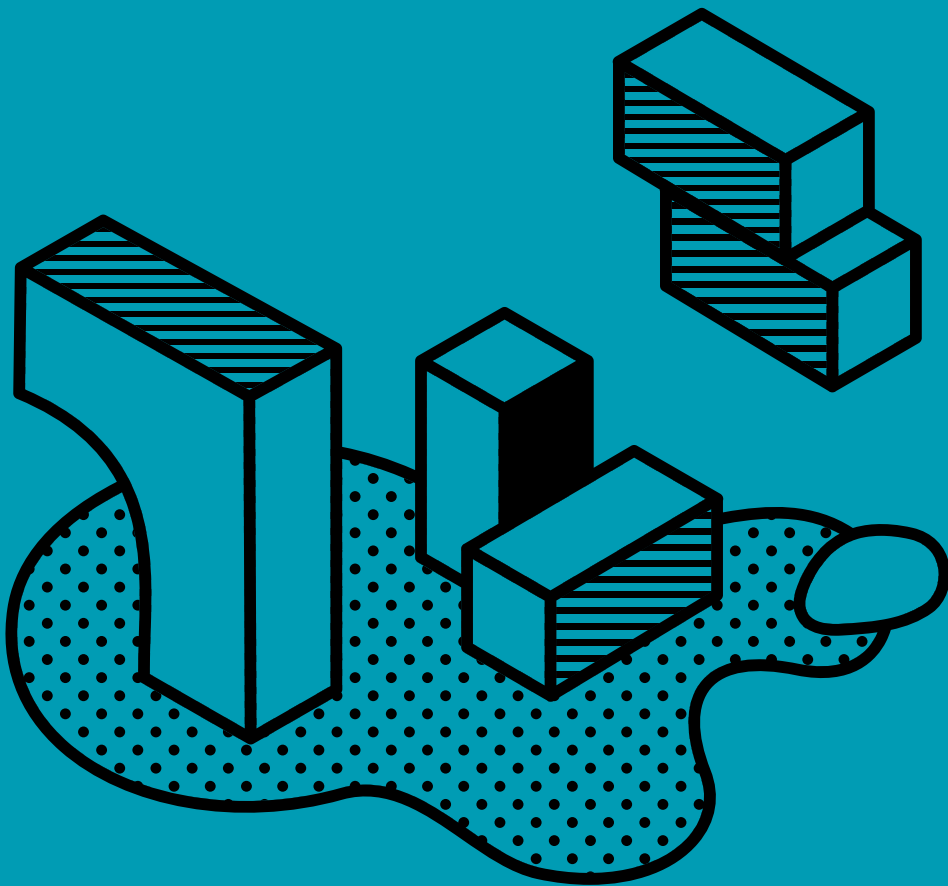# Designing Brussels Ecosystems

Metrolab Brussels MasterClass II

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Ecology of Urban Knowledge
Notes from the Metrolab experience

Mathieu Berger

In this text, which reformulates some of the remarks made at the end of the *Brussels Ecosystems* conference, I put forward some ideas for an ecological approach not to the city, but to knowledge about the city and 'research action' on urban problems. Since the various ecological niches and spheres of knowledge in which knowledge about the city is produced are also 'semiotic niches' (Hoffmeyer, 2008) and 'semiospheres' (Lotman, 1991), i.e. spaces characterized by the prevalence of certain types of signs and certain modes of signification over others, we refer to this approach as 'semiotic ecology', or 'eco-semiotics' (Berger, 2018; Van Hollebeke, 2020).

The Artist, the Bulldog and the Mathematician
The ecology of knowledge begins at the individual level, with an ecological development of the mind: the subject of knowledge recognizes and appreciates the plurality and interdependence of the forms of intelligence of a phenomenon. For example, American philosopher Charles Sanders Peirce (1998, pp. 146–147) believed that a proper appreciation of the phenomena of the world required philosophy to bring together different faculties of human intelligence:

> The first and foremost is that rare faculty, the faculty of seeing what stares one in the face, just as it presents itself (…). This is the faculty of the artist who sees for example the apparent colours of nature as they appear. When the ground is covered by snow on which the sun shines brightly except where shadows fall, if you ask any ordinary man what its colour appears to be, he will tell you white, pure white, whiter in the sunlight, a little greyish in the shadow. (…) The artist will tell him that the shadows are not grey but a dull blue and that the snow in the sunshine is of a rich yellow. That artist's observational power is what is most wanted (…). The second faculty we must strive to arm ourselves with is a resolute discrimination which fastens itself like a bulldog upon the particular feature that we are studying, follows it wherever it may lurk, and detects it beneath all its disguises. The third faculty we shall need is the generalizing power of the mathematician who produces the abstract formula that comprehends the very essence of the feature under examination (…).

