

## 1. Opinions



# “Being anchored to be agile”: a call for interdisciplinarity in mobility research

22 June 2020

Dominique Joye

Following the publication on the Mobile Lives Forum website of the roundtable "Spatial mobilities, the origins of a field," Professor Dominique Joye, an expert on social sciences research methodologies, further discusses the issue of interdisciplinarity in current research. He reminds us both of the virtues of hybridization for scientific research and the importance of disciplinary roots to take advantage of it. Behind this apparent paradox, which can be summed up by the phrase “being anchored to be agile,” lies perhaps one of the keys for developing research in a “boundary” field such as mobility.

---

## Context

The Mobile Lives Forum funded a “meta-project” involving several studies in order to carry out an original reanalysis of qualitative data by a multidisciplinary team. It was published under the title “Getting out of car dependence in the suburbs and rural areas.”<sup>1</sup> It’s in this context that the symposium “Spatial Mobilities, Methodologies for Collection, Analysis and Treatment” was held in Tours on November 8 and 9, 2018<sup>2</sup>. During this symposium, the roundtable “Spatial mobilities, the origins of a field” brought together Françoise Dureau, Pierre Lannoy, Jean-Pierre Orfeuill and Thierry Ramadier. It was transcribed in two parts on the Mobile Lives Forum website:

- Dialogue on mobility between F. Dureau, P. Lannoy, J.-P. Orfeuill and T. Ramadier. 1 : The origins of a field
- Dialogue on mobility between F. Dureau, P. Lannoy, J.-P. Orfeuill and T. Ramadier. 2 : A multidisciplinary perspective

## Mobility at the boundary of disciplines

The issue of mobility has long been seen as a “boundary object” at the crossroads of several disciplines<sup>3</sup>. For example, it is clear that geography, that studies territories, is naturally confronted with

spatial mobility and its limits. But at the same time, the concept of social mobility is at the heart of sociology. It is therefore not surprising that many studies have emerged, in the twentieth century, focusing on the symmetries between spatial mobilities and social mobilities<sup>4</sup>. This research then drew attention not only to the parallels, but also to the interactions between different types of mobility. From there, interdisciplinarity became part of the object itself: to what extent is spatial mobility essential for social mobility? How can social capital be leveraged in different geographical contexts?<sup>5</sup>

The discussions of the roundtable placed an emphasis on the fields that were represented by the participants at the table. The history of mobility seems to have first been a topic for disciplines related to humanities and social sciences: sociology, geography, demography and even psychology. In this context, mobility would seem to border related disciplines. But aren't there other relevant disciplines? Can't artificial intelligence models be useful? Shouldn't we consider new divisions between scientific fields?

## The transformation of disciplinary segmentations

When dealing with the analysis of large corpuses, especially if they are digitized, the reference to "digital humanities" seems useful. This field, which has been developing for many years<sup>6</sup>, relies on the use of digital methods and tools in the humanities and social sciences<sup>7</sup>. The dematerialization of a corpus allows researchers to analyze very large datasets, beyond what an isolated researcher could manage with traditional methods. This opens the door to analyses, or reanalyses, of datasets from various projects or sources, such as the meta-project supported by the Mobile Lives Forum mentioned in the introduction. Of course, the question of what data is potentially exploitable and its limitations is not resolved by virtue of simply pooling multiple sources, on the contrary. But this link between broadening the sources of information and controlling their conditions of production is an exciting challenge. In this sense, new forms of data and their pooling are potential vectors for transforming the humanities and social sciences in particular, as well as science in general.

To cite just one example of this relationship between data and scientific research in quantitative sociology, fifty years ago, being able to use data from a survey was something that many researchers could only dream of. Ten years later, in the 1980s, a series of comparative projects<sup>8</sup> with parallel surveys in several countries became a tool that increased analytical power tenfold. Another decade later, regular collections of data on the same individuals gave a new dynamic to the study of life courses. And today, one of the most promising ways to look at data analysis is the integration of sources, from administrative data to individual data, through a set of "paradata" produced by the research process itself: the time of information collection, notes taken by the interviewer on the context of the survey, etc.<sup>9</sup> As a result, many other data can be aggregated, with one of the main limitations being personal data protection. Needless to say, this also raises a series of problems, for example on how to assess the quality of data obtained from heterogeneous mechanisms - this has been a matter of scientific debate for some years now<sup>10</sup>.

