Studying the Digital Society: Digital Methods between Tradition and Innovation in Social Research

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3. **Article accepted for publication**
   Date: January 2021

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Abstract

Contemporary societies are facing progressive and swirling transformation due to the digital and technological innovations and their application to social facts and actions. These dynamics are changing the structure, the practices, the symbols and the shared meanings of our societies so progressively and deeply that many scholars to refer to our current social organizations as Digital Society. Digital Society has distinctive and unprecedented features, as for the first time these characteristics are eminently and intensely communicative. They require the development and the implementations of interpretative schemes and methodological solutions better suited to understand the current complexity. Some authors go further by arguing for a new scientific paradigm for social research. Yet, Digital Society is a research object whose operational definition has not been formulated in a definitive and shared way by social scientists. Moreover, the flourishing of online social and communicative practices and new social networks, the innovative ways to frame into data the online activities of individuals make the

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[1] The paper was devised and written jointly by the authors. However, for the sake of authorship, section 1 is attributed to Giuseppe Masullo, while section 2 is attributed to Felice Addeo.

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knowledge drawn from the Web always uncertain and at high risk of a rapid obsolescence. Social Research tried to face the challenges posed by the Digital Society first by adapting its methods to the online practices and interactions, then by creating new methods in order to analyze those online experiences that could not be framed using the traditional social research tools.

1. Studying the Digital Society: from specific research to the bedrock of contemporary sociology

The prominence of communication for individuals transpires from several processes. Among them, the increasing diffusion and pervasiveness of new media in everyday life, the exponential increase in the use of the Web as a compass to guide choices in different fields of interest, the increasingly frequent access to social networks, chats, forums, places where real life and virtual life are confused and overlap (Veltri, 2021). Unlike in the past, communication is less and less confined to precise spatial and temporal contexts or limited to face-to-face interaction. Conversely, it refers more and more to a physically unspecified place, now defined as cyberspace. It is a place that goes beyond geographical and social affiliations, allowing, according to the most optimistic, greater possibility and ubiquity of expression through the collaborative web, peer production that open to forms of user-generated content outside the control and constraints traditionally imposed by the old media (Cipolla, 2016). Alongside these processes, the increasingly pervasive use of so-called "artificial intelligence" (AI) in everyday life is causing unprecedented social change for its rapidity and radicality, quite dissimilar from previous transitions. Through the "Internet of things" and the ubiquity of mobile devices that make us perpetually connected, technology, with its different communication spaces and times, is incorporated into our daily "materiality" (Rabelo, Bhide, Gutierrez, 2019).

In contemporary societies, the ongoing digital transformation concerns both information technology and its application in all social facts and actions, to the point of progressively changing their structure, forms, spaces, times, modalities, and dynamics – thus their sense and shared meanings. The impact of this transformation on human actions, to which we owe the creation of AI-employing algorithms, sensors, and platforms, is continuously questioned for its positivity or negativity, as is the case with any innovation that modifies an established condition (Bedessi, 2019).

Democratisation and computer literacy, which also affect traditionally poor areas of the world and previously excluded social categories, prompt a reflection on the role and possibilities opened by these new ICTs (Information and

Communication Technologies). As Granieri (2006: 12) points out, in this new phase "all the ingredients of what the Social Sciences call 'culture' come into play: values, ideas, identities, visions. Technology, in this case, acts simply as the infrastructure that unites, while its value is accorded by how millions of individuals use it".

If we focus mainly on the innovations introduced by Web 2.0, we can state that we are witnessing an epochal turning point. This defining moment disrupts the way Social Sciences, and especially sociology, think about the media: "in Web 2.0, users, thanks to numerous technological supports, can be more involved through the publication of content. For this reason, the new Web is said to have a 'democratic' nature: its advent is characterized by the emergence of social networks and a two-way communication" (Cipolla, Manca, 2012: 15). This new mode of communication increasingly assumes a many-to-many nature and a revolutionary scope due to the appropriation of the communication process by users.