These different faculties, which together produce a complete phenomenology — not reduced to aesthetic sensitivity (the artist), nor to a watchful eye for facts (the bulldog) or to abstract logic (the mathematician) — can be articulated in the intelligence of a single individual. Each of these faculties corresponding to an elementary mode of being-in-the-world, which Peirce respectively calls *firstness* (the phenomenon is grasped as a mere quality), *secondness* (the phenomenon is grasped in its actuality and tangibility) and *thirdness* (the phenomenon is grasped in its generality), we constantly mobilize in very ordinary forms. It is up to us to elaborate each of these relationships to the world, in more or less dissociated or associated modes. If Peirce is considered an authentic genius, it is because of an intellectual ethic that falls within what Gregory Bateson later called 'an ecology of the mind' (1972), and which led Peirce to distinguish himself as a logician and mathematician, but also as an oenologist and even a detective (Eco and Sebeok, 1986). These diverse abilities are combined in his very singular practice of philosophy.

Interdisciplinarity and Transdisciplinarity

While the faculties referred to can be elaborated and articulated by a single brilliant spirit, an ecology of knowledge also invites us to pursue this cooperation of faculties through communication and collaboration. Is it not preferable to have the artist, the bulldog — or 'tracker' — and the mathematician collaborate, through a certain division of labour, within an interdisciplinary team? The answer is less obvious than it seems. One must first ask whether these different faculties can together compose a phenomenology, which seems to require a fourth faculty, a faculty of articulation of the other three, and which is not necessarily represented in this team. Other problems arise:

Who — artist, tracker or mathematician — initiates the collaboration; who sets the framework, formulates the problem and defines the objectives? Who is the host, who 'plays at home'; who is the guest, who 'plays away'? Where does the exchange take place? In the office of a mathematics department, among books and exam papers? In the studio of an artists' collective, among unfinished canvases and leftover pizza? In the open air and on the move, on the tracker's familiar ground? What is the atmosphere and what 'cognitive mood' does it stimulate? What objects, instruments, equipments are available? What medium (visual, verbal, textual, etc.) is emphasized, indicated or suggested by the situation? What categories of signs dominate the exchanges (Peirce, 1991)? 'Icons', which signify by resemblance, evocation, open up potential significations? 'Indexes', which stick to the facts and actual features of a situation, and which we use to ensure that we have a grip on reality? Symbols, which develop a general signification, based on laws, conventions or habits?

These puzzles and challenges, which characterize interdisciplinary collaborations, are 'eco-semiotic' ones. Let us try to clarify the meaning and relevance of this term. The artist, the tracker and the mathematician develop different faculties because they become familiar with different modes of significations, paying attention to a certain type of signs rather than to others. The first is distinguished by iconic intelligence, the second by indexical intelligence,

and the third by symbolic intelligence (Ferry, 2007). The development of interdisciplinary communication and intelligence in this group involves 'inter-semiotic' transactions between different universes of signification, and these transactions must be understood and controlled using certain methods and procedures (while Jürgen Habermas has theorized in detail the procedures for controlling the quality of linguistic exchanges between interlocutors and for promoting the 'communicative rationality' of a deliberation, he has left aside the problems of semiotic heterogeneity and the plurality of intelligences that mark human communication — Ferry, 2007; Berger, 2017; Genard, 2017).

So why not simply speak of 'semiotic' obstacles? The term 'eco-semiotics' adds this important point: if the artist, the tracker and the mathematician do not pay attention to the same signs, if they draw from different universes of meaning, it is also simply because they 'do not live in the same world', because they inhabit different worlds (Cefaï, 2015), where 'meaning is cultivated' differently (Rochberg-Halton, 1986). For instance, the indexical intelligence of the tracker or the hunter imposes itself as an adaptation to a world (a hostile forest, for example) and to the 'knowledge interests' that it encourages (knowledge = feeding oneself; being intelligent = surviving); this world and these knowledge interests are in principle foreign to the eminent mathematics scholar. An epistemology of interdisciplinarity must take an interest in the matter: the problems of interdisciplinarity are not limited to technical questions of transcoding one 'language' into another, or of the choice of medium (oral speech, drawing pencil, PowerPoint slideshow, etc.), but raise the socio-anthropological question of the belonging of these three characters to semiotic niches that are themselves embedded in different ecological niches.

