The Teacher's Hunch and its Foundations:
A Case for Epistemological Awareness in Architectural Education

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Certainly, opinion throughout faculties and schools of architecture, teachers and students engaged in conventional education exchange an enormous amount of information, in a process intended to provide the latter with the skills required to become independent professionals. While part of the exchanged information can be recognized as clearly fitting within that formative goal, it is not uncommon for tutors to also suggest possible lines of inquiry that might sometimes seem arbitrary. Rather than taking those apparently incoherent indications for confusing or diversionary, I am convinced that they play a key role, not only in the education of the architect, but – most importantly – in the development of the architectural profession as a whole. In order to recognize the origin, importance and value of the architecture teacher's hunch, in the following pages I will make a case for epistemological awareness as a *sine qua non* for the teacher's hunch to become a productive source of professional knowledge. Without that awareness, what are taken for hunches might indeed be interpreted as whimsical, mysterious and fundamentally inoperative information.

Central to this discussion is the notion of *epistēmē* which is generally understood as "intellectually certain knowledge," and opposed to the notion of *doxa*, which is taken for "common belief or opinion."[1] this division generally leads to the assumption that there is a fundamental difference between so-called objective knowledge and guesses; where the first is reliable and the second are not. In order to dismantle that assumption, I will develop my argument on a *falsificationist* basis (i will explain what I mean by this with some detail, below), which allows me avoid the presumption that an *epistēmē* is characterized by certitude, and rather defines the term as a system of ideas that leads to the growth and development of knowledge.[2] Based on this particular interpretation, and focused on architecture education, I will talk about *epistemological awareness* as our ability to recognize the organized systems of ideas that inform, direct and define any architectural discussion towards the growth and development of our knowledge of the built environment. The teacher's hunch, on the other hand, I will simply describe as a not immediately or obviously justifiable direction proposed by a tutor in an academic setting, oftentimes diverting from a what appears to be a logical course of action.

I will use these definitions to sketch a conceptual framework for my case, and to argue for the need for a fuller understanding of architectural theory as a means to foster epistemological awareness. I will then mention how I came to realize the importance of that awareness in architecture education, based on my own experience negotiating the differences between my teachers' reasonable indications and their hunches; and I will indicate how I have tried to negotiate those differences as a tutor, through a course that provides students with the fuller understanding of architectural theory mentioned above. I will close my argument with a series of considerations that demonstrate the importance of epistemological awareness for the growth and development of architecture knowledge, and conclude with a short reflection on the need to cherish and protect the teacher's hunch as an instance of invaluable understanding.

THEORY, METHODOLOGY, EPISTEMOLOGY

Noted already, my arguments are founded on a *falsificationist* demarcation of science, and on the concomitant assumption that the adoption of a scientific attitude based on that demarcation favors the growth and development of knowledge in basically any human activity, including architecture. In simple terms, this means two things: The first is that the architect's responsibility is not to design or build objects deemed correct in relation to canon, but to work towards cognition within the disciplinary limits of architecture. The second is that that responsibility is best achieved by the adoption of a scientific attitude which demands the advancement of reasonable conjectures that intend to explain a particular reality and predict its possible future.[3] Terming these conjectures *falsifiable* means that they are not taken for conclusive, but are instead necessarily open to severe criticism and testing. The foundations of this interpretation, which I have obtained from the philosophy of science developed by Karl Popper (and his critics and collaborators), support my decision to sharpen my definition of an *epist&m&*, not as certain knowledge, but as an operative system of ideas that has historically allowed our knowledge of architecture and the built environment to grow and develop.[4]

The adoption of a scientific attitude based on these premises imposes some conditions, such as the need to demarcate what we understand for architecture, in the first place. That demarcation inevitably calls for a *theory* of architecture. Granted that a theory is essentially a definition of what a thing is, as well as the definition of a course of action for its practice, any theory of architecture must provide a clear demarcation of what is taken for architecture (and what is not) and how it should progress.

Common to most modern demarcations of architecture is the notion that the work of an architect is simultaneously telic, meaning that it projects a vision of a possible future for the built environment, and technical, meaning that it defines the instruments and methods required to attain that possible future.[5] For this reason, theories of architecture that fit within a progressive demarcation imply a *methodology*, which is basically the definition and study of the instruments and methods that render a theory operative, in the sense of allowing it to follow the expected course of action for its practice. Since neither theories, instruments or methods seem to be created *ex nihilo*, their selection implies an *epistemology*, or the study of the organized systems of ideas which architects have used throughout history, in their attempt to provide the technical apparatus that enables them and others to strive for the growth and the development of architectural knowledge by leading their work in a particular direction.