From the point of view of the sociological theory of communication, the usual opposition between determinist and constructivist theories in the analysis of the relationship between media and culture has dwindled with the advent of the new media[1]. Conversely, theories that attempt to mediate between the two positions are flourishing – such as, for example, that of Hughes (1994: 103-104), who states that "A technological system can be either the cause or the effect: it can influence society or be influenced by it. (...) For this reason, the technological momentum is a concept that lies somewhere between the poles of technological determinism and social constructivism". The study of the influence of new media must take into account their binary nature. On the one hand, they can influence and determine individual choices; on the other hand, they relate to the practical needs of individuals in their everyday lives, as means that are "actively" used for "cognitive" and "interpretative" purposes (Livolsi, 2005).

From the heuristic point of view, the well of possibilities tapped by the development of ICTs entails numerous implications. Their effects touch not only a specific strand of studies, that of communication, but increasingly

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[1] McLuhan (1999) believes that the use of a given medium necessarily conditions both the form and the content of the message. Since communication is the foundation on which both thought and culture are built, the scholar concludes that the nature of the medium is also a factor in the transformation of the mind and society. Conversely, the constructivist perspective accentuates the meaning that the media assume in a given social and cultural context. For Williams (2000), there are no universal media, but only situated media, which must be evaluated considering the meaning that a given culture attributes to them.

question the very foundations of sociology. In particular, these allow us to redefine:

- The considerations on communication in the broader context of the globalisation processes, through the selection of the appropriate theoretical apparatuses to understand the relationship between individuals and media;
- The labels and definitions describing the current historical and social phase, linking it to the broader debate on post-modernity;
- The issue of the methodological and technical tools best suited to describe and explain reality, as it is emerging in its communicational dimension.

Our reflection on the diffusion and development of ITCs is part of a theoretical path that pinpoints ambivalence as the distinctive feature of the ongoing globalisation processes (Ammaturo, 2006). On the one hand, it implies the expansion of all communication systems, particularly the possibilities offered by mass media communication. On the other hand, it highlights the fact that it is multidirectional since in "every globalisation process not only structures but also individual subjects are involved, and that it is from this bipolarity that we must begin to understand the process" (Bovone, 1995: 7). While these processes occur on a global scale, their appropriation takes place at the local level, and refers to people's lives, in a specific place and time.

The diffusion of the new media no longer allows us to disregard their meaning for individuals. Their prominence is straightforward: they no longer are residual but increasingly constitutive of all choice processes. Sociology cannot but review its interpretative apparatus and consider communication as a key dimension to study and analyse social reality.

If from Lyotard (2008), the current era waivers previous claims to establish a single sense of the world starting from metaphysical, ideological, or religious principles, thus embracing the precariousness of all meanings, the characteristics of the contemporary Digital Society strengthen this process. The countless information circulating on the web does not allow people to cling to uncontested, universally valid and "non-expiring" truths, previously pivotal for self-definition. In the past, tradition and temporality ensured these processes, while the post-modern subject must produce an incessant definition of sense and meaning useful for his action. He looks for these references in the web, in a vicious circle producing partial truths and then continuously dismissing them depending on the contingencies of everyday life, feeding the very sense of precariousness and uncertainty. However, the discourse on post-modernity may prove insufficient to understand this phase. For example, Cipolla (2013: 7) suggests not to bottleneck the debate in the sociology of post-modernity, which he criticises "above all for its confused and uncertain creativity, for its reference to a bricolage without depth or heart, for its assumptions often scientifically

untenable, for a weakness of thought that not infrequently resembles its surrender" (Cipolla, 2013: 177). Beyond any moral, nostalgic, or critical judgment, the new direction should start from the observation that "the end of modernity or its dissolution into something other than itself is not controllable or explicable through any reflexivity, any post, or any after. It is the inexorable outcome of some social changes that, after two hundred years, have decided that the society of positive and finalized action would become another one, that is, a society of integrated and connected communica[c]tion in which information account for the action and vice-versa, through a circularity that does not admit for causes but only for consequences" (Cipolla, 2013: 178).

We can thus outline the study of the effects of new media on choices within the interpretative framework that Cipolla (2016) defines as web-society, understood here both as theory and practice of the communica[c]tion society.

Some suggest we are in the face of a digital turn (Caliandro, Gandini, 2019). If so, it is necessary to observe old and new phenomena originally and innovatively, aware that studying the different areas through which the web society expresses itself can shed light on society in general in a game of online/offline[2] cross-references: "sociology is called upon to place the study of digital technologies at the centre of its interests. All the topics that sociologists today study – or teach – go hand-in-hand with digital technologies, whether they the sociology of the family, science, health and medicine, knowledge, culture, education, work, gender, risk, ageing, racial and ethnic issues. Studying Digital Society means focusing on many aspects that have always been central for sociologists: the self, identity, the body, power relations, inequalities, social networks, social structures, social institutions, and social theory" (Lupton, 2010 in Caliandro Gandini, 2019: 19).