But it's not enough to get excited about new methods or give new labels to old approaches. There are also debates to be had about scientific models and how they are applied today in various disciplinary fields. Take the following example: for a long time, the archetypical data analyst, from a mathematical standpoint, was the statistician. Even though there were large differences between exploratory or confirmatory statistics<sup>11</sup>, and between mathematical development or the production of indicators, the idea of a model of inference, that can generalize results obtained on samples to the whole population is a strong one. In recent years, a new profession has emerged in the field, that of the "data scientists," whose specific expertise is working with large datasets to explore its structures and regularities, using digital tools not just for analysis but also for collection. According to Google Trends, by 2013 the term had already been searched on the Internet more times than "statistician."<sup>12</sup> But this quantitative success is not enough, as mere research across oceans of data doesn't necessarily make sense

## Notes

13 there needs to be a theoretical perspective to guide the investigation. In other words, it's probably more useful to see how different approaches can be complementary rather than how one is better than the other.

In short, it is once again a call for cross-fertilisation and interdisciplinarity that I'm emphasizing here. Interestingly, Steve Jobs, at least according to a quote by Alex Pentland, claimed that creativity lies first and foremost in the interconnection of different elements<sup>14</sup>. As Pentland reports: "The most consistently creative and insightful people are explorers. They spend an enormous amount of time seeking out new people and different ideas, without necessarily trying very hard to find the 'best' people or 'best' ideas. Instead they seek out people with different views and different ideas."<sup>15</sup>

## Interdisciplinarity: theoretical hybridization or tool sharing?

In view of the arguments made so far, interdisciplinarity can be conceived on at least two levels: theoretical and empirical.

Interdisciplinarity involves theoretical work: concepts must be shared. Mobility, whether social or spatial, as mentioned above, is a good example. But the effort required to integrate a concept coming from another discipline, especially when it bears the same name, is long and demanding, even between close disciplines. It probably requires the cooperation of several researchers in a process that is both collaborative and critical<sup>16</sup>. I personally remember long discussions with a fellow geographer when writing an article on "rifts" in Switzerland, which confronted the "geological" definition referring to the formation of faults, and the "sociological" definition of the term. It's at this point that a disciplinary anchoring is particularly important, in order to manage a fruitful theoretical exchange.

Interdisciplinarity can also be built at the level of the data and the tools. We already mentioned the internal debates within the field of statistics, but we can also point to the field of ecology, where authors like Legendre and Legendre developed the idea of "numerical ecology" to overcome tensions within the field. In the preface to the second edition of their book on the subject<sup>17</sup>, they emphasize that digital ecology relies primarily on the combination of methods derived from different parts of statistics and mathematics to understand ecosystems (p. XIV). Similarly, they insist that numerical approaches can never exempt researchers from performing a field-specific analysis of the results of their observations – in this case, an ecological analysis (p. XI). In other words, a disconnected approach, without reference to a given terrain, would probably not make any sense. A similar position can be found in sociology when we talk about a "social space" and how it is constructed<sup>18</sup>.

But what also makes these transfers from one discipline to another possible are common tools. One example mentioned in many research communities is the statistical software "R".<sup>19</sup> In addition to being a free software available on major platforms (Linux, Mac, Windows), it has enabled the development of thousands of "packages" that implement analytical techniques specific to different research communities and thus facilitates the transfer of know-how from one discipline to another. In this sense, such software can be seen as the equivalent of the "terminal room" of the late seventies in computer science, a place of strong collaboration on everyday problems between specialists from very diverse disciplines.

