. It will show how affordances can make rules and moderation practices visible, both on their own and by visualising the punishment associated with deviant expression. This concurs to regulate social interaction not only in virtue of a top-down exertion of power, but also due to users' internalisation of proper conduct. This leads to users self-regulating behaviour to avoid sanctions, as well as providing discursive tools for users to upend situated social norms.

The third section (p. 68) concerns how affordances can function as flows of social information within a digital environment. It shows how affordances are exploited to navigate uncertainty, allowing for glimpses into different social situations and their situated norms and cultural codes. Users interpret metrics, and affordances at large, as social cues and modulate behaviour accordingly. As affordances are perceived relationally, they mitigate the complexity of navigating complex and fluid environments.

1. Literature Review & Theoretical Framework

Born in ecological psychology by the hands of James Gibson (Gibson 1966), the term “affordance” originally refers to the possibilities for action an environment provides. It rose to prominence as a useful concept in design, as well as in the study of sociality and technology. However, over time its conceptual borders have shifted, and affordances have been invested with differing meanings based on the field of adoption and the subtleties it tried to capture: communication studies, design, human-computer interaction, sociology, psychology – and more. Despite being extensively used, conceptual muddiness seems to cut across all fields (MGrenere & Ho 2000, Bucher & Helmond 2018; Davis & Chouinard 2017; Nagy & Neff 2015, Evans et al. 2017). This led to a series of attempts to uniform its uses, while its malleability means it has been adapted to theoretically include a series of point of views ranging from Merleau-Pontian phenomenology to Actor-Network theory (Blewett and Hugo 2016) and Bourdieu’s habitus (Fayard & Weeks 2014). Despite this vast *repertoire*, affordances lack a sociological interest able to capitalize on sociality without basing it on its pairing with technology.

I begin this chapter by considering the birth and popularization of affordances by the hands of Gibson, Norman and Gaver. After briefly accounting for how affordances have been vested with sociality in a multitude of disciplines, I focus on the history, use, and conceptual takes in the study of digital environments, social media, and platforms.

1.1 The Roots of Affordances: Ecological Psychology and Design

The voice ‘to afford’ in the Oxford English dictionary presents two definitions of the verb: the first describes the most common use of the word – “1. have enough money to pay for.” – followed by: “2. provide or supply (an opportunity or facility)”. To afford is then, lexically speaking, to provide or supply something to someone. Widespread academic interest in the word, however, begins with its transformation into a noun by the hands of ecological psychologist J. J. Gibson (Gibson 1966); more than a mere linguistic transformation, the concept is repurposed, and now links an environment to an actor: "The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill" (Gibson 1979, p. 127). One of the strong intuitions is that of seeing affordances as a relational property, one that exists between a living actor and its surroundings: the environment is not perceived as it is, as a finite element, but is perceived through the possibilities for action that it provides. This definition puts equal weight on both sides – the agent and its surroundings – with affordances laying in the middle of the tracks. The environment is measured in relation to the actor who inhabits it: different species have different possibilities, and perceive only those upon which they can, in different ways, interact. The same object therefore can project (or afford) different actions based on the context, the environment, and the actor’s perception and intentionality. A tall chair might afford

sitting to an adult, but not to a child; conversely, a small hole in a fence might afford passage to a child and not to an adult.

Affordances will then be picked up by Donald Norman (Norman 1988) and recontextualized for design studies, paving the way for its application, years later, in relation to digital environments. The relational nature of the psychological definition gives way to a more instrumental understanding, ascribing to (designed) objects the ability to guide behaviour: “Affordances provide strong clues to the operations of things. Plates are for pushing. Knobs are for turning. [...] When affordances are taken advantage of, the user knows what to do just by looking: no picture, label, or instruction is required.” (Norman 1988, p. 9).

The result is a concept less focused on the interdependence of an actor and its surroundings, and leaning more on the agent (user) and the abilities of an object to project its potential uses. This is underlined by a shift in how perception factors in: while for Gibson affordances are always present – even if not perceived – Norman differentiates between affordances and *perceived affordances*; the latter are those that can be perceived, and therefore be acted upon.

Both concepts bring something to the table when considering digital media: a relational approach is useful in alleviating the tension between human and machine, while Norman’s emphasis on designed cues neatly fits the move to digital environments. However, it is Norman’s take on affordances that will propel its popularization: by moving it closer to disciplines tangent to design, it became a central concept in Human-Computer Interaction and, later, communication and media studies (Zeilinger & Scarlett 2019). Regardless of the field, sociality has historically been present in the conceptualization of affordances. After all, “the richest and most elaborate affordances of the environment are provided by other animals and, for us, other people.” (Gibson 1979, p. 67).

1.2 Affordances and Sociality

Efforts to consider social action in the context of affordances, then, start with the very birth of the term: “What other persons afford, comprises the whole realm of social significance for human beings.” (Gibson 1979). This social facet however is just mentioned: in environmental psychology the focus is on individuals, thus for Gibson “the perceiving of what another person or other persons afford, or sometimes on the misperceiving of it” (Gibson 1979, p. 135) guides behaviour. It is based on co-presence, on the perception of the senses; but senses can be extended through media, and this extension often has effects given by their ability to mediate reality (McLuhan 1964, Couldry and Hepp 2016). As will be shown, affordances might help in balancing technology and sociality in mediated contexts.

Sociality will be tied to affordances across different fields. Starting from ecological psychology, *social affordances* are intended as cues from individuals to which an actor reacts, both directly - e.g., body language - and environmentally - e.g., slamming a door (Loveland 1991). Broadly speaking, affordances “reflect the

meaning of human activity for other humans” (Loveland 1991, p. 101) including both symbolic and non-symbolic behaviour. The focus is on how humans can coordinate, implying a shared – social - awareness of the surrounding environment. It factors in cultural and social contexts, for example by considering how “gestural systems are embodiments of a socially shared environment, of relationships between a group of people, their environment, their skills and their perceptions” (Reed 1988, p. 122). Psychological approaches focus on perception and affordances in a way that underlines their cultural and social link, but also focus on the physicality of gazes, touches, and, in general, the embodiment of agents and the physicality of their surroundings (see Valenti and Gold 1991; Heft 2001). While this makes it challenging to unpack and translate the concept to different contexts, it provides a rich starting point to consider perception in relation to social and cultural factors in a shared, relational, environment.

Parallel to it, another interpretation of *social affordances*, one rooted in Human-Computer Interaction and Design, will gain popularity as propelled by William Gaver (see Hogan 2009). Gaver picks up the question of sociality, while focusing on affordances and perception. He differentiates between *perceptible* and *hidden affordances*: individuals can only act on what they perceive, and “the actual perception of affordances [is] determined in part by the observer’s culture, social setting, experience and intentions.” (Gaver 1991, p. 81). This introduces sociality to affordances, as he calls for more attention on the material environmental shaping social interaction (e.g.: architectural design, akin to Foucault 1975); furthermore, specifically mentioning the digital, “the properties of email systems may not *determine* the communities that eventually form around them [...] but they strongly *constrain* the cultures that might develop” (Gaver 1996, p. 8). As mentioned, Gaver will concur to pave the way for *social affordances* in fields closer to Human-Computer Interaction and Computer-Mediated Communication, where they will come to represent “the relationship between the properties of an object and the social characteristics of a given group that enable particular kinds of interaction among members of that group” (Bradner 2001). This is the first step in underlining the social factors involved in digitally mediated interaction where, for example, the social affordances given by video sharing are both technological – *visibility* – and social - *social accountability* (Bradner 2001, p. 68).¹

By considering the “complex social dynamic of groups”, Bradner points towards a sociological understanding of affordances, which will be further developed at the intersection of Communication Studies and Sociology, for example to study the impact of the internet on communities (Wellman et al. 2003) and on the intertwining of online and offline social networks (Boase 2008; Hogan 2009). Here social affordances lie between the possibilities a communication media provides, and the peculiarities of the social ties that are created in this way; it is useful to consider “the intrinsic properties of communication technologies [that] may factor into their adoption and use, without making the technological deterministic assumption that these properties directly impact on users” (Boase 2008, p. 493). While not in the tradition of social affordances, Davis and

¹ As a testament to the fluidity of affordances, years later Peter Nagy and Gina Neff will point at their overemphasizing of the social in the context of communication theory (Nagy & Neff 2015).

Chouinard identify the cultural and institutional legitimacy as a relevant factor, as “The push and pull of an artifact rests partially on the structural position of the subject with whom it relates” (Davis & Chouinard 2017, p. 6).

Overall, social affordances have been used to refer to the relationship between technologies, interaction and social context, to point at how social norms, knowledge and media literacy can affect interaction (Bradner 2000; Kreijns 2002; Hsieh 2011); to consider how the technological features of a communication medium can be employed by users in a socio-instrumental way (e.g. globalized connectivity fostering long distance relationships, Wellman et al. 2003); or implemented as the cues of social environments (Hogan 2009). Of these authors, Hogan offers the most extensive – and sociological – conceptualization, where social affordances are “the perceptual cues that connote aspects of social structure to individuals thereby creating a functional difference for the individual” (Hogan 2009). The focus on perception and agency places it in continuity with Gibson’s tradition, while an effort to consider it as a broader theoretical framework (i.e.: one that accounts for face-to-face as well as mediated interaction) allows him to introduce space and time (spatial and temporal affordances), foreshadowing some reflections about what constitutes a situation in digital societies (Jurgenson 2012).

Attempts to conceptualize sociality, however, were not limited to the tradition of social affordances, and were certainly not rare. In fact, according to some, affordances in some case might lean *too much* on the social, while undermining technological and infrastructural constraints. This is true for what concerns communication theory, where “affordances, ironically, most frequently refer to what users and their sociality get from a technology” (Nagy & Neff 2015, p. 2). Similarly, sociologist Ian Hutchby slightly pushes back against what is considered as social constructivism, arguing that we can “become too fixated on the social shaping of technology at the expense of an equally pressing, though differently framed, concern with the technological shaping of social action” (Hutchby 2001, p. 17). While these represent aptly aimed critiques at the intersection of sociality and technology, they are arguably nested in a context which tends to privilege broader conceptualizations (e.g., macro level) and more theoretically driven approaches (social constructivism or technological determinism?). In what aims to be a sociological consideration, it is more useful to focus on a subjective point of view and an empirical focus, rather than on theoretical entanglements and on high-level phenomena. Therefore, approaches that distribute agency, be it to other human actors (such as designers, see Cirucci 2017) or non-human actors (e.g.: Actor-Network Theory, see Callon & Latour 1981), overemphasize technology for what concerns social action.

Despite distinctly different angles, conceptualizations, and fields of use, *social affordances* introduce an emphasis on sociality: a context made of norms, cultures, and structures intersects with an individual’s instrumental social action, knowledge, skills, and abilities. A sociological conception of affordances on social and digital media cannot be exempted from these considerations, and regardless of a focus on media, an

emphasis on social networking, and a lack of operational clarity, social affordances provide a rich starting point to consider social action and how situations are defined, understood, and collectively mediated in digital contexts.

1.3 Affordances and Social Media

In some fields the tension between Norman's and Gibson's definition of affordance splintered the research community (McGrenere & Ho 2000). This, to some extent, concerned social media studies as well. Bucher and Helmond identify two main uses of the concept: high-level and low-level, the former describing "dynamics and conditions enabled by technical devices, platforms and media" (Bucher & Helmond 2018, p. 12), the latter considering technical features of a platform and its interface, such as Twitter's feed. This fragmentation is partly due to different objectives: a high-level conception allows to extend findings, going over a specific platform (Ellison & Vitak 2015), while a conception of affordances as features allows to delve deeper into uses, norms and individual understanding of mediated social action (Hayes et al. 2016). danah boyd points at high-level affordances of social networks such as persistence, replicability, scalability, and searchability (boyd 2011); conversely, a low-level approach sees discrete features as affordances (e.g., Twitter hashtags; Rathnayake & Suthers 2018).

The dynamic nature of digital platforms, however, provides an environment in which both Gibson's and Norman's ideas of affordance can be harmoniously integrated. The tension between the social and the technological, the designed nature of social media, the intertwining of norms, rules and conventions, the increasingly digital nature of social life: all these factors require to balance between non-natural environments, broader social factors, and individual understanding. Therefore, while this conflict between micro features and macro dynamics has been resilient across fields (Evans et al. 2017, McGrenere & Ho 2000), in social media sites and platform research it occasionally finds relief (Bucher & Helmond 2018; Ellison and Vitak 2015). An example of such a combination of perspectives is Postigo's approach to affordances (Postigo 2016): in his study of user-generated content on YouTube, he starts from technical features (e.g.: the subscriber system) to then abstract to a technical affordance structure, or how the platform allows for the distribution and circulation of content, as well as using social affordances to frame the community dynamics that this structure engenders.

Aside from this duality, in a sociological context it is relevant to consider affordances as social constructs. Following Gibson's tradition, a relational perspective situates affordances *between* the materiality of an environment and the actor. Furthermore, leaning on perception allows to consider needs, culture, norms, and literacy: that is, a technological artefact has a bundle of features that can be acted (or *not* acted) upon for different purposes and with different outcomes (Faraj and Azad 2013). The *like* function of a digital

platform can afford social support among peers (or lack thereof, see Hayes et al. 2018), as well as constitute a form of labour (Gandini 2016), as based on instrumental uses.

Focusing on sociality brings with it a series of questions. That is, what actors should be considered? At what scale? The conceptual malleability of affordances brought its application to different levels, such as the study of organizations (Treem & Leonardi 2013; Wellman 2001), or the broader impact of mobile media (Schrock 2015). Concerning individuals, different use of affordances led to the focus on different aspects. For example, affordances and features have been explored in relation to gender (Schwartz & Neff 2019), ethnicity (Cirucci 2017) and geographical and cultural contexts (Costa 2018).

Focusing on perception, culture, norms, and customs, however, benefits from a micro point of view. This requires going over sheer instrumentality, to consider emotions and affect (Weber 1921), through an empirical focus on practices (Costa 2018) or through first-person accounts of sense-making (McVeigh-Schultz & Baym 2015). Nagy and Neff (Nagy & Neff 2015) propose the concept of *imagined affordances*, which takes into consideration expectations, beliefs and emotional responses that emerge “between users’ perceptions, attitudes, and expectations; between the materiality and functionality of technologies; and between the intentions and perceptions of designers.” (Nagy & Neff 2015, p. 5). Their contribution is particularly relevant, as it aims to include affect, perceptions, emotions, and expectations built around technologies by actors (both users and designers). Furthermore, focusing on perception allows them to consider for a peculiarity of digital environments, their dynamicity: “users need to *explore* mediated environments socially, culturally and cognitively before they can use them effectively” (Nagy and Neff 2015, p.6. Italics added).

This focus on agential action and exploration is not new in the context of affordances: Gibson’s relational ontology links agency and perception; exploration is considered in *sequential* and *nested affordances* (Gaver 1991), applied to studies on the web (Wellman 2001), and more recently in the scholarly debate on social media and affordances (Bucher & Helmond 2018). Considering affordances as possibilities for action requires to account for their dynamicity as well, for example by considering the degree to which they allow/constrain action instead of a “false binary” (Davis et al. 2017). Furthermore, the perceived environment changes as individuals make sense of communicative practices at different levels: considering infrastructural context (e.g.: signal reception), and an ecology of features, interfaces, platforms, and devices (McVeigh-Schultz & Baym 2015) which takes into account the different interfaces that users encounter on platforms (Bucher & Helmond 2018), and the distribution of said platforms across the web (Helmond 2015; Gerlitz & Helmond 2013).

Overall, while affordances have been invested with more social or technical value based on the context, those have always been intertwined. This is partly due to the history of the term and how it paved its way into several fields, making these two dimensions difficult to untangle; even when focusing on sociality and perception, traces of this genealogy reflect in a consideration of non-human actors, in accounting for design

elements, or in the social embeddedness of how features are created. Affordances have also been considered by leaning on a broader understanding of their effects, often pointing at macro-level influences rather than individual understandings and practices. While these are all relevant dimensions, the application of the term to digital environments opens new possibilities for a purely sociological consideration of affordances. This means considering individual peculiarities, social contexts, and how they combine to guide social action on digital platforms and social media by creating and maintaining situations.

To account for how social action is expressed through affordances, here I will consider affordances as low-level technical features of digital platforms and social media such as buttons, comments, or character limits (Bucher & Helmond 2018). This includes features that entail some level of agency, such as algorithms, as well as affordances that are activated individually (e.g.: a friend request) or collectively achieved (e.g.: metrics, such as the number of friends). Here affordances will be defined as *any feature that can directly or indirectly be employed for or affect social action*. This means a comment is an affordance to the extent that it is expressed or understood as a social act. However, this entails some contradictions. An individual might share her listening habits on a music streaming platform, but other users might not perceive it or interpret it as socially relevant – or might not even be able to see it based on the device in use. This is because affordances acquire sense based on the context in which they are located. Their meaning is not purely individually derived, but it is intersubjective and collectively built.

Following this understanding, I propose that in order to develop a sociology of affordances, that is, a conception which puts to the forefront the understanding of socio-technical features and platforms, their co-construction, and their ability to create, project, mediate, and maintain, cultural and social contexts, three dimensions must be considered: 1) how affordances relate to social and cultural contexts; 2) their intertwining with the visibility of social norms and cultural codes, and 3) how they can affect social action. The main assumption is that affordances have a shifting, socially constructed, and negotiated meaning; they can be employed to socially act based on the context, which in turns takes place at the intersection among platforms, data, and practices. Affordances, then, are relevant not only because they make sociality and culture visible, but because the very visibility of these norms and codes implies their shared and fluid nature.

In the following chapters this threefold conception of affordances will be expanded, starting by considering how the tension between the social and the technical on digital platform and social media has been accounted for in current scholarship.

1.4 Techno-Sociality and Methods

Affordances reflect broader epistemological and ontological tension concerning the distribution of agencies among platforms, practices, cultures, users, tools, methods, and data and traces. This tension, between the social and the technological, is a *leitmotif* in digital sociology, in the study of digital platforms (to some extent

embedded in the term, see Gillepsie 2010, Bogost & Montfort 2009), and well before that in science and technology studies - and more (see Marres 2017, van Dijck 2018, MacKenzie & Wajcman 1999). Some efforts try to unpack this tension methodologically, amidst broader reflections around whether digital media and social media sites foster the adoption of new methods or the adaptation of established ones (see Burrows and Savage 2014, Ruppert et al. 2013, Venturini et al. 2018). Among the former is the digital methods paradigm (Rogers 2015), inviting to consider the Internet as a source of new methods to study society, and doing so by exploiting the specific characteristics of platforms and the digital traces of individuals (or “follow the medium”, Rogers 2015). As a highly impactful paradigm, digital methods will inform several new outlooks, such as interface methods (Marres & Gerlitz 2016); as such, it aims to untangle sociotechnical clusters by accounting for biases, convergences, and specificities of methods and platforms, leveraging on them at the intersection between research design and methodology:

“Rather than conceiving of technology and methodology as operating on separate levels, interface methods invites us to approach digital research design and methodology as a relational task, one which requires us to establish relevant and generative connections between specific methods, instruments, techniques, research questions, sociological concepts, and so on.” (Marres 2017)

Interface methods shine a light on the epistemic implications of social media sites and their digital nature. This allows to consider for biases embedded at a platform level, such as an emphasis on positive social action on Facebook (Bucher 2012), as well as a consideration for how methods might be structurally embedded into social media sites. Proportional measures such as the frequency of Twitter hashtags, for example, might underline platform logics, while relational ones, such as the co-occurrence of hashtags, cut through this to put an accent on the issues laying within the same data (Marres & Gerlitz 2015). Notably, this does not only account for specificities of the technical features of its context, but for how this intertwines with practices as well; keeping Twitter as an example, the morphology of the platform promotes content based on frequency, leading users to consciously follow platform logics – i.e.: retweet– to enhance the visibility and reach of content. In a similar way, the *device perspective* “links the medium specificity of the platform with the social arrangements and cultural practices that the platform incorporates and enables” (Weltevrede & Borra 2016, p. 12). By drawing directly from the tradition of affordances, considering device culture means to consider the practices and uses that surround the socio-technical features of a platform, and how this might affect generated data. On a more general level, a relational ontology allows to consider for the agency of human and non-human actors, one of the tenets of Actor-Network Theory (Latour 2007). Through a “situated methodological configuration” (Gerlitz & Weltrevede 2020, p. 355) ANT might help, for example, to unravel the manual-automated continuum of practices on Twitter. As such, it informed approaches such as Walkthrough Methods (Light et al. 2016), a step-by-step browsing of apps aiming at considering how affordances embed a cultural view, and how this in turn affects behaviour.

These points of view are relevant, as they ascribe a certain level of agency to the technical components, especially affordances, going over a purely infrastructural conception of them. This allows to consider their social implications: how they affect behaviour not only in virtue of their structural capacity (e.g.: Gerlitz & Helmond 2013), but in virtue of their social and cultural power. Taina Bucher describes this, in relation to algorithms, by proposing the concept of *algorithmic imaginary*, which outlines how feelings and perception can alter social action on digital platforms (Bucher 2017). Algorithms are a particularly fitting example to underline the social agency of technical features. When compared to other affordances, algorithms are both pervasive *and* concealed (a black box society, see Pasquale 2016): despite their massive effects, they are difficult to conceptualize by individuals (leading Gran et al. 2020 to speak of an algorithmically driven digital divide). Furthermore, social behaviour and algorithms affect each other recursively, in what might concur to obscure algorithmic processes related to the distribution of content. Despite this complexity, individuals approach algorithms differently based on individual characteristics: social and cultural specificities, such as education or nationality, affect how algorithms are perceived and acted upon (Siles et al. 2020, Bishop 2019).

These approaches devise methodological solutions to unpack digital assemblages and practices composed by technical, social, and cultural components. They do so by intertwining the specificities of platforms to their understanding by users and to practice, while more or less explicitly tying them to affordances. They differ in what elements they focus on, as based on different objectives: focusing on untangling human and non-human actors necessarily puts emphasis on technological feature, while approaches leaning on culture ascribe more weight to the social and discursive power of affordances. However, focusing on the sociotechnical explicitly or implicitly embedded within a platform does little to inform about how and why individuals express themselves socially, especially for how these dimensions intertwine with the perception of digital spaces, social structure, and culture. Similarly, technical components and infrastructures have an agency that is not exclusively self-contained, but takes place relationally, at the intersection between an individual and the technical features of a platform.

These methodological approaches can be extended to affordances, to solve the tension between social and technical in a way that is functional to sociological concerns, by forgoing non-human actors, designers, and the social and the cultural codes embedded within specific platforms. This is not an attempt to forgo the agency of technical and infrastructural features, or the social element that drive them. On the contrary, it aims to simply move all of these at an individual level, by focusing on how these elements are socially perceived and on how they might affect sociality. Here affordances can help, as they already embed a focus on perception (Gibson 1977) and are, therefore, suited for a more comprehensive understanding of technical and social aspects as empirically separated entities rather than a continuum. Affordances can be exploited: by deconstructing their perception at an intersubjective level, they can function as an entry point into digital spaces, unearthing their cultural codes and social norms.

1.5 The Social Situation

Considering culture and social norms requires to restrict what can be considered. What can be expressed, how and by whom, varies greatly based on a series of factors, such as contextual norms and codes. This means that aside from considering a specific platform, it is also necessary to consider a specific context: the social situation that guides interactions within it. The concept of situation, in its conception, referred to how any act is preceded by a definition of the situation: this subjective assessment guides the action and the behaviour of individuals and groups (Thomas 1923). This concept will be further expanded by the Chicago School, to address how a subjective definition can guide and limit behaviour (Park and Burgess 1924; Bakker 2007). Years later it will coalesce into the basis of the self-fulfilling prophecy, as applied to objective social structures (Merton 1948). Eventually, it will become a central tenet of symbolic interactionism, where situations are interpreted by actors based on social interaction, ultimately guiding behaviour (Blumer 1969). Erving Goffman will then focus on situations in the context of the study of face-to-face interaction, to some extent distancing himself from the interactionist tradition with which he and the situation have historically been associated with (Collins 1994). Goffman tackles the social situation in different ways, ranging from a dramaturgical perspective (Goffman 1959) to frame analysis (Goffman 1974), against an almost structuralist background (Gonos 1977). This is partly reflected in the lack of under determinacy that usually accompanies the study of situations in symbolic interactionism, their uniqueness supplanted by a shared “distinctive ethos, a spirit, and emotional structures” (Goffman 1964, p. 19). The intent to find general principles guiding mundane and everyday interactions, their order, will be central to Goffman’s work (Gonos 1977). It will take several forms: those of rules and roles of self-presentation mechanisms, the frames mediating between an external world and the individual, or the broader argument for the study of an interaction order (Goffman 1968, 1974, 1983). In the latter, a social situation entails “shared cognitive presuppositions, if not normative ones, and self-sustained restraints” (Goffman 1983, p. 5): the emphasis is on the collective co-construction of the ‘traffic rules’ that produce stable interaction. Cultural factors and experience concur to the intersubjective definition of the situation, by drawing from shared and somewhat stable norms. These norms allow for the social attributes and status of participants to transpire, effectively locating the individual into a broader social structure affecting interaction (for example by trying to guide the definition of other participants):

“Presumably, a ‘definition of the situation’ is almost always to be found, but those who are in the situation ordinarily do not need to create this definition, even though their society can be said to do so; ordinarily, all they do is to assess correctly what the situation ought to be for them and then act accordingly” (Goffman 1974, p. 1).

The social situation then is intended as fluid and intersubjective. It incorporates both individual aspects such as culture and experience, as well as individual positions in relation to broader social structures. Goffman’s

approach to the situation is particularly fit for digital environments, in part due to Goffman's original focus on interaction: while this allows to account for the digital, it also embodies an emphasis on co-presence. Interaction, and therefore social situations, are "relatively circumscribed in space and most certainly in time" (Goffman 1983, p. 3). Co-presence makes possible coordination and informational flows among participants, as the awareness of this flow makes the co-construction of shared social situations possible (Goffman 1964).

