

NEO-NATURALISM

What are the instruments we use to teach architecture? How do they affect the way we train our discipline? And how are they influenced by fashionable epistemological claims? Based on these questions, this text not only unpacks the logics behind neo-naturalism and its deployment in architecture schools but also warns us about its inherent dangers, mainly in how such instruments shape the way we think.

Palabras clave

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Escuelas de Arquitectura
Instrumentos
Enseñanza
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Keywords

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An epistemological transformation has been taking place in architecture schools across North America: the nature of evidence marshaled in the design studio has been quietly changing.¹ Two decades ago students pinned up analyses of historical precedents during reviews to account for their design work. Today the same walls are covered instead with flow diagrams on energy consumption, images of brain scans, maps of transportation networks, or models of thermal distribution. The most extreme illustration of this attitude might be evidence-based design.² These tables, diagrams, and maps visualize a different kind of evidence: ‘data’ in its various guises. One recent commentator evaluating the role of the precedent in today’s architectural education even suggested that the planet might have become the “ultimate precedent” in design schools (Carver, 2011:81). The architectural theorist Colin Rowe, who once compared the architect to a lawyer who could not use his faculty of judgment in the absence of an inventory of historical precedents, would have been scandalized (Rowe, 1996).

This is certainly not the first evidentiary regime change that architectural discourses have seen. In the West alone, the last century was marked by several such changes. Modern design education, as it developed in the early 20th century at institutions such as the Bauhaus, was predicated on a late-19th-century formalism for which ‘lived experience’ was the primary evidence. As the language of space replaced the academic terminology of orders and proportions, upheld by the authority of Classicism, the body’s response to ‘form’ became to be established as the acceptable method of justifying design (Jarzombek, 2000). Design training at

the Bauhaus (as well as the many schools that preceded it) became a matter of methodical introspection: students in the preliminary course in these schools had to learn to observe and register what was assumed to be their own reflex-like response to lines, forms, and colors in an endless cycle of formal manipulation.³

This experiential paradigm survived in various formalisms throughout the 20th century and continues to be an important component of design education (especially after the process of formal manipulation could be delegated to software), but the revival of typology in the 1970s once again brought the ‘historical precedent’ – an epistemic unit favored by 19th-century academic theory, especially at the École des Beaux-Arts, and adamantly rejected by Bauhaus pedagogy – to the forefront of architectural education. This was also the moment when the rise of a particular kind of architectural theory in North America coincided with the emergence of the autonomy argument. Imagined to be shaped according to the paradigm of the so-called “third typology,” the architecture of this moment was assumed to rely on nothing but itself and its uniquely architectural history for evidence.⁴ This new kind of architectural theory, constructed under the spell of language analogies (and, one should add, structuralism and post-structuralism) envisioned architecture as a self-referential system of signification.

Today the situation seems somewhat different. The linguistic preoccupation seems to have faded, as is well known, along with enthusiasm for that thing previously known as architectural theory. More obviously, the eyes of the design disciplines are no longer on such fields as philosophy, literary criticism, or comparative literature. Rather, they are on the other side of the humanities divide: on biology, ecology, neuroscience, computer science, etc. – that is, on fields of knowledge whose disciplinary projects are informed by the model of the natural sciences and quantitative data. (Yet, it is worthwhile to point out, this infatuation does not extend to the social sciences despite the latter’s well-known history with quantitative methods). This is not to say that arguments are never made from experience or from precedent in architecture schools of North America any more, but it seems that the boldest epistemological claims in the design disciplines today are being made through the epistemic unit of data.⁵ As talk of information trumps any talk of signification, the design disciplines are gripped by a new naturalizing tendency, a “neo-naturalism”⁶ (FIG. 1).

There is now in place an oft-repeated narrative about how this change came into being. In broad brushstrokes, the narrative goes something like this: the proverbial pendulum of history, it is argued, has swung

away from formalism, autonomy, and preoccupation with signification because of new pressures on the discipline.⁷ Those pressures are then listed in one breath: first, the emergence of digital technologies that are transforming the concepts and techniques central to architecture at least since the early modern period and, second, the recognition of the hazards of the economic and ecological crises perpetuated by advanced global capitalism. Since self-centered disciplinary focus is unlikely to solve these problems, which appear so much larger than architecture itself, and since it is also no longer clear what that disciplinary focus would entail anyway, it seems obvious that the discipline of architecture should look 'outside' of its historical boundaries. Through this line of reasoning, data and diagrams that visualize data are welcomed in today's architectural culture not only as the primary form of evidence but also as confirmation that architecture is finally freeing itself from formalist navel-gazing and learning to operate in an "expanded field."⁸ As studios are described as laboratories, practices are defined as experimental, and architects research more than they design, architecture's turn away from other forms of evidence toward diagrams constructed upon data is characterized as a much-needed move toward interdisciplinarity.