## The idea of co-construction

By following such a possibility, it is therefore also when working together, around empirical elements, that researchers can conceive of interdisciplinarity on a daily basis. This is one of the reasons for the term "boundary" domain, mentioned above, i.e. it allows practical collaboration. In this type of context, if

the partners accept such a challenge, there wouldn't be an opposition between "Big Data" and "Social Sciences" anymore, but a co-construction and a pooling of viewpoints and goals. At a local level, data from a "meta-project" that brings together sets produced by several researchers from different disciplines are also pieces of such a puzzle, because beyond the creation of a "corpus," there is a need to create workshops where different researchers can share a common object. Such knowledge-sharing may also be seen from the point of view of the agencies supporting research, for example by promoting, after projects are completed, seminars to discuss a given dataset, what English speakers call "Data Confrontation Seminars." This is even more relevant with complex datasets such as those from meta-projects.

In conclusion, I would like to make one final point about interdisciplinarity. Literature in the field tends to suggest a tripartite definition

20

- multi-disciplinarity, as a first step, which would be the simple juxtaposition of disciplines in relation to an object, without any integrated elaboration;
- inter-disciplinarity, which has underpinned most of my development so far, and which involves the construction of a common perspective linking different disciplines, whether a theoretical effort of integration or empirical research based on methods and approaches from various fields;
- trans-disciplinarity, which, in addition to the integration of approaches, reminds us that this is not only a debate between scientists: the subjects of public policies or research objects are also partners whose contributions must be taken into account as soon as the research process begins<sup>21</sup>. According to the first proposal of a list of fifteen for trans-disciplinary research

22 "Transdisciplinary research is research that includes cooperation within the scientific community and a debate between research and the society at large. Transdisciplinary research therefore transgresses boundaries between scientific disciplines and between science and other societal fields and includes deliberation about facts, practices and values." In this sense, it's no longer just a research where research subjects are studied vertically: it needs to perform a more horizontal integration of participants. To put it another way, trans-disciplinarity implies co-construction and a commitment to citizen science.

I would like to add one final point: most of the elements brought into this text were done so with the debate on daily mobility in mind. As I write this, observing the coronavirus crisis and how it has impacted the public space, I think that the way in which we should organize the debate on existential issues in our societies also requires a plurality of views and approaches. In other words, a social crisis cannot be dealt with from one single disciplinary perspective, whether epidemiological or economic, but requires an exchange between a plurality of disciplines, including the humanities and social sciences, to enable the implementation of measures whose potential acceptance is a condition of its effectiveness, in a democracy at least.

1 M. Huyghe, L. Cailly, N. Oppenchaim (2020), "Getting out of car dependence in the suburbs and rural areas," Mobile Lives Forum.

2 Mr. Huyghe, L. Cailly, N. Oppenchaim (2018), "The meta-project, feedback from a secondary analysis," MSFS2018, Nov 2018, Tours, France. halshs-01922702 (consulted in May 2020).

3 The idea of a boundary field or boundary object refers to Susan Leigh Star's work, a reference point for co-construction and interpretive flexibility. See S. L. Star (1989), "The Structure of Ill-Structured Solutions: Boundary Objects and Heterogeneous Distributed Problem Solving," in L. Gasser & M. N. Huhns, Distributed Artificial Intelligence, Vol. 2, Pittman Publishing; and S. L. Star (2010), "This is not a border object! Reflections on the Origin of a Concept," in Knowledge Anthropology Review (Vol 4, No. 1), p.18-35.

