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# PhD: Grasping Knowledge Through Design Speculation

## *PhD: acceder al conocimiento a través de la especulación proyectual*

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### **Abstract**

*This communication aims to bring to the foreground something academic discussion can't ignore: rather than emulating other disciplines, why can't architects rely on a methodological approach to doctoral practice that makes its own praxis central to its research? Why can't the enduring making of design speculation be embedded as pivotal to critical and prospective qualitative enquiry? My questions allude to the necessity of transdisciplinary approaches to architectural doctorates-concerned with relevance above verification, subtly tacit as well as explicit forms of knowledge. I advocate a methodological path that attempts to build a bridge between architectural theory and practice-disconnected, I argue, by conventional modes in academia. This communication delineates context and precedence in this field of research, before using the experience of a PhD case study, to present research through designing as a projective journey valuable in grasping aspects of architectural knowledge.*

**Keywords:** *PhD by design, knowledge through design, design as research, speculative learning, prospective research.*

**Thematic areas:** *architectural design, active learning, learning research.*

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### **Resumen**

*Esta comunicación quiere traer al centro del debate académico algo que no podemos dejar pasar: ¿en vez de emular otras disciplinas, por qué los arquitectos no permitimos que la praxis devenga una herramienta central en la investigación doctoral? ¿Por qué algo tan familiar como la especulación proyectual no puede formar parte de una crítica y prospectiva indagación cualitativa? Estas preguntas aluden a la necesidad de aproximaciones transdisciplinares a los doctorados arquitectónicos. Prácticas concernidas por formas entrelazadas de conocimiento tácito y explícito, que anteponen lo relevante a lo verificable; un sendero metodológico que trata de construir puentes entre teoría y práctica. Esta comunicación empieza delineando desarrollos previos en este campo de investigación y sigue explicando la experiencia cercana de un doctorado en curso, con el objetivo de sugerir la investigación a través de la especulación proyectual como una herramienta para acceder a sustratos de conocimiento arquitectónico.*

**Palabras clave:** *doctorado proyectual, conocimiento proyectual, proyecto como investigación, aprendizaje especulativo, investigación prospectiva.*

**Bloques temáticos:** *proyecto arquitectónico, metodologías activas, investigación educativa.*

A PhD represents the ultimate step on the educational ladder before someone is fully *authorised* to teach and research at the level of ‘doctor’. While doctoral candidates rely on the guidance of supervisors and tutors, their relationship also represents a threshold that transcends the dichotomy of pupil-educator, blurring the boundaries between teaching, learning and research. This communication aims to bring questions we can no longer afford to ignore to the fore of academic discussion: what is preventing architects from harnessing what they already do—designing—to further architectural knowledge within their PhD research; and how can architecture develop a methodological approach to doctoral research that makes its own praxis central, recognising the inherent research capability in design speculation? To address these questions, this communication provides a contextual overview of discourse in this field, followed by a case study illustrating the projective journey of design speculation as a valuable means of grasping architectural knowledge.

## 1. Not Starting from Scratch: Mapping Research through Design

‘Research through design’<sup>1</sup> has emerged as a fertile ground of architectural research. Defined as research ‘through the medium of practitioner activity’ (Archer, 1995: 13), epistemological discussion of this approach centres around its similarities and differences to a wider disciplinary context, as well as its overlapping of theory and practice, knowledge and action. Such discussion has at times been controversial in the context of doctoral awards, with claims of lack of academic rigour and failure to explicitly contribute to knowledge (Durling, 2000: 317-328; 2002: 81-83; Friedman, 2008: 158). The *Frascati Manual* states that to qualify as research, enquiry should be conducted towards novel and communicable knowledge gained through a planned journey with an uncertain outcome (OECD, 2015: 44). PhDs are usually monographic enquiries aiming for high standards of originality and new knowledge—even if the scope of the findings may be relatively narrow (Eco, 1977: 2; Dunleavy, 2003: XI). To secure new knowledge, academic research in architecture has traditionally embraced a humanitarian convention—critically analysing physical and/or cultural artefacts already in existence<sup>2</sup> (with the exception of applied technological development, which is expected to follow experimental impulse within suitable laboratory conditions).

