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Margot Beauchamps

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Margot Beauchamps
PhD Student - University of Paris Panthéon-Sorbonne
Research director : Gabriel Dupuy
UMR CNRS 8504 – Géographie-cités
Margot.Beauchamps@univ-paris1.fr

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Internet: towards an increasing urban fragmentation?

Information and communication technologies, especially the Internet, are deeply reshaping the relationship between urban dwellers and the city. As a ubiquitous way to access multiple resources, the Internet widens opportunities of social interactions. Its large social and spatial diffusion could give credence to the idea of vanishing disparities between urban areas thanks to an equal access for the different social groups to the resources of information society.

However, literature on the digital divide suggests that, even in the cities of the developed-world, uneven access and skills to use the Internet contribute to social inequalities, since the uses of the Internet are highly correlated to social position of individuals (DiMaggio and Hargittai, 2002, Dupuy, 2007).

This digital divide is a challenge addressed to northern societies in the information age (Castells 1996). Access to relevant networks and appropriate information has become a crucial means of enhancing opportunities. Finding an apartment, looking for a job, keeping in touch with members of one's social network, going through administrative procedures, remaining informed are daily activities for which access to Information and Communication Technologies becomes more and more necessary. Public and private services are reconfigured in such a way that they are now designed for individuals who are expected to be Internet users.

It leads to a kind of digital dependency in the same way as authors have identified a “car dependency”, that is to say a configuration of the city in which everything is conceived for car owners and in which those who don’t have a car experience daily difficulties to access jobs, public and private services, leisure, culture, and urban resources in general (Dupuy 2006).

In the same way, lack of access to the Internet reduces the opportunities afforded to individuals and reinforces social inequalities, since access to the Internet is strongly related to socio-economic status. Those who face difficulties to access the Internet are more likely to be the one who experience social exclusion through a reduced access to job opportunities, social networks, goods and services.

Concurrently there is evidence of increasing social segregation within cities and of spatial concentration of poverty (Brun and Rhein, 1994, Massey 1990). This being said, what could be the social and spatial impacts of an uneven diffusion of the Internet throughout the city ? This paper seeks to explore how the uneven access to the Internet (1), the wide diversity of Internet uses (3) as well as the practices of the telecommunication networks’ operators (2) tend to reinforce the splintering of the city into socially specialized areas. I will successively deal with those three topics. Namely, I will first address the question of the uneven access to the Internet, then analyze the impact of telecommunication private operators on the fragmentation of the city and finally explore the implication of the diversity of Internet practices. The discussion of the concept of ‘digital divide’ will be my thread throughout the presentation. My remarks are mostly based on French data, drawn from quantitative studies available at a national level and a qualitative case-study in a deprived area of the post-industrial city of Saint-Étienne, located next to the second biggest French city of Lyon.

The uneven access to the Internet

The term of ‘digital divide’ suggests that the spread of Information and Communication Technology (that I will from now on refer to as ‘ICT’) leads to a binary distinction between the connected individuals and the non-connected ones. Such a distinction makes it easier to assess ICT-based exclusion through a range of quantitative indicators such as : number of households having one or several computer(s), number of households having an Internet connection at home or number of individuals using the Internet. In most northern countries, such data are available at least at a national scale and many studies have show evidence that socio-economic status is a strong determinant of digital inequality. In France, graduates are four times more likely than non-graduates to be connected to the Internet at home (54% of the graduates and 15% of the non-graduates) (Frydel 2007)..

The cost of equipment is one of the factors that might explain the uneven spread of computers and the Internet among French households. While the prices of computers

and computer-related items have rapidly decreased, the quick obsolescence of electronic materials makes it expensive to keep being up-to-date. And the decreasing price of Internet subscription does not neutralize the fact that subscribing to an Internet Service Provider involves committing oneself to a monthly payment for at least a year. Such commitment does not suit to the poorest households' budget, not to mention those who are even excluded from the banking system.

However, the cost of the equipment does not seem to be the main factor leading to the uneven diffusion of computers and Internet connections. Indeed, when asked about the reason for not having a computer at home, people first invoke the lack of need (for half of them), secondly the lack of skill to use it (one fifth of the households) and only on third position the cost (one sixth of the households) (Frydel 2007).

Cultural brakes are thus to be invoked to explain the uneven spread of Internet use among society. The use of the Internet strongly relies on people's capacity of dealing with writing and reading. Social stratifications are built upon differences in cultural capital strongly related to uneven writing abilities (Bourdieu, 1980-). Social capital also seems to play a determinant role on the uneven diffusion of Internet uses. Indeed, the growth of the Internet is rooted in the person-to-person communication and the "network effect". Possessing an email address only becomes useful when one knows somebody else to exchange emails with. Another evidence of this key role played by social capital is the frequent recourse to social network by Internet users to solve technical problems faced when using a computer.

