Social Sciences and studies on the Internet and cyberspace[1]

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Introduction

For two decades already, social sciences have studied the Internet and cyberspace. However, field investigations are still emerging today. There are two reasons for this. On the one hand, conceptualizing the cyberspace, which began in the 90s, is starting to yield results. On the other hand, the research tools to assess this new environment are still taking their first steps, and are yet to be tested by empirical research. Empirically, the partially immaterial nature of cyberspace makes field investigations difficult, which explains in part the delay between conceptualization and experimenting. In reality, field investigations of cyberspace form a stimulating challenge to social sciences and research methodologies in general.

In this regard, cyberspace and Internet as research subjects are good exercises[2]. Moreover, it must be noted that the first analyses on cyberspace concentrated on drawing conclusions and analogies in the past developments of communication networks, such as telephones and telegraphs to highlight particularities of the Internet and cyberspace[3]. Therefore, geographers, sociologists, political scientists, jurists, anthropologists and other social science experts have twinned their efforts to uphold comprehension of cyberspace and its social consequences. This synthesis breaks into two parts. The former presents the conceptualization of cyberspace and of the Internet, as drawn by geographers. The latter presents the different attempts which have been made to investigate this space with no territories.

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1 Synthesis taken from: Breux, Sandra, Reuchamps, Min, Loiseau, Hugo (dir.). *Carte mentale et science politique, Regards et perspectives critiques sur l'emploi d'un outil prometteur*, Collection: Méthodes participatives appliquées - volume 1, Bruxelles, Peter Lang, 2011, 186 p.

2 Zook, Matthew. «The Geography of the Internet» In *Annual Review of Information Science and Technology (ARIST)* ed. B. Cronin. Volume 40. 2005, p. 53-78.

3 Adams, Paul C. et Warf, Barney. «Introduction: Cyberspace and Geographical Space», *Geographical Review*, Vol. 87, No. 2, Cyberspace and Geographical Space, april, 1997, pp. 139-145

.1) Cyberspace and Internet geography

A survey of Internet and Cyberspace studies must start with geography. Indeed, geographers were the first to investigate cyberspace. Is it a place, a territory, or a space? Is it possible to map out cyberspace and the Internet? How can this emerging phenomenon be scientifically defined? Debates on this subject have focused, in part but not completely, on the digital gap created by the Internet, the network's mobilization capacity, the nature of social relations within cyberspace which would be radically different from those in normal space. Geographic space would have been "transcended" by new information and communication technologies[4].

But the answers brought by these questions are more interesting. These answers are based on concepts and theories which belong to social sciences. For some geographers, cyberspace is a dynamic discourse which (re-)embodies social reality by giving a meaning to structures and social processes and an identity to users, despite the absence of tangible borders[5].

Another response was given, under the form of a typology, which breaks down the reality of the Internet and cyberspace with the notion of space/place, borrowed to English scientific literature. In French, the concept of space/place and the debates around it regroup the notions in one single concept. The concept of *"lieu"*, on the one hand, corresponds to an objective place, independent from the entities which can be defined through their coordinates. This same concept, one the other hand, is more subjective as it relies on relationships to come. The place depends on things and things depend on the place[6]. It is under this second definition that it acquires meaning, thanks to the way humans live through the place, i.e. their subjective capacity to act within an environment[7].

Four types therefore enable us to clearly map out cyberspace. First of all, by chronological appearance, there is a notion of space/place where the place is physical whereas space represents the relations between activities (both natural and human) and processes (social, mental and natural). Along this notion, a public place is a physical location where individuals meet to interact, thus creating a public space[8].

The second notion is what Batty calls the *cspace* (which stands for computer space). A public place where all individuals have computers, without being interconnected, could be such a place. Each user has a computer, but cannot communicate through it and must use traditional[9] communication channels. A network of social links pre-exists, but it doesn't rely on computers to communicate.

4 Adams, Paul C. «Cyberspace» in Warf, Barney. *Encyclopedia of human geography*, Thousand Oaks, Sage Publications, 2006, pp. 83-85.