Notwithstanding humanitarian research in architecture, which remains a prolific, relevant and necessary field of inquiry, it seems legitimate to wonder if research through the medium of an architect’s core praxis, the process of design speculation, could ever ‘qualify’ as true research. In this regard, a problematic detachment between practice and theory emerges. Generally, the former unfolds the art of subjectivity while the latter informs rational objectivity, thus erecting a barrier between the intuition of making and ‘proper thinking’. Many have claimed this disjunction, related to the split between artistic and scientific spheres, is a misleading division that emerged in the 18th century (Pérez-Gómez, 1983: 324). This is borne out by *De Architectura*, the only treatise of architecture to survive from classical antiquity, which starts its chapter on the education

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<sup>1</sup> Known indistinguishably as research ‘through’ or ‘by’ design, this model of PhD research is usually referred to as ‘practice-led’ or ‘by practice’ research. Archer (1995: 13) distinguishes between research ‘about / for / through’ design with slightly different definitions from Frayling’s (1993: 5) understanding of research ‘into / through / for’ design. For further discussion, see Jonas (2007: 191; 2012: 22).

<sup>2</sup> In Spain, for instance, where there is a long tradition of doctoral studies in architecture, Maldonado refers to the ‘critical analysis of built architecture’ as the leitmotif of several doctoral theses included in a research publication by ETSAM-UPM (Maldonado, 2011).

of the architect by positing a specific kind of knowledge in architecture; a knowledge that is ‘the child of practice and theory’ (Vitruvius Pollio, ca. 30-15 BC). Various scholars have argued that the interplay of words and buildings, drawings and theories, and typological transformation and narrative in the works of architects such as Alberti, Palladio, Kent, Soane, Schinkel, Semper, Le Corbusier, Saarinen, the Smithsons, Venturi, Rossi and Koolhaas, to mention but a few, has navigated, even if not explicitly, the epistemological path of research through the medium of designing (Lawson, 2002: 109-114; Fraser, 2013: 6-7; Hill, 2013: 15-34; Solaguren-Beascoa, 2017: 107-111).

### 1.1. Tacit and Designerly Ways of Knowing

The kind of knowledge that cannot be separated from praxis was approached by Polanyi, the modern era philosopher who formulated the epistemology of ‘tacit knowledge.’ Polanyi rejected the ideals of ‘scientific detachment’ and ‘complete objectivity’, proposing instead a kind of knowledge that establishes contact with a hidden reality—a tacit, non-explicit, ineffable form of connoisseurship (Polanyi, 1958: 92). But recognising tacit knowledge does not mean refusing acquaintance: tacit knowledge and self-conscious awareness are in fact complementary, performing a synchronic interplay in a dialogue of discovery where the former acts as an anchor thrown to obscure depths and the latter as a critical corrective (Sennett, 2008: 50). By the same token, in a quest to acknowledge design, or even ‘the science of design’ (Simon, 1969: 113) as an intrinsic medium of research, Archer (1979: 17-20) claimed a ‘third area’ of human knowledge distinct from science and the humanities, asserting that: *‘there exists a designerly way of thinking and communicating that is both different from scientific and scholarly ways of thinking and communicating, and as powerful as scientific and scholarly methods of enquiry, when applied to its own kinds of problems’*.

Following Archer’s premise of ‘designerly ways of knowing,’ Cross (1982: 221-227) proposed the following key aspects of a subtle epistemology: a) the situations that design encounters are ‘ill-defined’ or too complex to be susceptible to truly exhaustive analysis; b) their *modus operandi* is ‘solution-focused’ rather than ‘problem-focused’ in the sense of resolving the underlying ‘puzzle’ of a scientific problem; c) they imply a ‘constructive’ way of thinking rather than the ‘pattern recognition’ process of finding solutions in existing data; d) they operate with visual codes reliant on graphic images such as drawings or sketches to translate conceptual purposes into specific objects; and e) they use these visual codes to both ‘read’ and ‘write’ in the material culture of ‘object languages’. Such designerly ways of knowing provide the epistemological roots of research through the medium of design speculation. But what is the methodological role of designing<sup>3</sup> in the context of a PhD?

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<sup>3</sup> I usually favour the terms ‘design speculation’ or ‘designing’ above ‘design’ when referring to what is known as research through design, in order to emphasise the importance of the act of designing during the research journey and to distinguish from other research forms focusing on ‘design’ that has been realised, often years ago. Even if the realised project was made by the same researcher, it is fixed in the past and does not contribute to prospective thinking. Thus, a kind of research about one’s own projects made in the past would be closer to other traditional forms of research about existing architecture (neither qualifying nor unqualifying a piece of research that may still be remarkable).