With these considerations in mind, it is clear that an architectural education meant to endow students with the skills required to produce and develop knowledge on the built environment should encourage them to do so on clear theoretical, methodological and epistemological grounds. Rather than providing piecemeal conceptual support for design, courses focused on analysis and speculation must encourage students to adopt or attempt a theory of architecture, to evaluate the instruments and methods required to operate it, and to position it in relation to organized systems of ideas that foster cognitive growth. This last condition is exactly what I refer to, when I talk of epistemological awareness.

REASONABLE INDICATIONS AND HUNCHES

The relation between our awareness of different organized systems of ideas and the possibility of contributing knowledge to the architectural discipline became evident to me while pursuing a post-graduate master's degree on the analysis of architectural projects. In order to negotiate my teacher's reasonable indications and their hunches, I had to work towards a fuller picture of architecture theory than that presented to me throughout the five years of my bachelors' education. Back then, I was not encouraged to position my intentions in relation to existing systems of ideas, but rather expected to validate my actions as corroboration of a particular book or author, taken for an authority. Most courses of architectural theory required the reading of a few items of modern Western theory, such as Aldo Rossi's *The Architecture of the City*, without providing further context of either the precedents leading to that theory, the distinct instruments and methods defined by it, or examples of the contemporary counter-theories advanced against it. Absent that context and criticism, the prospects of utilizing that author's thoughts were certainly limited to the confirmation of his theory. Teachers' indications seemed reasonable when related to the rational course of action promoted by Rossi, but turned cryptic once they turned in a different direction. I could easily understand, for example, a tutor's invitation to define an orthogonal grid beneath a project's layout, based on the study of formal arrangements from the history of architecture; but I could hardly make sense of a similar invitation to explore ways to develop that configuration further by reading a poem. Absent any knowledge regarding the system of ideas that supported the second invitation rendered a valuable possibility basically unworkable. It took me a long time to realize that my education was circumscribed to basically one among the several systems of ideas available to architects towards the end of the 20th century, during which I missed valuable opportunities to know beyond the limits posed by – in my case – Italian neo-rationalism.[6]

With time, I have come to understand that epistemological awareness regarding that particular *epist&m&* would have made sense of the instruments and methods developed by neo-rationalist architects as a severe criticism of modernist functionalism. I could have also understood that besides neo-rationalism, functionalism's equation of use and form was also challenged by other system of ideas, which veered towards the study of meaning of built space and its effects on our sensory perception. Aware of the phenomenological basis of his suggestion, my teacher's hunch that my project could benefit from an approach to poetry could have made perfect sense; new knowledge would have been available to me, based on my recognition of the productive conflicts between underlying systems of ideas informing our conversation.[7] As this example shows, proliferating within the field of architectural epistemology, by recognizing the ways in which architectural knowledge grows and

develops as the result of transactions that are carried out between organized systems of ideas, is crucial to recognize the value of hunches and other instances of understanding in the production of that knowledge.[8]

RESEARCH METHODS

Concurrent with the start of my PhD, I started teaching design studios and theory seminars to first year masters' students in Delft in 2010. The division of the department in chairs allowed all students of our department to follow an amazing number of different trajectories, according to their interests and abilities; and yet I quickly noticed that those I talked to in my courses were not entirely aware of the underlying rationales that made each of chairs behind the courses on offer distinct. Research carried out by chair professors and staff, differences between suggested bibliographies and course content were not taken for indications of different organized systems of ideas directing the work of each chair. Instead, graduation studios were often chosen on the grounds of peer-to-peer recommendations of a tutor's attitude, fascination with a brief and its site, or the belief that alumni from certain courses fared better than others in the labor market.

When confronted with the thought that their choices had serious implications in their formation as architects, some of these students were able to include epistemology among their selection criteria, and recognize the benefits of studying in a large and intellectually diverse faculty. According to their abilities and intentions, some of the students who became aware of these implications decided to develop their graduation projects as research in material culture from a phenomenological perspective; others engaged in a morpho-typological track, or directed their efforts towards expanding the limits of a particular building technique; while others tried to establish links between architecture and democratic practices using instruments and methods from architectural praxeology. In all cases, those who allowed themselves to see their education in this light were able to recognize the importance of developing their work within an organized systems of ideas, while remaining aware of the existence of other, equally valuable systems, and the benefits they offered for other possible projects.

As a result of my research on what I have referred to as a fuller understanding of architecture theory , in 2014 I was asked to coordinate an ongoing, department wide lecture series on research methods, offered to second year masters' students. The existing course consisted of a string of talks, mostly by chair professors who would speak about their work. Professors running design offices, for example, would often explain their most recent projects, and assume that their design decisions equated to research methods; while professors of history or theory, on the other hand, could focus on the practical methods used to carry out their research (e.g., digging into an archive), but would seldom hint at the causes and consequences implicit in their choices.