Unquestioned, this narrative has become common wisdom. Who, after all, could deny the gravity of the contemporary state of perpetual crisis? And who, in their right mind, could argue against interdisciplinarity, the ultimate academic virtue? Yet something seems amiss, since it is not clear what exactly is interdisciplinary about this infatuation with data apart from the fact that the data in question is usually imported from other disciplines. If we take Roland Barthes's word that interdisciplinarity entails more than "tak[ing] a 'subject' and arrang[ing] two or three sciences around it," but that "interdisciplinary study consists in creating a new object, which belongs to no one," the infatuation with data in architecture schools appears to be the disciplinary equivalent of rearranging deck chairs on the Titanic (Barthes, 1986). Not only does this new passion rarely give rise to any new concepts that would enlighten the design fields or, for that matter, any field of knowledge. It also ends up reproducing the self-indulgent formalism that it purports to critique – with the difference that this formalism is now applied to the graphic design of books and exhibitions.

Architecture's expanded field, then, is predicated on shaky ground. This should come as no surprise to those wary of the reproduction of pseudo-debates in the West. Even after it has been pointed out that the supposedly divergent positions of autonomy and engagement have been mere mirror images of one another, this master opposition is reproduced in ever new forms in contemporary architectural discourses: as critical versus projective, disciplinary versus interdisciplinary, and now architecture's supposed core versus its expanded field.⁹ What is at work in all these



oppositions is a false topology of a disciplinary interior versus a world of capitalism presumed to be its exterior. Yet, like architecture's imagined core, the expanded field occupies a milieu of an architectural culture industry – which includes not only universities but also galleries, museums, publications, and other institutions and whose administration, paradoxically, does not differ from that of any outside corporate entity. The exterior invaded the interior and the interior the exterior long time ago.

Architectural education across North America is in desperate need of casting off this false topology and recognizing itself as part of the so-called knowledge economy inside academia. (Among the realities that need to be acknowledged, for example, is that the turn in architectural academia to publication and exhibition instead of built work has as much to do with the requirements of tenure as with aspirations of interdisciplinarity). Only then will it become clear that the evidentiary change felt today is unfolding not between the poles of disciplinary versus interdisciplinary positions – claiming architecture's core versus its expanded field, respectively – but rather along another axis 'inside' the ecosystem of academia. From art history's infatuation with neuroscientific findings to historical disciplines' interest in geographic information systems (GIS), neo-naturalism is a transdisciplinary phenomenon today.¹⁰ Those who worry that architecture is doomed to lag behind other disciplines at the university can rejoice: if data – rather than form or precedent – is the primary epistemic unit upon which arguments are constructed in design schools today, it means that architecture is already on the forefront of the wave of neo-naturalism.

There seems little doubt that this turn to the evidentiary regime of the natural sciences is closely related to institutional pressures about funding, but it is also crucial to note that the way that architecture has been questioning itself about its modes of instrumentality has not been particularly useful. It is a longstanding cliché that the design fields instrumentalize knowledge in too facile a manner, but is not every kind of knowledge

FIG1 CHORA, Tempelhof Energy Incubator, Berlin, 2009. Diagrama de implementación conceptual de la entrega para un concurso. / *Conceptual implementation diagram from competition entry.* © CHORA and Raoul Bunschoten.

always already instrumental? Does not even the seemingly most 'useless' kind of knowledge prepare a conceptual toolbox that can be utilized one day? The question, then, is not whether or not knowledge is instrumentalized (it always is – as much in engineering as in theoretical physics) but rather how and for when and whom. Seen as such, the predictable result of the ongoing financial restructuring of the research university in North America is not that all knowledge is instrumentalized but that the kinds of knowledge that seemingly have no 'immediate' usefulness have to be justified.¹¹ Only then will the ecological and digital agendas that have come to dominate design schools be seen not merely imposed from the outside by external exigencies of a global crisis, as the aforementioned narrative goes, but as necessitated first and foremost by the economy of the university.