1.6 Situation and Mediated Environments

However, the way in which information flows and spaces for interaction are constructed changes. Despite the advent of electronic and digital media, relatively little micro-sociological focus has been dedicated to mediated interaction before the advent of digital media (Rettie 2009). This has been fostered by a "compulsion of proximity", underlying a widespread conception of how face-to-face interaction might afford more information and situational awareness when compared to mediated contexts (Boden and Molotch 1993). This was the case for traits perceived as mostly linked to physical contact, such as maintained continuous attention towards a common goal. The ability of mediated contexts to project a shared focal point, however, is shaped mostly by social expectations and practices (Rettie 2005). Building on Goffman, Ito & Okabe (2005) underline how mobile phones can alter definitions of co-presence, creating new social practices and altering existing ones; this constitutes techno-social situations in which devices contribute to create an augmented sociality with "mediated" participants. The tradition of building upon Goffmanian concepts intertwining it with media (mostly related to self-presentation, e.g.: Dewar et al. 2019; Van Dijck 2013; Ditchfield 2019; Hogan, 2010) and their capabilities to extend human senses (McLuhan 1967), sees perhaps its most incisive application in *No Sense of Place* (Meyrowitz 1985): here mediated contexts are situations based upon "patterns of access to [social] information" (Meyrowitz 1985). Albeit applied to electronic media, to consider both mediated and face-to-face situations as part of a continuum rather than a dichotomy is a most relevant intuition for digital media, foreshadowing by several years a digital dualism (Jurgenson 2012), and the capabilities of new media to "restructure a broad range of situations and require new sets of social performances" (Meyrowitz 1985, p. 39).

Electronic media, then, allows to structure social situations in ways that go over physical co-presence as a foundational point. Physicality was seen as a necessity due to the need for a shared flow of information, located both in space and time; the infrastructural capabilities of electronic media, however, allow for a shared flow of information capable of radically altering and restructuring social situations. This will become more apparent with the advent of digital media, leading sociologist Noortje Marres to state how "What counts as a situation – its very composition – may be undergoing transformation in digital societies. [Calling] into question a long-standing assumption of qualitative studies of social life, namely the idea that the 'face-to-face situation' is somehow fundamental and logically prior to mediated and/or distributed situations." (Marres 2017, p. 134). With similar calls echoing from symbolic interactionism (Carter & Fuller 2016) to

sociology of work (D'Ovidio & Gandini 2019), several approaches tried to deepen both theoretically and methodologically how social situations might be changing in digital societies.

Reflections about the social situation, however, are not only rooted in its newfound digital nature. Adele Clarke will propose *Situational Analyses* (2003) as a way to deal with the increasing complexity and fragmentation of social contexts and situations.² Her research is rooted in the postmodern turn of the social sciences, but some of these reflections echo what will become central considerations in the study of digital platforms: it is the case for a consideration for both human and non-human actors, the fluidity and lack of boundaries of contexts, and the ability to consider variations and contradictions as central in determining the understanding of contexts. This translates into an empiricist approach trying to determine what actors, concepts, and components are relevant in a given situation. Similar doubts are partly tackled by the concept of the synthetic situation (Knorr Cetina 2009, 2014). At the heart of the synthetic situation lies an effort to determine how individuals can globally coordinate without physical co-presence at an interactional level. Screens and devices help in this, as they become constitutive components of a social situation: they aggregate, sum up, and in some cases process, information that is then presented to individuals. In this way these synthetic components can provide contextual information augmenting physical situations (e.g.: traders talking with an eye on market movements) or structuring entirely new ones made exclusively by on-screen projections (Knorr Cetina 2009). This ontological fluidity allows to forego the focus on spatiality that characterized the social situation, as individuals coordinate by exploiting these scopic components to build a shared information flow (Knorr Cetina 2014). Aside from changing the weight of co-presence and physicality, this opens up possibilities to consider human and non-human actors as well as their perception. For example, the price presented to the trader mentioned above is composed by algorithmically aggregated human (and non-human) inputs; the algorithm structures information (e.g.: aggregating and averaging the price) and builds a symbolic entity, an aggregate of participants, for the individual to interact with: the market. Such an approach considers how technological components can participate in structuring a social situation while affecting its definition and unfolding, creating a “thick context that situates individual activities, emotional commitments, and interpretive frameworks” (Knorr Cetina 2009, p 69). Noortje Marres starts from similar premises about the situation, and builds up from Clarke to propose *situational analytics* (Marres 2020): a methodological approach to analyse situations in computational settings. This tries to oppose the claims of the generalisability of situations and contexts as put forward by computational social sciences, and furthers Clarke’s situational analyses by promoting an interpretative approach that can account for the effects of infrastructure, media, and devices. This not only makes it possible to account for the tension between social and material, but actively tries to methodologically involve platform and media-specific architectures. A platform like YouTube, then, becomes relevant insofar as it “enables situational modes of

² As noted by Marres 2020

reporting” (Marres 2020, p. 8); this is relevant to understand how and by what entities situations are composed in computational social settings. More generally, it provides a valuable insight into how platforms can take part into structuring and defining social situations.

These approaches provide useful insights into how to consider a social situation in digital environments. An ontological fluidity allows to consider how different screens, devices, and platforms are interacted with within a broader ecology of practices and media, giving weight to the non-human actors that structure the flows of social information. However, to account for a platform is to account for the affordances of a platform, its embedded cultural codes, and the practices taking place at this intersection. It is possible then to consider a social situation as being structured through media, both as a continuum between the physical and the mediated, such as teleconferences, and in an entirely digital scenario, such as in digital platforms. Individuals contribute to the structuring of a social situation, in ways that may be direct (e.g.: a video call) or processed by non-human actors (e.g.: algorithms coalescing several social acts into a score).

However, these definitions partially focus on the physicality of objects. This includes both the prominence of screens and devices rather than what they represent, as well as an emphasis on infrastructural or technological layers (e.g.: mobile phones, electricity). This is partly due to the interdisciplinarity of the field and/or by a focus on methodological considerations; mostly, however, it is due to different analytical foci. While the most relevant contributions focus on how the situation might change in digital societies, in this thesis it is not relevant to consider the ontology of situations. Rather, I will consider how their *definition and unfolding might change: how the intersubjective co-construction of social situations takes place in digital environments*. This entails prioritizing how social cues and markers are perceived and collectively mediated, how those vehicle social information about an individual and its embeddedness into broader social structures, and how they ultimately guide behaviour. This approach tries to further reflections on the constitution and unfolding of social situations in digital societies. This however leads to other questions: if social situations can take place in mediated and/or digital environments, how do individuals coordinate within them? How do they arrive to a shared definition of a situation? In short: how do individuals know “what is it that’s going on here?” (Goffman 1974, p. 8) in such fluid and complex environments? To solve the difficulty of coordinating in “semi-situations” (Marres 2020), characterised by an informational “muddle” (Knorr Cetina 2014), individuals work with what they can perceive and act upon. In digital environments and platforms, physical coordination is replaced by the sociotechnical structure of platforms, as individuals coordinate through them. I argue for the necessity of a microsociology of social situations on social media spaces, leaning on affordances.

1.7 Cultural and Social Contexts

When considering different affordances (intended as socio-technical features, i.e.: low-level) it becomes a necessity to differentiate between them. Some affordances are static and up to interpretation (e.g.: the like button; Hayes et al. 2018), others are dynamic and tailored for individuals (e.g.: Twitter's feed, or a recommendation algorithm), while others are dynamic, but they are co-constructed and thrive on intersubjective meaning (e.g.: TripAdvisor's rankings, or metrics; Espeland & Sauder 2007).

Complicating the matter further, these dimensions often intersect, and can be the result of mediation and iteration between each other and the user, who in turn brings its own imagery and cultural norms to the table. As an example, Reddit's karma system algorithmically structures the visibility of content; while algorithms order the feed, the popularity of content is quantified by displaying metrics (the karma score) next to every submission. Algorithms and metrics here intertwine and influence one another: a high score fosters visibility, in turn promoting more upvotes, in turn promoting content further, and so on and so forth (see Muchnik et al. 2013). To complicate things further, this mechanism guides individual understanding of social and cultural norms of the platform, affecting how users and groups socially interact within it (Massanari 2015; Gaudette et al. 2020); in addition to this, the score is algorithmically altered in an attempt to obstacle voting manipulation (Reddit 2020). Considering features, such as algorithms, as having their own agency (Latour 2005) does not solve the question: to *what extent* such an affordance is a social actor? And how does it intersect with other socio-technical features?

A way to solve this impasse is to lean on perceptual information. Focusing on perception allows to collapse the problems given by a fluid environment: static, dynamic, and mixed features of platforms can be understood in the way in which they affect social action, both rationally and affectively, as related to a social human actor. To take into account the dynamicity that keeps the digital environment in motion, as in the case of the algorithms, is then to consider the imagery surrounding them (Bucher 2017; Nagy & Neff 2015), their discursive and structuring social power (Beer 2017), and specifically how this understanding affects social practices (Airoldi 2020; Shepherd 2020). While this might seem an overly subjective and interpretative direction, affordances reflect the presence and understanding of an intersubjective reality. Algorithms are not only technical features, but by aggregating different inputs they create a symbolic world: a representation of a broader, shared, co-constructed reality aggregating different social acts in a specific context. The exchange rate of a currency is an algorithmically generated number: an aggregate of supply and demand, in turn composed by individual acts of buying and selling (Knorr Cetina 2014). It is constructed by a multiplicity of human and non-human actors: it is collectively built but guides individual behaviour.

Metrics can be considered in a similar way. Esposito and Stark argue that rankings and ratings function as an explicit reference point that, if paired to a reference audience, can help navigate social worlds (Esposito & Stark 2019); they reason mostly in terms of lists such as the Michelin guide or, similarly, TripAdvisor, but the

principle aptly applies to the feeds of digital platforms. The point to take away is how metrics “provide an adequate and reliable description – not of an objective world shared by everyone, but of the specific world created by the rating and observed by its observers” (Esposito & Stark 2019). Broadly speaking, these are processes of quantification: the creation and communication of numbers, a form of “social action that [...] can have multiple purposes and meanings. Only by analysing particular instances of quantification in context can these purposes and meaning be revealed.” (Espeland & Stevens 2008, p. 405). At a social level, measures can affect, create, and engender social boundaries (e.g.: the census), guiding social behaviour (Espeland & Stevens 2008). This holds especially true for commensuration, the representation of different qualities through a common metric, which renders different objects (or rather, their representation) comparable (Espeland & Stevens 1998). Aggregation however implies some processing. How to coalesce data into a shared measure, and, even before that, what aspects of the world to render visible and engender, is relevant. When this is applied to digital platforms, it underlines their role in constituting social worlds; furthermore, it opens up reflections on their agency in ways that go over their affordances and structural aspects. What data is collected, how it is collected, if it is shown, if it is aggregated and how – all of these are relevant aspects, and point to how platforms are driven by their political economy, data practices, and social embeddedness (van der Vlist 2016).

Combining the understanding of affordances as creating social worlds on one hand, and as being partially up to social interpretation and co-construction on another, provides a powerful tool to understand social interaction in digital spaces. Let us return to Reddit and the karma system for a moment. In this instance, metrics, algorithms, subreddits and all the other features involved in the platform construct an intersubjective social reality. A subreddit creates an audience, while algorithms and metrics, ordering and quantifying the “feed” of the subreddit – for both content and comments – effectively create a ranking. In a platform that is difficult to navigate, with a set of intertwining rules differing from the broad website to clusters of communities, and down to norms of specific subreddits (Chandrasekharan et al. 2018), socio-technical features provide a way to navigate this complexity. In this instance, then, users leverage features such as a content’s score to understand the social and cultural norms of a mediated social context (i.e.: they concur to a *definition of the situation*), for example by adapting to which type of self-presentation is deemed most appropriate in a specific context (Kennedy et al. 2016; Horne et al. 2017). Concurrently, other features such as upvotes and downvotes are employed to promote content deemed as worthy of visibility (Gaudette et al. 2020) or push what is deemed unworthy into oblivion (see Bucher 2012). When taken together this might lead, for example, to the intersubjective negotiation of an ideal body type in communities dedicated to intimate image sharing (Kennedy et al. 2016). This underlines a necessity to have a platform specific approach that is not limited to technical and infrastructural feature: not only what affordances a platform has, but how they are understood and used by a situated community. Rieder et al. (2017) consider this when conceptually shifting from ranking algorithms to ranking cultures, to account for the different agencies

involved, including specific communication practices, media formats, and types of content (Gibbs et al. 2015; Marres 2020).

By adopting such a sociological understanding of affordances, it is possible to further shed light on their interplay with social action. Affordances can engender specific social situations and guide their definition by individuals; yet, their meaning is co-constructed, as they reflect intersubjective and collectively mediated social norms and cultural codes. Socio-technical features can partly create and manage a multitude of social worlds, each with its own norms and culture.

1.8 For a Sociology of Affordances

There is a need for an analytical framework better suited to understand social sense-making in an increasingly digitalized society. I propose a sociological understanding of affordances to fill this gap. This approach considers affordances as low-level features and platform-specific, in relation to how they guide social action by mediating between agency and structure (Hogan 2009). It considers digitally mediated interaction, and leverages on perception to account for how the intersubjective norms and codes are negotiated and engendered. Affordances, however, acquire this meaning only when nested into a context that can affect interaction: that of a social situation. Consequently, I propose to account for social situations on digital platforms and social media by considering the role of affordances in creating, mediating, and maintaining interactions in digital environments.

Previous work on affordances considered culture and literacy, empirical, bottom-down approaches, and had a sensitivity to micro-level analysis. However, the main focus seems to be on macro-level conceptions of sociality (what a medium affords for sociality at large), somehow stranding away from the relationality that represents the strength of Gibsonian affordances. Conversely when sociality is considered at a micro-level, it is often entangled in technological understandings: even when this social understanding is over-emphasized, it is still in respect to technical aspects. This is represented by a theoretical and empirical focus on a multiplicity of actors. Referring to human actors by considering the role of designers in guiding the interpretation of technical features, underlines the agency of digital interfaces due to their cultural and social embeddedness. Similarly, a multiplicity of non-human actors has been vested with social agency, like algorithms and metrics, considering how the digital environment is structured while forgoing the relationship that the subject has with it - *the relational*. Most of these limits are relative to the grounding of the affordance in fields traditionally not having sociality at its centre, but rather the interplay between technology and society. This tension is implicitly demanding. It demands for the technological and the social to be considered at the same time, grounding affordances in digital or technological contexts and abstracting it from what could be a broader sociological conception. How, then, to consider affordances as eminently social?

Some conceptualizations provide sound steps towards a sociology of affordances. This is the case for a consideration of affect and imagination (Nagy & Neff 2015), the factoring in of social and cultural contexts (Bradner 2000), an empirical focus (McVeigh-Schultz & Baym 2015), or the intersubjective meaning giving social weight to environments (Gaver 1996). Following this tradition, a keen sociological conception of affordances comes from Bernie Hogan, who considers perception and the broader structure to which these cues are linked (Hogan 2009).³ Building from this, a sociology of affordances leans on how they concur to establish and coordinate social behaviour across three areas:

- The ability of affordances to create, structure, and manage social situations.
- Their ability to render visible and negotiable the social norms and cultural codes of said contexts.
- How they can be employed by individuals to affect or enact social action accordingly.

In the first two points, affordances are intended as perceptual cues. Aside from connecting it with the lineage surrounding the concept, it addresses some of its intrinsic limitations; from one side, it collapses the individual: perception is reliant on individual characteristics, solving the problem of affect, imagery, literacy, competences, and instrumentality; on the other, it reduces the environment in relation to an actor, obfuscating non-human actors and the complexities that lie behind platforms, like the dynamicity of feeds, the personalization of algorithms, and the broader ecological system of apps and devices. In this understanding of affordances, algorithms are considered only insofar as they are socially perceived by an individual, without having intrinsic agency: they exist and alter social action only to the extent that they are perceived (or acted upon) to do so. Not, then, the possibilities and constraints that surround these features, but how social norms are reified and perceived through affordances, and how this perception in turn guides social behaviour. Focusing on sociality means focusing on social relationships at large: that is, how markers and cues can concur to determine the position of an actor in relation to a broader structure, be it related to class and income, politics and identity, or socio-demographic variables such as age or gender. This means to consider markers that are exclusive to digital environments, like markers of status (e.g.: Twitter's blue verification check) or datafied social capital (e.g.: Facebook friends), as well as modes of expression (e.g.: lexicon). Furthermore, behaviour might be affected by modes of power taking place exclusively on digital environments. For example, contributions to a web community might be represented by its own markers, such as a badge, or specific social, cultural, and power structures might be exclusive to digital environments (e.g.: moderators and admins): a sociology of affordances might provide a step towards a definition of broader *digital structures*.

³ "The perceptual cues that connote aspects of social structure to individuals thereby creating a functional difference for the individual" (Hogan 2009, p. 27)

Such a distinction does not aim to consider the physical and the digital as two separate entities (Jurgenson 2012). In fact, the subtleties and interplay between mediated and face-to-face interaction, between physical and exclusively digital markers, is aptly captured by a sociology of affordances. To consider the physical is to further understand the digital – and vice versa. For example, managing online identities does not only entail a segmentation of digital contexts (i.e.: context collapse, Marwick & boyd 2011) but of physical devices as well - for example by physically hiding the icon of an app related to a specific sexual identity in repressive environments (Triggs et al. 2019); similarly, the segmentation of digital contexts can aptly reflect offline social norms and relative segmentations (Costa 2018). Future contributions could aim to bridge and harmonise how cues and markers, online and offline, influence social behaviour. The first step towards this, however, is to understand affordances and the cultural and social intersubjectivity they represent.

A potential critique is how such an approach forgoes technical infrastructures and components, and might therefore overemphasize sociality. However, a sociology of affordances can offer both a theoretical and a methodological contribution; an approach to the study of platforms and one that, precisely in virtue of its ontological fluidity, might aid in addressing the epistemological concerns that surround platform and cross-platform studies of society and sociality. This entails considering how the possibilities that the platform affords are used and understood, as mediated by the social and cultural context. For example, a retweet is often employed as a metric of popularity, but it might embed conflicting uses: a political ‘twittersphere’ might retweet to signal support, while another might prefer to retweet for different reasons (“retweets are not endorsements!”). Therefore, the value of a retweet for a researcher is manifested not only through the technical infrastructure and how it manages content, not only by users enacting sociality and their practices, but how they combine to create an entry point into the cultural and social contexts in which they are situated, how they are used and understood. On musical streaming services, for example, the number of plays might be both a symbol of value as well as a deterrent: unearthing the difference might underline the role of music in the construction and differentiation of identities (e.g.: hipster authenticity, Maly & Varis 2015). Focusing on sociality and culture then might hinder some aspects, but a focus on the dualism of the social and the technical similarly obscures some cultural logics.

1.9 The Duality of Context

A conceptual framework leaning of affordances inherently embodies an emphasis on digital spaces. However, this does not entail a conception of such spaces as subordinated to physical contexts, but rather, it leans on their connection. Similarly, in 2012, sociologist Nathan Jurgenson called for an end to *digital dualism*, arguing against the fallacy of considering physical and digital spaces as separate entities (Jurgenson 2012). Rather, for Jurgenson, the online and the offline mesh together to create an *augmented reality*, a mesh of atoms and bits. His contribution is situated within broader reflections upon the intertwining of the online and the offline. This ranges from theoretical and empirical conceptions of the virtual as separated from daily life (Turkle 1995,

Hine 2005) to the widespread adoption of methodological perspectives emphasizing their connectedness: the “end of the virtual” (Rogers 2009). Such a consideration of the digital and the physical will culminate in calls for a digital sociology, a discipline able to consider the complex entanglement between society, technology, and knowledge (Marres 2017, Lupton 2015).

This consideration for how digital and physical dimensions intertwine is aptly represented by the academic interest towards the conflation of social contexts. This has been addressed as a *context collapse* (e.g., boyd 2010, Marwick & boyd 2010, Davis & Jurgenson 2014), referring to how “the lack of spatial, social, and temporal boundaries makes it difficult to maintain distinct social contexts” (boyd 2010, p. 49). danah boyd points to the collapse of contexts as being a result of the characteristics of social media and networked technologies, which make it harder to properly segment social contexts by bringing together different audiences. The blurring between public and private spheres, then, represents but a more general expression of the difficulty to adhere to different, co-occurrent and potentially contrasting, social situations (see Meyrowitz 1985). As when considering self-presentation as a performance (Goffman 1959), the flattening of audiences and contexts is *managed* through a series of tactics, mediated by the perception of the digital social environment (Marwick & boyd 2011), by active social actors (Davis & Jurgenson 2014). Following such reflections, Elisabetta Costa stresses how, rather than being purely a result of platform architecture, affordances are employed to translate offline social norms to online scenario (Costa 2018). The collapsing of contexts is, here, a manifestation of specific and situated cultural and social practices.

From electronic (Meyrowitz 1985) to digital (boyd 2010) and social media (Marwick & boyd 2011), the underlining assumption of the context collapse is the transposition of physical situations to mediated scenario. The conceptual lens of the context collapse is invaluable when trying to untangle the interpenetration of digital media and physical interaction. Its fundative focus on their connection concurs to underline the layered ways in which online and offline contexts co-constitute each other. However, from a sociological point of view, this connection is useful, but partly concurs to obfuscate some social dynamics. Interaction on social media is complex, and not always linked to offline social norms. Rather, some interactions start, evolve, and end based exclusively on digital traces (see Airoidi 2018): users discuss by commenting on stranger’s tweets recommended by algorithms, navigate different groups on Facebook, or use pseudonyms precisely to refuge the collapsing of contexts. Far from being a *re-dualism*, considering contexts as separate *and* intertwining empowers the understanding of digital spaces as not subordinated to physical interaction. It allows to consider how individuals understand and manage social situations in digital contexts, rather than how these norms are transposed from physical to online situations. From this point of view contexts rather than collapse, multiply (Szabla & Blommaert 2018), as social actors navigate extremely complex and scattered digital interactions by developing shared definitions of a social situations, adjusting their conduct, and socially sanctioning those who fall out of line (Szabla & Blommaert 2018:26).

Such an approach retains some of the conceptual strong points of the context collapse: the structuring and managing of situations in digital environments (Marwick & boyd 2011), the intentionality of active social actors (Davis & Jurgenson 2014), and the relevance of cultural and social contexts rather than a deterministic approach to platform architectures (Costa 2018). Most relevantly, it opens up analytical possibilities to consider not only how physical social situations and norms are transposed to online environments, but rather how digital social situations are created, managed, and understood socially and culturally. In digital environments, this happens through the use of affordances (Davis & Jurgenson 2014, Costa 2018).

1.10 Affordances as an epistemological approach

To consider social and cultural specificities it is necessary to lean on sense-making in digital contexts. Given the fluidity of social media and platforms, however, it is necessary to mediate between social and technical aspects: some approaches attempt do so by considering practice, perception, and culture. This leans on a combination of platform features and their understanding by individuals, and takes the form, for example, of imaginaries (e.g., Nagy & Neff 2015). One of such understandings is that of the imagined audience (Marwick and boyd 2011): a combination of technical features, such as the spaces networked technologies construct and allow to manage, and social understandings – the perception of audiences (boyd 2010), coalesce to guide expression and social action on digital platforms. The concept of imagined audiences draws from a sociological interest into how individuals manage a multitude of contexts and social situations (Goffman 1959) and respond to potential contaminations (Meyrowitz 1986). However, this heritage also points at some intrinsic limits: the move from physical interaction to digital media entails a change in the way through which flows of social information can be transmitted. Physical cues are supplanted by cues taken from social media to aid in determining proper behaviour, rather than leaning on the physical environment (Marwick & boyd 2011, p. 115). Nonetheless, despite correspondences between face to-face and mediated social cues (Xu & Liao 2020), some are unique to physical or digital environments, and in some instances the correspondence is not so ontologically clear (e.g., physical space and digital space). Furthermore, different cues can vary in the degree to which they allow interpretation (Davis & Chouinard 2017): some, like metrics, can be more immediately understood, as is the case for example of reputation in the creative economy (Gandini 2016); other features, like algorithms, are more subtle in the way they manage content, contend social agency, and in turn in the way they are understood by individuals (Gran et al. 2020). This complexity leads to attempt by users to make sense of affordances, in some cases explicitly accounting for them to guide how they express and how they perceive their digital surroundings (for example changing how they present themselves on Facebook, see Bucher 2016). Similarly, ‘folk theories’ are attempts by users to potentially explain the outcome of technological systems, such as social media feeds (DeVito et al. 2017). Folk theories try to mend the social understanding of users and the nature of technical systems: like imaginaries, this approach allows to account for cultural specificities while tying it to social action in digital contexts (Silas et

al. 2020). Similar concerns linking social action and understanding ties it to the perception of publics (Litt & Hargittai 2016), features (Nagy & Neff 2015) and media ecologies (McVeigh-Schultz & Baym 2015, Scolere 2018).

These approaches account for *how* individual perception of social and technical features is formed, and *how* it affects social action. Similarly, Don Norman while considering affordances will mention how “we care much more about what the user perceives than what is actually true” (Norman 2004). On this basis, a sociological conception of affordances can be seen as an *affordance imaginary* (see also Nagy & Neff 2015), as it incorporates similar conceptual foci: this has some methodological implications, as it situates it as a broader epistemological approach that can be applied to a variety of platforms, contexts, methods, and practices.

At a methodological level it situates it as a multi-platform and culturally specific approach. Focusing on the meaning and the purpose through which affordances are deployed, rather than to its materiality, allows to consider how individuals enact social action by nesting it into a broader panorama of digital platforms, each defined and understood by its own features, affordances, goals, and culture (Scolere 2018); this ecology and the materiality of media (e.g., devices) are exploited and relationally deployed for a variety of purposes (McVeigh-Schultz & Baym 2015) which are lost by focusing on affordances as features or dynamics of single platforms or broader media environments (e.g., a Facebook *like*, or the Internet). Furthermore, as the understanding and use of platforms entails cultural specificity (Costa 2018, Davis & Chouinard 2017), a sociology of affordances allows to consider for “the multiplicity of data practices and appropriations that human actors develop in a variety of social and historical contexts” (Milan & Treré 2019, p. 328), going over principles of data universalism (Milan & Treré 2019) to consider the cultural and geographical context in which platforms are used (Siles et al. 2020). These concerns remind of anthropological approaches based on practice. In fact, Elisabetta Costa proposes the term affordances-in-practice to account for how affordances are exploited to “follow social norms, values, and codes of behaviour that reproduce and remediate those existing in the social contexts of the offline world” (Costa 2018, p. 3642). By focusing on cultural specificity, they reject the idea of social media logics such as context collapse (boyd 2010) to embrace the fluidity and specificity of situated practices. Moreover, this conception relevantly underlines potential discrepancies and continuities between online and offline contexts: affordances allow to segment social situations in ways that might be more efficient or less taxing than in strictly physical environments (Costa 2018, see also Davis & Jurgenson 2014). This last point is especially relevant as it covers different patterns of usage, considering not only the transposition of offline to online contexts: similarly, a sociology of affordances is also useful in this sense, as it allows to consider online and offline as a continuum rather than two separate dimensions (Jurgenson 2012). This means, for example, to account for how digital artefacts might be linked by individuals to different social and political identities based on context: as they circulate in different digital cultures or as are employed in specific scenarios, their purpose and understanding can change. This is aptly represented by emojis, small images or icons used mostly on digital media. Their meaning is inextricably linked to the context

of use: emojis are semantically fluid, as they can figuratively represent objects or content, express emotions, and more (Na'aman et al. 2017). Their use is affected by individual, social, and cultural characteristics, that determine their meaning across a variety of social contexts and digital platforms (Bai et al. 2019). Across this spectrum of uses, emojis can represent a context-dependant marker: a national flag on Twitter can be a political marker, an attempt to frame policies, or a way to comment on events (Kariryaa et al. 2020). In this case the meaning of a flag shifts based not only on the platform on which it circulates and when, but also based on the physicality or digitality of said circulation (Kariryaa et al. 2020).