The unique and distinctive characteristics of the web society "are unprecedented, neither modern nor post-modern, but intensely communicational" (Caliandro Gandini, 2019: 7). They call for interpretive schemes and methodological options more suitable for grasping the current complexity[3].

Concerning the research tools, it follows that the web society requires using

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[2] Given the widespread diffusion of technology in everyday life, with its relationship, communication, and aggregation, the most recent literature agrees on the inefficiency of distinguishing between virtual and real life. The boundaries between online and offline are increasingly blurred and labile, making the virtual sphere an integral part of social action and human experience rather than a domain distinct from them (Garcia et. al. 2009; Beneito-Montagut, 2011).

[3] Cipolla (2013), for example, believes that the most appropriate choice is eclecticism «a philosophical method that consists in selecting from the various available theoretical systems those components and theses that appear acceptable and most agreeable and in reorganizing or structuring them into a new doctrine» (Cipolla, 2013: 8).

new techniques or, at least, enhancing the previous ones to better frame the new emerging processes that we intend to analyse (Cipolla, De Lillo, Ruspini, 2012). In this sense, the web society is intended as both research object and practice and theory of the communica[c]tion society. The contribution that digital networks offer to social research is, therefore, twofold: as the research object and, through computational applications, as the empirical basis. Online networks are a huge source of information, both quantitatively and qualitatively, allowing the collection and extraction of new types of information for the construction of empirical bases (big data, open data, linked data, etc.).

2. Social research methods for the Digital Society

The Digital Society is conceivable, epistemologically, as an object of research whose configuration has not been (nor can it ever be) outlined clearly. It is constantly engaged in a progressive and swirling transformation, often taking conflicting directions. On the one hand, this makes the Digital Society a fruitful ground for experimentation and innovation from a methodological point of view. On the other hand, the continuous flourishing of online social and communicative practices, new platforms and social networks, new ways to create data on the online activities of individuals make the knowledge available from the Web always uncertain, revisable and, above all, at high risk of rapid obsolescence, just like the technological tools through which it is largely generated.

The recent technological innovations, along with the development of the "Internet of things" and the "always connected" way of life made possible by the ubiquitous mobile devices, broadened the opportunities for user-generated content. These processes increased the scope of Web social spaces and the types of online participation in Web 2.0.

The emergence of a Digital Society calls for tuning the epistemological and methodological stances of social research from a twofold perspective. First, by adapting the established social research methods to the online practices and interactions; then, by creating new methods and techniques to analyse those online experiences that could not be framed using the traditional methodological tools of social research. However, neither approach could bring scholars to agree on the most suitable concepts, theories, and methodological tools on which to base a valid and reliable system to study the Digital Society. Moreover, these two perspectives are not finely tuned in the actual research practice: the traditional social research methods that addressed the study of society are being superseded by a gurgling set of innovative, sometimes extemporaneous, methodological proposals.

One may or may not agree with this trend, but one cannot fail to acknowledge the need to rethink the classical ontological, epistemological, and methodological framework that inspire the work of social scientists by finding a common ground among them. In other words, there is a lack of a shared vision that allows empirical research on the Digital Society to advance in a precise direction. Suffice it to say that there is still no univocal way of defining the applied Social Sciences that study and/or use online, its phenomena and its tools: Computational Social Science, E-Humanities, Digital Humanities, e-Social Sciences, are just a few of the many labels used to designate a field of study that is perhaps still too young.

However, all the proposals follow the idea that the Digital Society has created an unprecedented availability of information, the so-called "big data" or "social media data[4]".

The impact of this excessive amount of information on the epistemology and methodology of empirical research in the Social Sciences was immediately apparent – to the point that many even predicted (to backtrack later) that this would mark the end of social research as we know it. In their essay "The Coming Crisis of Empirical Sociology" (2007), Savage and Burrows claimed that this unprecedented availability of information about activities, behaviours, and social relations, recorded automatically and in real-time online, would have some serious fallout. It would render, in one fell swoop, obsolete and inadequate the entire methodological apparatus of the Social Sciences, qualitative and quantitative, especially in the academical field.