For anyone familiar with the history of the organization of the disciplines, however, this is a rather strange turn of events. Nearly a century ago, after an extended debate in which the neo-Kantian view that the mind cannot be reduced to physical processes won and became the dominant paradigm, a solid boundary was drawn at universities in the West between the natural and the human sciences along the criterion of normativity.¹² It was decided – albeit not without objections or complications – that those fields that concerned themselves with 'explaining' the causal antecedents of knowledge would be separated in their methods from those 'describing' justifications to epistemological claims – that is to say, a physicist working with 'facts' would use different methods than a historian working with 'values'.¹³ Yet after the triumph of the neo-Kantian position in the early 20th century, after the positivism controversy at mid-century, after postmodernism, science wars, and the post-critical debate, it now seems that not only academic design but also several well-established humanities disciplines are turning towards the empirical results of the natural sciences in settling the epistemological questions in their fields. Even for a humanist who speaks primarily to other humanists, the arrival of neo-naturalism signals not only a turn to different subject matter but ultimately also to a different epistemological and ethical program.

Enlightenment discourses, of course, abounded with naturalisms (for the most blatant architectural example, think of Laugier's primitive hut) with faith in the "moral authority of nature", but contemporary neo-naturalism is different from its Enlightenment cousin (Daston & Vidal, 2003). Like previous naturalisms, its field of operation is the divide between the natural and the normative, but in its most ambitious versions, this divide is blurred so completely that, for example, humanists may be urged to think about the question of reason, not through philosophical discourse or historical investigation, but primarily through empirical data about the firing of neurons in the brain.¹⁴ In this

sense, the art historian Norman Bryson's argument that the 'linguistic turn' has now been overshadowed by the 'neural turn' is indicative of neo-naturalism at large:

The radicalism of neuroscience consists in its bracketing out the signifier as the force that binds the world together: what makes the apple is not the signifier 'apple' (though this, too, may play an important role in the process of reality-building), but rather the simultaneous firing of axons and neurons within cellular and organic life. The level of the ground of being, or of the real, shifts from the signifier to the neural configuration, the orchestration of myriad plays of lightning across the ramifying branches of the brain (Bryson, 2003:14).

The 'neural' here might just as well be replaced with the 'ecological' or the 'digital' – it makes little difference whether the signifier is eclipsed by a neuron, a carbon molecule, or an algorithm. "Cognitive neuroscience," Bryson explains, "is hardly the first discipline to have questioned the security of ontological categories" (Bryson, 2003:13). But whereas critical theory has posited that fundamental groundlessness by transforming ontological questions into questions of language – whether through Wittgenstein's "language games," Saussure's semiotics, Derrida's *différance*, or Lacan's symbolic order – neuroscientific neo-naturalism promises to stabilize the real in a radically different manner: by arguing that an apple is an apple, not because we call it by that name, but rather because the neurons that fire together are wired together, a central neuroscientific precept known as neuroplasticity. This is not the Bryson who two decades ago wrote about "natural attitude" inherent in the perceptualism of Western art (Bryson, 1983). He now welcomes neuroscience's elimination of signification.

Neo-naturalism, it needs to be pointed out, is not your run-of-the-mill naturalism. If Bryson's call can be taken as representative, the Greek temple would never be allowed to pass as the primitive hut under neo-naturalism. It is far too rigid and unchangeable as a model. The nature portrayed by contemporary neo-naturalists, by contrast, is dynamic and self-generating – hence neuroplasticity – so as to accommodate "emancipatory and creative politics" (Daston & Vidal, 2003).¹⁵ Nature offers the model to be followed here, not because it is the realm of order and necessity (as in Enlightenment naturalisms), but

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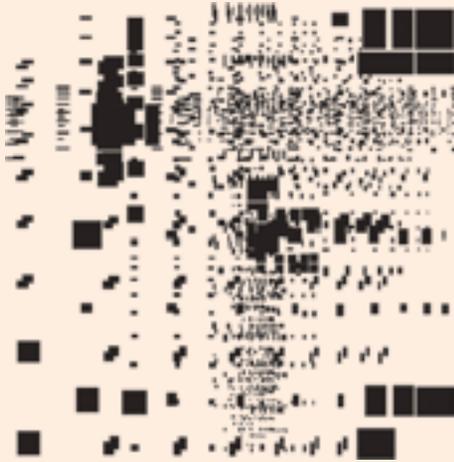