In order to confront what I perceived as a rather loose collection of ad hoc methods for the research and practice of architecture, I gradually steered the course towards a more integrated vision of architectural theory, methodology and epistemology. Suggested above, my aim was to provide students with a sense of epistemological awareness that would allow them to choose, among the courses offered by the different chairs of the department, those that best suited their own personal and professional ambitions.

The new version of the series was structured in seven lectures. The first offered a general introduction of the course dynamics, the second presented the general theoretical and methodological rationales that defined the course, based on an understanding of architecture as a system of research programs, and the third provided a general overview of architectural epistemology. The following four lectures were dedicated to examine different organized systems of ideas, their role in the work of architects and researchers, and their importance in the exploration and evaluation of architecture in the fields of form, use or purpose, technique and communication.

Each session consisted of a talk by a guest lecturer, a counter-lecture on the topic prepared by a group of students (based on the critical reading of key texts on the subject, provided by the lecturer on the fore), and a lengthy open discussion among the large group of students. The organization of this program proved to be burdensome, discussions were not always clear or productive, and eventually the course came under scrutiny from the office of Quality of Education, stimulated by complaints from other teachers. A course on research methods, some of them argued, should teach students how to use specific, clear-cut research methods, instead of diverting towards the study of abstract systems of ideas. One of the largest design studios in the department even chose to withdraw all students from the lecture series, and instead set out to teach them those research methods they deemed truly useful for the development of their projects.

The in-depth evaluation of the course concluded, among other things, that students appreciated the course, but would have preferred to be aware of the different systems of ideas informing the work of the different chairs of the department at an earlier stage of their masters' education. After five years, in which I have been replaced by a couple of extremely competent colleagues in the coordination of the course, this observation has materialized. Starting Fall 2019, two lecture series on research methods, with different degrees of complexity but with a similar emphasis on epistemological awareness, will be offered to all first and third year masters' students of our department.

MASTER OF SCIENCE

My time structuring and coordinating the lecture series I just described, as well as the results of its evaluation, allowed me to reaffirm some of the notions sketched at the beginning

of this paper, and provided me with two valuable thoughts.

the first is the idea that we can understand architecture, not as applied science (or *techne*), but rather as a cognitive discipline, that can be appraised with scientific theories and methodologies, such as popperian falsificationism. Unlike inductive science, my use of popper's demarcation of science for the appraisal of architecture does not direct the practice of architecture towards certainty or verisimilitude. instead, it proposes that our ability to learn about the built environment must not be limited by observations that can be verified in relation to laws, and therefore taken for true. We can instead learn by exploring, evaluating and discovering buildings in relation to their use, the way in which they are shaped, technically assembled or built and communicated. such scientific attitude justifies the science part of the degree of Master of science in architecture offered by the institute where i teach; it favors our ability to engage in productive heuristic processes by formulating conjectures which must be tested via the severe criticism of others.

that key role of criticism in architecture's ability to generate and develop knowledge implies the second idea that our ability to adopt a scientific attitude towards architecture demands that we admit that architecture is fundamentally a collective discipline. our acknowledgment that architectural knowledge is produced by the transaction of a myriad conjectures (and refutations to them) advanced by many individuals, is in stark opposition to the illusion of architecture as the work of isolated individuals who are able to come up with original work on the basis of geniality.

Based on these two premises architectural education can recognize that the architectural profession and its products are always constructed among many, depend on that plurality, and thrive on the intellectual independence of each and every one of the voices that jointly construct architecture and its products as an open discourse.[9] the intellectual independence constitutes the mastery part of the degree of Master of science in architecture offered by the institute where i teach. Mastery is not only the ability to excel in a craft, but also the professional's ability to position himself as an independent thinker in relation to other professionals, and in relation to the organized systems of ideas each of them operate on. in other words, what i have here referred to as epistemological awareness is essential to the adoption of a scientific attitude towards architecture, understood as the recognition of the architect's responsibility in the growth and development of knowledge; and it is also essential to the achievement of the necessary intellectual independence required to claim the title of a master of a discipline developed with others.

the teacher s hunch

i believe i have sufficiently my case for epistemological awareness at this point, demonstrating the how important it is to recognize organized systems of ideas as means to produce and develop architectural knowledge. i must still deliver, though, on my promise to talk about the foundations of the teacher's hunch in relation to my argument, from the title of this paper. i will conclude then with a short reflection that will hopefully invite others to develop this question further.