Affordances can thus be exploited to consider how social norms are understood and negotiated on digital platforms, an epistemological approach that is cross-platform and culturally specific. Let us return to the concept of context collapse, intended as the intertwining of different social contexts due to features of social media sites (boyd 2010). While it has been as influential as useful, it is mostly rooted in media studies as a field, carrying some of its conceptual foci (cfr. *Techno-Sociality and Methods*). This concurs to obscure some dynamics that a sociological angle might be able to capture. By following this epistemological approach, the collapsed social contexts are but a 'digitalisation' of offline social norms, and therefore culturally and geographically dependent (Costa 2018); they are rooted in existing social structures such as race (Davis & Jurgenson 2014); and their segmentation is linked to specific purposes and understandings of platforms' features and cultures (Scolere 2020). Most relevantly, however, by linking affordances to social norms we can consider how these dynamics take place in an exclusively digital environment. Not a focus on how "spatial, social, and temporal boundaries make it difficult to maintain distinct social contexts" (boyd 2010, p. 49), but rather on how these boundaries are built, managed, negotiated, and understood by individuals on digital platforms through 'digital cues': affordances.

2. Methodology

This research aims to consider how social situations are managed in digital environments through affordances. This includes a broader concern for how said situations are structured, managed, and understood by individuals; that is, how affordances are employed to structure the boundaries between contexts, are employed for social action, and used to concur to a definition of a situation through the reification, mediation, and negotiation of social norms and cultural codes. This is declined into a main research question and three sub-questions:

R.Q. 1: *How are social situations created and structured in digital environments through affordances?*

This underlines a focus on how individuals determine “*What is it that is going on here?*” (Goffman 1974, p. 8), what elements are relevant and how they concur to the navigation of digital social environments. The perception of cues is also refracted by individual and cultural contexts, as is their use. This calls for a series of sub-questions focusing on individual, intersubjective, and socio-technical influences on social behaviour:

S.Q. 1: *How do individuals understand and employ affordances for social action?*

S.Q. 2: *Do affordances contribute to render visible and negotiable social norms?*

S.Q. 3: *How is social interaction structured on the digital platform Reddit in relation to its affordances?*

These research questions will be addressed through a case study approach, considering affordances on a single digital platform: Reddit (see Figure 1). It leans on qualitative and quantitative techniques, with quantitative text analysis, ethnographic observation, interviews, and content analysis. In the following paragraphs the case study approach will be detailed and motivated, to then focus on the choice of Reddit and the r/coronavirus community as a context. Subsequently, the choice of methods will be briefly expanded upon, introducing data collection procedures and overall methodological limitations.

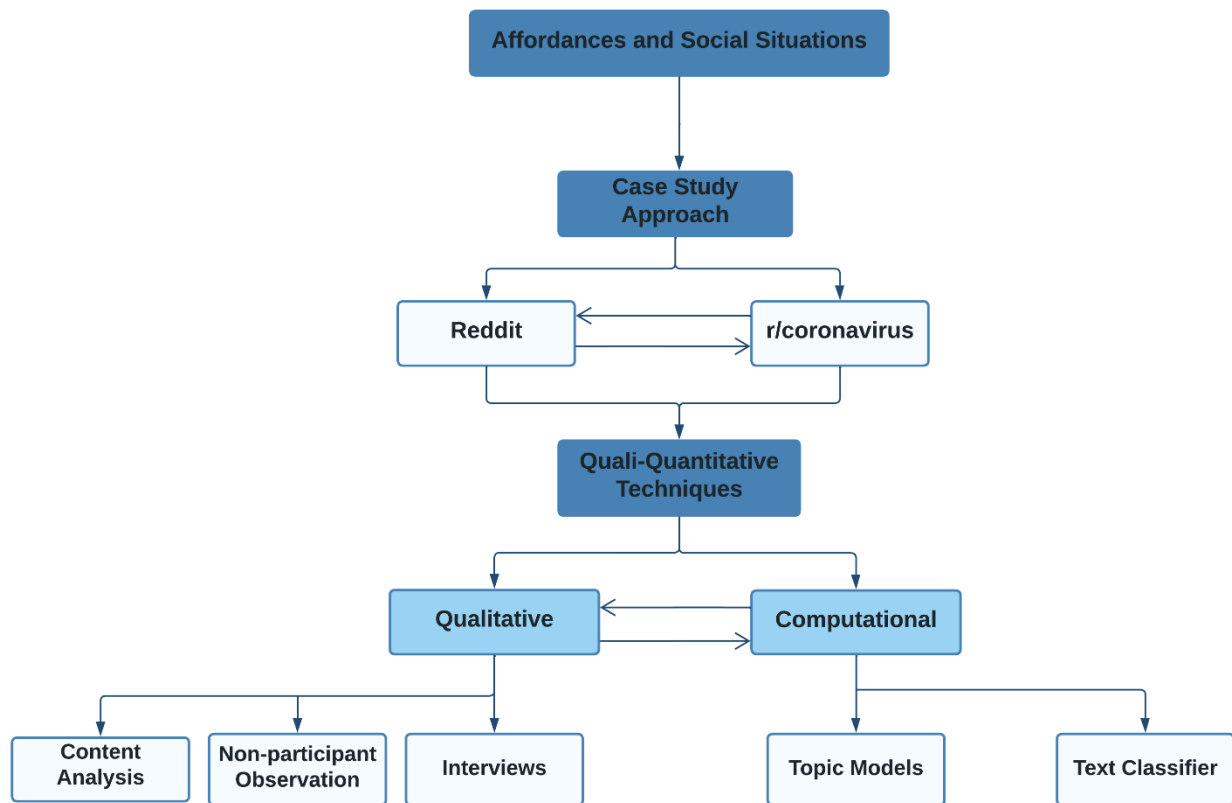


Figure 1 – Research Design

2.1 Case Study Approach

The boundaries between different social situations in digital spaces are built through affordances, an object of study per se, which raises epistemological complications regarding their nature. Contexts are understood and managed relationally by individuals, as based on cultural codes, social norms (see boyd 2010), and on the perception of platforms and the broader ecology of media (Scolere 2018). To address this, it is then necessary to focus on a specific context: a platform-specific conception of affordances (e.g., the upvote button *on Reddit*) rather than broader understandings (e.g., likes on *social media*), to link it to situated cultural and social norms.

To this end a case study research methodology is useful, as it allows for a better understanding of complex phenomena in bounded spaces (Chmiliar 2010) while allowing to point to continuities among different contexts, in this case both cultural and structural (e.g., platforms). This ability to generalize from a single phenomenon to a larger number of cases, despite being contested by some (see Flyvbjerg 2016), has been employed to generate theories that can be applied to different scenarios based on representative cases (Eisenhardt 1989). Furthermore, a case study methodology allows to consider everyday uses through a naturalistic lens (Yin 1981), making it possible to exploit specificities of the digital environments through a bottom-up approach to data collection, manipulation, and analysis (Marres 2017, see also Rogers 2015). However, the soundness of the approach is mostly linked to the selection of a relevant case; this is directly

linked to the ability to generalize findings and to reduce potential subjective biases involved in this selection, all potential downfalls of case studies (Flyvberg 2016). To this end the digital environment of interest must be selected carefully, in a way functional to broader epistemic objectives. This points at the necessity to focus on a single digital platform, its affordances, and its culture, rather than a cross-platform analysis. In this case Reddit has been chosen due to some of its features which aptly coincide with the research objectives, as will be shown below.

Reddit and its Affordances

The environment chosen as a context for the case study is Reddit which, due to its affordances, provides a privileged ground to consider social situations in digital spaces. Its specificities allow for a consistent operationalisation of shared cultural values and norms (*the karma system*), the ability to establish natural and fluid boundaries among contexts (through *subreddits*), and a partial disentanglement between online and offline norms (through the *pseudonymisation* of individuals). These features remind that of online discussion forums and bulletin boards, with a segmentation of topics and discussions, pseudonymity, and quantification of social activity (e.g., message counts. See Myers 1987). Most importantly, however, this similarity extends to the relationship between physical and online contexts, such as a lower transposition of offline situations and norms to digital environments, or the creation of rules based on a combination of social and technical structures (see Bylieva et al. 2019). Despite these similarities, Reddit at its heart is a social media site, mediating between content, users, advertising partners, and media producers (Srnicek 2017). These similarities are relevant, as they aptly underline how Reddit can serve as a critical case (Cardano 2020): as will be shown below, the multiplicity of contexts, a low barrier to entry, and pseudonymity, all concur to limit the translation of offline contexts to online scenarios. The quantification of social activity, central to the platform and enacted through the karma system, then, renders visible the negotiation and definition of a social situation in a digital environment.

Thus, Reddit's features situate it within the ontological boundaries of social media sites, but due to its characteristics it is positioned at the edge: despite some common features, it differs from traditional platforms on matters such as monetization practices (see Srnicek 2017). This provides an additional possibility to extend findings through a hierarchical argument (Cardano 2020): if affordances can manage social situations in a context partly detached from offline norms and boundaries, it hints at the possibilities of such mechanisms taking place on sites with flimsier boundaries between online and offline social norms.

Reddit is a content aggregator: users can post links, text, images, and videos on any of the user-made communities (or subreddits) that constitute the platform. It has been founded in 2005, and as of May 2020 it is the 19th most viewed website in the world (Alexa 2020) with 430 million monthly active users (Reddit 2019). Its popularity is testified by AMAs (ask me anything, akin to a Q&As) held by prominent figures such as Donald Trump, Barack Obama, and Bill Gates. Reddit has been widely covered by media for its role in

events such as the massive dissemination of non-consensual intimate images (the ‘fapping’, see Massanari 2017), or the financial speculation related to ‘meme stocks’ (Ponciano 2021).

According to a Pew Research Center report, Reddit’s userbase is mostly male (around 71%) and within the age bracket 18-29 (59%), and 30 – 49 (29%) (Barthel et al. 2016). Users are mostly from anglophone countries such as the United States (49%), the United Kingdom (8%), Canada (8%), and Australia (4%, Clement 2021).

Content such as submissions and comments are sorted partly by users, that by upvoting or downvoting on submissions establish their visibility. This affordance, the karma system, extends to individual profiles as well: each user has a cumulative score for submitted content and comments, which is displayed on their pseudonymous profile. Reddit is composed by communities, that then coalesce to form the front page of the platform (r/all), or a personalized feed (the home). These communities cover a broad range of topics: memes and digital culture, local and national communities, pornography, news sharing, politics, sports, mental health, entertainment, academia, videogames – and more. This partly points to a fragmented culture, a “large community made up of thousands of smaller communities” (Reddit 2020), which often houses subreddits with opposing values. An example of this is the presence of r/the_donald, a now banned community supporting Republican candidate Donald Trump, as well as communities supporting democratic political candidates such as Alexandria Ocasio-Cortez (r/aoc). However, despite this pluralism, subreddits still retain a collective identity tied to the platform as a whole (Singer et al. 2014), such as an interest in gaming and technology (Massanari 2015). Part of the differences within the website are due to a lack of a top-down direction or editorial line: subreddits are created, moderated, and personalised by users; as long as they comply with the terms of service, they have complete autonomy for what concerns rules and their enforcement. However, this research does not focus on the rules explicitly crystallised in site-wide rules or their application by human and automated moderators, but on the unwritten rules: the social norms governing social interaction in the context of a digital social situation. Different communities sanction or reward contrasting points of view and different modes of expression, exerting tangible pressure by leveraging on affordances such as the karma system and comment chains; conversely, the platform affords pseudonymisation, a low infrastructural entry barrier for new accounts, and the ability to delete comments. The interplay, then, is between social norms and mechanisms of expression, resistance, sanctioning, and self-censorship, fuelled by the affordances of the platform and informed by a social situation based on the subreddit. This makes it possible to gauge and to some extent quantify components of an exclusively digital social situation, albeit asynchronous, while applying a conception of affordance as eminently social.

The Karma System, Subreddits, and Pseudonymity

The three affordances that mainly motivated the choice of Reddit as a platform are three: subreddits, pseudonymity and the karma system (broadly intended).

The Karma System is strictly linked to Reddit’s structuring of content and identity. Individuals can vote on

submissions and comments positively or negatively: these upvotes - and downvotes - are then summed to determine a score. This score, and other factors such as recency, determine the visibility of content across different subreddits; the most popular content reaches the frontpage: the feed on the homepage of the website. Aside from managing content, karma officially has a social function: to gauge “how much your contributions mean to the community” (Reddit 2021); every user has a score which roughly represents the cumulative score of every contribution, which is shown on their profile page, effectively quantifying social interaction within the platform. This quantification affects activity, for example by encouraging the resubmission of content that has already been popular (reposts), or the adherence to popular opinions (Massanari 2015). Like cumulative effects on several platforms (Van Dijck & Poell 2013), karma has a herding effect which further rewards content based on accumulative logics (Muchnik et al. 2013, Weninger et al. 2015), amplifying the reach of content supported by cohesive groups of actors (Sheperd 2020). Most importantly, however, karma can determine which content is submitted and how, as users try to understand and replicate situated cultural codes based on popularity (van der Nagel 2013). This contributes to underline the importance of context: users socially sanction specific content based on what community the interaction takes place in (Zhan, Keegan, Lv, & Tan 2020), and self-censor to avoid the clash of different digital spaces (Triggs et al. 2019). These communities, or subreddits, intertwine with the karma system to drive self-expression through submissions and comments.

The subreddit is relevant both for the identity of the platform and the relevance in selecting audiences, contents, and in determining their salience; this means subreddits have different social and cultural norms, often conflicting with one another (Chandrasekharan et al. 2018). The same user might have to navigate opposing contexts, using multiple strategies to adapt to the situation at hand; one of these strategies is, for example, self-censoring based on a subreddit’s culture by withholding information about sexuality on a religious subreddit and vice versa (Triggs et al. 2019). This withholding does not regard only highly polarized communities: thematically close subreddits might differ in audiences, content, and culture, based on goals (self-help versus news in queer subreddits, see Triggs et al 2019), moderation practices (strongly moderated and lightly moderated LGBT communities, Gibson 2019), as well as presenting similarities and differences despite covering tangent topics (e.g., mental health, Park et al. 2018).

Reddit is pseudonymous, as it does not require a real name to sign up or to be displayed. Rather, individuals can choose a username, input an email, and start commenting and voting on the website; as opposed to some platforms like Facebook, no email confirmation is required, and the lack of an account does not preclude its browsing. This is relevant, as usernames are not only a naming convention, but they drive how platforms structure the engagement of users within them. They allow to segment audiences within and across platforms, as well as separating online and offline contexts (van der Nagel 2020), and they function as markers of social identity, social capital, and embeddedness in a community and its cultural practices (van der Nagel 2017). To this end, pseudonymity on Reddit can be intended broadly as the interactions between

the ability to choose a username, the low technical entry barrier for new profiles, and as the support for multiple accounts (e.g., throwaway accounts, or ‘alts’). Overall, the fluidity with which accounts can be created and used, the lack of barriers for browsing without one, and the pseudonymity afforded by the platform, all interact with how contexts and flows of information are managed by individuals. These affordances are, however, not discrete entities: accounts, subreddits and the karma system interact in complex and layered ways with one another to guide social action. This means, for example, that different accounts are employed by users in different subreddits to segment audiences and contexts (Triggs et al. 2019). This complexity is relevant, as it concurred to inform the choice of focusing on a single subreddit, both to delve deeper into its cultural and social specificities and to reduce the complexity of this entanglement.

r/coronavirus

Part of the empirical efforts will focus on r/coronavirus. The choice of r/coronavirus as a case follows months of non-participating observation and an exploratory analysis of digital data from different communities on the platform, with an eye to culture, regulation (i.e., moderation rules and tools) and size. Subreddits have been considered as broader clusters or singles communities. For example, NSFW content (not suitable for work, mostly nude or pornographic content) subreddits have been taken into consideration, as have communities built around gaming and geek culture, politics, personal finance, scientific and meta communities, entertainment, and a cluster of general-purpose subreddits (e.g., r/AskReddit, r/funny, r/pics). All of these have been discarded based on empirical and epistemological concerns. The former includes factors such the volume and length of comments, the number of users and corresponding traces, and in general an attention for the presence of enough data to be fruitfully analysed. However, the focus remained on the social dynamics of the subreddit to be chosen. First, by considering a community with clear rules and moderating practices, allowing to isolate the perception of social norms from rules, when possible. Second, r/coronavirus is a relatively new subreddit, external to Reddit’s logics. This allows to underline cultural and social norms, detailing their understanding and negotiation, which varies at a network level and at a platform level (Chandrasekharan et al. 2018). Networks of communities are subreddits that might be associated with one another for different reasons, leading to potential social effects given by their association (Hessel et al. 2016): for example, the SFW porn network (r/sfwpornnetwork), despite its name, incorporates several subreddit dedicated to the sharing of pictures depicting beautiful natural landscapes or aesthetically pleasing images concerning, for example, food or technology; r/toasterporn, then, would frame interaction and content production within it in very different ways based on the subreddit’s association - or lack thereof – with the SFW porn network. At a platform level, r/coronavirus deviates from the ‘geek sensitivity’ of the platform, made of interests such as technology, gaming, or comics, and related customs (see Massanari 2015). The sudden emergence of the pandemic, and consequently of the subreddit, alleviates these problems and creates an environment in which the negotiation and crystallisation of social norms can be observed.

Emerging and gaining prominence during the pandemic, the r/coronavirus space quickly gained popularity. It is a subreddit broadly focused on the discussion around COVID-19: the diffusion of the pandemic, potential economic and societal impact, worldwide news, restrictive measures, and more. From less than 1000 subscribers at the beginning of 2020, it grew to counts more than 2 million users in May 2020; as of September 2021 it counts 2.3 million users. The community is one of the many sprouting and rapidly growing around the issue, albeit the biggest on the platform. Similar to other scientifically oriented communities on Reddit, such as r/askhistorians, r/coronavirus is strongly moderated: among the moderators, several have a scientific or medical backgrounds, and only trustworthy media outlets and sources are accepted; furthermore, to avoid misinformation, political posts and comments are banned, and automated tools flag for approval 'racist and xenophobic posts' (NBC News 2020). It fosters divulgation by collective interviewing experts and key actors in the field (i.e., in an Ask Me Anything format), as well as collating resources such as scientific literature or case trackers in its sidebar. Different, related, subreddits treat the topic in different ways, such as employing less strict moderation around sources and political speech (r/chinaflu), having a focus on academic publications (r/covid19), or considering national or local communities (r/coronavirusUK).

2.2 Quali-quantitative Techniques

This research employs a combination of computational and qualitative techniques. As will be argued below, this choice is due to a series of methodological concerns given by the object and field of study, and has been informed by preliminary analyses. Furthermore, at a research design level, a mix of methods affords possibilities for an iterative approach, and can aid reflexivity to balance the researcher's embedded perspective. At its core, however, lays the need to balance between interpretative approaches leaning on perception, and large-scale data analysis that can extend and challenge such understandings.

A combination of computational and qualitative methods and inputs has been fruitfully used in sociology: to consider cultural factors (DiMaggio 2013), to empower approaches such as grounded theory (Nelson 2020), or to supplement the analysis of qualitative interview data (Nikolenko et al. 2017). In the context of digital platforms specifically, such a combination of methods has been used to account for the influence of technological and infrastructural factors on sociality, for example due to scale (see boyd & Crawford 2012). This is particularly relevant for what concerns the structuring and unfolding of social situations, even challenging what comprises one in digital societies (cfr. Situation and Mediated Environments). Aside from ontological considerations, these changes present different, methodological, implications (see Savage et al. 2007, Ruppert et al. 2013). As Noortje Marres aptly points out, fully computational analyses of context often differ in how they consider situations when compared to more interpretative and qualitative approaches (Marres 2020, see also Seaver 2015). This conceptual tension is, at its core, a question of focusing on general, stable, and formalizable attributes of situations, as in computational science, or on their indeterminacy and fluidity (e.g., the understanding of situation adopted by Goffman and the nature of situations in digital

societies, Marres 2020). Despite the difficulties for large-scale approaches to consider the indeterminacy of situations (see boyd & Crawford 2012), computational methods carry relevant advantages, such as their ability to tackle the ever-increasing production of digital societies, as well as being able to be configured and deployed across different scenarios. More relevantly, as sociotechnical structures contribute to affect sociality within them (Lupton 2015, Marres 2017), computational techniques allow to partially account for these biases and reconfigurations by giving access to large-scale aggregate data that may not be detectable, or even exist, at a micro level (or reconfiguring these dimensions as a whole, see Latour et al. 2012). Observing interaction in an exclusively 'naturalistic' approach might thus in turn obfuscate the role that affordances have on digital interaction, or how they happen at scale. Conversely, platforms have biases inscribed within them, both methodological (see Marres & Gerlitz 2016) and in relation to how they frame, encourage, or discourage interaction (Davis & Chouinard 2017, cfr. Situation and Mediated Environments). On Reddit this holds especially true, as contexts nest into one another at different levels: conversation, threads, subreddits, networks, they all impact on sociality. As content is socio-technically ranked, it is necessary to account for both the individual, social, and interpretative contexts of interaction and how those are concretised through technical infrastructures. Considering how affordances structure and affect interaction thus requires an approach able to consider how they are perceived and employed by social actors. This is possible by exploiting qualitative techniques; specifically, an ethnographic approach seems particularly suited, as it allows to consider the interpretation and understanding of phenomena from a cultural and interpretivist point of view (Cardano 2011). Ethnographies have been applied to digital environments to study the formation, practices, and interactions of online communities (e.g., virtual ethnography, Hine 2000), or to study society by exploiting digital traces (e.g., digital ethnography, Caliandro 2018). These applications are relevant, as they allow to account for the peculiarities of digital spaces, such as the distribution and fluidity of social formations (Airoldi 2018), or the ephemerality of content (Bainotti et al. 2020). In this context, an ethnographic approach helps in accounting how socio-cultural contexts are created and managed in an online scenario. To this end, qualitative methods such as non-participant observation, interviews, and content analysis, are aptly suited to unearth specific social and cultural dynamics (Caliandro & Gandini 2016), while computational methods can extend findings, account for broader distributive logics of social content, and root them in the platform.

Aside from broader methodological and epistemological considerations, the choice of using qualitative and computational techniques has been informed by preliminary analysis, consisting of two interviews, ethnographic observation, and topic modeling on a small sample. Interviews pointed at the relevancy of perception and its intertwining with metrics and affordances: as individuals referred to specific communities, it underlined the necessity to have an in-depth knowledge of the field. This in turn indicated the necessity to consider both the smaller, user-level, scale of interaction with broader, aggregated, trends in the community, to consider the intersubjective nature of affordances and their individual understanding. The choice of

methods is also motivated by the embeddedness of the researcher within the field (cfr. Ethnographic data collection): being a long-term active user is invaluable for how it allows to grasp cultural dynamics as an insider (Clifford & Marcus, 1986), but it might also introduce biases caused specifically by this embeddedness. An approach considering computational and qualitative methods helps in this by providing a chance to balance emic and etic perspectives, while mitigating the effects of subjectivity by aiding reflexivity (Ophir et al. 2020).

For what concerns the broader research design, such a combination of methods also has the relevant advantage of fitting well with a case study research methodology (Onghena et al. 2019), as well as allowing room for the implementation of an iterative research design. To this end, empirical analyses have been considered as separate entities, with cross-case analysis aimed at identifying patterns among cases (Mills et al. 2021). Furthermore, computational and observational data collection happened before interviews: this gave the chance for the latter to be informed by the previous component while cross validating its findings (cfr. Data collection, Analyses).

2.3 Data collection

Data collection ranged from March 2020 to June 2021 and focused on computational data, such as comments and their metadata, and on qualitative data such as ethnographic observation and interviews.

Digital Data

The computational dataset is comprised by comments originated on Reddit in the *r/coronavirus* community. It includes all comments made from the 20th of January 2020 to the 31st of May 2020, for a total of 5.679.007 units. They have been collected using two different sources: Reddit's own API (short for *Application programming interface*) and Pushshift (Baumgartner et al. 2020). Reddit's API is the way through which the platform allows developers and users to interact with its data, for example by requesting or submitting content. Pushshift is similar, as it is a third-party data platform storing all of Reddit's data since its inception while indexing it, for example by adding the ability to select a timeframe, and making it available for scientific research via its own API (Baumgartner et al. 2020). It is seldom updated, mostly to revise karma scores and to comply with removal requests by users, effectively making an unfiltered, time independent, snapshot of threads and comments on the platform. Data collection took place by means of an ad-hoc Python script, leveraging on available API Python wrappers (PSAW and PRAW libraries), as follows:

- 1) Pushshift's API was called to collect comments, leveraging on it to restrict by timeframe and subreddit. This nets all comments and relative metadata in the query at time of production (e.g., usually in the seconds after a comment has been posted).
- 2) By extracting the unique ID of each comment, Reddit's API can be called to obtain the live version of the dataset, including text and metadata.

3) By comparing the two datasets, we can derive if a comment has been deleted by a user, removed by a moderator, or if it is still online after being posted. This is possible since Reddit changes the text of comments deleted by moderation (to “[removed]”) and by users (“[deleted]”).