5 Adams, Paul C. et Warf, Barney. «Introduction: Cyberspace and Geographical Space», *Geographical Review*, Vol. 87, No. 2, Cyberspace and Geographical Space, april, 1997, pp. 139-145.

6 Berque, Augustin. «'Lieu' 1» In Lévy, Jacques et Lussault, Michel (dirs.) *Dictionnaire de la géographie et de l'espace des sociétés*, Paris, Belin, 2003, pp. 555-556.

7 Entrikin, Nicholas J. «'Lieu' 2» In Lévy, Jacques et Lussault, Michel (dirs.) *Dictionnaire de la géographie et de l'espace des sociétés*, Paris, Belin, 2003, pp. 557-560.

8 Cresswell, Tim. «Place» in Warf, Barney. *Encyclopedia of human geography*, Thousand Oaks, Sage

Publications, 2006, pp. 356-358.

9 Batty, Michael. «Virtual Geography», *Futures*, Vol. 29, No. 45, 1997, pp. 337-352.

The third notion is cyberspace, which represents interactions and processes between computers, once these are linked through a network (such as the Internet). The users, within this public space, can therefore add this communication means to the traditional channels, to their existing social links, and develop new social links through a new place, cyberspace.

The last notion defines cyberspace as a partial substitution, often an addition and rarely an elaboration on the physical reality of the place. A meeting within public space can be set up through email (complement). Should the meeting fail, the public encounter can be held through videoconferencing (substitution), or outright in a virtual mode (such as with the Second Life network). The Internet enables space to be installed onto networks, but also networks to be put into place[10].

The interaction and the co-constitution of these places have allowed for the birth of cyberspace, such as we know it today[11]. It could be argued, and rightly so, that cyberspace is more and more an element creating the present space such as we know it. In other words, this element is influenced by this space, and influences it in return. *Far from entering a world online, the informational world began to permeate our lived environment. Increasingly, processing power was located in the environment around us, not just in discrete artefacts called computers.*[12]

Thus, far from creating an independent space, cyberspace is deeply rooted in the current space and this has impacts for research.

This being said, cyberspace cannot be mapped out the way territories or cosmic space can (places, according to Batty)[13]. Even though it is generally agreed that map designing and mapping in general are subject to "*constructions reflective of the conditions they are produced under standards and values upholding them*"[14], mapping out cyberspace is a game played differently. In fact, this logic demands that "each element of cyberspace respond to a spatiality"[15], and that the world being mapped out is built and rebuilt by its users, and not by exogenous factors. Cyberspace is therefore a social production which relies on a network, named the Internet, linking users located in different places in a functional manner. As explained hereunder, clear distinction between these two elements is of importance, given the methods which will be used to analyze it or resort to it.

For most of the geographers who have tackled this task, this is mapping out a *terra incognita,* no more, no less.

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10 Beaude, Boris. «Cyberespace» In Lévy, Jacques et Lussault, Michel (dirs.) *Dictionnaire de la géographie et de l'espace des sociétés*, Paris, Belin, 2003, p. 220.

11 Zook, Matthew. «The Geography of the Internet» In *Annual Review of Information Science and Technology (ARIST)* ed. B. Cronin. Volume 40. 2005, p. 53-78.

12 Crang, Mike. «Cyberspace» in Derek Gregory et al. (dir) *The dictionary of human geography*, Chichester, Wiley-Blackwell, 5e édition, 2009, p. 140.

13 Crampton, Jeremy W. *The political mapping of cyber space*. Chicago: The University of Chicago Press, 2003, 214 p.

14 Lascoumes, Pierre. «Gouverner par les cartes» *Genèses*, vol. 3, N. 68, 2007, p. 2-3.

15 Beaude, Boris. «Cyberespace» In Lévy, Jacques et Lussault, Michel (dirs.) *Dictionnaire de la géographie et de l'espace des sociétés*, Paris, Belin, 2003, p. 219.