While inductive science oftentimes assumes itself in opposition to magic, falsificationism is able to break that dichotomy by recognizing myths as initiators of research. Myths, popper claimed, are no different than scientific hypotheses, in the sense that they intend to predict and explain a particular question. they can remain within the realm of superstition, if taken for certain, but they can also be turned into extremely useful scientific knowledge on the basis of the rational/critical attitude promoted by falisificationism.[10] popper's thoughts in this respect have led me to believe that we can assume, in a similar vein, that *doxa* and *epistēmē* need not be opposite terms, as presented initially, if we are able to adopt a sophisticated interpretation of science. in truth, that dichotomy only reveals a sense of unawareness regarding the rationales underlying apparent contradiction. so seen, the teacher's hunch stops being cryptic, and becomes something extremely simple: a thought that originates in a system of ideas different from that being discussed at any given moment. Founded elsewhere, a teacher's hunch can seemingly lead an academic conversation in a strange direction, and divert from a what appears to be a logical course of action; but it should never be dismissed for that reason, assuming that it does so maliciously or unproductively. Quite on the contrary, the teacher's hunch illuminates a question from a different vantage point, and thus offer us the possibility to explore different, sometimes even unthinkable courses of action by inviting us to tap into organized systems of ideas different from those being discussed at any given moment.

Contrary what i learned throughout my bachelors' education, the growth and development of scientific knowledge demand an important degree of arbitrariness. as stanford anderson noted,

"in the initiation of any human activity some ultimate arbitrariness will be introduced. Design only begins with that risk. the search for rationality in design is not a matter of eliminating that risk, but rather one of turning that gamble to our advantage. alternative risks are available, or can be invented by us. Both the design process and its implementation are means to give those risks coherent fulfillment while also testing, revising, learning from, and, if need be, rejecting them."[11]

the teacher's hunch, as an instance of that arbitrariness, is clearly indispensable in cognitive terms. the adoption of a scientific attitude towards the teacher's hunch i have tried to promote as a tutor recognizes the need for the intellectual independence of each and every one of the individuals that engage in the collective practice of architecture. put differently, i like to believe that epistemological awareness is basically awareness of the need to cherish and protect the diversity of independent individuals, as a professional goal.

Notes

1. https://en.wikipedia.org/wiki/episteme and https://en.wikipedia.org/wiki/Doxa, accessed 08/13/2019
2. i have developed this argument thoroughly in: transactions;

or architecture as a system of research programs, https://repository.tudelft.nl/islandora/object/uuid%3a6abb7296-8c34-45a8-af62-0b419bbe1e75, accessed 08/13/2019

3. Both statements converge in stanford anderson's claim that "the architect's problem is not how to found his knowledge positively but how to make his knowledge grow. (…) to grow in such knowledge requires the invention of possibilities and of possible futures," from his introduction to stanford anderson (ed.), *planning for Diversity and Choice: possible Futures and their relation to the Man Controlled environment,* (Cambridge (Mass.), Mit, 1968) ,5

4. the bases for this posture have been obtained from: Karl popper, *the logic of scientific Discovery*, (london, routledge, 2002); imre lakatos, *the Methodology of scientific research programmes, philosophical papers, Vol. 1,* (Cambridge: Cambridge University press, 1978); and stanford anderson, "architectural Design as a system of research programs," Design studies 5, no. 3 (July 1984), 146 – 150

5. Marx Wartofsky, "telos and technique: Models as Modes of action," in anderson (ed.), *planning for Diversity and Choice,* 259 – 274

6. aldo rossi, *the architecture of the City*, (Cambridge (Mass.) and london: Mit, 1984). our studies also relied heavily on aldo rossi, *para Una arquitectura de tendencia,* (Barcelona, gustavo gili, 1977); José luque, la Ciudad de la arquitectura, (Barcelona, oikos-tau, 1996); and Carlos Martí, *las Variaciones de la identidad*, (Barcelona, ediciones del serbal, 1993)

7. grounded on the work of theoreticians like Juhani pallasmaa, robin evans and Dalibor Vesely, a section exploring this relation has been recently created in our department, under the name Methods and Matter.

8. paul Feyerabend. "outline of a pluralistic theory of Knowledge and action," in anderson (ed.). planning for Diversity and Choice, 275 – 284

9. sarah Williams, "something to talk about: Modernism, Discourse, style," Journal of the society of architectural Historians, Vol. 64, no. 2 (2005), 144 – 167

10. Karl popper, *Conjectures and refutations,* (london and new york: routledge, 2010)

11. anderson: "architectural Design," 147