

## Chapter 29

# The Spatial Dimension in Social Media Analysis: Theoretical and Methodological Characteristics

**Ciro Clemente De Falco**

*University of Naples Federico II, Italy*

**Noemi Crescentini**

*University of Naples Federico II, Italy*

**Marco Ferracci**

*University of Naples Federico II, Italy*

### ABSTRACT

*In the data revolution era, the availability of “voluntary” and “derived from social media” geographic information allowed the spatial dimension to gain attention in digital and web studies. The purpose of this work is to recognize the impact of this research stream on some methodological and theoretical issues. The first regards “critical algorithm studies” in order to understand what algorithms are used. The second concerns how these works conceive the space. The last two issues concern the disciplinary areas in which these researches take place and which are the ecological units taken into account. The authors answer these questions by analyzing, through a content analysis, the researches extracted with the PRISMA methodology that have used Twitter as a data source. The application of this procedure allows the authors to classify the analysis material, moving simultaneously on the four defined dimensions.*

### BIG DATA AND NEW WAYS TO STUDY SOCIETY

In the digital society (Lupton, 2015), data are constantly produced as direct and indirect effects of bureaucratic, legislative and planning activities, but above all, as a spontaneous accumulation of information derived from the use of social networks used to enhance the exchange of social relations and knowledge

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(Amaturo & Aragona, 2016). This huge amount of data, coming from multiple sources, gave rise to the phenomenon of the data deluge (Halford, 2013), which is commonly known as “Big data”, a term that has been spread increasingly since 2010. As pointed out by Davenport and Bean (2012), big data can be useful in supporting multiple processes (decision- making, prevention and/or safety) using information processed in real time, detecting changes, trends and new directions through continuous monitoring. In research, big data has made it possible to observe human behavior more easily. Indeed, a large amount of previously inaccessible information, is available today to analysis. In particular, big data make it possible to carry out “non-intrusive” investigations in “natural” contexts, avoiding distortion linked to the researcher/interviewer/observer’s presence (Mahrt & Scharkow, 2013). Thanks to big data, it is easier to conduct research on both hidden and inaccessible populations. In this regard, Kitchin (2014) talks about the data revolution era, a period in which new data and new sources allow researchers to find new ways to study society and its dynamics. In addition to large amounts of data, completely new kinds of data are now available, which can be categorized in different ways: the way they were generated (direct; automated; volunteers; Kitchin, 2014), the area of their origin (public sector, private sector, digital platforms (Elias, 2012), their structuring level (structured; semi-structured and unstructured) and their type of origin (digitized and originally digital) (Rogers, 2015). Part of the data is identified, organized and archived thanks to metadata, which can be defined as “data related to data.” Thanks to metadata it is easier to extract useful information from large datasets. Extraction is done through data mining and web scraping tools, which become precious allies for researchers. These are completely new tools that should be part of the technical background of the new generation of social scientists (Lupton, 2015). However, it should be emphasized that accessibility is not guaranteed for all data. For example, the data produced by digital infrastructures, which are very useful for research, are difficult to access due to the growing trend towards “proprietary closure” (Manovic, 2012). Mostly, companies have access to large data sets, while researchers can obtain part of these data thanks to API (Application Programming Interface). APIs are sets of commands used to collect data from large companies’ databases. Furthermore, the available data may only be partially useful for answering research questions, and sometimes may even guide the research question (Boyd & Crawford, 2013). On the bright side, new lines of research and new approaches can arise thanks to new data and big data in the social research context, in fact, according to Halford (2013), the connection of these new types of data with other kind of data, allows for better ways of producing sociological knowledge. Among these types of data, the author includes geolocated user data. Some digital platforms, in fact, allow the collection of data relating to the geographical position of users and this has led to the development of an approach which aim is to jointly analyze two worlds that were previously considered irreconcilable: the online and the offline world. Chappell (2017) argues that due to this type of data, innovative methods can be developed to study social phenomena such as social stratification. According to the authors these innovative approaches could help sociology to maintain its distinctive abilities and to avoid the “incoming crisis” (Burrows & Savage, 2007) resulting from the multiplication of “social” data users. The purpose of this work is to critically analyze the emerging field of studies that focuses on the analysis of geolocalized data from social platforms in relation to methodological and theoretical issues. The first is related to “critical algorithm studies” (Seaver, 2016) and basically concerns methodological awareness in the use of algorithms. The second, related to the tradition of ecological studies, concerns the way in which these works conceive space. Is it a geographical space or a “sociological” one? In the end, these two issues concern, on one hand, the disciplinary areas in which these studies take place, and, on the other hand, the ecological units that are taken into account. In order to do this, the work will be organised as following: the second section will introduce and discuss

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