"Representing the «layout» of cyberspace presents a special puzzle for geographers, and the methods for mapping cyberspace remain experimental and unconventional, reflecting only few decades of progress."[16]

This unknown land therefore needs to be studied and conceptualized. For the moment, the scrutiny brought by social sciences is one of methodology, a common language amongst the disciplines composing them.

2) From the research method side

Although the literature presenting or experimenting research and investigation methods has greatly developed in recent years, it isn't yet very abundant or achieved, in the way documentation on more traditional research methods could be. However, a few studies have already established a few methodological milestones in order to realize quality research in cyberspace and through the Internet.

A distinction must, first and foremost, be operated. Research methodology can be done in cyberspace, thanks to the Internet and about cyberspace. These are fundamentally different elements, which must be differentiated from the beginning, because they are linked to the difference there is between cyberspace and the Internet. The first notion pertains to cyberspace as one research field among others, cyberspace being an additional channel for social links. The second pertains more to the Internet as a specific tool which can be used within the course of research.[17] Finally, the third element pertains more to a sociology of cyberspace. Cyberspace is then considered more of a social phenomenon, within the field of research[17].

Let's enrich the example of the public place used here above. People gather in that public place, with the intent to protest against a tax increase, for example. A given researcher (named X), can concentrate onto motivations, expressed within and out of cyberspace, which would entice people to rally against the tax increase. But cyberspace is also one among many investigation fields. Another researcher (named Y) can also undertake online interviews and polls with the demonstrators, before, during and after the event. Internet is then being used as an investigation tool. Another researcher (named Z) focuses his research on blogs and specially created websites, while investigating how the links between protesters formed online, and especially how that made the demonstration possible. In this last case, cyberspace is examined as a social phenomenon.

More specifically, the existing literature on cyberspace roughly follows this division, given that authors who broach this subject deal with all three elements, which are not mutually exclusive.

First of all, cyberspace is taking more and more importance in our society. It therefore makes sense that it should be considered as an object of study, being an additional element in social relations. Indeed, some social relations, and they seem to become ever more numerous, tie, intertwine, depend on each other and unravel or are channeled by cyberspace. In that regard, literature analyzes social problems

16 Adams, Paul C. «Cyberspace» in Warf, Barney. *Encyclopedia of human geography*, Thousand Oaks, Sage Publications, 2006, p. 85.

17 Markham, Annette N. «Internet in Qualitative Research», In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008, p. 454-458.

caused by the Internet[18], the everyday-life and cyberspace[19], international politics[20], conflicts[21], and numerous other topics.

Secondly, authors explore the limits and possibilities of traditional information gathering techniques and social science analysis, thanks to the Internet. This network is therefore seen as one possible way of leading research and even increasing the capacity of traditional information gathering techniques. For instance, the different authors explain how to lead online interviews (through email, through online chats)[22], online forums[23], sampling and polling techniques[24], or simply documentary observation and direct observation[25].

Thirdly, cyberspace is also a social phenomenon which can be studied per se, beyond its social media function. This type of research examines human behavior within cyberspace. It focuses mainly on communication, sociology and anthropology. For instance, the research subject are online social interaction[26], social environment of cyberspace and its impact on social environments (family, work environment…)[27], online social networks[28], as well as other subjects.

One last element transcends this literature. It is the ethical considerations in the use of the Internet for research purposes (whatever the subject) and research with cyberspace as its

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18 Johnson, Nicola. *The multiplicities of Internet addiction : the misrecognition of leisure and learning*. Farnham, Ashgate, 2009, 156 p.

19 Franklin, M.I. *Postcolonial Politics, the Internet and Everyday Life : Pacific Traversals Online*, Taylor & Francis, 2005, 293 p.

20 Hanson, Elizabeth C. *The information revolution and world politics*, Lanham, Rowman and Littlefield Publishers, 2008, 269 p.

21 Libicki, Martin C. *Conquest in cyberspace. National security and information warfare*, New York, Cambridge University press, 2007, 324 p.