## 1.2. The Role of Designing

Could the products of design speculation—the projects or artefacts *per se*—be considered as research in themselves, ultimately worthy of qualifying for a doctorate? In this regard, a broad majority of scholars consider that in research through designing the project itself should not be the central purpose but the means towards interpretation, understanding and knowledge (Frayling, 1993; Archer, 1995; Findeli, 1998; Lawson, 2002; Durling, 2002; Biggs, 2002; Pedgley and Wormald, 2007; Mäkelä, 2007; Till, 2008; Jonas, 2012; Dunin-Woyseth and Nilsson, 2012; Fraser, 2013; Blythe and Van Schaik, 2013; Verbeke, 2013). In other words, research and project are not to be confused because they have different goals: one delves into specific themes, narrowing its scope to precise questions to ascertain and communicate original knowledge, the other deals with ill-defined complex situations of the real world, aiming at manifold, conflicting and ever-expanding purposes. And yet, among the authors already cited here, distinct hints towards a methodology for design research are evident. While Archer, Findeli, Durling and Pedgley make the claim for systematically conducted and methodologically rigorous research inquiries unambiguously distinguished from design work, scholars such as Frayling, Lawson, Verbeke and Van Schaik seem to accept less graspable relationships between artefact and knowledge, recognising that drawings or objects may embody traces of tacit knowledge that can emerge—and be grasped by attuned observers—in dialogue with explicit forms of insight. The *Frascati Manual* seems to expand further the potential of acknowledging the production of artefacts when they are new and original (i.e. prototypes) as an intrinsic form of research, as long as they are constructed not as an end but as a means to improvement and development (OECD, 2015: 60–61).

But what does the process of design speculation tell researchers during their research? Firstly, designing is a fruitful means of collecting, understanding and interpreting a redrawn reality (Mäkelä, 2007: 158). Beyond interpretation, the act of designing manifests as a ‘two way process in operation’. On one hand, design exploration unfolds intellectual values and unverified hypotheses that build towards a theoretical edifice. On the other hand, grounded theoretical assumptions can be tested through every speculative design intent (Lawson, 2002: 112). The message appears to be clear that the apparatus of design speculation should enquire towards a specific and monographic research theme to attain concrete original knowledge. But in this case, in contrast to the clean laboratory conditions of traditional experimental research, the complex situations, ‘wicked problems’ and divergent purposes of the everyday world (Rittel and Webber, 1973) appear as a vivid opportunity for enquiry. That is to say, real-world circumstances unfold a canvas for transdisciplinary research, navigating beyond disciplinary boundaries and opening up deeper, more ambiguous and relevant modes of knowledge, which may not be fully verifiable in the conventional sense (Dunin-Woyseth and Nilsson, 2012: 38–39). To conclude this insight into the role of designing in doctoral research, it seems necessary to point out that any elucidated knowledge in the form of embedded visual and verbal, tacit and explicit awareness should be conveyed through a combination of pictorial and written, artefact and critical exegesis, ambiguous and unambiguous communicative forms (Biggs, 2002: 6).<sup>4</sup> Of course, many have claimed that to demonstrate the contribution of original knowledge, the written portion of a PhD by design must

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<sup>4</sup> It is no coincidence that from the 1990s regulations for practice-based doctorates in the UK started to require the combined format of a ca. 40,000 words thesis together with a portfolio containing creative work, with both of near equal weight. This compares to a ‘traditional’ written requirement for a PhD of 80,000 words (Frayling et al., 1997: 15).

include, as with any doctoral thesis, a full literature review rather than a light contextual review (Durling, 2002: 82).

### 1.3. A Few Previous Experiences

Over the 1990s, several universities in the UK started to explicitly pursue 'practice-based' doctorates and research programmes in various fields of design and architecture. Based on an extensive survey, a first report was published in which methodological aspects of doctoral studies arose—including a definition of 'doctorateness' in arts and design and discussion of the role of practice-based creative work in relation to communicable knowledge (Frayling et al., 1997: 13-14). A few years later, a new, more comprehensive report described a larger cohort of PhD precedents and acknowledged that critical mass in favour of practice-based doctorates had not yet been achieved (Rust, Mottram and Till, 2007: 58). These early practice-based doctoral experiences in the UK usually consisted of investigations on industrial or product design, and advocated for systematic, reliable, and transparently disseminated research methods.<sup>5</sup> In the architectural context, it seems reasonable to question whether research through designing, compared to object-focused developments in the industrial sphere (even with well-chosen monographic themes), can ever be organised and systematised in this way, with its thinking subject to such linear documentation, without losing its phenomenological and tacit dimension—and therefore its depth and relevance. Moreover, architecture deals with relationships between fragmentary, blurry and conflicting elements or situations, rather than objects in isolation.<sup>6</sup>