When re-examined in these new terms, the difficulties of interdisciplinary communication can no longer be thought of as mere problems of translation from one language to another, but rather as problems of circulation and accessibility from one niche to another; as problems of reception within the host environment, where exchanges take place; in short, as problems of *hospitality* (Stavo-Debauge, 2018; Berger, 2018). This eco-semiotic conception also casts a singular light on the notion of 'transdisciplinarity'. While the word 'interdisciplinarity' postulates — in a consensual but unrealistic way — the symmetry and complementarity between the disciplines represented, between equally respectable intelligences in a supposedly neutral communication space, 'transdisciplinarity' better recognizes the irreducible asymmetry of these collaborations between *host* and *guest* disciplines, and the fact that the latter can only step into the communication space by encroaching on the former's 'domain' (*domus*: house, home). Transdisciplinarity occurs when episodes of encroachment introduce a fertile tension within the epistemic host environment.

What is called 'fertile tension' here? Not disruption or transgression celebrated for its own sake, for the 'beauty of the gesture', the thrill of breaking into the domain of the other (on the contrary, such an aesthetic conception of encroachment between disciplines is detrimental to transdisciplinary initiatives). Nor is it a mere 'irritation' between knowledge systems, to which the hosts react allergically, after which they become defensive and withdraw into their own discipline. Rather, 'fertile tension' characterizes what might be called *problematic encroachments*, encroachments that have the merit of giving rise to a problem

within the hybrid collective and that mobilize its members (hosts and guests) in a process of investigation, of progressive and collective clarification of the difficulty; this process is intended to clarify this epistemic dispute and to evaluate together the gain or loss in intelligence caused by the encroachment.

Metrolab: Housing Urban Transdisciplinarity

Let us leave Peirce's example aside to consider the Metrolab experience. This collective adventure involving architects, urban planners, sociologists and geographers, initially thought of as 'interdisciplinary' and now experienced as 'transdisciplinary', has given rise to all sorts of tensions — not all of them 'fertile', by the way! The most interesting tensions happened, for example, when a geographer or an urban planner tried to tackle a sociological problematization, or when a sociologist attempted to appropriate the cartographic tool or to sketch a design of a public space or building. While these attempts have occasionally given rise to irritation or even rupture, they have also, fortunately, been 'problematic' in the good sense of the word: taking these encroachments seriously required the group to question their potential to examine new, possibly relevant insights into the phenomenon under study; insights that had hitherto been absent from the disciplinary corpus of reference.

While the sociologist's encroachment into the architect's field and their appropriation of the instruments of architectural/urbanistic design can only produce 'sub-architecture' or 'sub-urbanism', several possibilities arise: this attempt can provoke annoyance, mockery, contempt and be dismissed out of hand; it can be considered seriously by the architect but rejected on the basis of an argument; lastly, it can be taken up again, reworked by the architect in order to give it a finished and sophisticated form. In the latter case, the sociologist has initiated a design (in itself unfinished) on the basis of premises, ideas and intentions that are 'undisciplined' and therefore perhaps new. Conversely, sociologists will benefit from paying attention to the attempts by which architects or geographers 'sociologize'. Mastery of configurations and spatial relations, attention to practical details, aesthetic sensitivity to the qualities of experience and to atmospheres, all these skills that architects are likely to possess can give rise to intuitions or sociological hypotheses that will have the originality and strength to grasp a social relationship in its most concrete, situated and material form. The geographer's intelligence of territorial scales, as well as their understanding of urban situations in their relativity and interdependence, can help initiate sociological reasoning that avoids short-sightedness.