The uneven diffusion of computers and Internet use perceived through the binary distinction between the haves and the have-nots is a first and most widespread way to apprehend digital inequalities. Despite the scarcity of this basic indicator, it allows us to acknowledge the determinant role played by social stratification in the construction of digital inequalities.

Concurrently cities are the places of crystallization of social stratifications into space. The different social groups are not equitably distributed within urban areas. Differential of accessibility and of quality of places are to be invoked to explain the unequal distribution of social groups in the cities.

From those two statements, it follows that there is a widening differentiation of urban areas in terms of digital opportunities for their residents. This leads to the second section of my paper that addresses the question of an urban fragmentation through the actions of telecommunication network's operator.

Telecommunication networks' operators and the splintering of the city

The liberalization of public services, especially concerning the telecommunication sector, leads to an increasing differentiation between urban areas. Because they notice uneven spread of Internet practices between social groups, and consequently, between

urban areas, telecommunication networks' operators are likely to treat unevenly the different urban areas. A study of the strategies of ICT companies', for instance Internet Service Providers, easily shows that they focus their investments in infrastructure networks on the wealthiest areas, where there observe strong appropriation of the ICT and widely ignore the areas that are not profitable due to a high proportion of insolvent households or more obviously to a low proportion of households likely to be hard internet users. Stephen Graham and Simon Marvin (2001) have identified such strategies under the term of "cherry picking". Networks' operators concentrate their financial and technological efforts on the wealthiest areas, which can hence benefit from the advantages of market competition. Residents of those areas benefit from a wider choice of technologies and services at a better price, while resident of deprived areas are confronted to a widening technological gap with regard to the rest of the city. This process of differentiation of urban areas through the practices of private operators has been acknowledged under the designation of 'splintering urbanism' (Graham and Marvin, 2001). This term is more accurate than the "digital divide" to point out the wide diversity of quality of access to communication networks. Let's just evoke the quality differential that ensues from the characteristics of the three main technologies of access to the Internet. When comparing access to Internet through dial up modems, ADSL or optic fiber cable, striking are the differences in terms of connection speed and opportunities to widen practices made possible by the Internet. Digital inequalities might clearly be reinforced by such fragmentation of the urban telecommunication networks, with strong impact on the cohesion of the city. There is thus, a strong need for regulation. The French parliament recently gave a bigger role to the regulation authority¹ but also to local governments in terms of control over the telecommunication networks. Until now, however, local governments lack of experience to challenge the increasing disparities between territories in terms of telecommunication networks.

I am now coming to the last topic I wish to address, the social implications of the wide diversity of Internet practices.

A wide variety of Internet uses and values of use

Upon the acknowledgment that Internet is "vital to supporting learning, social inclusion, civic participation" (Lee, 2008) access to equal opportunities for all, national and local governments have enhanced efforts on policies aiming at reducing the digital divide between the connected and the non-connected. However, despite the wide spread of Internet uses and equipment among disadvantaged individuals, those policies have failed to soften socio-economic boundaries. Such is the assessment made by Lisa Lee in a recent article. There is a need for a better understanding of the social impact

¹ ARCEP: Autorité de Régulation des Communications Electroniques et des Postes.

of the Internet uses. I have earlier emphasized the scarcity of the binary concept of digital divide. I would now like to question digital inequalities in terms of use value, defined as how the Internet, or ICT in general, benefits people. This is measured through the use that is made out of it. Hurdling the barrier to the Internet access is not a goal *per se*. What is at stake with digital inequalities is the risk of an increasing divide of opportunities because of the widening differential of resources that can be mobilized.

A study led among residents of a deprived area of Saint-Etienne has shown that the diffusion of the Internet has conducted to the rise of a wide range of practices that are highly linked to the socio-economic position of the users. Combined with the large flexibility of Internet technical characteristics, which allows multiple applications (webmail, email, chat, file transfer, etc.), the diversity of peoples' interests and socio-cultural background tends to reduce the opportunity for individuals from different social groups to interact through the Internet. For instance, some people declared they only used email, while other only communicated through chat / instant messages. The rise of social network websites such as Facebook, or Myspace - to name but the main ones - contributes to splinter the cyberspace into socially segregated communities (Boyd, 2007). Some authors do not hesitate to talk about a "balkanization of the Internet" (Lev On and Manin, 2006).

Besides, individuals belonging to disadvantaged communities face difficulties maximizing the opportunities afforded by the Internet, hence reducing the value of Internet use.

Facing risks of a physical splintering of the city caused by the gap between levels of telecommunication infrastructures' coverage and the trend of a social fragmentation through the multiplication of disparate uses of ICT, the city seems to follow a tendency towards a less cohesive intercourse between place-based communities. Internet could emphasize the inclination of urban realm to competition at the expense of solidarity between areas within cities, especially in France where urban governance is confronted to the fragmentation into myriads of municipalities.

It becomes critical to assess precisely the implications of Internet use and non-use within disadvantaged communities and conceive innovative policies to challenge inequalities that are becoming stronger because of the rise of ICT.

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