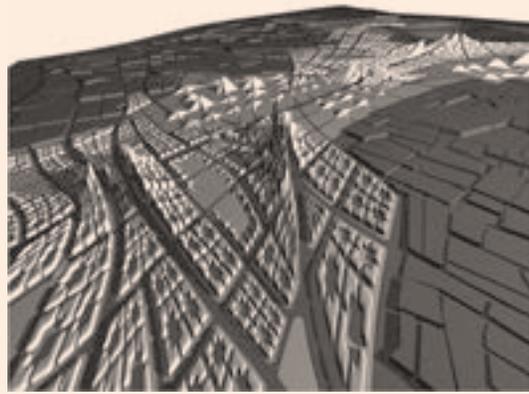
FIG 2A Patrik Schumacher, «Cristalización de objetos a partir de grillas de puntos interpenetrantes» *“Object crystallization from interpenetrating point-grids”* (Schumacher, 2011) © Patrik Schumacher. Cortesía del arquitecto *Courtesy of the architect.*

FIG 2B Patrik Schumacher, «Superposición de dominios inciertos generando subdominios emergentes» *“Overlapping fuzzy domains generating emergent subdomains”*. (Schumacher, 2011) © Patrik Schumacher. Cortesía del arquitecto *Courtesy of the architect.*

because it is the realm of emergence and complexity. Unlike its Enlightenment precursors, neo-naturalism does not insist upon the security of ontological categories either. If the Enlightenment’s naturalizing attitude historically served the role of border patrol, monitoring the boundaries between the natural and the man-made and returning things to their rightful places, neo-naturalism is for free trade across the same boundary (Daston & Vidal, 2003). (Yet, as in late capitalism, free trade is an illusion: not everything and everyone can move with equal amount of freedom across the borders).

But do not be fooled by such concessions to a dynamic nature: there is still a fundamental naturalizing at work here. Bryson points out that neo-naturalism’s naturalizing is a very particular operation: it consists of replacing the signifier with data. Neo-naturalism imagines the world as a field of ‘information’, visualized as dematerialized data floating in frictionless space, as opposed to ‘signification’, whose very point is to identify precisely those moments of friction and pressure in the system. Contemporary architecture has literalized this preference by prioritizing the field over the object and the ground over the figure. In architectural diagrams of the field, any condition of difference exists for the sake of difference alone (FIGS. 2, 3).¹⁶ Never mind capital, we are told by a famous parametricist, “swarms of birds or shoals of fish” provide form to cities under neo-naturalism (Schumacher, 2011:423). Lip service is paid to difference and variation within the field while pressure points remain unacknowledged. This removal of the signifier should be taken seriously: when data eclipses all other forms of evidence in the discipline, the world is rendered as an unbroken, uninterrupted field devoid of politics. It should be telling that the same parametricist advocated an entrepreneurial approach to solving the housing problem in London in the name of “self-regulating and self-motivating market process.”¹⁷

Viewed from the perspective of this evidentiary regime change, the alleged death of architectural theory is not simply part of an anti-intellectual backlash against the excesses of critical theory, not so long ago considered the lingua franca of the humanities. It is also symptomatic of a fundamental epistemological and,



more significantly, ethical change in an academic landscape marked by neo-naturalistic substitution. Now that there is an industry in place guaranteeing its production, there is no doubt that the deluge of data will continue and that even more relentless forms of naturalizing will accompany it. What are architecture schools in North America setting themselves up for under the conditions of neo-naturalism? Will architecture be reduced to herding data – ecological, parametric, and soon possibly neuroscientific – on behalf of the highest bidder? Or will room be left in design education for identifying moments of friction in what is presented as the frictionless world of data?

If ethics and politics are not to evaporate completely from architectural discourses, recognizing the change brought on by neo-naturalism is only the first step. What should follow is a rigorous historical ontology that will undo the ongoing naturalization process. This means that technology – which should be understood as the amalgamation of artifacts with techniques and discourses – should be opened up a field of inquiry that is beyond the jurisdiction of technical experts in architecture schools. It means not only a simplistic dismissal of architecture's instrumentality but a serious examination of its instruments. It also means a thorough questioning of how the most ingrained concepts and practices in the world of technology came to exist. What is an environment? What is an algorithm? What kind of revolution is the so-called 'digital turn'? What are the histories of some of the techniques that have been central to the design disciplines – modeling, rendering, imaging?¹⁸ And what is data?¹⁹ Architectural discourses today desperately need a new technical lexicon. Historical ontology, after all, is not only an account of how things came into existence but also of how possibilities of being arise in history. The ability of the discipline to understand the kind of knowledge that it produces today is dependent on its capacity to grasp the historical conditions of that knowledge production. If architectural theory is to be salvaged and reconstructed, it will be by means of this kind of historical endeavor. **ARQ**

FIG 3 Zaha Hadid Architects, Kartal Pendik Masterplan, Estambul, 2006. Visualización / Rendering. © Zaha Hadid Architects. Cortesía de los arquitectos / Courtesy of the architects.