- 4 See M. Schuler, V. Kaufman., B. Lepori & D. Joye (1997), *Des mobilités à la mobilité. Vers un paradigme in-tégrateur*, Swiss Science Council, Advanced Detection.
- 5 This way of looking at things has remained relatively rare in the literature. There are two articles, however, 25 years apart, that can be cited as examples: M. Savage (1988) "The Missing Link? The Relationship between Spatial Mobility and Social Mobility", *The British Journal of Sociology*, Vol. 39, No. 4, and A. Favell and E. Recchi (2011) "Social mobility and spatial mobility" in V. Guiraudon, A. Favell (2011) *Sociology of the European Union*, Palgrave, p.50-75.
- 6 It is common to trace digital humanities back to the work of Roberto Busa, who in 1949 asked IBM to digitize the texts of Thomas Aquinas. See P. Mounier (2018), *Les humanités numériques*, Maison des sciences de l'homme.
- 7 For an excellent introduction to the field, see D. Vinck (2016), *Humanités numériques : la culture face aux nouvelles technologies*, Le Cavalier bleu.
- 8 For example, programs such as ISSP ([www.issp.org](http://www.issp.org)) or EVS (<https://europeanvaluesstudy.eu>) that were initiated nearly forty years ago and are still ongoing. For a more detailed description, see A. Chenu and L. Lesnard (ed.) (2011), *La France dans les comparaisons internationales*, Presses de Science Po.
- 9 See for example F. Kreuter (2013), *Improving Surveys with Paradata*, Wiley.
- 10 See Mr. Savage and R. Burrow (2007), "The coming crisis of empirical sociology," *Sociology*, and R. Burrows & M. Savage (2014), "After the crisis? Big Data and the methodological challenges of empirical sociology," *Big Data & Society*, April-June 2014, p. 1-6.
- 11 J. Tuckey (1977) *Exploratory Data Analysis*, Addison-Wesley.
- 12 See <http://flowingdata.com/2013/12/18/data-scientist-surpasses-statistician-on-google-trends> (consulted in May 2020), as well as the presentation of these "professions" in [https://study.com/articles/difference\\_between\\_data\\_scientist\\_statistician.html](https://study.com/articles/difference_between_data_scientist_statistician.html) (consulted in May 2020). Top schools such as the Swiss Federal Institute of Technology in Lausanne have started a master's degree in Data Science.
- 13 The famous example of Google's model for predicting an influenza epidemic, published by Nature, was criticized a few years later. On this debate between "Big Data" and social sciences, see the excellent article by Boris Beaude (2017), "(re)Médiations numériques et perturbations des sciences sociales contemporaines," *Sociology and Societies*, No. 49 (2), p. 83–111. <https://doi.org/10.7202/1054275ar> (consulted in May 2020).
- 14 Original text: "Creativity is just connecting things," quoted in A. Pentland (2014), *Social Physics*, Scribe.
- 15 A. Pentland (2014), *Social Physics*, Scribe.
- 16 M. Schuler, D. Joye et T. Busset (1991), "Clivages et différenciations géographiques de la Suisse," dans *Les Suisses, Modes de vie, Traditions, Mobilités*, Payot, p. 661-678.
- 17 P. Legendre and L. Legendre (1998), *Numerical Ecology*, 2nd edition, Elsevier.
- 18 See for example J. Blasius et al. (ed.) (2020), *Empirical investigations of Social Space*, Springer.
- 19 R Core Team (2020), *R: A language and environment for statistical computing*, R Foundation for Statistical Computing. <https://www.R-project.org/> (consulted in May 2020).
- 20 G. Hirsch-Hadorn et al. (2008), *Handbook of Transdisciplinary Research*, Springer.

21 In a sense there is nothing new here either with, for example, currents like research-action, institutional analysis or others that were very active several decades ago already. Without judging the value of either approach, it is interesting to note that the question of the relationship of researchers to their research object, and how to integrate them, is a debate that cannot be avoided when working on actors and social issues.

22 U. Wiesmann et al. (2008), "Enhancing Transdisciplinary Research: A Synthesis in fifteen Propositions," in G. Hirsch-Hadorn et al. (2008), Handbook of Transdisciplinary Research, Springer, p. 435.

## Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

En savoir plus x

---

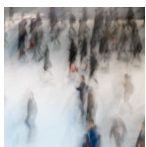
### Associated Thematics :

#### Theories

- History
- Methods

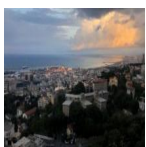
---

### Other publications



History of the concept of mobility

Vincent Kaufmann



Urban mobility in Algiers: An overview of the sociological research

Madani Safar Zitoun

1 <https://en.forumviesmobiles.org/project/2020/05/28/dialogue-mobility-between-f-dureau-p-lannoy-j-p-orfeuil-and-t-ramadier-1-origins-field-13321>

2 <https://en.forumviesmobiles.org/project/2020/05/28/dialogue-mobility-between-f-dureau-p-lannoy-j-p-orfeuil-and-t-ramadier-2-multidisciplinary-13324>