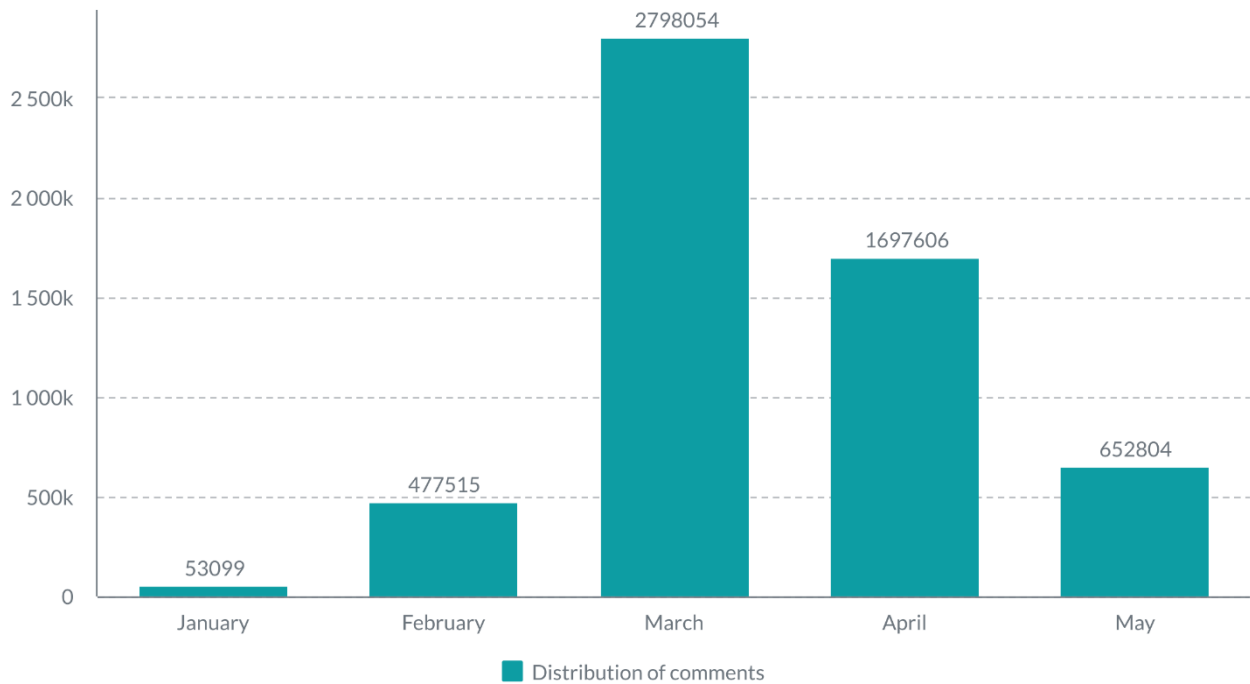


Figure 2, distribution of comments per month

Pushshift data is usually collected at time of production. In some instances, however, comments are collected after manual and automated moderation tools (both sitewide and subreddit-specific) are considered, effectively including moderated comments into the first dataset. This is due to unavoidable limitations, such as problems with the APIs given by sudden increases in volume of data, or technical difficulties. It could have been possible to circumvent some of these limitations by means of a custom data collection system, but has been proved infeasible due to the large volume of data and the level of technical expertise necessary to manage complex data pipelines. These limits have been accounted for during the research design process to limit potential biases, for example by integrating the analysis of comments with ethnographic data. However, Pushshift is actively maintained with the explicit purpose of social research through digital data (Baumgartner et al. 2020). To this end, it has been receptive to feedback and external analyses concerning missing data given by structural reasons or contingencies (Gaffney & Matias 2018), making it a suitable source of data for academic research.

Ethnographic Data

Ethnographic data collection is comprised by two main sources: non-participant observation and interviews. However, the research is framed by the active participation of the researcher on the platform for more than 10 years: this includes regular (and unhealthy) browsing habits, and active albeit sporadic participation by commenting and voting over a variety of content and communities. While overall this has not been a systematic approach, and therefore far from an output akin to autoethnography (Ellis et al. 2011), it still concurred to relevantly inform this research. This includes at a research design level, by informing the selection of context, cases, and communities, as well as in the data collection process, such as by knowing in which communities to recruit respondents, and by knowing the proper etiquette for doing so - for example by messaging moderators before posting a request. This has had a substantial impact for what concerns access to the field, as it identified me as a user *and* as a researcher rather than an outsider, empowering access to communities and respondents.

This embeddedness also radically affected the interviewing process: the knowledge of the cultural dynamics of the website, of its main communities, and the 'history' of Reddit, proved invaluable to both guide interviews and aid in their analysis. This took place at a platform level and at a subreddit level: for the former, the knowledge of communities allowed to inquire about subreddits and contexts at a relational level, especially useful due to the topic of the research. Furthermore, it also provided much needed context when individuals referred to cultural codes and social norms, such as inside jokes, roles, and lore. The latter point applies to single subreddits as well: in-depth knowledge of a community allows to leverage on the discrepancies and similarities among respondents' and researcher's perceptions, fostering questions and allowing for follow-ups and clarification.

While this expertise proved invaluable, it has been further compounded by systematic observation. Non-participant observation, this time formalized through notetaking, took place from March 2020 to September 2021, on both the *r/coronavirus* subreddit and Reddit at large. At a general platform level, it focused on the use of affordances and on the cultural and social dynamics of the website. This meant considering the discursive and actual deployment of affordances, both in comments and submissions, and the navigation of different communities in relation to this (e.g., how karma is understood relationally across subreddit). A similar effort focused on the social dynamics around expression and its perception, focusing on inter-subreddit circulation as well. This applied to coordinated action, such as brigading, and its perception by individuals (e.g.: shilling), or the reception and use of means to connect communities, such as the mention of other subreddits and its hyperlink. Focusing on the relationship among subreddits, aside from providing a vast overview of behaviour across communities, allowed to consider how subreddits are understood individually, relationally across them, and as part of broader groupings – such as the platform or network of communities. This same approach has been followed when collecting data on *r/coronavirus*. A focus on affordances, discursive practices, inter-subreddit circulation, and overall behaviour, has been paired with a

diachronic interest in the evolution of these dynamics. This has been especially relevant given the fluid nature of the community (cfr. Case study approach, r/coronavirus), as it allowed an additional focus on the evolution, negotiation, and understanding of social norms and rules over time. Finally, when necessary, non-participant observation helped, a posteriori, in contextualising claims from interviews, for example by providing context to specific communities or pieces of content mentioned by interviewees.

Additionally, ethnographic data includes 26 interviews, collected in April, May, and June 2021. Interviews were aimed at Reddit users, recruited within the boundaries of the platform following different strategies. The aim was to obtain an heterogeneous sample for what concerns communities used, usage of Reddit, platform literacy (quantified in years of use), activity (i.e., karma), and socio-demographic variables such as gender, age, education, and nationality. However, some difficulties in recruiting respondents affected this effort: as will be expanded below, a low response rate (the final count of users contacted shows a 5% response rate), difficulty to reach respondents, and reluctance to follow through with the interview led to a combination of purposive and convenience sampling. Purposive sampling focuses on the selection of cases based on characteristics useful for the study at hand (Patton 2007). At first, the research design aimed to provide a broader variation on a series of variables like socio-demographics, patterns of use, and proficiency. However, given the aforementioned difficulties concerning the recruitment of participants, purposive sampling has been used in a limited capacity. Specifically, it has been employed to mitigate the regional and cultural specificities of the platform, in order to obtain a sample of geographically dispersed users, as well as to consider less active users. Following preliminary analysis and experience on the field, purposive sampling has been combined with convenience sampling. Convenience sampling is a technique relying on practical criteria, such as the accessibility, availability, and willingness of respondents to participate in the study: while this raises relevant concerns based on the validity of such a sample, this strategy has proven necessary in the context of this research for two reasons. The first is a matter of necessity: as users were reluctant to be contacted and interviewed, it proved necessary to adopt alternative, less strict sampling strategies. Additionally, Reddit's population is particularly granular: a representative sample, factoring variables such as communities used, literacy, patterns of usage, legitimacy, and socio-demographic variables, while perhaps suitable for smaller communities or large-scale techniques such as surveys, appears unfeasible – for both r/coronavirus and Reddit at large. Furthermore, convenience sampling also allows to tap into hidden population, by allowing different contact strategies (more on this below).

Respondents have been contacted in two ways: (1) through direct contact via a direct message to their profiles, and (2) via the creation of posts looking for users to interview.

(1) Individuals contacted through a direct message focused mainly on random active users for the time period ranging from April to May 2021. A user has been considered as active if she had commented during this time period, based on metadata obtained through Reddit's API (Cfr. Digital data collection). Reddit's API has been queried multiple times across the time period to obtain a list of recent comments, regardless of the subreddit.

This returned a list of comments and relative authors, sorted by recency, but limited to public subreddits. A random sample of these users has been contacted; however, this be skewed by user activity. To partially address this, direct messages have additionally been part of an attempt to recruit actively browsing users who may have overall little active engagement with the platform: *lurkers*. To do so, users with a low number of comments (<5) have been contacted, following their self-identification as lurkers; to this end, submissions that reached the frontpage and mentioned 'lurkers' in the title, have been queued to obtain all users commenting on them. From this pool, users with low activity have then been contacted through a direct message. This represents an attempt to reach what can be considered as a hidden population (e.g., Heckathorn 2014). Notably, biases could be introduced by the selection of threads involved; however, despite this and the overall limits for what concerns the sampling of hidden populations, such as representativity (Barratt et al. 2014), this approach still offered the possibility to contact and interview users who would have otherwise been substantially harder to reach. To some extent this is similar to purposive sampling, reaching respondents due to specific qualities rather than based on sheer accessibility (Etikan et al. 2016): in this instance, being on the platform while having little to no activity on it, represents a useful quality. As lurkers might avoid posting due to a series of factors, both individual and structural (Sun et al. 2014), they might provide rich insights into the social and technical factors affecting expression or, in any case, express different patterns of engagement with the platform.

Both of the previous approaches introduce biases, especially due to self-selection given by activity and willingness to participate in the research. To this end, both to bolster the number of participants and to attempt to balance from this angle, recruiting strategies included calls for interviewees posted on broader or specific subreddits, as a post or as comment in specific threads. This involved general communities allowing for recruiting of respondents or more open to requests - *r/samplesize* and *r/favors* – and subreddit based on location. The latter, limited to the largest English and Italian speaking subreddits due to language limitations, consisted of a United Kingdom based subreddit (*r/casualuk*), an Australian one *r/Australia*), and an Italian one (*r/Italy*). The recruiting messages were either a comment in response to general threads (i.e., discussions predisposed to collect general uncategorized comments or posts, as established by subreddit rules and moderation practices), or as a new submission. Before commenting or posting, the moderators of the communities had been contacted to ensure the following of the rules of the community involved.

Overall, contact with users, both as direct messaging and through forms, took place using accounts created for this purpose, with minimal activity and some seniority to provide complete access to the field (e.g., to be able to post or visit in all subreddits). Users were manually contacted without any form of automation: this is both to increase response rates, for example by mentioning the username in the message, and to avoid the banning or restriction of the profiles used. The final response rate for direct contact is around 5%, or 12 interviews for 245 users contacted; 12 respondents were contacted or replied to call for participants, while 2 preliminary interviews come from personal contacts of the researcher.

INDEX	COUNTRY	AGE	GENDER	EDUCATION	YEARS OF USE	TYPE
1	PHILIPPINES	23	MALE	COLLEGE	< 1	FORM
2	FRANCE	32	MALE	HIGH SCHOOL	10	CALL
3	CHINA	21	FEMALE	HIGH SCHOOL	< 1	FORM
4	USA	18	MALE	HIGH SCHOOL	3	FORM
5	PARAGUAY	23	MALE	COLLEGE	5	CALL
6	CZECH REPUBLIC	18	MALE	HIGH SCHOOL	1	CALL
7	MYANMAR	18	MALE	MIDDLE SCHOOL	2	CALL
8	USA	18	FEMALE	MIDDLE SCHOOL	<1	FORM
9	USA	49	FEMALE	COLLEGE	6	FORM
10	USA	29	MALE	TRANSGENDER COLLEGE	1	CALL
11	UNITED KINGDOM	40	FEMALE	COLLEGE	2	CALL
12	USA	62	FEMALE	COLLEGE	2	CALL
13	UNITED KINGDOM	33	FEMALE	COLLEGE	1	CALL
14	ITALY	30	MALE	HIGH SCHOOL	5	CALL
15	UNITED KINGDOM	N.A.	N.A.	HIGH SCHOOL	6	FORM
16	UNITED KINGDOM	31	MALE	COLLEGE	1	FORM
17	ITALY	28	MALE	HIGH SCHOOL	9	CALL
18	ITALY	20s-30s	MALE	HIGH SCHOOL	1	CALL
19	ITALY	20	MALE	HIGH SCHOOL	<1	CALL
20	ITALY	22	MALE	HIGH SCHOOL	2	CALL
21	ITALY	20	FEMALE	HIGH SCHOOL	2	CALL
22	ITALY	19	MALE	HIGH SCHOOL	2	CALL
23	ITALY	22	FEMALE	COLLEGE	1	CALL
24	ITALY	20	MALE	COLLEGE	1	CALL
25	ITALY	30	FEMALE	COLLEGE	N.A.	CALL
26	UNITED KINGDOM	30	MALE	COLLEGE	N.A.	CALL

Chart 1, interviewees by age, gender, education, years of use, and type of interview

The final number of interviews is 26, up to saturation, of which: 17 were computer-mediated (eight with video, the remaining voice only), seven written through forms, and two preliminary face-to-face interviews. All interviews were conducted in English or Italian and are distributed as in *Chart 1*. Semi-structured synchronous interviews were conducted to have a common and comparable set of questions, while at the same time allowing to delve deeper into the peculiarities of each interviewee (Cardano 2020); interviews were proposed as a video, computer-mediated interview through VoIP systems such as Skype, Discord, and Teams (Lo Iacono et al. 2016). In case of rejection, given the already low participation rate, interviews were proposed as text based to not lose access to the respondent (Ratislavová 2014). The latter took the form of structured, standardised form to fill out; subsequently a personalized follow-up based on the answers to the first form was sent, tapping into the specificities of the interviewee, and building up from previous answers.

Full anonymity was granted to participants, although most agreed to identify themselves by first name rather than by pseudonym; regardless, most respondents preferred to have voice-only or written interviews with no video component, citing privacy and anonymity concerns. Said reluctance, including low participation rates, is aptly exemplified by a respondent who, after agreeing to fill out a form on the condition of complete anonymity, deleted his Reddit account to delete any trace of his involvement. Overall, this might point to a complex engagement with Reddit's "veil of anonymity" by users (Kilgo et al. 2018), testifying a potential disconnection between online and offline contexts.

2.4 Limitations

The main limitations of this research are based on the selection of cases, both at a platform and at a community level, as well as potential problems given by data collection practices.

A case study approach presents potential downfalls, such as the contested ability to generalize findings and the potential subjective biases involved in the selection and collection of data (Flyvberg 2016). These dimensions are strictly related to the choice of cases, which can mitigate or accentuate concerns of validity and generalisation; selecting a case following a hierarchical argument attempts to account for the possibility to generalize and extend findings (cfr. Reddit and its affordances, Cardano 2020). To this end, the use of qualitative and computational techniques is an attempt to relieve potential subjective biases concerning cases, accentuated by an embedded researcher, through the adoption and combination of micro and large-scale data collection. In turn, both this embeddedness and the adoption of computational methods concur to alleviate another short coming of case studies: its time-intensive nature, allowing for more structured analyses.

However, the choice of Reddit and *r/coronavirus* as a case demands some reflections. Concerning the platform, it raises questions on how to generalize findings to different contexts. Reddit's nature as a *sui generis* social media – at least when compared to the most diffused ones - affords possibilities: the separation of online and offline contexts creates a privileged, hierarchical, point of view to study how cues are interpreted and used in the lack of a physical counterpart. The same doubts extend to the community of choice, *r/coronavirus*. However, in this case, is the strong cultural and social understanding tied to affordances (cfr. Literature Review) that warrants a profound analysis of a single community, the depth of which would have been strongly reduced by the choice of multiple communities with different and often contrasting values. Furthermore, the community in question is external to the platform's logic, and this concurs to a further separation of contexts and norms: in this case that of the platform and that of the community, providing epistemological possibilities for what concerns affordances. Its nature as a new, external, evolving community, then, provides an ever-changing field which allows to observe the evolution and establishing of social norms. This warrants another observation: the lack of respondents among

r/coronavirus members. While this would make a welcome addition, allowing to consider the community's cultural dynamics more in-depth, the obstacle is that of an abysmal response rate. As convenience sampling proved to be a necessary sampling strategy to reach respondents, it undercut the possibilities for interviews within the community. However, this allowed a more granular consideration for users with different usage patterns and literacies of the platform and its features, in turn assisting with generalization problems stemming from the choice of a single community. Furthermore, non-probabilistic sampling allowed to tap into an otherwise unreachable hidden population.

The use of a qualitative and quantitative techniques intrinsically inflates the complexity laying in the design of a research and the interpretation and harmonisation of results, as well as data collection and analysis. This holds especially true given the intricacies of researching complex platforms such as Reddit. However, the use of such a combination of methods is useful both to concurrently consider technical and social levels, as well as to mitigate problems laying in the research design in general, such as in the selection of cases (cfr. Qualitative Techniques). Concerning data collection, the main limitation is the form of non-probabilistic sampling employed for interviews. While this is to some extent necessary in the context of the platform and the scale of the research (cfr. Ethnographic data), attempts to mitigate it lay in the iterative nature of the methodological approach deployed. Additionally, both qualitative and computational data collection, while varying in nature, form and scope, all leaned on Reddit's or Pushshift's APIs. While this might lead to the spread of the potential downfalls of API-based research (e.g. Venturini & Rogers 2019, Bruns 2019) to both components, the research design, including the choice of two different data platforms, has been designed to reduce the rise of such problems.

2.5 Ethical Considerations

Online research always entails reflections on the ethical collection, analysis, and presentation of data (Franke et al. 2020). Reddit's pseudonymity relieves some of the concerns associated with the use of real names, while raising some concerns on its own. Individuals might prefer pseudonymity to protect marginalised identities, and the use of pseudonyms alone does not neuter the possibility of identification based on disclosed personal data (Gerrard 2021). This holds particularly true for content perceived by users as ephemeral (Bainotti et al. 2020): while it is not the case of this research, which leaned on comments and interviews, there are some parallels with comments willingly removed by their authors. These ethical conundrums are accentuated by the nature of the community considered, r/coronavirus. While not the focus of this research, such a community might foster discussions including sensible information such as health, political, or geographical data. While Pushshift complies to requests of content removal put forwards by users (Baumgartner et al. 2020), not every individual might be aware, or willing to exercise, this option. However, in contrast to Pushshift data practices, the removal of content from Reddit might not necessarily coincide with its full removal from the platform's server, but only alter its visibility; additionally, user-led archival

practices such as that of Pushshift, to some extent underline the shared cultural value of removed content (see Bainotti et al. 2020). Following this line, removed content have been included in this research. However, to address these concerns, I undertook several steps to ensure the anonymity of respondents across data collection, analysis, and visualization processes, based on aggregation (in turn with its own implications, see boyd and Crawford 2012) and the removal of contextually sensitive information.

Pertaining digital traces such as comments and relevant metadata, data has been considered in aggregate form when possible. This extends to all levels, from collection to visualization. In the collection phase, individual data and non-relevant metadata (e.g., authors' names in dataset undergoing computational analyses, cfr. Methodology) have not been requested from the API. However, when qualitatively considering comments, usernames and profiles might be a relevant asset. To this end, authors have been anonymised through a hash function and stored in a different file, with an index reconnecting comments to their authors' profiles. This is to enhance anonymity while still allowing aggregate analyses (e.g., distribution of authors and comments), and to avoid uploading potentially sensitive data on distributed cloud storage system due to routine data backups; this indexing made it possible to potentially retrieve author-level metadata if the necessity arose during the research.

Similar steps have been taken when aggregate analysis was not possible. Excerpt from comments and ethnographic observation were fully anonymised, and potential sensitive data removed. Additionally, the research focused on the socio-technical structure of platforms, giving less room to sensitive or personal data to be disclosed. While online comments might still be reached through other means due to their public availability, their anonymisation is an additional step to limit the potential match between content and user. Interviews excerpts underwent similar practices for both content and metadata (Saunders et al. 2015). Details about individuals have been summarized and reported individually, following consent given before and during the interview (cfr. Ethnographic Data). Interviewees have been pseudonymised, and potentially sensitive information has been removed (see Gerrard 2021).

3. Karma Chameleon: Affordance imaginaries and discursive approaches to social action on Reddit

Imaginary and affect have increasingly been considered in the study of social interaction in digital environments. Such efforts led to account for individual understandings of technical infrastructures (Bucher 2017, J. Gray et al. 2019) and the culture of platforms (Scolere et al 2018), focusing on how these can influence social interaction (cfr. Cultural and Social Contexts). This concurred to mitigate methodological concerns given by limited access to data (Bruns 2019) and to balance social and technical tensions (cfr. The Duality of Context), in turn shedding light on forms of social action less linked to traditional understandings of platforms and their features, such as the hashtag on Twitter (Airoldi 2018) or stories on Instagram (Bainotti et al. 2020). Overall, this concurred to consider how social, cultural, and technical factors intertwine with perception, emotions, and imaginary in complex and layered ways to guide behaviour. The emotions behind a downvote, for example, can stifle further expression (Davis & Graham 2021), and cultural customs can challenge attempts to frame sociality undertaken by digital platforms (Costa 2018). These concerns are close to those motivating the conceptual malleability of affordances (cfr. Affordances and Sociality), where cultural legitimacy and individual factors are increasingly being considered as central in guiding understanding and behaviour (Davis & Chouinard 2017).

A similar framework is that of the *algorithmic imaginary*, proposed by Taina Bucher to account for how the “ways of thinking about what algorithms are, what they should be, how they function” (Bucher 2017, p. 40) affect social behaviour. More than their actual infrastructural properties, it is how algorithms are imagined by users that affect every day social interaction on digital platforms. Thus, individual factors do not only drive sociality, but recursively affect how the algorithm structures itself as a whole – how it learns (cfr. Techno-Sociality and Methods). Broadening to affordances as a whole, Peter Nagy and Gina Neff introduce *imagined affordances* to consider how affordances “emerge between users’ perceptions, attitudes, and expectations; between the materiality and functionality of technologies; and between the intentions and perceptions of designers” (Nagy & Neff 2015, p. 5). Facebook’s feed, then, is more than a single feature at the same time: it is an algorithmically ordered report aimed at maximising engagement, a chronological representation of interactions, an objective report of friend’s activities, and more. It changes based on users’ perception, affect, and imagination. This, in turn, allows to consider for social and cultural contexts when approaching affordances (cfr. Cultural and Social contexts).

Both *algorithmic imaginary* and *imagined affordances* are useful concepts. They both include ways in which affordances drive social action beyond the restrictions given by a technical infrastructure and the intentions inscribed within it; they incorporate personal factors such as perception, literacy, and affect; and they make it possible to consider how these factors intertwine with social action as whole, both the way in which it is inscribed within affordances and due to their deployment. Additionally, they mention the possibilities of

different conceptualisations of affordances taking form and driving behaviour based on a combination of these factors. This is especially relevant. Considering the possibilities of different imaginaries, and extending the concept of affordances to include the way in which those are co-constructed and intersubjective (cfr. For a Sociology of Affordances), allows to consider for an overlooked factor: the ways in which different imaginaries relate to one another. If different imaginaries can drive social action in different ways, the ways in which those clash, merge, and interact with one another become extremely relevant. Furthermore, it relates in layered ways with the social behaviour of individuals and groups. How does an imaginary become prominent or hegemonic? How do they change in relevance, and why? How do interpretations relate to broader social structures and groups? And most importantly, how are different imaginaries affected and how do they affect social action on digital environments?

Following this line, I propose to consider an *affordance imaginary*. This means considering how they impact on behaviour based on perception, affect, and contextual factors, focusing on how their meaning is co-constructed and intersubjective (cfr. For a Sociology of Affordances, see also Schmidt 2007). Aside from balancing technical and social aspects, an affordance imaginary thus provides a way to consider the understanding, managing, and navigation of social situations on digital environments (cfr. The Complex Simplicity of Context. Affordances as Flows of Social Information on Reddit). Specifically, emphasizing the social component of affordances vis-à-vis perception allows to account for forms of interaction that are less structured, such as self-censorship, and to consider how cultural and social norms and customs are fragmented and fluid in a digital context. Aside from considering individual characteristics, then, it allows to consider for the structures that regulate behaviour in a digital scenario – the intersubjective nature of digital situations (cfr. Situation and Mediated Environments), and how their definition can take place through affordances.

To consider how affordances are interpreted and deployed based on their perception, imaginary, and affect is to consider how they are used in a specific digital social context (cfr. Cultural and Social Contexts). To do so, an analysis of how affordances have been discursively deployed through comments provides a glimpse into their fragmented understanding by individuals, highlighting groupings, similarities, and discrepancies. Specifically, a sample of comments mentioning the karma system on the r/coronavirus community on Reddit have been manually analysed and categorised based on the different imaginaries they represent. Such an approach to the analysis of comments is based on critical discourse analysis (Fairclough 2013), as it tries to find the link between discursive practices and broader social and cultural structures. Additionally, it incorporates elements taken from the digital analysis of comments, such as indexing and sampling through keywords (Caliandro & Gandini 2016, see Chart 1). Subsequently, said comments have been used to train a supervised machine learning model through a k-nearest neighbours (KNN) algorithm, to extend categorisation to the population of comments (cfr. Digital Data). Furthermore, analysis has been informed by ethnographic observation of both the community and the platform (cfr. Ethnographic Data).