Notes

- 1 This essay – a modified version from Çelik Alexander (2014) – is based on my own personal observations serving as a design juror at architecture schools in the United States and Canada. I cannot generalize these comments beyond this context, but it would be interesting to see if the same observations would hold for other parts of the world and for architectural practice in North America and beyond.
- 2 This approach is frequently used in the design of healthcare facilities and is predicated on the assumption that a rigorously methodical process of data collection, analysis, and verification should precede any process of making. For an example, see McCullough (2010).
- 3 For an intellectual history of this idea, see Çelik Alexander (2017).
- 4 See Vidler (1977). Vidler ingenuously identifies three epistemes in Western architectural discourses, but these are viewed exclusively from the lens of the contemporary preoccupation of typology. Hence, “nature” is the first typology; “machine” the second; and architecture itself is the “third typology.”
- 5 This is not to say that architectural discourses never took an interest in data before. For architecture’s infatuation with scientific methods before today’s neo-naturalism, see Moran (2012), and Sachs (2009).
- 6 This is a term that my co-investigator John J. May and I have invented as part of the “Instruments Project” that we have been undertaking at the University of Toronto. The project includes the following collaborators: Lucia Allais, Edward Eigen, Orit Halpern, John Harwood, Matthew C. Hunter, and Michael Osman.
- 7 I have in mind here especially the discussion by Vidler (2004:142).
- 8 The term ‘expanded field’ was borrowed from the Greimas semiotic square and from Rosalind Krauss’s use of the diagram in her essay “Sculpture in the Expanded Field,” (Krauss, 1979), and subsequently applied to architecture by Vidler (2004). For a critique of this idea, see Çelik Alexander (2012).
- 9 I am referring to the much rehearsed debate between K. Michael Hays et al (1984), and Somol & Whiting (2002). For an excellent summary of these skirmishes, see Baird (2005). Also see the issue of *Harvard Design Magazine* (Fall 2012) on “Architecture’s Core.”
- 10 For the so-called “spatial turn,” see Bodenhamer et al (2010), and Lünen & Travis (2013). For aesthetics and neuroscience, see, among others Hyman (2010); Onians (2007); Zeki (1999); as well as Cronan (2011).
- 11 There is now a long reading list on this topic, but see the influential analysis by Readings (1996).
- 12 The literature on this debate is vast, but a good summary can be found in Anderson (2003). For a recent re-evaluation of these debates, see Feest (2010).
- 13 The difference between a science that explained and a science that described was particularly important in debates about the disciplinary project of psychology at the end of the 19th century. See, for example Dilthey (2010 [1894]).
- 14 Consider the Neurohumanities Research Group at the John Hope Franklin Humanities Institute at Duke University, the Neuro-Salon opened on the occasion of the Neuro Humanities Entanglement Conference at Georgia Tech, and the Art and Neuroscience Project at the Italian Academy for Advanced Studies in America at Columbia University.
- 15 In their insightful critique Papoulias and Callard argue that in contemporary affect theory “an essentially dynamic, self-organizing biology/nature is presented as the guarantor for an emancipatory and creative politics” (Papoulias & Callard, 2010:49). See also Leys (2011).
- 16 Among many theorizations of the idea of a ‘field’, see Allen (1999), Corner (2006), and Schumacher (2011).
- 17 See: <https://vimeo.com/192106964>.
- 18 The “Instruments Project” examines eight such processes: imaging, scanning, timing, rendering, modeling, positioning, specifying, and sensing.
- 19 Such a historical ontology within the design disciplines may very well find itself contributing to a history of that epistemic unit, data. For space is a central paradox in our understanding of data: while data needs to be infinitely addressable, we assume that it does not occupy an address in space. The sixteenth-century scholar who decided to record his bibliographies not in bound volumes but on slips of paper so as to be able to rearrange them understood this as well as the contemporary data analyst. In that sense, data has always had an architecture: from the index card to the filing cabinet and from buildings that house bureaucracies to data centers and satellites in orbit. See Krajewski (2011).

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