Whatever the collaborations that have brought together these disciplines, sometimes two by two (architecture and sociology, urban planning and geography) and sometimes all three at the same time, transdisciplinarity within Metrolab was also expressed through processes of socialization, sociability and acquaintanceship that were determined neither by disciplinary affiliations, nor by institutional affiliations (between researchers at UCLouvain and researchers at ULB). After all, another way to ascertain the 'transdisciplinary' ability achieved by the Metrolab collective is the fact that, after four years of intense collaboration, I no longer work, talk, laugh or argue with a sociologist, an architect or a

geographer, but rather with Louise, Pauline, Christian, Geoffrey, Sarah, Simon…

This is undoubtedly because, over time, through the multiplication and deepening of collaborations whose leadership was provided in turn by sociologists, architects and geographers, Metrolab has opened and then consolidated a new habitat for urban research, a 'semiotic niche' where shared significations have flourished; maps, designs, problematizations and concepts that have become inseparably sociological, geographical and architectural. This is the case, in particular, of the concept of the 'inclusive enclave' (Berger & Moritz, 2018) which, after emerging from a MasterClass at Metrolab, was presented and discussed in numerous seminars and conferences, operationalized on different sites in Brussels and elsewhere, and even inspired an artistic work (a play by Joseph Wouters and Globe Aroma, 'Underneath Which Rivers Flow', presented as part of the Kunsten Festival des Arts). A concept that has now been taken up by new collaborators (in particular Lemaître, 2019) and applied to a situation of prime importance in Brussels: the work of reception, help and support provided by citizen platform BXLRefugees for the population of transmigrants gathered in Brussels' Northern Quarter (ARCH, 2020).

Research and Action

The relationship to practical commitment and action is a further eco-semiotic challenge, and one that is, of course, quite decisive for our work. The difficulties raised in the previous paragraphs, while significant and not to be taken lightly, are mere in-house arrangements for the urban actors with whom we intend to work. The fact that we have managed to establish proper conditions for transdisciplinarity within the Metrolab niche, within the framework of our seminars, is of little value if it cannot guide and assist the practices of the actors involved. Moreover, the question could be asked: does the eco-semiotic challenge encountered in the context of exchanges and attempts at communication between the disciplines represented in Metrolab distract us from the more crucial eco-semiotic challenge that the mission of 'action research' — that is, the situation of communication and collaboration that unites the researcher and the practitioner — opens up? If opening up and strengthening a new sphere of transdisciplinary knowledge increases internal complexity, researchers who are engaged in these efforts may be tempted to limit transactions with the outside world; to avoid a new increase in complexity, by opening up to the reality of the actor.

While this concern arose several times during the first two years of the Metrolab adventure (Van Hollebeke, 2020), it is less present today, considering the multiplication of practical collaborations with a number of ERDF 2014–2020 project leaders and other public or citizen actors, and their acknowledgement of Metrolab's role. The Designing Brussels Ecosystems MasterClass in January 2019, compared to that of 2017, marked a clear improvement in the communication between Metrolab researchers and Brussels actors, around the works presented by international doctoral students.

It seems to me that for many of us, the eco-semiotic challenge of transdisciplinary communication and collaboration within the Metrolab group was an important prerequisite for the more decisive challenge of communication

and collaboration with Brussels' urban actors. Nobody in the group lost sight, throughout the seminars and conferences with sometimes very theoretical contents that we organized, that these reflexive activities were justified by their necessary extension into practical commitments with the actors involved. The transdisciplinary communication operating within the laboratory would have been in vain if it had not received 'its goal, its specificities and its mandate' (Dewey, 2014) from the urban reality with which the Brussels actors are grappling. The aim of these exchanges between disciplines and across disciplinary boundaries remains, in the end, to clarify 'a confusing situation so that reasonable ways of dealing with it can be suggested' (Dewey, 2014). It is only because real-world problems know no boundaries between disciplines or fields of study that spheres like Metrolab and many others are needed. The real world is transdisciplinary!

Knowing That, Knowing How

Having raised the issue of closer collaboration between academic researchers and urban actors in urban policies, we must now consider the desirable forms of such collaboration. Even if things have changed in recent years, with a multiplication of living labs and applied research experiments, the interaction between researchers and actors is still conceived most of the time in terms of a caricatured complementarity whereby researchers bring their 'knowledge' and actors bring their 'practical skills'. Such a stereotypical division of labour is at the origin of many collaborations that are not very fruitful, because they depend on miscommunications between *subjects of knowledge* on the one hand and *subjects of action* on the other, engaged in relationships to the world that are very different, and probably more incompatible than complementary. More often than not, the actor *does not know what to do* with the knowledge acquired through contemplative observation of urban phenomena (a relationship to phenomena freed from the constraints of action). The scholar, on the other hand, *does not know what to think* of the practical skills of actors, which are best demonstrated *in situ*, through the reproduction of daily acts, the formation of habits and know-how that are difficult to convey through discourse.