In the same period, several European universities began to forge their own path. Dunin-Woyseth and Nilsson (2012: 42-43) have explained that, in Norway in the 1990s, the Oslo School of Architecture instigated doctoral programmes encompassing design speculation and practice, establishing a research programme in which over 50 doctoral candidates participated. The scholars themselves, however, indicate that it was only around 2004 when doctoral dissertations started to include design input not only as illustrative, but also as an integral part of hypothesis argument. Comparable doctoral developments followed in Sweden from the early 2000s (Dunin-Woyseth and Nilsson, 2012: 44), while the Netherlands has for several decades witnessed a culture of embedded forms of research and practice, particularly prevalent in the studios of OMA and MVRDV (Fraser, 2013: 7). In spite of strong interest from practitioners, several conferences<sup>7</sup> and the launch of a host of PhD research programmes with the aim of integrating design speculation (HUNCH 10, 2006: 135), this new approach to doctorates in architecture failed to crystallise. Perhaps due to an early over-emphasis on design methodology, in the early 2000s doctoral research in architecture drifted away from actual design speculation (De Walsche and Komossa, 2013: 11).

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<sup>5</sup> For instance, in the case of a PhD design project on a polymer acoustic guitar (Pedgley, 1999), a detailed, chronological and activity-checked diary was presented as a necessary tool for providing evidence for every small step of the design process (Pedgley, 2007).

<sup>6</sup> This vivid complexity is beautifully captured by Siza (1986: 79): *'Architecture: a tree here, a house over there, or a temple; a hill on the right, or a plain; sea, river, a bridge; the regular outline of this street or the irregularity of that one; colour, rhythms, climate; this client; yellowing photographs, parchment; power, the fringe. Not as a matrix. Provocation, and arising from this, distortion, transformation. Desire, slowness, destruction, landslides, construction [...] A short-sighted person looks into it and sees forms, shadows in motion, reflections of reflections. This is what design feeds upon.'*

<sup>7</sup> See the TU Delft conferences 'Doctorates in Design and Architecture' (Van der Voordt, 1996) and 'Research by Design' (Ouwkerk and Rosemann, 2001).



The last 10-15 years has seen widespread consolidation of architectural PhD programmes by design across the world. Numerous conferences have been devoted to the topic, and the conversation has evolved from an early focus on methodological discussions towards design speculation as a paramount vehicle for critical and prospective qualitative enquiry (Verbeke, 2016: 96-97). A well-known initiative is the ADAPT-r project which, following a practice-based PhD methodology originated 30 years ago at RMIT University Melbourne, has joined forces with European universities to establish a platform for dozens of recognised practising architects to complete their doctorate (ADAPT-r, 2016). Grounded in a reflective methodology of thinking-in-action (Schön: 1983), this model aims to reflect 'on' previously completed work (generally well-recognised buildings constructed many years previously) as well as simultaneously reflecting 'in' the designing of new, live projects and 'for' the benefit of future designs (Blythe and Van Schaik, 2013: 60-63). Inevitably, research through the medium of designing will mainly appear in the second and third phases of such a model.<sup>8</sup> In the UK, meanwhile, beyond the early methodological years, several universities have welcomed creative and artistic design speculation as a core medium of their doctoral programmes. London Metropolitan University is one of several UK institutions where a phenomenological approach aims to embrace the process of designing as a vehicle for research without avoiding the area's inevitable depth and ambiguities.<sup>9</sup> This sensitivity is grounded in decades of 'design as research' methodology developed by ARU (Architectural Research Unit), in which spatial and design concepts are explored as monographic enquiries, tested and unfolded through live projects at varying scales and celebrating their vivid potential, while maintaining a deep dialogue with disciplinary and everyday precedents and literature (Beigel and Christou, 2014; ARU <aru.londonmet.ac.uk> [Accessed 18 August 2021]).

#### 1.4. Towards Speculative Practices in Architectural Doctorates

In this first section I have argued that research through the medium of designing should include, by definition, one's own acts of design speculation. I have described a journey that catalyses a designerly kind of knowledge: complex and rich, chiefly constructional rather than solely analytical, largely visual, principally relevant rather than fully verifiable, subtly tacit as well as explicit. In this sense, design speculation has revealed a fruitful threefold movement unfolding data interpretation, hypotheses launching and postulation testing. Likewise, I have sustained that the making of new and original artefacts (i.e prototypes) should not be the central purpose of the research but remains a necessary and rich medium enabling monographic research to grasp original and relevant knowledge. I suggest this type of awareness should be communicated through a compound of pictorial and written information, with tacit and explicit linguistic forms in dialogue with literature review alongside other methodological and background materials. Finally, I briefly visited a series of doctoral programmes that over the past 30 years have forged the first steps of this research approach, while acknowledging that much ground remains to be covered.