	February	n	March	n	April	n	May	n	Total	Total n
<i>downvot*</i>	1,574	125	8,966	125	8,117	125	3,250	125	22,407	500
<i>upvot*</i>	716	125	4,077	125	3,154	125	1,352	125	9,799	500
<i>karma</i>	378	125	1,719	125	988	125	363	125	3,948	500
Mentions	2,668	375	14,762	375	12,259	375	4,965	375	36,154	1,500

Chart 1, distribution of comments by month, keyword, and sampling

3.1 Analysis and findings

The karma system, an affordance composed by a score given by positive and negative votes, is one of Reddit’s central features (cfr. Reddit and its Affordances). As shown in *Chart 1*, it is discursively deployed not as a single monolithic block, but by the parts that compose it. *Upvotes* and *downvotes* are both used more than *karma*, denoting asymmetry in how they are conceptualised and used in conversation (Graham & Rodriguez 2021). Despite this, they all coalesce into six broader categories of use. Karma is imagined as the manifestation of *collective norms*, as a *capital*, as denoting *truth*, to manage *visibility*, to uphold *standards of conduct*, and to manage *personal identities*. Imaginaries not connected to previous groupings are categorised as *others*, with an additional *off-topic* category.

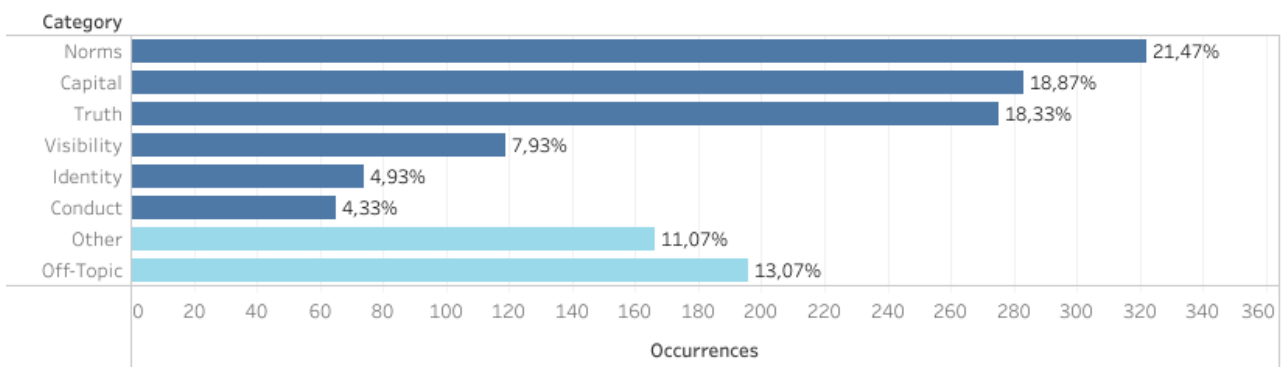


Chart 2, occurrences per category

Karma as collective norms

One of the ways in which users perceive karma is as a reification of communitarian views and values. Downvotes and upvotes are here intended as a form of social pressure, deployed to promote behaviour that conforms to situated cultural and social norms. This is particularly relevant for what concerns social sanctions, rather than rewards. Thus, users are aware of the collective pressure that karma exerts, and take steps to avoid this: a comment going against the grain, then, could be prefaced by a warning underlining a contested opinion. Thus, users know when and how they will get sanctioned, or “get downvoted for this”. This hints at

an awareness of the collective social dynamics expressed by the karma system, as well as the specific social norms within the subreddit.

“This question might make you lot hate me and downvote me but if they can't get the gear provided by the hospitals to treat their patients should we actually let them treat the people? This just results in more cases!”

“The only reason you're getting downvotes is cause your bias is the polar opposite of the majority of people in this sub. You made some really good points but unfortunately here in reddit the majority always wins. [...]”

“I asked a question about CNNs legitimacy vs Fox. (Im distrustful of all mainstream media btw). I had several people tell me they hope I got coronavirus and killed my family with coronavirus. I got my comment removed after 30+ dislikes. The guy telling me I should die and all the stupid republicans like me should die got 10 upvotes and never got in trouble.”

Individuals often discussed the norms of r/coronavirus, seen as a mostly democratic leaning subreddit, favouring generalised lockdown and strong restraining measures, while being critical of how the crisis was being managed by the government of the United States and China. This interacts with broader cultural perceptions of Reddit as a whole: while the majority of comments referred specifically to r/coronavirus and its own norms, in some instances those were linked together (see Chandrasekharan et al. 2018). This underlined the relationship between subreddits and the platform as a whole (cfr. The Karma System, Subreddits, and Pseudonymity). The r/coronavirus subreddit is an entity with its own social and cultural understandings (cfr. The Karma System, Subreddits, and Pseudonymity), but *how* these are enforced is part of a platform-wide pattern.

“Redditors will downvote facts when they go against their narrative. Not surprised unfortunately.”

“China hasn't taken a single action they didn't take during the SARS panic. They quarantined the same, they shut down businesses and schools, etc. Yes, we're highlighting the abrasive nature of their quarantine this time around, but it was just as abrasive before. The only difference: Redditors hate China now, so anything to hype the fact that China is totalitarian. [...] The entire climate of hysterics in 2020 is amplified by the geopolitical landscape and this subreddit just amplifies it further. Edit: I don't mind downvotes, they're expected. You go into a subreddit based on hysteria and tell the subscribers "You're being hysterical", they're gonna downvote you. I don't mind because it doesn't change the facts.”

Sometimes discrepancies around what is perceived as the hegemonic point of view would arise. This is particularly apparent when considering favourable opinions around China, generally and based on how the Chinese government managed the pandemic. When such an opinion gets upvoted, users attribute this to the work of “government skills”. The perception of collective norms is crystallised, so much so that deviations are attributed to attempts to manipulate comments made by Chinese government actors, or, more generally, as “brigading” – coordinated attempts to influence the otherwise organic social expressions of a community (Massanari 2015).

“Seriously, why is your comment downvoted?? I can't handle this post. Everyone is suddenly in love with China's response because it's legos making fun of the US?”

“Try saying anything about Dr Francis Boyle and watch the downvotes flow. People always talk about China's government having a large presence on reddit. Now you can see it in real time, and this sub would certainly be one they kept an eyes on.”

“It's a matter of national security. The CCP seeks to push their ideology overseas and undermine democratic nations. Just look at this thread, anything mentioning China as a dictatorship is down voted. Anything praising China is upvoted.”

“I mean this guy is a chinese troll worker look at their post history. Any one who disagrees gets down voted however no other comments. As if they're telling their buddies to downvote a comment they don't like.”

One of the ways in which karma is perceived is as a manifestation of the ethos of a subreddit, making its cultural codes and social norms visible. This knowledge is both co-constructed and intersubjective, as individuals “brace for downvotes” when proposing views that stride with localised norms and values. While this is the most common ways in which users express their understanding of the karma system, it is not the only one. Karma is also seen as a capital, mainly leaning on the symbolic value of the score.

Karma as (social) capital

The upvotes and downvotes accrued by a user's comments and posts are coalesced into a karma score, displayed on each individual's profile. Users see the accumulation of this quantitative resource as one of the main uses of karma, representing the backbone of why users post, comment, or act. Broadly speaking, the karma score represents a form of quantification of social activity. Notably, some subreddits limit interaction to new accounts, as based on both how old an account is and how much karma it has. This intertwines with the perception of karma as a symbolic capital, legitimising users that have it and, more relevantly, discrediting those who do not.

“I had 39 karma awhile back and it didn't let me [post], tried again after 100 karma and it worked. But then I discovered no one reads my posts, so I'm back to thread commenting :)”

“The account that made that post has literally 4 comment karma over 3 years, and the one they claim is the troll has 300. Kinda seems like they're both fake and it's a meta troll like the kid that started claiming he was really Q. There's a good chance they also made the post. The two doing this are just nowhere near the level for this to happen organically [...] It's also a 1 karma point reply. [...] It's way more likely that all three accounts are the same person and you're being set up. Someone just thinks the people over there are stupid and is trying to get you all riled up.”

However, the accumulation of karma is not only seen as central due to its ability to provide access and legitimise individuals or their opinions. The effects of karma as an infrastructural feature are limited: only a

small amount is required to gain access to posting and commenting in all open subreddits. This underlines its symbolic value, imagined as a force driving users' interactions on the platform (Massanari 2015). Karma is then a resource to accrue: individuals post content to raise their score, rather than to contribute to the conversation or to conform to broader opinions. Again, this interlinks Reddit as a platform and r/coronavirus as a subreddit. While the social and cultural codes leverageable to gain that "sweet karma" vary by subreddit, the dynamics this engenders are the same. Posting content that has already been posted and/or well received, *reposts*, is seen as sanctionable; this leads to calls about "karma whoring", addressed at users who post or comment to "farm karma".

*"Just adding to circlejerk for upvotes. Isn't that the entire point of Reddit? What's worse, I'm sure *everyone* around here has done it at least once."*

"It's also really easy karma on here. Repost a bad news article and you'll get 20 karma minimum before it's even pulled down."

"Everybody says that like they're actually gonna do it and not just whoring for karma. No, you're not gonna boycott Made in China products. Even the stuff in your house that isn't made in China probably has components sourced in China."

When individuals act in ways that do not adhere to other imagined uses, karma accruing is often pointed as the culprit. When users post content that is not conforming to localised norms, or perceived as low quality, individuals perceive it as an attempt to accumulate capital. To some extent, then, the accumulation of karma is transversal to other ways of conceptualizing upvotes and downvotes, intertwining with opinions and the veracity of claims. From this angle, a false information is not an attempt to alter the dynamics of opinions, and different opinions are not genuine. Rather, they are attempts to "fish for upvotes".

"Actually, if you knew jack-all about this virus, you would realize it IS pretty unique compared to most others we have faced. Especially with how it affects the other organs in the body and the potential nerve-binding. But, I assume spamming replies and trying to fish for upvotes from fellow morons is a better use of your time than doing any research whatsoever, right?"

"It's forgiven if it's used for rent and mortgage payments too, as long as the lease/mortgage was in effect before 2/25. Keep spreading that misinformation for that sweet, sweet karma. Jesus."

Karma as truth

One of the ways in which karma is imagined by users is as a way to mark what is true. This means an adherence to general standards of quality and truth, as opposed to false or undocumented claims. As r/coronavirus is a subreddit which defines itself as geared towards scientific discussion (cfr. r/coronavirus), this often takes the form of scientific sources and appeal to logic and objective thought. Leaning on

objectivity, as fostered by the situated rules of the subreddit promoting scientific discourse, also has implications regarding how karma can be imagined. Other discursive approaches contained indeterminacy: a perception of karma as intersubjective and co-constructed, but employed individually and instrumentally to enforce opinions, accrue capital, or regulate visibility. This shroud of objectivity, however, leaves less room for interpretation: upvotes mark what is true, and downvotes what is false or lacking in verification.

“Not sure why you’re being downvoted. It’s literally the truth.”

“You shouldn’t have been upvoted because you’re wrong. First off, they absolutely claimed that he didn’t send anything. Secondly, he didn’t just send shit on a whim. He had conversations with professionals at these hospitals. They knew exactly what he was sending and they agreed that what he was sending would be useful. Stop making shit up.”

“PhD in microbiology and immunology here. Whoever downvoted you is simply wrong.”

Like other forms of imagined karma, it is a shared understanding. This translates to a sort of collective validation, where the score indicates how the wisdom of the crowd has spoken. This intertwines with the dynamics of the platform at large. While r/coronavirus focuses on objectivity and sources, Reddit as a whole enforces what is perceived as the truth in ways consistent with the community. While not every comment on Reddit is upvoted for posting sources, or downvoted if lacking, it is still voting that determines what is “correct”.

“Downvoting you might make you realize that you’re incorrect though and signal to other uninformed readers that the information that you’re spreading is wrong and they should not spread it.”

“I agree, but reddit is like a real time peer review. Pretty much the point of upvote and downvote. Once a guy said the Coronavirus was a hoax perpetrated by the weather weapon guys trying to convince us of climate change.”

“When what you think is true is often downvoted, do you ever take a break for one second, just one second, to think that what you believe is actually not true? No?”

“You’re right. Simple logic requires Reddit karma to get through to some. 🙄”

“I downvote false and unfair accusations on all sides. [...] The downvotes you are experiencing is common sense from all over the world. This subreddit has 2.000.000 members from different countries with different backgrounds. [...] Here is my down vote from Germany.”

This focus on objectivity creates tensions: what is perceived as truth in one case might not be true in another, and what gets socially promoted in one instance might correspond to different, clashing, imaginaries. During these moments, the mismatch between conflicting imaginaries becomes apparent, as is the case for an individual going against a democratic candidate:

“Also, did you notice how you say “Those donations can be from individuals” and you get upvoted. I disprove that and show you the data, and I get downvoted. You can see this right in front of your eyes. Information that you now know to be false (your statement) is getting upvoted. While information we know is true (my reply with a link) is getting downvoted.”

Multiple forms of karma

While three karma imaginaries take up the majority of discourse, those are not the only ways in which users conceive it. Karma is understood due to its ability to regulate *visibility*, and to promote or sanction specific *standards of conduct*.

The tie between visibility and karma is inscribed within the platform. Content is algorithmically ranked based on a series of factors, among which the score. Additionally, subreddits can collapse, or hide, downvoted comments and messages from new users. Individuals consciously upvote and downvote content to ensure its visibility, drawing from a variety of factors.

“Are you asian american? Hoping to debunk the stereotype going around on this subreddit. Upvote for visibility.”

“Always upvote so the message can get out to the stupid people who dont care.”

As mechanisms of visibility apply to both content and comments, they answer to different logics. Comments are upvoted to ensure that they become more visible within a discussion, and are therefore limited to r/coronavirus; conversely, posts can become more visible on both the subreddit and on the homepage of the platform, the frontpage.

“This has got to be one of the most underrated comments of all time. As far as upvotes are concerned, this should have a lot more. The awards are on point and more people need to see this comment”

“We need to upvote this to the front page.”

Karma is imagined also as a way to sanction or promote proper etiquette, regardless of slant, opinions or positions. This roughly adheres to how karma is supposed to be employed according to Reddit’s unofficial code of conduct, the *reddiquette*: to privilege meaningful contributions to the conversation regardless of opinion and to sanction offenses, personal attacks, and comments going against a subreddit’s rules (Reddit 2021).

“Sorry. I don’t check Reddit that often. Cheers for the downvotes for trying to have a debate. Name calling will certainly help convince me to change my opinions.”

“I am sorry you (we?) had to get downvoted for asking an honest question.”

Notably, both of these categories differ conceptually for the previous ones, insofar as they adhere, to some extent, to platform-embedded conceptions of karma. Visibility is explicitly regulated by voting practices, while the *reddiquette* is explicitly suggested by the platform as the way in which karma should be understood by users. Despite the embeddedness of this cultural and infrastructural view of karma, both of these uses are the minority when compared to other forms of imaginaries.

Less linked to the intensions of Reddit, is the use of karma as a way to address and manage other redditors’ *personal identities* (see Graham & Rodriguez 2021). Due to its affective value, downvotes and upvotes can cater to the user rather than the content. Therefore, karma can be used as a way to express appreciation or grudges towards individuals; this can be an *extrema ratio* for particularly controversial opinions, or as a way to express gratitude in a way that goes over the approval of specific content. This is linked to another affordance, the comment history, used to assess if users are worthy of praise or not. Content, then, is an extension of the poster, rather than an utterance per se.

“Downvote each and every post and comment from [username]. Also report that loser.”

“Check people’s comment history too because lots of people pretend to be something they’re not and you can see how reliable they are by looking at their posts and comment history. [...]”

“How do you have upvotes, trumpster.”

“Thank you so much! so much karma for you!”

Discrete parts: upvotes, downvotes, and karma

The presence of different imaginaries is not only relevant insofar as they represent different understandings of karma and affordances. Rather, their relevance lays in *how* they relate one another. So, for example, an imaginary can gain prominence or fall over time: from this angle, the ways in which imaginary fluctuate is relevant, as one specific understanding of karma can follow the ebbs and flows of another one or, vice versa, be completely independent from broader recontextualizations. To this end, extending classification to the whole population underlines how imaginaries change over time. At an aggregate level the three main narratives remain those pertaining collective norms, capital, and truth, albeit with variation in percentage distribution (see Chart 3).

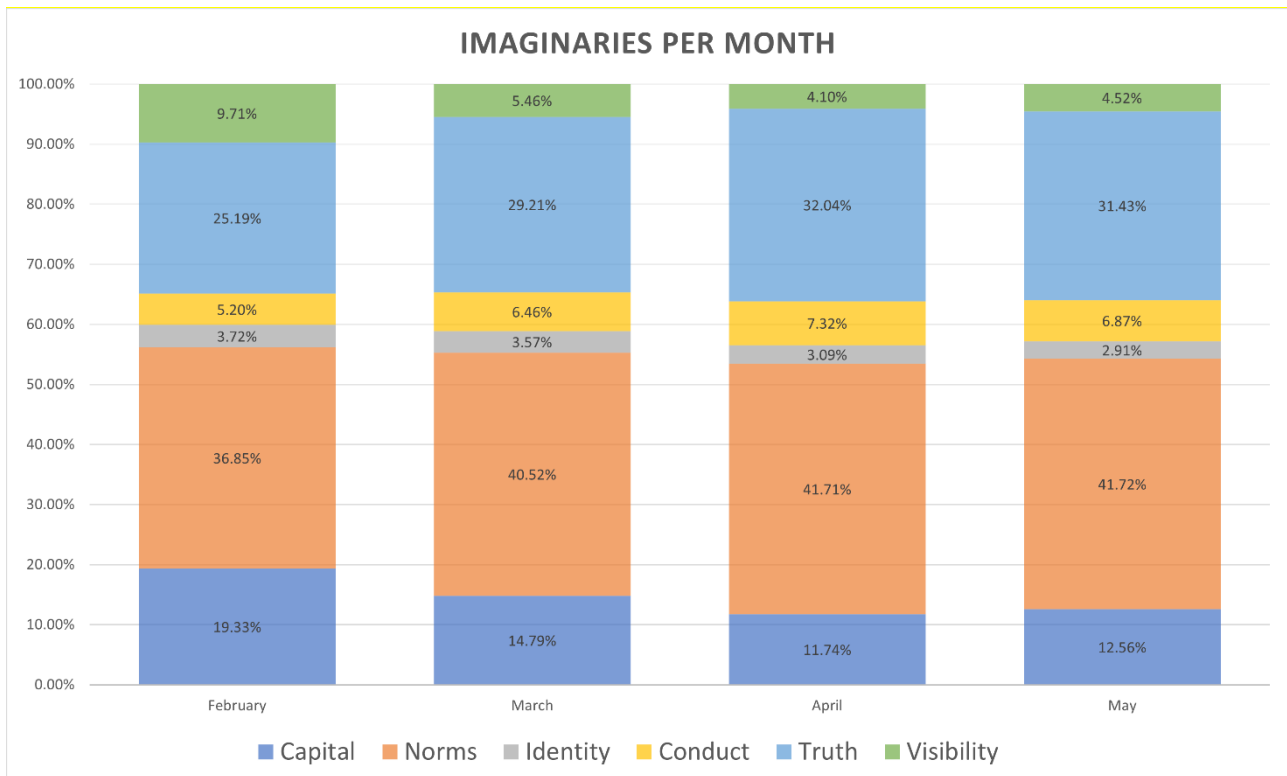


Chart 3, imaginaries by months and category

Karma imagined as representation of *collective norms* and customs varies over time, increasing month by month until covering the 33,33% of all comments in May 2020. This is consistent with the nature of r/coronavirus, as it represents a subreddit to some extent disconnected from Reddit’s broader cultural dynamics (cfr. r/coronavirus). Furthermore, the pandemic was at the time a new phenomenon. This suggests that the community as a whole might have needed time to develop a shared social and cultural code, which can then be enforced more clearly through comments, solidifying the perception of karma as a tool to regulate interaction following specific, localised norms. As the flux of users and comments increased exponentially over the months taken in consideration, users perceive this pressure more explicitly:

“This is the biggest reddit hive mind going today ! You better get with it or else all your karmas going away !

- elon musk is a bag of shit!

- hydroxclorquin doesnt do anything !

- oh man, trump dropped the ball, horrible response!

- whatever bill and melina gates say goes ! Theyre billionaires and sit on boards and stuff !

- Fauci is great ! Even though he said in january it was lil more than the common flu and in February said masks dont do anything !

You idiots better get on board and agree with us or else !”

Karma imagined as *truth* sees an increase as well, from the 19% of February to 25% in May. Being the two most used, and culturally sensitive categories, increases in both groups point towards a higher crystallisation of opinion dynamics across the subreddit. This is underlined by a decrease in use of more general imaginaries

such as *capital*, *visibility*, and *personal identities*. Similarly, *off-topic* comments and residual uses, *other*, decreased as well.

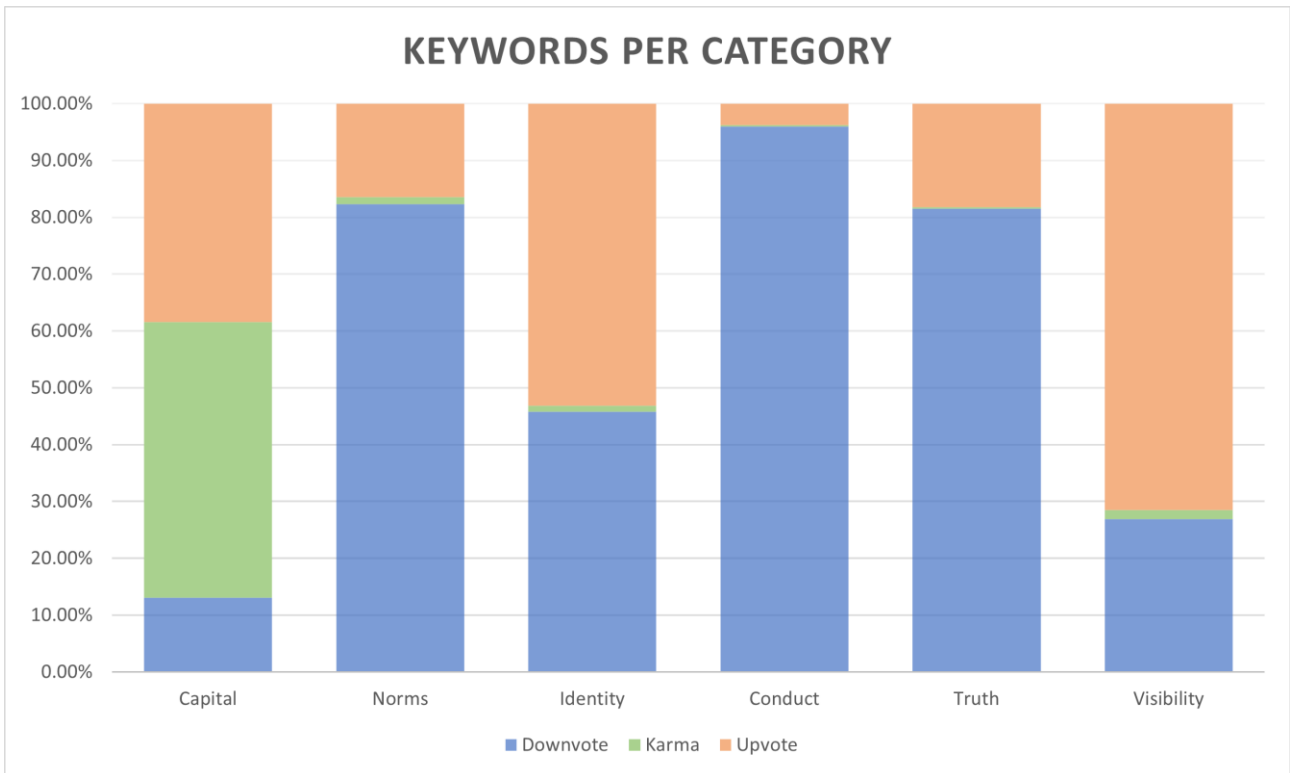


Chart 4, keyword distribution per category

The ways in which the karma system is imagined is not abstract. Rather, it takes form in practice. The karma system is composed by different parts: upvotes, downvotes, and karma broadly speaking; these three parts coalesce, and their combined understanding is what constitutes broader imaginaries. Considering which components are discursively deployed when an understanding of karma is constructed allows for a deeper understanding of imaginaries at large. As seen in chart 4, the ways in which different imaginaries mention downvotes, upvotes or karma already exemplifies the meaning users assign to such an imaginary. The enforcement of *collective* norms takes place mostly through the discursive deployment of downvotes (82%); this is consistent with the widespread conception of downvoting as being central in limiting expression. While conforming opinions seems to be upvoted, it is through the threat of sanction that norms are enforced and made explicit. Similarly, sanctioning is overwhelmingly prevalent in determining *truth* and *standards of conduct* as well. Conversely, the accumulation of *capital* is mostly imagined in relation to karma and upvotes, while *visibility* is mostly managed through upvotes. Individuals seek to accrue karma, rather than losing it; similarly, visibility relates to infrastructural dynamics due to the ability of karma to push content to the frontpage, or “all the way to the top”, and less so in “burying” comments through the management of ranking. Karma as a way to manage *identities* is present in around 2.5% of the posts: notably, it is the only imaginary in which upvotes and downvotes have a comparable use, without one overwhelming the other.

Intersecting imaginaries

Karma is imagined and employed in different ways. However, these different imaginaries are not always mutually exclusive. Rather, much like downvotes and upvotes, they intersect and affect one another in layered ways. This becomes apparent when individuals' views of how karma should be used clashes with other interpretations: "why did this get downvoted?". For example, a comment might provide what is perceived as factual data to support a statement; however, if opposing the climate of opinion of the subreddit, they are met with the collective sanctions reserved to deviant opinion. How can a comment providing sources, therefore stating the *truth*, be downvoted?

"Are you serious. Any post citing data in a way that isnt "we are all going to die" is downvoted to oblivion. Any post that dares suggest that only a fraction of the population is vulnerable to coronavirus - a fact rooted in globally consistent data [...]"

"Is it really "karma" envy? Or is it calling out a sub that regularly supports anti-science nonsense if it pushes a certain agenda? It's important to call this stuff out. How will any of you become better if it isn't called out?"

While this clash is particularly relevant when considering *truth* and localised *norms*, it extends to several of the ways in which karma is imagined. A user might feel discriminated solely due to her political leaning, regardless of how opinions are expressed. Even simple questions can be downvoted if they mark sanctionable topics. This is the case of one of the comments reported above, where *standards of conduct* are perceived as holding up only if in support of a certain opinion.

"Do I upvote for the honesty of your assessment or downvote because Biden?"