Fortunately, this ominous prediction turned out to be wrong. However, it is undeniable that this new and unexpected copiousness of data[5], with unique characteristics compared to those stemming from traditional research methods (Agodi, 2010), has ignited the enthusiasm and creativity of many social researchers. Thanks to such abundance, they can now: "analyse levels of reality simply unimaginable yesterday" (Giuffrida, Mazzeo Rinaldi, Zarba, 2016: 159). These new technologies can capture the different aspects of our digital *lives*, processing a continuous stream of data from our interactions (Kumar, Morstatter, Liu, 2013; Zafarani, Abbasi, Liu, 2014). In our everyday life, we are

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[4] Thanks to the explosion of social media, we see a slow but progressive change in how social researchers approach online research: "Since 2004-2005, the widespread diffusion of social media has highlighted the inadequacy of an obsolete conception of the Web as a mere theatre of fictitious identities and deviant behaviour" (Jurgenson, 2012; Natale, Airoldi, 2107: 1).

[5] The data surplus produced by online users is no longer used only to improve the products and services addressed to them. Instead, they are mainly the object of commercial exchange between companies, thus creating a standard model for the accumulation of wealth and capital by online-operating companies (Zuboff, 2018).

witnessing a continuous growth in the pervasiveness of news, content, and services made available at any place and time through the web and various mobile devices: "For the first time in human history, communication interactions, social networks, political opinions, tastes, attitudes, and behaviours of citizens and consumers are constantly monitored. Any activity carried out online [...] leaves persistent and searchable marks" (Natale, Airoldi, 2017: 1-2).

This environment has given a boost to Social Science research at a controversial time, by rediscovering methods that had never been mainstream, such as network analysis and content analysis, and by experimenting with innovative solutions, like topic modelling, machine learning and Digital Methods (Veltri, 2017; Molteni, Airoldi, 2018). In both cases, however, we are talking about applying social research methods to studying the Digital Society, a disciplinary field that many scholars file under the label of Digital Methods. Once we have defined how to call the scientific field, some essential questions arise regarding its object of study – in other words, what we are dealing with when we study people who live the Digital Society.

First of all, when we study people in the Digital Society, we are not observing them directly according to what they tell us by answering a questionnaire or an interview. Instead, we collect information about what they do online without them being aware of it. It is a new ontological object that is referred to in different ways (digital life, digital shadow, digital footprint, algorithmic identity), all of them sharing a common idea: they are traces left by the online activities of individuals, which, gathered together, create an inextricable and indefinite flux of information called Big Data.

Big Data introduce another crucial epistemological issue to be addressed. Many scholars believe that we have finally met the conditions for creating a new scientific paradigm: "we speak, therefore, of a new epistemological transition and a "fourth paradigm" in the history of science. It is not certain whether the possibility to navigate in a sea of data, even if in an interdisciplinary way, can generate new scientific knowledge and a new epistemological transition. This new type of research [...] is not based on the "sensible experience" and "certain demonstration" of which Galilei spoke, but on the power of algorithms and computers" (Stefanizzi, 2016: 118-119).

The core of this new paradigm is Big Data, especially its distinctive trait of being "found" (Lewis 2015; Molteni, Airoldi 2018). The data are spontaneously generated by users, non-intrusively detected by the algorithms used by the platforms on which they are produced, and virtually imperishably available within datasets (Molteni, Airoldi 2018, 105). According to some authors, this peculiarity makes Big Data paradoxically closer to ethnographic materials than provoked data (such as answers to surveys and interviews) (Cardano, 2011).

This epistemological vision of Big Data applied to Social Sciences is orienting research practices towards driven empiricism in which theories, hypotheses and research questions progressively lose their relevance (Kitchin, 2014). They suddenly become a burden, constraints that limit the scope of statistical analyses and, therefore, the production of knowledge. There is thus a shift from a theory-driven approach to knowledge-making to a data-driven one. In an online article, Anderson fittingly explains the core idea of this new empiricism: "Petabytes allow us to say: 'Correlation is enough'. We can stop looking for models. We can analyse the data without hypotheses about what it might show" (2008).