It is important to rethink the terms of the collaborative interaction between researchers and urban actors, starting with a more realistic and symmetrical approach to the relationship that each of them has with knowledge and practice, i.e. with 'knowing that' and 'knowing how', in the words of Gilbert Ryle (1945). The idea that researchers engage only in the *knowledge-that* mode in the context of a complementary relationship in which actors would limit themselves to mobilizing a know-how (*knowledge-how*) is erroneous. It is excessive, immodest (it presupposes a superiority of the researcher's knowledge over that of the actor) and, at the same time, too timid and falsely modest (the researcher renounces their own use of practical know-how). To put it another way, academics engaged in 'collaborative research' processes have an unfortunate tendency to overestimate the depth and relevance of their knowledge, while underestimating the usefulness and interest of their know-how.

If academic researchers tend to overestimate their own knowledge (knowledge-that), it is, first of all, because they misunderstand the extent,

diversity and complexity of the knowledge developed by the actors. For example, after years of practice, a given actor in a given policy will have gained detailed knowledge not only of the thematic area of their action (e.g. green spaces), but also of the plans in force, the legal provisions, the budgetary realities, the political and electoral strategies, the institutional relations between the different levels of government involved and the interpersonal relations between the protagonists of this policy. They will have memorized thousands of names of people, bodies, agencies, streets, places, buildings, projects, etc., giving a very concrete and specific character to their knowledge of these entities that make the city and intervene in a project or policy. In fact, it is rare that an academic researcher working in urban studies, even if they have specialized in a city or a territory, develops such a rich, diversified and contextualized knowledge ('indexicalized', we might say with Garfinkel [1967], precisely to underline that the type of sign that characterizes this knowledge and intelligence is the 'index', the concrete and contextualized sign).

If academic researchers overestimate their own knowledge (knowledge-that) in relation to knowledge built in the sphere of action, it is then because they often misunderstand the simplifications and reductions that academic research uses to generate knowledge. These 'scholastic reductions' (Bourdieu, 2000), due to the academic's seclusion in campus life and active avoidance of practical concerns, far from fading with experience, generally only worsen as the academic becomes more established in both their professional field and their cognitive mode, and gains exposure and prestige. It is difficult for academics (who tend to see themselves as repositories of the world's complexity) to acknowledge that their mode of knowledge, both theoretical and conceptual, considerably reduces complexity, through, among other things:

—   operations of generalization and decontextualization;

—   bracketing praxeological constraints and practical consequences related to the production of their discourse;

—   the selective shaping of the reality represented by their research prooblem, adopting a certain focus (micro or macro), concentrating on this or that aspect of urban reality (social, or ecological, or economic, etc.) to the exclusion of others.

Some of these reductions are inevitable, inherent to the profession of researcher. But acknowledging them should encourage an attitude of modesty; it should at the same time make the researcher aware of the very particular complexity of the knowledge developed by a number of actors, these *subjects-knowing-under-constraint-of-action*. Once this type of knowledge is better recognized, better understood in its importance and depth, the challenge is to open and organize spaces for the co-constitution of knowledge about the city in which the knowledge of academic experts and the knowledge of urban actors are placed in a more symmetrical relationship, rather than spaces in which one form of knowledge dominates, crushes, scorns the other.

In addition to these considerations on the need for sharing and the symmetrization of knowledge (knowledge-that) between academic observers and urban actors, it is necessary to look at interactions and exchanges concerning

their respective know-how. The problem is reversed here. From the point of view of promoting and sharing their own know-how, researchers are often too reserved. Intimidated by the practical skills of urban actors, accustomed to the idea that their knowledge is not directly useful for action, or even that their knowledge is 'useless' outside the academic semiosphere, scholars often too quickly abandon the idea that they are the bearers of a know-how and that this know-how can legitimately be considered valid and useful by the stakeholders of a policy or a project. While they are indeed 'observers' of urban life, academic researchers must also understand themselves as 'operators' (since their observations are in principle taken in an investigative process, it is based on methods, on a certain modus operandi). These investigation skills, drawn from their interest and taste for problems (identifying, imagining, formulating, solving problems), are relevant and needed in the worlds of action.

Just like it is well understood today that urban actors, including citizens, must invite themselves into scientific research circles (i.e. the idea of 'collaborative research'), too little emphasis is placed on the importance of the reverse movement: more professional researchers must seek to invite themselves into the field of urban public action and to engage their own knowledge-how, that particular practical knowledge produced by an ability to investigate, problematize and solve problems (Dewey, 1938).

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