This flexibility in how imaginaries are used and employed points towards the fluidity and the social and cultural embeddedness of karma. Karma acquires sense when used in practice, which allows for contrasting definitions to arise (see Costa 2018). While in some instances it is individuals who try to negotiate and find the "right" use of karma, this declination into a specific context – the subreddit – and around a topic – the Covid-19 pandemic - overall makes possible the deployment of contrasting and interlocking imaginaries. These imaginaries are broadly based on perception, practices, and context. Moderation practices might point towards a use of karma to promote guidelines, such as the case of truth, quality, and scientific approaches on r/coronavirus (see Squirrell 2019). The platform as a whole, conversely, promotes another imaginary: that of contribution and respect of conversational etiquette. And yet, other imaginaries can impose themselves as prevalent, based on the construction and interpretation that individuals collectively establish by defining and negotiating uses in practice through affordances.

3.2 Conclusions

Affordances do not have a univocal interpretation. Rather, they foster multiple imaginaries. Such *affordance imaginaries* are ways in which individuals conceptualise the meaning of platform-features based on individual characteristics, such as perception, literacy, and affect, as well social understandings of social and cultural norms. Such imaginaries are co-constructed and intersubjective, the result of mediation between practices and culture, context, moderation, and platform (Nagy & Neff 2015, McVeigh-Schultz & Baym 2015, Davis & Graham 2021. Cfr. For a Sociology of Affordances). For example, algorithms can affect social action based on their interpretation by users, required due to their complex, distributed, and recursive nature (Bucher 2017). However, even more relatively straight-forward affordances, such as the karma score, engender multiple imaginaries, which in turn concur to guide social action in layered and interconnected ways. Karma is imagined according to platform guidelines, to quantify “how much [...] contributions mean to the community” (Reddit 2021); it is imagined based on how moderators attempt to frame the culture of a subreddit (see Squirrell 2019), such as leaning on quality and sources on r/coronavirus, or as a way to regulate the visibility of content. Despite this, it is mostly imagined and deployed to perform cultural codes and enforce social norms, by sanctioning deviant expression and promoting conforming opinions (see Graham & Rodriguez 2021). This underlines the *social function of affordances*, due to their ability to make visible social norms, allowing for their intersubjective and co-constructed definition, negotiation, and enforcement.

Aside from its relation to cultural codes and social norms, the ways in which imaginaries are established and employed is per se a testament to their social nature. Different conceptualisations often clash with one another, contributing to contrasting views of how to act in different scenarios. The imaginary fostered by the platform can contrast with those fostered by moderation, and individual understandings can differ from those collectively established as hegemonic within a specific context. In fact, imaginaries affect the context. A discussion can be, among many others, a place for scientific discussion, for casual conversation, or a way to accumulate symbolic capital. Affordances then contribute to establish “what is going on”, and to both underline in what social context individuals are operating *and* guide how to socially act in such a situation. The collision between different affordances’ imaginaries reflect contrasting definitions of the situation. Users are aware of this, as is certified by the clashes felt when there is a mismatch between the social situation an individual perceives and the one others collectively agreed on (“Why am I being downvoted?”). *Affordances can then concur to create, negotiate, and maintain social situations in digital environments*, by making different shared social norms and cultural codes visible based on context.

4. Quality assurance: the intertwining of moderation practices, norms, and affordances in guiding expression

Affordances are conceptualised and used in different ways, based on a combination of personal, social, and technical factors. However, it is not only their actual understanding and deployment what is relevant, but also how such definitions, imaginaries, and interpretations come to life and become prominent. This happens as a result of mediation among different actors and features (cfr. Affordances and Sociality). Among these, is the influence of context and moderation policies. On digital platforms, context can take different forms, such as groups, hashtags, and subreddits, each with their own social norms and cultural codes (cfr. Cultural and Social Contexts). However, such spaces do not neutrally arise. Rather, they are often created and managed by users, who determine the imprint and direction that a community takes by establishing its topics and the tones of the content within it. Moderators are central in determining how a community is created, how it evolves, and how it structures social interactions within it. Moderation practices, such as the approval or removal of content, the establishment of guidelines, the management of users, and more, are central in determining the social and cultural practices of communities. For example, allowing or restricting content based on a conception of free speech can drastically alter how a community on the same platform, with the same topic, and with overlapping userbases, approaches conversation (Gibson 2019). Despite this, user-based moderation does not always goes as planned. Rather, users negotiate, influence, and interpret the climate that moderation sets, often going in different directions than what moderators set out to accomplish; for example, individuals might leave a platform altogether in response to restrictive measures (Ribeiro et al. 2021). Additionally, moderating practices are often entwined with the community, that by reporting content concurs to influence general guidelines and algorithmic moderation (Gillespie 2018).

The way in which moderating practices and user-based understandings affect one another is layered and complex, and it goes over the exertion that a mismatch of power can provide. In fact, it also extends to affordances. Users can deploy affordances in ways that challenge or oppose the interpretation given by moderation, for example by circumventing rules through the use of coded language in hashtags (Gerrard 2018). The ways in which users employ a hashtag or the karma system, then, are the result of individual factors, social understandings, and moderation practices. While moderators attempt to guide interpretations of affordances, their actual use is the result of a dialectic between users, community, and moderation (Squirrell 2019). The ways in which user-based norms and moderation-based rules interact and affect one another are complex. This is particularly relevant, as their combined effect can become tangible *before* social interaction takes place. For example, users can pre-emptively select spaces in which to express (or not express) based on the perception of the norms, rules, and customs that drive a community (Triggs et al. 2019). How affordances can concur to make moderation practices and social norms visible, in turn affecting how those iteratively intertwine, becomes then central. While research has focused on how moderators can

structure and influence social interaction on digital spaces (e.g., Gillespie 2018, Seering et al. 2019, Lynch 2020), less attention has been dedicated to how moderation guidelines, norms, and affordances can coalesce, affect each other and, in turn, social interaction (see Squirrell 2019).

This becomes particularly relevant when considering self-censorship, as it is affected by both rules and norms. Self-regulation in the form of self-censorship can take different forms, such as falsifying an opinion (Kuran 1997) or withdrawing expression (Noelle-Neumann 1974) to avoid sanctions or reap rewards. On social media this can mean segmenting audiences through the creation of multiple profiles based on practice (Costa 2018, Dewar et al. 2019) or removing oneself from social contexts perceived as controversial, such as a mention in a political post (Chen 2018). It could also be more nuanced, such as the last-minute deletion of messages about to be sent on Facebook (Das & Kramer 2013). What all of these have in common is the way they leverage on affordances to conform to localised norms and values (see Chen 2018). However, affordances do not concur to self-censorship exclusively due to how they make possible at an infrastructural level to change or withdraw expression. Rather, they concur to do so due to how they mediate and render visible a specific climate of opinion, informing users about dominant expression within a specific context. For example, emojis and comments can coalesce to shape broader perceptions of the general slant of opinion in an online discussion (Leong and Ho 2020). Additionally, affordances intertwine with the broader perception of technical structures and norms: the perceived level of anonymity can affect willingness to express when considering controversial topics that might lead to social sanctions (Wu & Atkin 2018). This is not exclusively a digital phenomenon, but rather reflects broader norms, such as, for example, the perceived difference between work and leisure codes (e.g., Marwick & boyd 2010).

Self-censorship in response to norms has then been extensively considered. However, norms are not the only factor that affects social interaction in digital environments. Rather, affordances make the rules and moderation practices of a group visible as well, in turn affecting behaviour in context. For example, the info box of a Facebook group or the sidebar of a subreddit, or more generally the removal of content, can clearly establish what the sanctions are for the violation of specific rules. Moderating practices, as engendered through affordances, can then affect social interaction. The removal of content by moderators, for example, affects the removal of content by individuals, even without the intervention of actual sanctions: on Reddit moderation practices inform the self-censorship of content by users (Gibson 2019). This suggests how moderation has an impact that extends beyond the actual practices and measures that are exerted in a top-down fashion. Rather, moderation practices and rules in a community are made visible through affordances. This visibility in turn can concur to affect behaviour in ways that go over actual intervention by moderators. Users can internalise rules due to their visibility, withdrawing or altering expression based on the perception of such rules and of moderation practices in general. Moderation practices, and how their perception intertwine with affordances and expression, have been considered (e.g, Squirrell 2019, Gibson 2019). However, despite their centrality, little attention has been dedicated to how the *visibility* of moderation

practices can concur to affect behaviour; specifically in relation to how users might internalise specific behavioural codes that affect interaction before actual sanctions get in play. To this end, for example, what content gets removed by moderators, and how, provides a relevant glimpse into the broader social dynamics of a community and their relationship to affordances. This happens not in virtue of the top-down sanctions exerted by moderators per se, but in virtue of how the reception of such acts by other users can lead to self-censorship. Moderation guidelines and norms can both concur to affect behaviour due to their visibility, and both in turn can be deployed to regulate and self-regulate behaviour according to a broader social situation and its codes. How this happens due to the visibility of moderation practices and rules, however, has been overlooked, and is central to deepen the understanding of social interaction in digital spaces.

To consider how affordances, moderating practices, social norms, and self-censorship relate, it is useful to consider Reddit and its *r/coronavirus* subreddit (cfr. *r/coronavirus*). Comments on the subreddit will be analysed using a combination of ethnographic observation, focusing on interaction and moderation practices, and unsupervised machine learning through topic modeling (cfr. Data Collection). Specifically, analysis will focus on the comparison among online comments and those removed by their own authors.

4.1 Analysis and findings

The imprint of moderation is complex, and takes different forms based on the affordances of a platform. On Reddit, this entails considering a series of factors: how a subreddit situates itself into the broader ecology of communities, what is the way in which it approaches a topic, how active moderators are - and more. To consider how the moderation of a subreddit affects social interaction, then, is to consider everything in a subreddit that might reflect its broader imprint.

This starts with its name, which is particularly relevant for the case of *r/coronavirus*. While the naming of a subreddit does not determine its content, it concurs to position it in relation to other communities. For example, *r/coronavirus* is geared towards more general discussion about the pandemic, while *r/covid19* is focused on scientific discussion, using mainly academic journals and reports as sources. As is the case with other communities (see Gibson 2019), however, one of the main reasons that leads to the rise and fall of other, conflicting, subreddits is that of moderation practices. This concurs to explain the difference among two of the biggest subreddits dedicated to the pandemic: *r/coronavirus* and *r/china_flu* (this holds true for March 2020, cfr. Data Collection). As mentioned, the former is more general in the nature of its discussions, but is also keener on stricter moderation practices. Conversely, *r/china_flu* has more lax rules for what concerns the removal of content. While the stark differences in content and languages between the two subreddits are beyond the scope of this analysis (see Zhang et al. 2020), the evolution of the userbase still concurs to point at how *r/coronavirus* quickly established itself as the most popular community *also* in virtue of its moderation practices.

The focus of the imprint of moderation is on *quality*, broadly intended. This is articulated in several ways across the community and through its affordances, starting from its description as a “subreddit for high quality posts and discussion” (r/coronavirus 2021). This is exemplified by its rules, which prohibit political discussion, speculation, amateur research, first-person accounts and sensationalised titles. Additionally, posts are required to provide a source, emphasizing “reputable news sources”. Part of this imprint focusing on quality and sources is also to be attributed to the moderation team, which is partly comprised by virologists and scientists (NBC News 2020), identified by their flairs - markers next to their username identifying them as moderators and reporting their scientific credentials, such as “virologist” if any; additionally, anonymised moderation logs are made publicly available.

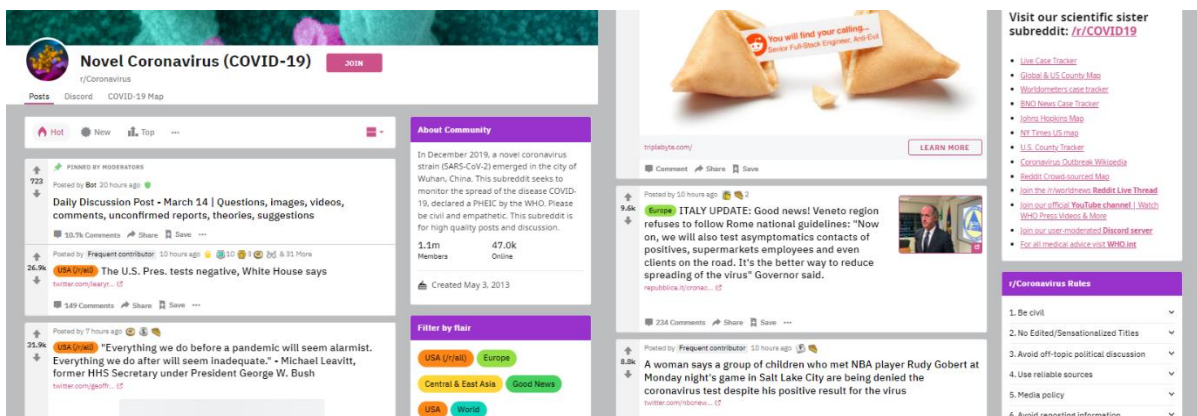


Figure 1, the homepage of r/coronavirus. Rules and description on the right.

The rules are easily accessible and visible (see figure 1). They are visible on the homepage of the subreddit and are recalled as a pinned comment under every discussion (see figure 2). However, this is not the only way in which rules are engendered through the affordances of the platform. Rather, non-complying content is removed, and a tooltip stating the reason for the removal is left as a comment reply. This includes both manual and automated moderation. In the first case, the moderator expresses why a comment has been removed, relates it to the rules of the community, and provides, if necessary, proper contextualisation and sources, for example by linking to public health agencies (see figure 2). Automatic moderation also has a role in reiterating rules, such as, for example, automatically removing posts with sources that are not deemed reliable.



Figure 2, pinned rules in the comments of a discussion, and messages motivating the removal of a post or comment.

The ways in which affordances allow for rules to be reiterated and enforced varies. However, the general guideline is that of *quality*, perceived as an objective goal to be actively pursued through active moderation, such as the removal of content, and the establishment of clear guidelines that respond to such logics. In the page detailing the rules, collective judgement of content through karma is seen as subordinated to the role of moderation. Voting as a form of collective participation is seen as an obstacle to quality, or, as per the frequently asked questions section: “Why not let the votes decide? To ensure high-quality and on topic content and discussion” (r/coronavirus 2021). This tension between the collective understanding of users and the enforcement of rules by moderators, then, regulates the social interactions of the community (see Zhang et al. 2020). More generally, it affects how the ethos of the subreddit is perceived and negotiated in relation to social norms and through the affordances of the platform.

The discursive quality of quality and rules

The effects of rules in regulating social interaction can take direct forms, such as the removal of content that violates them. However, more indirectly, their visibility also concurs to structure conversation on the subreddit. This, to some extent, is visible in the topics and tone of comments on r/coronavirus (see figure 3). The most discussed topic refers to the use of data and their interpretation (6%). The use of figures, statistics, and extrapolation pertaining to the number and the spread of cases neatly fits the effort on quality that the subreddit moderation practices want to express. This extends for the second category, *prevention* (4%),

which focuses on the reiteration of protocols directed at the containment of the pandemic. Comments in this category reflect scientific and medical guidance, such as the use of personal protection devices (PPE) like masks and gloves, and limiting hand-to-face contact. This is similar to the fifth category, *lockdown* (4%), which focuses on the social distancing aimed at reducing the spread of cases. Notably, a similar topic is that of *restrictions* (4%). However, while the *lockdown* category is more geared towards scientific discussion about social distancing, *restrictions* is aimed at the policies enacting those, rather than the science behind it. This distinction is relevant, as it provides a further way in which quality is refracted through conversation in different ways across all categories.

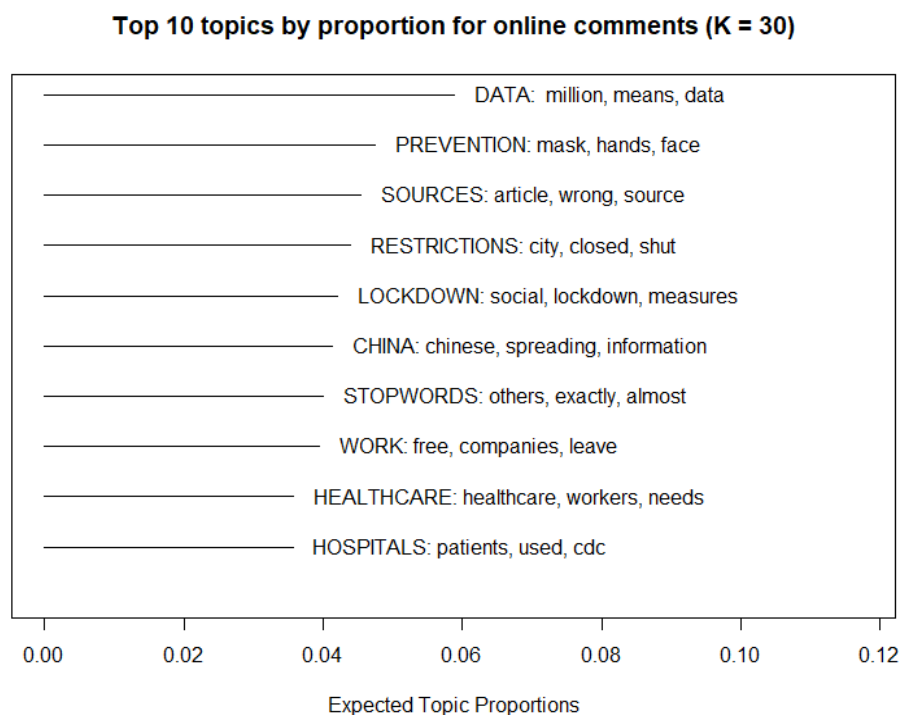


Figure 3, automated categorisation of *r/coronavirus* online comments for March 2020 through topic modeling. Top 10 categories by occurrence. Axis as a fraction of total comments.

The most relevant comment for the *data* topic makes this more apparent. It is a comment focusing on the estimation of cases in the United States based on the number of tests and positivity rates in South Korea. It provides an epidemiological point of view of the pandemic, not granted in a non- scientific subreddit, and it deploys data and figures as a central point.

"Based on reported 3.5% CFR which is likely inflated due to lack of testing and south korea's 0.6% reported CFR and how well they're doing on testing, we can probably extrapolate to say the number of cases in the US is 5x what is reported. Of course this is a crude estimation so take it with a grain of salt"

However, the category that most aligns with the efforts of the moderation to maintain a *quality* discussion, is that of sources. Following the imprint of moderation, users often post sources with their claims, ask them

if not present, and in general use them to verify the veracity of claims. This aptly reflects the focus on sources posed by rules, with moderators often removing unsourced posts. Notably, despite its categorisation sui generis due to methodological limitations, *sources* cut horizontally across conversations, regardless of the issue at hand.

“Please provide source? Ive seen claims of "plausibility" but havent seen anything proving it. I'm not saying you're wrong, just wanna see what you're seeing.”

*“SARS was classed as a pandemic.
Source: <https://www.nhs.uk/conditions/sars/>”*

“Of course.. what the fuck? If you have a better source then do us all a favor and post it please.”

However, quality and its declination through sources does not take place in a vacuum. As article and news outlets are a strict part of the conversation, their validity, both for what concerns user posts and the approval or removal of sources from moderators, is contextualised into broader social dynamics. This means that claims for sources are often used to undermine the credibility of posts and comments, based on individual interpretation of what a worthy source is. Behind the shroud of objectivity, lies the deployment of rules following specific perspectives.

“The only sources you consider reputable wouldn't report it. Very convenient huh?”

“It's unfortunate that you use such bad sources, I'm surprised you didn't use Fox News :)”

“Pretty sure we all can agree on the WHO not being a reliable source at this moment.”

“Thx for clarifying. I would have posted a better title but that's against sub rules. Something like: ‘Hospital asks community to help sew 10,000 masks. Kits are gone in 30 mins’”

“This has been backed up by so much data and you get downvoted this subreddit is bonkers”

This does not apply only to declinations of the moderation imprint, such as quality and sources. Rather, it applies to the understanding of rules in general: affordances inform users about the moderation practices of the subreddit. In turn, users deploy those rules discursively, leaning by extension on the authority of moderators to further individual points of view. This intertwines with social norms, as reified through the

collective use of karma. So, for example, individuals leverage on the threat of downvotes *and* the spectre of the rules to dialectically affect expression.

The transversality of sources, quality, and rules means those are declined regardless of the topic being discussed. However, this becomes particularly apparent when concerning specific topics. For example, political conversation is banned according to one of the main rules of the subreddit: due to this, the very existence of political talk strides with the rules, making every such appearance of a contested ground.

“Keep politics out of it please

Every single thread involving US politicians gets nuked right away.

Edit: Jesus fuck, again with the downvotes. I post news here for you guys, and ask for everyone to follow sub rules, and I get this shit back hahaha. Downvote the fuck out of me all you want, but I’m not wrong. You guys wanna get this shit locked within the hour, be my guest.”

“Doesn’t matter. Follow the sub rules if you don’t want downvotes. It’s not based on how big a place you are from. You can post your concerns in the comments [...]”

This concurs to underline the way in which rules, norms, and affordances coalesce on the subreddit. This tension, however, does not only take place between users, but also between the community and its moderators. Not only can the rules be used to further a specific agenda by users, but *what* the rules are and *how and if* they are enforced, reflects a specific social embeddedness. As mentioned before, this is more apparent when concerning political topics. As all posts concerning politics should be banned, discussions that become too political should be locked down, “nuked up”, or otherwise moderated. However, in this case the application of rules and norms is not homogenous, and it shrieks against the idea of quality that the subreddit and its moderation practices try to project.

“Can we get some legit modding here? The headline and article has been shown to be incorrect in the thread, and I thought we were supposed to avoid off topic political discussion. I’m not American or European, I just wish this subreddit was ACTUALLY for “high quality posts” because there is so much misinformation and clickbait here...”

“Sorry, not WHO link, that was already used so found another. Dumb new sub rules...”

“Sorry, mods, but you cannot escape the fact that this mess IS due to politics. Pretending otherwise is by itself a partisan political decision, because the vast majority of censored and removed comments from this sub are distinctly uncomplimentary and derisive to the current administration in the US; and when that is true, any reasonable person would try to determine the reason for the trend and realize that maybe the sub rules are unrealistic. Political decisions,

and partisan failure to act, have worsened this crisis. Censoring and adding extra scrutiny does nothing but worsen things. [...] Quite honestly, I get better and more timely information from the quarantined subreddits.”

Altogether this tension between users and moderators reflects contrasting views on how to enforce, through affordances, specific points of view and norms. The result is a contested understanding of moderation practices that does not only take place through affordances, but extends to them.

The removal of comments

The tension between social norms, rules, and affordances affects expression. This happens through the discursive deployment of rules, and the constant threat of sanctions in case of opinions not conforming to them. Additionally, users know what content is allowed or forbidden per moderation practices. Comments and posts that violate rules are removed, and individuals instrumentally remind and foster the rules in accord to their own interpretation and purposes. However, affordances do not only make moderation practices visible, but concur to make broader social norms visible. In addition to forms of external sanction and promotion, such as the voting of users or the removing of content by moderators, rules and norms can affect how users express in layered ways. One of such instances is the removing of comments after posting (see figure 4).

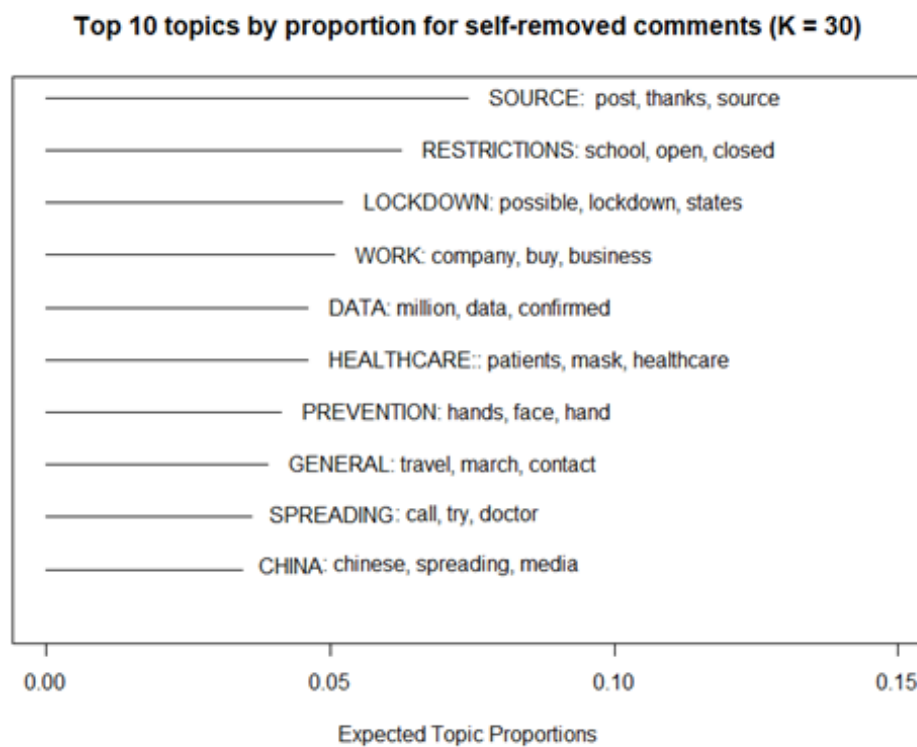


Figure 4, automated categorisation of r/coronavirus comments removed by their authors for March 2020, through topic modeling. Top 10 categories by occurrence. Axis as a fraction of total comments.

The comments removed by their own authors do not seem to vary, category wise, from online comments. The main category is still related to quality, in this case due to a higher emphasis on sources (7%), rather than data (5%). As in online comments, the distinction between *restrictions* (6%) and *lockdown* (5%) remains. The similarities do not stop at the distribution of categories, but also in how the conversation takes place. The use of *sources* by users is similar to that of online comments. Individuals request sources to back up for claims, and contest the choice of what is reputable. This includes both in the interaction among the community and when considering how moderation practices intertwine with the selection of what is valid or not.

“it sure is peculiar how fast this article gets censored, in spite of being from a pretty reputable news source.”

“Please provide a source. I've seen higher rates in the news.”

“10 out of 10 doctors agree. Typing things isn't a source. Posting a link to a reputable source is a souce. :/”

The ambiguity surrounding sources extends to data in general. Here, too, like in online comments, *data* acquires a shifting meaning. For example, users might oppose instrumental uses of data. This underlines the ways in which figures, and numbers take part in the conversation. Statistics, for example, are not only provided as sources to back up claims, or discussed in virtue of the facets of reality they represent. Rather, the own validity of sources, and the perspectives embedded within them, take a part in broadly justifying and expressing specific points of views.