22 Kivits Joëlle. «Online Interviewing and the Research Relationship» in Hine, Christine (dir.). *Virtual Methods: Issues in Social Research on the Internet*. New York, Berg, 2005, p.35-49. O'Connor, Henriette et al. «Internet-based Interviewing» In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008, p. 271-289.

23 Gaiser, Ted J. «Online Focus Group» In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008. Williams, Matthew et Robson, Kate. «Reengineering Focus Group Methodology for the Inline Environment» in Mark D. Johns, Shing-Ling Sarina Chen, and G. Jon Hall, *Online Social Research: Methods, Issues, and Ethics*, Digital Formations Series, Vol. 7, New York, Peter Lang Publishers, 2004, p. 25-45.

24 Fricker, Ronald D. Jr. «Sampling Methods for Web and E-mail Surveys» In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008. Vehovar, Vasja et Lozar Manfreda, Katja. «Overview : Online Surveys» In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008, p. 177-194.

25 Kendall, Lori. «Participants and Observers in Online Ethnography : Five Stories About Identity» in Mark D. Johns, Shing-Ling Sarina Chen, and G. Jon Hall, *Online Social Research: Methods, Issues, and Ethics*, Digital Formations Series, Vol. 7, New York, Peter Lang Publishers, 2004, p.125-140.

26 Schneider, Steven M. et Foot, Kirsten A. «Web Sphere Analysis : An Approach to Web Hyperlink Research and Utility for Science Communication» in Hine, Christine (dir.). *Virtual Methods: Issues in Social Research on the Internet*. New York, Berg, 2005, p. 157-170.

27 Mackay, Hugh. «New Connections, Familiar Settings : Issues in the Ethnographic Study of New Media Use at Home» in Hine, Christine (dir.). *Virtual Methods: Issues in Social Research on the Internet*. New York, Berg, 2005, p. 129-140.

28 Hogan, Bernie. «Analyzing Social Networks via the Internet» In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008, p.141-160.

subject. The main problem is mainly one which jeopardizes the validity of the information and the data from ethical issues. The researcher, because of the nature of cyberspace, cannot be assured that the subject is who he says he is (his authenticity), understands or gives his enlightened consent to partake in the research, understands all the implications of confidentiality or of the answers he will give, and that he will be selected in conformity with the sampling methods chosen[29].

Conclusion

In a nutshell, be it as a research subject, as a research field or a research tool, cyberspace and the Internet are either a place which can be explored in different ways or additional means in the researcher's hands. The providing and development of such means or additional tools, as well as the conceptualization efforts are necessary to explain and understand the emerging social reality which is the result of a complex fusion of the multiple spheres of human online activity[30].

Therefore, by improving the tools and concepts of social science, it would be possible to better understand the behavior of all the collective and individual entities which use, exploit or undergo cyberspace and the Internet. Knowing how they design this place/space sheds additional light onto the question raised by social sciences, such as the impact of new technologies on social groups rallying, obstacles and limits applied to the relationship between humans and technologies, cybersecurity issues and Internet governance, transformations in communications since the spreading of the Internet, or even the benefits and addictive types of behavior caused by cyberdependance… In a word, the study of cyberspace and the Internet by social sciences opens a new field of socially and scientifically relevant research questions.

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29 Markham, Annette N. «Internet in Qualitative Research», In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008, p. 454-458. Thomas, Jim. «Reexamining the Ethics of Internet Research : Facing the Challenge of Overzealous Oversight» in Mark D. Johns, Shing-Ling Sarina Chen, and G. Jon Hall, *Online Social Research: Methods, Issues, and Ethics*, Digital Formations Series, Vol. 7, New York, Peter Lang Publishers, 2004, p. 187-201. Eynon, Rebecca et al. «The Ethics of Internet Research» In Fielding, Nigel et al. (dir.) *The Sage Handbook of Online Research Methods*, Los Angeles, Sage Publications, 2008, p. 23-41.
30 Zook, Matthew. «The Geography of the Internet» In *Annual Review of Information Science and Technology (ARIST)* ed. B. Cronin. Volume 40. 2005, p. 53-78.