However, this is naive empiricism. A good methodologist knows that "data" is such only if there is a conceptual framework of reference, through which they are collected, examined, and interpreted (Coombs, 1964; Bruschi, 1999). Data collected through online platforms are no exception: "likes, comments, tweets, click views, are not inherently meaningful. Data are analysed through specific lenses that influence their interpretation. Even the automated algorithms used to acquire, query, and analyse data are the result of a theory, intrinsically connected to a specific scientific method" (Giuffrida, Mazzeo Rinaldi, Zarba 2016: 163).

Without guiding research questions, it is even difficult to recognize the field of inquiry (Silverman, 2000). Thus, it emerges the importance of the research design: the vaguer the research design, the less selective the collection of information since everything appears important (Miles, Huberman, 1984).

Or better, they are not neutral but integrated with opinions and sometimes prejudice, as shown by O' Neil (2016), who defines them as *weapons of math destruction* demonstrating the existence of discrimination at the basis of some algorithms in the security sector. They can be defined as black boxes as in most cases their exact formulation is unknown.

Kitchin effectively summarizes the fallacies of an empiricist view of social research based on the absolutization of Big Data: "These fallacious notions have gained some traction, especially within business circles, because they possess a convenient narrative for the aspirations of knowledge orientated businesses (*e.g.*, data brokers, data analytic providers, software vendors, consultancies) in selling their services. Within the empiricist frame, data analytics offer the possibility of insightful, objective, and profitable knowledge without science or scientists, and their associated overheads of cost, contingencies, and search for explanation and truth. In this sense, whilst the data science techniques employed might hold genuine salience for practitioners, the articulation of new empiricism operates as a discursive rhetorical device designed to simplify a more complex epistemological approach and to convince vendors of the utility and value of Big Data analytics" (2014: 5).

Therefore, we should dampen all this unruly Big Data enthusiasm. First, we should consider that social actors adopt different online self-presentation strategies (for example, social desirability). Moreover, they are influenced by the social and cultural frame of reference in that specific historical moment. Last but not least, we should not underestimate the influence of the social platform on the mode of expression: the same person could adopt different self-presentation strategies based on their using Facebook, Instagram or Twitter. Online reality cannot, therefore, be investigated without considering the individual or collective meanings that individuals attribute to their online behaviour.

There are two additional heads of problems. Data access is becoming more and more restricted, following scandals such as Cambridge Analytica. Furthermore, the opportunity to scrutinize information collected online on individuals who do not know they are being studied raises ethical red flags.

Molteni and Airoldi (2018) summarize the epistemological and methodological issues crucial in the study of Digital Society as follows: *Accessibility* (data are mostly generated on private platforms and rarely accessible in their entirety by academic researchers who are "third parties" to the company that owns them, for legal and/or commercial reasons); *Socio-technical mediation* (data are generated in the course of online activities mediated by the technical affordances and algorithms of the platforms hosting them); *Ethics* (the fact that digital information is freely accessible does not mean that it is ethical to use it for research purposes); *Post-demographics* (the difficulty of tracing the socio-demographic traits of individuals online makes answering canonical research questions in the Social Sciences problematic) and *Representativeness* (typical survey generalizations are not possible because there are serious representativeness problems due to social, cultural, and economic factors, such as the digital divide).

Summing up, there is still no agreement on a shared definition of what it means and how to implement the empirical study of the Digital Society; there are not paradigmatic definitions so solid as to redefine the field.

Big Data certainly have an ontological and epistemological impact. Spontaneity, immateriality, persistence and searchability of online information – all these characteristics lead to rethinking methods and techniques of data collection and analysis. The shift from "atoms to *bits*", from individuals to "connected publics" has generated a sort of post-demographic approach in which more attention is paid to media contexts and behaviours and opinions at an aggregate level rather than to individuals and their properties.

This new paradigm in social research, if we can still call it a new paradigm, has disadvantages that can be overcome only by integrating offline and online information through different methodological approaches.

All these limitations in the use of Digital Methods call for the implementation of a Mixed Method approach to overcome the weaknesses and limitations common to all social research methods. The hybridisation of methods is reflected in the will by many scholars to loosen the link between methods and theory, disciplines and approaches that might have inspired them. The quest for integration, the mix that solves every cognitive and research problem, the totalising openness that challenges theories and the broad visions within which social research is embedded today, are just some of the elements that are pushing social research methods in unpredictable yet fascinating and challenging directions.

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