“How am I an idiot? She does no statistical analysis. Literally an exponential curve fit to innacurate data. No sane person would try to pass off pseudo analysis around without fear of looking stupid, which she does. Good luck in life.”

(Removed by author)

[...] And the simple proof is the ratio for people who say covid is no threat for the young. They say something based on scientific data. Yet get downvoted to hell, rightfully so. Yet for pointing out the obvious when it comes to gender still politics rule. Yet wherever you live you can check any bingo hall or elderly care center (just not in person now) or just country statistics to know how fewer years males live and how the 60/70/80+ groups have a growing majority of women domination. But I guess science is no use when gender politics comes in. [...] I say goodbye and won't reply to this bs anymore, as unlike many people here it seems I believe in science (and you can just check disease after disease on wikipedia... or mayo clinic for proof) and sadly you and many here believe in politics. Sad” (Removed by author)

“They gave a 0.1% death rate for the 20-44 group which is the same as the regular flu. And btw they twisted the data. 20-44 year old made up 20% of emergency visits. But that does NOT mean 20% need emergency care. That's not how it works. PLUS these numbers are based off confirmed cases. So these numbers are likley even lower when considering the actual infection rate” (Online)

“Nope, unfortunately Trento is considered by the Ministry of Health as a separate entity from its region.. For data reliability I am not manipulating / merging official data.” (Online)

Additionally, there is no difference in the ways in which moderators and rules are received by individuals. Much like online comments, opinions on moderation practices vary. Moderation is something that concurs to the wellbeing of the community, as it regulates expression providing a much-needed service in managing a community with more than one million users; this in particular is linked to the unpaid labour that moderators do, made of a variety of efforts in maintaining a scientific and levelled discussion. However, moderation is not always seen as positive. Rather, the efforts to keep the subreddit in check are often seen through the optics of pushing a specific agenda. This might mean favouring a specific point of view, like pro-China posters, or a specific political view – as an excerpt mentioned before, users might argue for the choice of not being political as being a political choice per se.

“Woah. Thank you for taking the time to read my hastily worded appeal. I understand that being a moderator, of this sub especially, can be a lot of often underappreciated hard work. Thanks for doing what you do to keep folks informed! 👍”

“Something is wrong with this subreddit. The moderators are pushing pro Chinese propaganda. It's terribly obvious.”

Both positions, moderation as positive or as negative, however, intertwine with the ways in which these rules and general imprint are applied through affordances. So, for example, the removal – or lack thereof - of specific content is what raises concerns, rather than the presence of abstract rules per se. This is particularly evident as users perceive the mismatch between a removed content and the guidelines that should motivate such a removal:

“Apparently sharing **facts** on this subreddit isn't allowed. This post has been banned. I contacted [a moderator] explaining that all I reported is a verifiable fact from a reputable source (WHO) but I haven't got a response yet. I was accused of doing one of the following:

- * Spreading misinformation (it's a verifiable fact!)
- * Encouraging the use of non sourced or speculative opinion as fact (WHO is the source)
- * Creating (meta) drama (a **fact** can't create drama, I didn't add any interpretation, simply reported what I found researching whether the virus can spread touching objects)
- * Accusing (ethnic and/or racial) groups in a generalizing way (obviously not the case).[...].”

Even when considering less one-sided perceptions of moderation, is not only the guidelines and how they are applied, for example by removing a post such as the user above stated, that matters. Rather, it extends to more nuanced applications. So, for example, the usefulness of forbidding political content on a subreddit, and its general imprint, might not be questioned. Political content could be perceived as a necessary limitation to promote the quality of the discussion. However *how* this takes place through the variety of affordances that the moderators have at their disposal varies. A post violating the guidelines, for example, could be deleted completely, including all of the comments; it could be locked, blocking additional interaction

to take place within a thread; single comments can be removed, with or without justification. This means that the extent to which moderation practices are perceived relates to how those are enforced.

“while I'm inclined to agree with you, some of the top comments bash leadership in the WH rather than have a normal discussion. they also never get removed by moderators despite being blatantly political, biased. Mods just lock the thread and allow it to stand”

Not only the rules, then, engender moderation practices. Rather, it is a combination of rules, how they are applied through affordances, and in turn how these applications are interpreted by users. Affordances acquire meaning at the intersection between users, moderators, rules, and norms.

4.2 Conclusions

The way in which affordances transmit social information in digital environments vary. One of these ways is in how they allow to make the rules of a community, in this case intended as moderation practices and imprint, visible. This can take several forms, for example by explicating expected behaviour, while listing the sanctions that violators occur into; the visibility of such sanctions is, too, a potential way through which behaviour can be affected. As the degree to which the visibility of punishments and rules can be modulated through affordances, so do their interpretation by users. This intertwines with the interpretative flexibility of specific affordances, fostering different imaginaries based on a combination of individual, social, and technical features. In turn, moderation practices are subject to interpretation, intended as a broader dialectic among users, moderators, and affordances (see Squirrell 2019). The focus on quality impressed by moderators on the subreddit affects behaviour after being processed through a broader negotiation of meaning. Rules, and the ways rules are deployed, are then results of a mediation between different imaginaries, fostered by different actors and nested into broader structures. So, for example, the use of sources is not only a way in which moderation attempts to affect behaviour by restricting the possibilities of expression and channelling them in specific directions. Rather, it *also* becomes a way for users to leverage authority and power to promote specific, localised views of what is proper to express and how. From this angle, the affordances promoting the visibility of rules, and the affordances allowing for users to express, such as karma and comments, coalesce: their interpretation is fluid and negotiated. This struggle then determines not only *if* sources should be used, but *what* and *how*, in relation to broader social norms and cultural codes. This entanglement of imaginaries, actors, and affordances, embodies a tension, as norms and rules become a space for the struggle of broader social understandings and structures.

The very visibility of this struggle can also concur to affect behaviour for what concerns self-censorship. The lack of differences in broader categorisations between online and removed comments, however, points at a *lack* of self-censorship dynamics. This might be due to a series of factors, like social desirability at large, or the pre-emptive selection of spaces in which to express, like the less moderated r/china_flu, as well as

broader opinion dynamics leading to self-censorship (see Noelle-Neumann 1974). However, the visibility of norms and rules; the visibility of sanctions for violating those; and a barrier of access to interact on the subreddit, foster an awareness of proper expression on the subreddit. These factors, and the comments explicating this perception, seem to point at users aware of the cultural codes that regulate behaviour within the community. While requiring further validation, this suggests users that are aware of how to express on r/coronavirus, partly due to the role of affordances in making moderation practices visible on the platform.

It is not only then the top-down exertion of rules by moderators that affects behaviour. Rather, affordances concur to make visible the moderation practices of a subreddit. The clear visibility of rules, and the consequent visibility of sanctions for potential violations of said codes, concurs to affect behaviour. Users internalise how to behave in a specific social situation, their perception of moderation practices leading individuals to conform to the social norms and cultural codes of a specific context. Overall, this suggests that social situations in digital environments answer to specific social logics, that take place from the features that make social action possible in these very environments – affordances.

5. The Complex Simplicity of Context. Affordances as Flows of Social Information

In this chapter it will be shown how affordances can act as flows of social information. They can supplant physical cue, by transmitting contextual social norms and cultural codes. When interactions take place in digital environments, users interpret affordances to define the situation they are in, to act properly in accordance with this understanding (cfr. For a Sociology of Affordances). It will be argued that this happens using a series of features understood relationally, rather than a simple focus on metrics and, on Reddit, the karma system.

Metrics on social media have been considered based on their social and economic power (e.g., Beer 2016, Zuboff 2015). They have been considered platform-side, as represented by the *like economy*, the “social validation of content” (Gerlitz & Helmond 2013, p. 1351) underlining the datafication imperatives of the platform economy. Conversely, users understand metrics as representations of social and economic capital, such as for creators on YouTube (Christin & Lewis 2021, see Gandini 2016), and act based on their affective and emotional value (Jacobsen & Beer 2021, Davis & Graham 2021). From both sides metrics, as nested in broader socio-technical systems, affect human behaviour on digital spaces, but are not always straightforward in their effects or interpretation (cfr. Cultural and Social Contexts). Social media metrics have some levels of interpretative ambiguity, promote herding effects, non-representativeness, and are prone to manipulations, for example due to botnets or coordinated activity (Baym 2013). Furthermore, they have inscribed an emphasis on social quantification processes, which might obscure some dynamics. For example, the affective value of a specific like in a specific moment might be more relevant than its absolute number (Baym 2013, Hayes et al. 2016). Similarly, individuals engage more with content they disagree with rather than support (Åkerlund 2021): a high number of comments, then, might not reflect support of popularity, but rather quite the opposite. When possibilities for action are limited, users comment on posts they disagree with, but read more of the content they agree with (Buttliere and Buder 2017). Such issues led to a series of effort towards reconceptualising metrics based on alternative modes of engagement, for example based on centrality within broader issue networks (Rogers 2021). On the same line, it has been argued for the promotion of critical inquiry into datafication, into how datasets are created with certain purposes in mind, and in general around the role of socio-technical infrastructural in creating, managing, extracting, and analysing data (J. Gray et al. 2019). Furthermore, quantification systems on digital platforms are changing. YouTube and Instagram removed visible metrics such as likes or dislikes. This added to past limitation to API accesses, fostering new ways of research that do not necessarily rely on platform-fuelled quantification processes (e.g., Freelon 2018, Bainotti et al. 2020).

A broader understanding of metrics and their use, informed by an understanding of affordances as socially co-constructed (cfr. For a Sociology of Affordances), opens analytical possibilities to consider social action in

digital environments. Metrics do not exist in a vacuum, but as part of and nested into a broader ecology of affordances and practices on digital environments (cfr Cultural and Social Contexts). In this sense, there are some parallels to be drawn between metrics specifically and affordances at large, based on their affective value (Bucher & Helmond 2018), their interpretative fluidity (Nagy & Neff 2015), and their social power (cfr. Affordances and Sociality). Overall, these factors and their imaginary affect social practices (Bucher 2017), as metrics intertwine with a broader set of affordances in various ways. Algorithms and metrics jointly concur to structure distribution and visibility on social media, for example through the ranking of content based on user ratings (Airoldi 2020), or the ordering of feeds based on activity. Such interactions are layered, complex, and difficult to unpack. Even when taken at their most simple, for example as a quantification of simple interactions such as a *like* on Facebook, metrics are perceived through the lens of affect, imaginary (Bucher 2012), and the perception of technical infrastructures (J. Gray et al. 2019).

Aside from the complexity given by socio-technical environments, metrics relate as complexly with sociality at large. Quantification processes engender a localised social world: what to represent, what to hide, how to do so, and how explicitly, all reflect specific views and purposes (cfr. Cultural and Social Contexts, Beer 2016). Due to this, metrics acquire a meaning when nested into a specific context (Espeland & Stevens 2008), and filtered through specific values, objectives, and sensibilities (Baym 2013). This means that, when paired to reference audiences, properly contextualised, and instrumentally approached – as is the case for example of their implementation within ranking devices (Graham 2018) - metrics can help navigate social worlds (Esposito & Stark 2019). When said worlds are complex and interconnected, as is the case for digital environments, metrics can then mitigate uncertainty and provide a way to explore social and cultural contexts.

To contextualise metrics, however, is to locate them not only culturally and socially, but also technically. This means nesting metrics into a specific platform to consider how social and technical components are co-constructed, affect each other and in turn social interaction (cfr. Techno-Sociality and Methods). To this end metrics will be considered as affordances: intersubjective and co-constructed features, acquiring sense when situated ecologically and relationally with other affordances of a platform. As affordances facilitate and affect the flows of social information, they guide behaviour by rendering visible social norms and markers in digital environments (cfr. For a Sociology of Affordances).

Social action is driven by a fluid, intersubjective assessment of how is proper to act in a given situation (Goffman 1974). A definition of the situation drives the understanding of situated social norms based upon individual factors, such as culture and experience, and broader factors such as social structures (cfr. The Social Situation). While this has historically been approached based on physical coordination and co-presence, the rise of digital environments led to attempts to reconceptualize what a social situation is in a networked society (Knorr Cetina 2014, Marres 2020). When interaction is digitally mediated rather than being face-to-face, physical coordination among the participants in a social situation is supplanted by the

socio-technical structure of digital platforms, such as affordances (cfr. Situation and Mediated Environments).

However, the ways in which different contexts, situation, and audiences intertwine on social media is different when compared to physical scenarios. The lack of social, spatial, and temporal boundaries might lead to a collapse of different social contexts, in turn bringing to the adoption of social norms that could fit a wide variety of conflated and conflicting situations (boyd 2010, cfr. The Duality of Context). Specific characteristics of social media might lead to different forms of engagement and expression, in turn multiplying contexts rather than collapsing them (Szabla & Blommaert 2018, Kilgo et al. 2018). Regardless of the arithmetic proprieties of contexts, this underlines a certain complexity in how individuals navigate situations and act in the lack of physical cues. In this sense, users lean on affordances to understand social situations based on the cues they can perceive (cfr. Situation and Mediated Environments).

This becomes more relevant when considering digital social environments that lack a direct translation of offline to online contexts. Some social media, such as Facebook or LinkedIn, partly lean on the transposition of offline social networks and situations to online platforms, which in turn leads to a transposition of norms from physical to digital scenarios (see Costa 2018). However, other social websites such as online forum and imageboards have a lower translation of networks, situations, and norms. This requires users to lean on affordances, such as metrics, to assess appropriate behaviour, segment audiences, and socially act (van der Nagel 2013, cfr. For a Sociology of Affordances).

This is particularly relevant on Reddit, a social media platform aggregating links and content posted by users. This is due to its affordances, multiplying potential contexts while limiting the flows of social information outside of the platform. Pseudonymity limits the translation of contexts, while user-driven subreddits create limitless spaces in which users can socially act (cfr. Reddit and its Affordances). Additionally, the platforms explicitly display a social score, *karma*, associated to each submission; content and comments are ranked based upon this user-fuelled score, and further processed by Reddit's algorithm that determine its visibility (cfr. The Karma System, Subreddits, and Pseudonymity). This combination of voting, ranking, and ratings, allows user to both engender and navigate social worlds (Graham & Rodriguez 2021), while pseudonymity concurs to separate online and offline norms and situations (van der Nagel 2020). The karma system then affects behaviour by incentivising or sanctioning activity (Espeland & Sauder 2007, Massanari 2015). It also offers a way to navigate complexity through metrics rankings, especially useful given Reddit's often contrasting communities (Chandrasekharan et al. 2018). Reddit's rating and ranking system is socio-material and dependent on culture (Graham & Rodriguez 2021, Massanari 2015). However, Reddit's culture is expressed through different and conflicting groups, called subreddits, capable of posing social challenges for users based on the collapsing or conflating of contexts, such as for queer individuals (Triggs et al. 2019). To consider the context in which this ranking and quantification is nested (Espeland & Stevens 2008), then, is to

consider what affordances users consider and employ to navigate social environments, without limiting it to karma and the ranking system (cfr. The Karma System, Subreddits, and Pseudonymity).

Digital environments are complex. Their mediated nature and their lack of physicality allows to engender an innumerable number of social situations. This is not only a technical concern, but concurs to the co-existence of many situations with different social and cultural norms, separated by thin and unstable boundaries (boyd 2010). While users can use metrics to alleviate this complexity (Esposito & Stark 2019), in such contexts physical cues cannot be employed, leading to information overload and difficulty in clearly navigating and separating said environments (Marres 2020). However, it is argued that users are aware of such complexity, and employ a series of strategies to alleviate it. Individuals employ affordances, interpreting them as flows of social information, and use them to ably navigate contexts, infer social norms and cultural codes, and express according to this. As will be shown, rather than an increased complexity (Knorr Cetina 2014), individuals interacting on digital environments are ably capable to segment and define different social situations on digital environments through affordances.

5.1 Analysis and findings

To consider individual perception and patterns of usage, qualitative methods provide an invaluable entry point. Data on Reddit has been collected in the form of semi-structured computer-mediated interviews with users. Additionally, the researcher has been an active user for a decade, providing useful glimpses into social and cultural dynamics - as well as informing interviews (cfr. Data Collection).

Nineteen voice and seven text-based interviews have been conducted, for a total of 26 Reddit users (see Chart 1). Data has been collected on patterns of usage of the platform, the individual and collective use of affordances on the platform, perception of social and cultural dynamics, and expression mechanisms. An eye has been kept on relevant variables that, while hard to encode into a qualitative research design (cfr. Ethnographic Data), might affect usage or perception. Those include broader socio-demographic data, such as gender, nationality, age, and education, as well as contextual variables related to Reddit as a platform; this is the case for years of use, type of activity (such as *lurking*, commenting, posting), communities followed, and expertise (broadly intended as karma score). Considering such variables is particularly relevant as, for example, the perception and use of the karma system might vary greatly between recent and established users.

INDEX	COUNTRY	AGE	GENDER	EDUCATION	YEARS OF USE	TYPE
1	PHILIPPINES	23	MALE	COLLEGE	< 1	FORM
2	FRANCE	32	MALE	HIGH SCHOOL	10	CALL
3	CHINA	21	FEMALE	HIGH SCHOOL	< 1	FORM
4	USA	18	MALE	HIGH SCHOOL	3	FORM

5	PARAGUAY	23	MALE	COLLEGE	5	CALL
6	CZECH REPUBLIC	18	MALE	HIGH SCHOOL MIDDLE	1	CALL
7	MYANMAR	18	MALE	SCHOOL MIDDLE	2	CALL
8	USA	18	FEMALE	SCHOOL	<1	FORM
9	USA	49	FEMALE TRANSGENDER	COLLEGE	6	FORM
10	USA	29	MALE	COLLEGE	1	CALL
11	UNITED KINGDOM	40	FEMALE	COLLEGE	2	CALL
12	USA	62	FEMALE	COLLEGE	2	CALL
13	UNITED KINGDOM	33	FEMALE	COLLEGE	1	CALL
14	ITALY	30	MALE	HIGH SCHOOL	5	CALL
15	UNITED KINGDOM	N.A.	N.A.	HIGH SCHOOL	6	FORM
16	UNITED KINGDOM	31	MALE	COLLEGE	1	FORM
17	ITALY	28	MALE	HIGH SCHOOL	9	CALL
18	ITALY	20s–30s	MALE	HIGH SCHOOL	1	CALL
19	ITALY	20	MALE	HIGH SCHOOL	<1	CALL
20	ITALY	22	MALE	HIGH SCHOOL	2	CALL
21	ITALY	20	FEMALE	HIGH SCHOOL	2	CALL
22	ITALY	19	MALE	HIGH SCHOOL	2	CALL
23	ITALY	22	FEMALE	COLLEGE	1	CALL
24	ITALY	20	MALE	COLLEGE	1	CALL
25	ITALY	30	FEMALE	COLLEGE	N.A.	CALL
26	UNITED KINGDOM	30	MALE	COLLEGE	N.A.	CALL

Chart 1, interviewees with socio-demographic data, years of usage, and type of interview

This led to a varied sample. For example, Ernest (2) is a computer scientist from France. He has an extensive knowledge of Reddit, which he uses to browse, among others, subreddit concerning his job and philosophy. He takes part in conversation in English, but also interacts and moderates some communities in French. This is in stark contrast with Delilah (3), a user who started using Reddit less than a year ago to recruit some participants for survey for a college class. She browses only occasionally, and she is interested communities related to various tv shows she follows. Sylvia (11) has reduced mobility, so she voraciously reads discussion subreddits and actively contributes to some communities based on her hobbies. Terrence, from Myanmar (7), reads quite a bit of content, but almost never posts or comments. These differences are relevant, as they concur to affect browsing and usage patterns, as well as interaction on the platform.

The main purpose of interviews is to understand how users understand, manage, and navigate, different social and cultural contexts on Reddit, as based on the use and perception of affordances. Reddit's affordances are perceived by users in a multitude of ways, often interacting with one another. This holds especially true for what concerns the *karma system*. As per the technical structure of the platform, karma is a score attributed to posts and comments, in turn constituting the cumulative number displayed on a user's profile. For what concerns content, its score also loosely determines its ranking relative to other content.

Additionally, karma is unpacked based on its constitutive parts: positive or negative votes, *upvotes* and *downvotes*. This leads to the perception of karma in two ways: as a score attributed to comments and posts and as a cumulative score displayed on user profiles.

The Ever-Turning Wheel: Karma and Subreddits

Karma is perceived as having a series of functions: to regulate the visibility of content, as a barrier limiting access to interaction, and as a form of capital. While the regulation of visibility is a widespread understanding of karma related to posts and comments, its perception as a barrier regulating and managing access and interaction is rooted into karma as a user score. The latter is perceived as a technical barrier by new users: some subreddits require a certain amount of user karma to post or comment, arbitrarily chosen by the moderators of each community, therefore limiting social access to new or inactive accounts. In turn, this represents a social and cultural filter: to gather the points necessary to post or comment in closed-off subreddits, it is necessary to be upvoted by other users on communities that do not present this limitation. As Reddit's karma system is structured using both upvotes *and* downvotes, cultural proficiency is thus perceived as necessary to gain full access to the platform. This barrier holds true for new accounts, intended broadly as both new users and fake accounts. The result is a technical filter, based on user karma, and a twofold socio-cultural barrier: to know how to collect karma *and* the way this marks proficiency due to its accumulation as a score. To this end, users adopt it in practice to further discriminate between new and established accounts.

"I don't like to use Reddit, very engagingly. So I think the karma system is bad for me because maybe sometimes I really need to post something urgently like, you know, I have to post it, but the karma system, it's like 'Oh, you don't have any karma left, so go away!'. I don't like that feeling, you know, if I need help, I need help. So I want to post, but I can't post because I haven't commented enough [...] But when it works, you know, it filters the people who are new or who have who have malicious intent. I think that it in a way it works like that, a filter... for me the karma system is just a filter." (Terrence, m, 18, Myanmar)

"I'll click on their profile and look at whether or not they're a legit account with a lot of karma. Or I'll look at whether or not they're a brand-new account like zero karma. And so is there a brand-new account with like zero karma there I'm not going to pay attention to them, but if they actually do have a good amount of karma, I am more likely to listen to what they have to say. I am more likely to go: 'Oh, this person isn't just a random troll'." (Alexander, tm, 29, US)

Despite this focus on cumulative user karma as a sign of proficiency, individuals reported not being interested in following the lure of karmic capital. Rather, users are aware of wider cumulative tendencies among the userbase, mentioning dynamics such as reposts and 'karma whoring' (see Massanari 2015) but, perhaps due to a negative perception of such behaviours, the tendency to accumulate karma has not been reported by interviewees.

“I’m aware of my own karma number, but I’m actually not really aware of how that fits with other users and whether it’s good or bad. And I don’t really care. I think the thing about a user’s karma number is that it’s sort of more abstract than individual up and downvotes on comments. So I’m less emotionally invested in it. If I say, if I give a statement and that gets awful downvoted, I have an emotional response. If my karma number goes up or down... It can’t go down. I don’t know if that is. Well, maybe it can. I just don’t give weight to it that much. [...] The only thing that does annoy me is occasionally, very occasionally, someone or myself will be accused of being a karma whore. Why is that even a thing?” (Selene, f, 33, UK)

Karma as a user score then regulates technical access and embodies cultural and social proficiency, legitimising users. Concerning posts and comments, however, karma is perceived mainly as a tool to manage the visibility of content due to its ranking feature. Individuals are aware of this, as they instrumentally leverage on upvotes and downvotes to promote or demote content based on a series of criteria. Users have two main motivations guiding how and when to vote on content: *adherence to conversational etiquette* and *value*. Notably, these criteria differ from the idea of karma that Reddit promotes, which stresses contribution to the conversation first and foremost (cfr. Reddit and its Affordances). This does not mean that upvotes and downvotes are seen as complementary: users prefer to upvote than to downvote, as the latter is used to primarily sanction users for their behaviour (for the mismatch between upvotes and downvotes see also Graham & Rodriguez 2021).

“I only upvote things if I want them to be more visible and downvote them if I want them to be less visible, no matter what they are about. So, I will end up downvoting things I like, I care about, or I agree with, because I just find them to be too visible.” (Ernest, m, 32, France)

“I and many others use it to upvote posts and comments we agree with instead of its value as a discussion. If I see an opinion or idea I dislike, I will usually downvote it instead of considering its beneficial purpose for debate.” (Sergei, m, 18, US)

The first criterion, etiquette, drives users to downvote those who do not adhere to standards of politeness. It is the most widespread criteria, and one in which downvotes are more relevant than upvotes. Users try to remove those who excessively use slurs and personal attacks, trolls, and in general those who have “malicious intent”.

While politeness is a general criterion, applied with some degree of constancy, quality is dependent on the subreddit. Users determine what quality is based on what subreddit they are browsing: a good meme is deemed valuable and worthy of visibility in a proper subreddit, such as r/dankmemes, while sanctionable in communities geared towards serious content, such as r/philosophy. As the definition of quality varies based upon the subreddit, individuals try to manage the visibility of content based on a relational conception of the communities. This underlines a contextual specificity to karma: what is deemed worthy of visibility, or quality content, varies based on the community in which it is posted. As this holds true for both comments and posts,

it stresses how the value of karma is deeply tied with that of another affordance: the subreddit. Or, as a user put it: “Every subreddit has its own meta karma usage”.

“So, in the broadest sense, I would say that the karma system is based on the number of upvotes and downvotes that a user receives. And so the user is allocated a number that represents the way that the comments and posts have been received [...] obviously it massively depends on where they're posting. So somebody could, you know, be posting in a far right sub or something and receiving lots of upvotes. But that person does doesn't have ideals that align with mine so that that karma is kind of irrelevant” (Selene, f, 33, UK)

Subreddits are communities residing on Reddit, each with its own topic, values, norms, and moderation (cfr. Reddit and its Affordances). This constellation of wildly differing communities forms Reddit as a whole. However, Reddit is perceived as more than the sum of its parts: it is both a large community, with similar interests, and a series of smaller communities, each with its own specificities. This to some extent is similar to the “geek sensitivities” that Adrienne Massanari (2015) identified: despite the granularity of subreddits, *redditors* still share a common background. Or, rather, it is perceived as such by users.

“a lot of the subreddits were initially created by people who were part of the original Reddit crowd and the original Reddit crowd were mostly young white computer programmers with, you know, upper middle class people who don't really know much about the world. You know, they want free speech, which is not a bad thing in itself for some topics. But it also means that these people did not have much care for how women or people of color or others on their website, or even how strangers non-Americans felt on the website or even people who weren't into computer science, felt on the website and communities that have been around for 15 years now tend to be the legacy of those people since they initially created the community.” (Ernest, m, 32, France)

Despite this, subreddits are pivotal in structuring engagement on the platform. This concerns not only the topic, such as politics or memes, for example, but also *how* the conversation is structured within it. This is true for the technical aspects, such as some subreddits promoting posting images rather than text posts, but also for social and cultural understandings, such as what opinion is perceived as valid and worthy of visibility or invisibility. This means that conversation and posts about the same topic, geared towards the same modes of interaction, with an overlapping userbase, could vary greatly based on the subreddit (e.g., Gibson 2019). The deployment of karma in a specific subreddit, then, is particularly relevant for two main reasons. The first one is that it represents a tangible form of social pressure, purposefully exerted by users. Upvotes and downvotes manage the flows of information based on the cultural and social norms of the subreddit, promoting proper content and sanctioning deviant expression.

“The most upvoted opinions are the most visible. And since they are the most visible as well as the most voted, I think they can substantially affect opinions. For example, according to r/Italy, Bonino should have a 70% support rate. But this happens elsewhere, too: on r/worldnews there was recently a post about the Israeli conflict, and you'll find those who insult Netanyahu full of upvotes and rewards, while those who insult Hamas will be heavily downvoted. I

don't think the users supporting one side can argue better than the other: it's just the users of the subreddit that obviously try to reward a specific opinion" (Mario, 30+, m, Italy. Translated)

What is perceived as relevant by individuals, then, is not the karma score per se. Downvotes do not directly stifle expression due to their algebraic nature. The karma score is perceived and employed to discriminate new users and trolls, not as a form of capital. Rather, upvotes and downvotes make the social norms of a subreddit visible: users react to the distributed voting behaviour of karma as the tangible expression of a community's norms, opinions, and values. Thus, karma becomes relevant only when inextricably enmeshed with a subreddit, as it becomes a visible socio-technical expression of shared, co-constructed, and intersubjective norms.

"So, you know, a subreddit is for its members. Purportedly. So for example, I follow r/mapporn, as I have an Earth Science degree. I like it because sometimes they're just aesthetically pleasing maps. Sometimes they're like old maps. Sometimes it's just like a kid that just drew a map by hand and wanted to show it off, and I appreciate that I'm there for that. So those things get upvoted. Low effort content gets downvoted. [...] And I feel like in those instances, my opinions of what I do want to see and what I don't want to see are both either valid because they're just my opinions, I feel like they're fairly aligned with the other members of that sub . So I feel that as a community, everybody's upvoting or downvoting along similarish lines [...] [In another subreddit] I knew that my comment would get downvoted because I knew that the other members of that sub wouldn't appreciate that comment and actually , as a result , I've got banned... only for one comment as well! That's just an example of where the other people who are viewing that content have a different definition to me of what it is that they do and they don't want to see" (Selene, f, 33, UK)

Socio-technical contexts

Karma concurs to reify the social norms of a subreddit. As users are aware of this, they strive to explore the social and cultural norms of a community before engaging with it, to avoid sanctions. Navigating unknown subreddits before interacting is a commonplace practice among users, who do so using the affordances of the platform. This means reading comments, ranking for most upvoted or controversial content, or delving into a subreddit's rules and frequently asked questions. Overall, this concurs to affect expression in layered ways: from the selection of subreddits to engage with, as is the case for Alexander, to self-censoring of opinions that might not be particularly popular on specific spaces.

"The karma system can be really good to hold people accountable to the things that they're saying. You know, especially like if you go into an LGBT subreddit and you're posting a lot of transphobia or homophobia, you're going to get downvoted. You just are. You're going to be held accountable in those spaces. But sometimes if I go into a transphobic subreddit and I'm posting trans positive stuff, I'm going to get downvoted. So it's a lot easier for us to not go into those spaces. Not because necessarily we want to get likes. We don't want to get dogpiled. But I'm not going to go to a transphobic subreddit and expect to be upvoted for my opinions [...] the karma system really does hold you accountable in whatever space you're in. So it's like in this social group, these are the norms, and you will get

downvoted if you're going against those norms. [...] And so sometimes that can be a bit problematic in the sense that some people may just go along with the popular opinion so they don't get downvoted" (Alexander, tm, 29, US)

Navigating social and cultural contexts further underlines the relational nature of affordances. Like karma acquires meaning when socially contextualised in a subreddit, so the exploration of environments is driven by previous social understandings. This affects affordances such as the ranking system: users might not rank content based on the most voted to get a representation of how is proper to act in a given environment. Rather, they might sort based on *controversial* content, a rank based on the polarization of upvotes and downvotes, to balance a biased subreddit (Jasser et al. 2021). In a similar way, users sort by *new* if they exhausted the content of a subreddit. As users reported ranking content in modes that do not lean on popularity, it further underlines the contextual and relational nature of affordances for what concerns social environments. Karma is linked to the social dynamics of a subreddit, which in turn might lead to different forms of engagement with content, such as different ranking orders, and users. Additionally, it underlines how not only active forms of interaction are affected by contextual norms and culture. Aside from voting, commenting, and submitting content, the perception of the environment affects browsing patterns as well.

"[Sorting by popularity means you get to see the] best posts of the month. And we like to think that somebody has sifted through the crap for you. But then depending on what the sub is, sometimes it's nice to sort by controversial, especially if it's something like r/amitheasshole where you have to judge people. It's always best to sort by controversial. And I suppose how I sort them purely depends on what the actual sub is. [...] in other subs, what's best rated is probably going to be the one that made people laugh the most. [On r/amitheasshole] it's the controversial opinions because generally it's become such a sub that people know that they made the right decision. They just want reassurances. It used to be about dilemmas, but now it's all based about people confirming that somebody has done the right thing. So, you know, so the controversial ones that come up in that are always going to be the best" (Sylvia, f, 40, UK)

"I try to first get a sense for the community, that's important, and get a sense what the community is around the subreddit and in general try to meet those demands. For example I try to browse, read the rules. [...] Generally the best way to actually get a more real sense of how to interact with the subreddit is, of course, by posting, by being active. For example, sometimes your posts will get removed and you will understand more how to act next time. So you know the most basic way to get a sense for a subreddit is by being active in the subreddit, by posting [...] I post and try to see how the post is perceived by the community, that's basically how you operate in Reddit." (Peter, m, 23, Paraguay)

The exploration of contexts through a combination of affordances is central in guiding behaviour on Reddit. It concurs to inform how users act on several levels, from the selection of spaces to the type of engagement, from the opinions expressed to the tone in which to do so. This is particularly striking given the complexity of Reddit and its multitude of communities: users are able to navigate layered social contexts and to conform to localised social norms. Contexts multiply rather than conflate, as they are segmented based on a multitude of factors (cfr. The Duality of Context). How this segmentation happens varies: some users lean onto their

own taxonomies, such as the distinction between ‘hobby’ and ‘fun’ subreddits, to drive how to post; some discriminate based on the political leaning of a subreddit, or on the type of content that is predominant – such as images rather than long text form. This points at users who consciously and ably navigate different contexts, infer social norms, and apply them correctly, both to guide their own behaviour and promote or sanction others accordingly. As Reddit is an online platform with a low translation of offline to online norms due to pseudonymity, it underlines the usefulness of affordances in coordinating complex social action on digital environments.

“I do [engage with subreddits differently], and the reason for this is quite simple the audience I am interacting with. I participate in a subreddit which is linked to my career, albeit I do not disclose my identity or my employer, I feel that the subject matter I should respond in a professional manner as if I was responding to emails in my work, however on the flip side my interactions in r/ScottishFootball I would class as banter I would have with people in the pub for instance. It’s a more social subject matter.” (Anthony, m, 31, UK)

“I do engage different subreddits differently based on content and membership. Some groups were made for serious discussion and some for fooling around and I have little trouble telling the difference. That’s not to say I won’t make a light hearted comment to break up the monotony of a discussion about telescope parts, or get serious about a game discussion because it’s being attacked by a group that wants it banned; but I try to keep the comments relevant in general. There are groups that I may or may not be a member of that have a thread I want to participate in. Those groups may not share my own belief system, so I’d be aware of that bias going in...and that my words might not be welcome [...] When I first joined it became quickly apparent that whatever sort of norms had been established within a group had a bit more teeth than a sticky note. Sure, mods could remove your posts or ban you like everywhere else but the users themselves could exert pressure in the form of karma.” (Noemi, 40, f, US)

Concerning pseudonymity, several participants compared Reddit to Facebook. Specifically, they put in relation the use of real names to the ease of creating different pseudonymous accounts (i.e., throwaway accounts). This was mentioned in two main ways: to underline the possibilities given by low technical barriers of access for what concerns accounts, and to point at the disconnection between real life and exclusively digital spaces. Respondents used these two reasons to argue about the possibilities afforded by pseudonymity, concerning the ability it provides to segment contexts and, subsequently, the freedom to express opinions or pursue interests that might be sanctioned on real life or on other social media (see Kilgo et al. 2019).

“For example, on Facebook, where you have to use your real identity, there are limits. What you could do and what you cannot do, because clearly you don’t want to be sometimes associated with some communities. With your real name just people might think of you as something, so you have to keep low, have a low profile, but on Reddit you don’t have to do that because that’s on the pseudonyms because of the not too real or user names, though you can clearly be free, have no limits at all in Reddit. People go to any subreddits, people go to any communities that you are interested. You can engage with it without having to fear, without having to fear finding getting find out by people, you know, so I

think pseudonyms are fine and wish many websites could do that. Without it before you got to it on Facebook, because it's clearly for communication as such with your friends, for example, so you need real identities for that. But on Reddit, you don't need it because you're clearly not there to communicate with your friends, or such. Have to communicate with the communities and the internet, the whole internet, so the pseudonymous system really works in it.” (Terrence, m, 18, Myanmar)

“Instead, if somebody has its own accounts to cycle through, one can feel free to say whatever they want, for example even controversial opinions, like if I voted for a right party or if I feel that a particular politician is a saint. [...] compared to Facebook, accounts are anonymous, so it's clear that anybody can feel comfortable. When users find this out, it is an attraction.” (Mario, 30+, m, Italy. Translated)

5.2 Conclusions

This research aimed to consider how the socio-technical structure of digital environments concurs to affect social action within them. To do so, Reddit has been taken into consideration in a series of interviews with users, focused on the navigation, understanding, and managing of multiple digital social contexts. This led to three broader contributions: about the situated understanding of value in ranking systems, about the social and relational nature of affordances, and about how this leads to the navigation of social contexts on digital environments. In turn, these findings point to aware users, that ably employ affordances to navigate the complex nature of interlocking digital social situation.

Perception of what is valuable is highly dependent on context. Individuals perceive that the norms leading to value and quality differ based on a series of social and cultural factors: who is voting, for what purposes, and individual interpretation are important for individuals, as they reify a specific reality (Esposito & Stark 2019). Individuals are aware of this, and it affects how they interact with digital contexts, not only regarding interaction such as voting, commenting, posting, or voting, but also browsing. A *contextual definition of quality*: what is 'valuable' to users varies based on the social and cultural context engendered through the technical infrastructure of a platform (van der Nagel 2013). This echoes findings on how practice and culture are inherently entangled on Reddit, underlining the contextual, social, cultural, and technical specificities of ratings and ranking devices (Graham & Rodriguez 2021, Espeland & Sauder 2007).

This is partly explained through a *relational approach to affordances*. Communities use affordances at large to engender a co-constructed and intersubjective view of the world (cfr. For Sociology of Affordances). They do so purposefully, as voting in subreddits is used to punish deviant expression or establish what is deemed worthy of visibility and social approval. While this intertwines with individual conceptions of what is worthy to promote, it is subordinated to contextual pressure.

Thus, the co-constructed and intersubjective nature of features structures a way for users to *navigate social contexts through affordances*. Some digital environments are perceived as unlinked from offline norms and situations, allowing to forgo rules of self-presentation. However, digital contexts provide their own rules and norms: users are aware of these contexts and navigate them proficiently, conforming modes and types of expression based on what is perceived as legitimate. This points in the direction of research suggesting how digital environments might collapse content as a result of social and cultural norms and related practices, rather than technical constraints (Costa 2018, see Marwick & boyd 2011). Such a multiplication of contexts (Szabla & Blommaert 2020) is perceived also as a by-product of pseudonymity, suggesting its centrality in affecting social interaction (Kilgo et al. 2018, see van der Nagel 2017).

Additionally, this research dialogues with scholarship on Reddit. Aside from pointing the relational role of platform affordances in affecting behaviour and engendering views of the world, it concurs to shed light on the complexity of the platform. As users perceive subreddits relationally, as a whole bigger than its parts, it relieves the tension laying into how Reddit can “paradoxically host toxic and supportive communities” (Kilgo et al. 2018, p. 1), due to the perception of subreddits as different and contrasting socio-cultural “strata” (Massanari 2015).

Overall, these findings coalesce to underline the role of affordances as flows of social information. Despite the complex nature of interaction on digital environments, given by the existence of innumerable social situations and their fluid and light boundaries, individuals are able to master the new cues that these environments provide. By inferring norms and codes, groups modulate behaviour appropriately, and subsequently concur to sanction those who deviate from a shared definition. When the technical structure of social media affects the translation of physical cues and norms, rooted in face-to-face social situations and customs, individuals resort to affordances to inform their behaviour.

Conclusions

This dissertation has shown how affordances affect social behaviour in digital environments. They do so due to their ability to create and manage social situations, while enabling social action within them. This has been shown by leaning on the features of Reddit and the r/coronavirus community. Affordances are crucial not only as they allow for sociality to take place due to their technical and infrastructural nature, but for how they embody social and cultural meaning. Here lies the usefulness of a *sociology of affordances*. By putting social action in a central position, it is possible to go over techno-deterministic views of interaction, to consider how features are employed based on individual, cultural, social, *and* technical factors. In turn, this allows to consider for how digital social situations are managed, understood, and negotiated by individuals, due to the co-constructed and intersubjective nature of affordances.

The first section proposed the concept of *affordances imaginary* to underline their interpretative fluidity. It has shown how affordances are interpreted by users in a series of way based on a multitude of factors. Aside from the technical aspects that make possible specific actions within the boundaries of a digital platform, their actual meaning varies greatly. This points at the role of individual characteristics in driving social action, as individual perception plays a role in determining how affordances are understood. Proficiency around the cultural codes of the platform, for example, can drive particular uses that could easily translate in a multitude of contexts within it; conversely, other uses can be informed by the knowledge of the cultural dynamics at play in a specific community, rather than more general ones. Other imaginaries conform to how the platform tries to frame interaction within it, in ways that merged technical constraints and the perception such constraints fostered. So, for example, a minimal technical barrier to access such as karma, number of posts, or a blue checkmark, could be inflated by users, and discursively deployed as a broader way to legitimise interaction, going way over the limits that it infrastructurally imposed. This underlines how, while technical characteristics do not causally drive the understanding of affordances, it can merge with individual perception to alter its understanding in such a direction. This has previously been shown in relation to complex affordances, such as algorithms (Bucher 2017), but here it applies to straightforward features such as those akin to metrics, like karma. It can signify symbolic capital, embeddedness into a community, mastery of a cultural code, or belonging to a broader platform (see Nagy & Neff 2015).

Aside from individual characteristics, however, the presence of multiple affordances imaginaries emphasised their social nature. When different interpretations clashed, conflicting views of the world came to light. These critical moments (Boltanski & Thevenot 1999) are akin to symbolic struggles, where different conceptions of the situation at hand meet. This underlines the co-constructed and intersubjective nature of affordances: while individual factors drive the understanding of different imaginaries, these are ultimately collectively negotiated. Different interpretations are deployed in different contexts, with different objectives, and struggle with one another. The “correct” interpretation of an affordance in a specific context is the result of

a conflict between different views of the world, as users collectively negotiate to impose their understanding of the context and its subsequent codes over another. Overall, affordances are used to perform culture (see Graham & Rodriguez 2021). Consequentially, groups can promote or sanction behaviour based on social norms and cultural codes. These vary by context, as what is proper to express in a situation varies greatly from another one. From this point of view, the clash of imaginaries represents different definitions of the situation by individuals. When an individual behaves in a way that does not match how the situation is understood by the majority, she is sanctioned. The struggle to affirm an affordance imaginary over another is the social struggle taking place to impose a definition of the situation over another.

As they relate to both individual and social understandings, affordances are layered. They are a two-way street. They enable individuals to socially act, *and* they transmit social information to said individual. This complexity entails the co-construction of culture and technology, individuals, and structures. However, a sociology of affordances allows to epistemologically separate these dimensions: it is not relevant how collective imaginaries take place or affirm each other. Rather, their relevance is in how they allow social information to transpire and social action to take place. They collapse the layered complexity of digital interaction based on the how individuals *perceive* the social nature of affordances. This does not mean that power, structures, codes, and structures do not affect behaviour. Rather, they affect it based on the imaginary individuals have of it.

From this angle, as shown in the second section, the relevancy of power in guiding digital interaction is not only based on its exertion. Affordances transmit social information. They make social norms visible, by visualising the rewards given to who complies, and the sanctions given to those who do not. By doing so they drive behaviour, as they suggest how individuals can properly act in a specific digital environment. This is not limited to norms, but intersects with how rules, moderation practices and, more in general, power, is exerted. Affordances can transmit these concepts in the same way, albeit with different degrees of urgency. On Reddit, an out of context comment can get you shunned, downvoted, or banned. The sanctions are there, as are the rewards, and they coalesce on one dimension: they are transmitted to users through affordances. What is relevant here is that it is not the actual punishment that drives social behaviour: it is the threat of it. Users internalise cultural codes, norms, and how it is proper to act in a situation, *this* is what affects social action: the internalisation of how to act as driven by the visibility of social norms and rules in a given social context.

This is not to assume that power in the form of platforms, admins, mismatches, and distributions does not exist. But, rather, a sociology of affordances provides way to account for social action in ways that digital traces do not. The climate of opinion affects behaviour (e.g., Noelle-Neumann 1974), as does the threat of sanctions (e.g., Kuran 1997). As this happens in physical contexts, it transpires in digital contexts as well. Similarly, internalising codes and norms does not deterministically drive social action, but it represents a source of pressure that can concur to affect it.

This internalisation is relevant, as it points at users who are aware of “*what is it that’s going on here?*” (Goffman 1974, p. 8). More broadly, *affordances concur to create and structure social situations in digital environments*. At a basic level, they infrastructurally create them. That is, by allowing for the segmentation of users, contexts, and content, they allow to create separate spaces in which social interaction can take place following different codes, norms, rules, and shared understandings. At a more nuanced level, affordances make visible the norms and codes of a specific social situation: affordances substitute physical cues. They allow for social information to transpire in a variety of ways, as refracted through individual factors such as perception and social positioning. As the flows of information on platforms are driven by technical and social action, they also concur to make such definitions negotiable. Actors try, individually and collectively, to establish their own definition of the situation, trying to drive the behaviour of other participants through affordances and what they represent.

As shown in the third section, different social situations take place on the platform. Individuals are aware of this, and consciously and instrumentally exploit affordances to navigate the complexity of fragmented contexts. This complexity is twofold. At first it is sociotechnical, that is, given by the actual separation and existence of an innumerable number of contexts, each with their own norms, rules, codes, and understandings. Additionally, it is social: it is comprised by different definitions that struggle to be imposed to other participants. Users are not only aware of this complexity, but try to mitigate it by employing a variety of affordances to reach a definition of the situation, and thus find *when* and *how* it is proper to socially interact and express according to individual characteristics.

This has some broader implications for what concerns digital social situations. Situations are indeed changing in digital societies: social and technical factors are deeply intertwined, and question what a situation is, how to approach it, and how it relates to digital societies at large. Individuals are aware of the social complexity that digital media entails when compared to physically situated action. This aptly reflects claims about the existence of “*semi-situations*” (Marres 2020), and their overall informational “*muddle*” (Knorr Cetina 2014). However, it also underlines how individuals, rather than being bemused and lost in such layered mediated social interactions, *aptly know how to navigate such contexts*.

To some extent, affordances substitute the physical cues that regulate interaction in face-to-face interactions. This is particularly relevant, as some interactions taking place through digital media and platforms are ephemeral and *virtual* in nature. That is, they do not concur to the translation of offline norms and situations to online scenarios but, rather, they take place exclusively online. A sociology of affordances can represent a tool to consider such interactions. This does not mean going back to a digital dualism (Jurgenson 2012) treating physical and digital contexts as separate. Instead, it allows to elevate the conversation under a recommended tweet, the reactions on an Instagram story, or the discussion in a news section, as contexts and situations with their own dignity. By doing so, it is possible to consider the norms,

codes, customs, and understandings that regulate and structure such interactions. In turn, this allows for a deeper consideration of how digital and physical contexts intertwine, without subordinating one to another. As social contexts can be separated online through affordances, the collapse of different contexts (Marwick e boyd 2010) does not point at inherent characteristics of digital media, but reflects social and cultural logics, rather than technological constraints (as argued in Costa 2018). This situates a sociology of affordances as a tool that can not only account for digital social situations, but for how these are composed in relation to different cultures and uses.

The final contribution of this thesis is methodological. The qualitative and computational methods employed in this research situate it within the growing discussions around computational ethnography in sociology (e.g., Brooker 2022). Such a combination has been fruitful along two main aspects. Firstly, it allowed to consider for different dimensions that might have been neglected by deploying only one of the two methods. This is exemplified by the consideration for two ways in which individuals self-regulated: the removal of content following its posting, and the withdrawal of expression at large (i.e.: lurking). The first has been accounted for through computational methods, while the second through ethnographic approaches. This suggests the multiple ways in which computation *and* ethnographic methods can coalesce to paint a broader picture of the community in consideration. On a second level, computational methods allow to counter the embeddedness of the researcher in the field, by considering interactions that go over individual data collection practices. This countered potential biases, and provided a methodological failsafe balancing the situated cultural perspective of a user researching a platform.

The limitations of this work mainly concern the focus on a single platform. While the interpretative framework is broad enough to be applied to multiple contexts, its focus on features still concurs to limit the extension of findings to other platforms. This has been partly mitigated methodologically, by choosing Reddit following a hierarchical argument (cfr. Methodology). However, this raises some broader questions. While the peculiarities of the platform make it a useful case, attention should be dedicated to properly translate the social understandings of affordances to digital environments that may even drastically deviate from it in terms of features and culture. A similar line of reasoning applies to the choice of a single community, r/coronavirus, with analogue motivations. While this has been partly addressed by qualitatively considering users with different usage patterns within the platform, some attention should be given to the peculiarities that such a community involves. Considering multiple platforms and multiple communities would have been, undoubtedly, better. Regardless, such an ample breadth would have been prohibitively expensive, time and resource-wise.

Methodologically some limitations arose as well. At a computational level, data collection involving the direct interrogation of a platform through its APIs is limited by how the platform manages its data. While Reddit is particularly open for what concerns data accessibility, this still entails a certain level of control of the field given to a third party with goals that, arguably, differ from those of a researcher. Similar issues concern the

use of a second-hand data platform such as Pushshift. While the redundancy given by two sources of digital data offsets some of these limitations, those can be escaped completely only by the implementation of a custom data pipeline which is, however, infeasible due to a series of constraints such as time and resources.

Issues lay in the qualitative data collection as well. Self-selection is particularly problematic from this point of view. Active users might be more culturally and technically proficient, and therefore embed some bias. This intertwines with the potential controversial nature of the issue, such as the accumulation of karma or self-censorship, which might have limited expression due to social desirability. This applies to digital data in the form of comments as well. Even when trying to offset such a bias through a varied sample, some sort of self-selection is unavoidable in these contexts. However, methodologically, the quali-quantitative combination of methods and an iterative research design have been useful in alleviating most of the broader methodological concerns involving both qualitative and computational data.

Additionally, conceptually considering the digital as separated from daily life has some very real limitations. The interpenetration of online and offline environments, cultures, and practices cannot be bracketed without acknowledging the potential biases this might entail, such as the potential overlooking of their reciprocal influence. Considering both, however, would entail a research design focusing on this link, undermining the focus on the way in which online interaction takes place digitally. Similarly, underemphasizing technical structures, features, and elements, while functional to this thesis, is something that needs to be underlined and properly contextualised at a conceptual and methodological level (cfr. Theoretical Framework; Methodology).

These limits also underline some relevant future directions. This starts from broadening the application of such a framework considering different communities and different platforms. Extending such an application of affordances to features who entail more conceptual and social muddiness and ambiguity could deepen our understanding of both the platform, its culture, and affordances in general, and how these intertwine with social action at large.

Most importantly, however, the purpose of this dissertation was to show how a sociology of affordances could foster new ways to think about social interaction in digital environments. This is but a starting point. Theoretically, future research could consider how structures are created and maintained on exclusively digital environments. It could shed light on those movements, encounters, and interactions that make up the daily life of millions of people that will never meet, representing a separate dimension from day-to-day sociality, following its own logics. Broadly speaking, a sociology of affordances provides a way to account for different cultural and social contexts. This means considering online-only interaction and the ways in which it is as layered. An emoji embedded within a username on Twitter, for example, might relate to political identity. This can happen directly, for example a flag for a nationalist party, or through a focus on issues, a syringe could point to support for vaccination practices. Capturing this difference is something that does not

unfold when considering the feature or its employment and understanding by users on its own. The implication is that by combining technical possibilities, such as the emoji, and their social meaning, such as the position on an issue, affordances can represent a cultural and social entry point into society, one that is not limited to a digital context, but is empowered by it. This means considering social situations where different forms of interactions and different cues intertwine, where physical and digital environments enmesh, and where differently engendered social structures co-constitute one another. Affordances do not substitute physical cues, but they can be invested with the same sociological dignity, opening new ways to consider digital societies. This has some broader implications, for example by allowing to consider the cultural and cross-cultural understandings of platforms and digital social interaction at large. Through a sociology of affordances, it is possible to consider what different geographical sensibilities entail, not only to account for different understandings of metrics and features, but to potentially disentangle platform logics, intended as specific situated practices, from the tendencies platforms tend to exacerbate – regardless of the cultural understandings driving it. In turn, this allows to account for how digital and physical social structures affect interaction, how they translate across contexts, their co-constitution, and how they mediate broader social, political, and cultural identities.

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