## 2. One among Countless Flavours: Undressing a Case Study

This communication aims to *show*—rather than just *tell*—the close experience of a case study. To do so, my doctorate 'by design,' currently in its later stages, will be methodologically undressed, revealing both the struggle and fruits of such an approach. It is, however, crucial to

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<sup>8</sup> As part of this programme, see Van der Berghe's PhD thesis (2012).

<sup>9</sup> As part of this programme, see Pritchard's PhD thesis (2020).

be aware, as the title of this section indicates, that the approach of this case study is just one among many, intended to suggest potential rather than inflict limitation. Reflecting the previously discussed dialectical drift between explicit and tacit knowledge, this section of my communication is organised in two parts. Firstly, it briefly summarises a critical revision of precedent literature and projects. Secondly, it explores the process of design speculation and its inherent apprehensions. It must be said that my research process has not followed this linear order. In fact, only when the struggle and joy of design was underway, did the themes and investigations begin to emerge. In other words, the whole doctoral journey has been an overlapping and accidental dialogue between experimental impulse, self-reflection and research into precedence, with design speculation taking the lead in pointing its finger at blurry depths while critical analysis and the contextualisation of literature has served to refine and sharpen.

### **2.1.A Research on Spatial Catalysts of Appropriation and Transformation over Time**

This thesis is essentially an enquiry about using time as a design tool in architecture. The theme of time, however, requires selective focus to avoid becoming ungraspable. In this sense, the first chapter of my doctorate is devoted to critically addressing philosophical and theoretical frameworks embedded in the realisation of time in spatial practice. The multiplicity of time is depicted as a shared constructional phenomenon—an intersubjective time-consciousness experience (Benjamin, 1940: 254-262; Osborne, 1994: 3-9). Particularly during the temporal intervals of spatial emergence (i.e. durations of becoming in the built environment), material traces of past and context—their interpreted virtuality—unfold an open-ended futurity through eruptions of becoming in a fleeting actuality (Grosz, 2001: 109-130). In these terms, time unfolds liberating, playful and affective potentials of interdependent spatial appropriation (Lefebvre, 1967: 171-174; Vidal and Pol, 2005: 283). Time posits ways of playfully-seriously taking care of the physical and non-physical contexts within which we coexist, triggering ecological and political practices (Morton, 2018: 186). Time is also suggestive of practices that have the potential to open up 'commoning' and caring modes of spatial change (Stavrides, 2016: 31-32). And these changing temporal situations have the capacity to reclaim the mundane rhythms of 'slowness', an experienced gradual journey of change, cautiously caring for every lived stratum of phenomena (Barac, 2011: 39).

The second chapter of the doctorate traces a cross-scalar genealogy of architectural catalysts of change, from daily alteration at the scale of rooms to territorial transformation—making apparent continuous interrelations 'from atom to nebula' (Kikutake et al., 1960). Initially in this chapter, the freedom of spatial appropriation on an everyday basis is portrayed not as a harmless neutrality but as being enhanced by qualified, specific and yet indeterminate and open-to-interpretation passages of manifold physical, cultural and atmospheric differences (Beigel and Christou, 1996: 18-38; Hertzberger, 2005: 82-85; García-Germán, 2017: 17). Later in the chapter, amid the post-war paradigms of open form and spatial agency, Habraken's approaches blur the focus on objectual buildings to unfold a deep territory of infrastructural levels (or live configurations) with generative permanence and intersubjective appropriation expanding at varying scales while catalysing transformation and evolving over time (Habraken, 1961: 70; 1998: 5-121). The chapter goes on to argue that each level of these live configurations shall emerge from ordinary traces of its specific geological, climatic, cultural and social contexts (Geddes, 1915: 396-398; Castellano-Pulido, 2015: 79). In this loose sequence—from the design of a table to an open landscape—fresh infrastructural live configurations may be produced as generative contexts for forthcoming durations of delightful indeterminacy; each configuration being the infrastructure of the next (Alonso, 1989: 18-29; Beigel and Christou, 1999: 204). In our time of global warming and mass extinction—the Anthropocene—caring for each of these infrastructural levels and their

interrelations requires not only embracing human habitation, coexistence and delight, but also comprises non-human organic metabolic processes, meteorological phenomena and the interrelationships of flora and fauna to produce resilient generative landscapes that loosely evolve over the course of time (Walker and Salt, 2006; García-García, 2018: 159-162).

## 2.2. Design Speculation: Found and Fresh Time Catalysts

The core chapters of my doctorate are devoted to design speculations and their interpretations. A design process that intends to enjoy the earthly situations of a specific, vivid reality as opposed to being put into practice under clean laboratory conditions. The area of study is in Barcelona's fringes, hidden by the hill of Montjuïc near the sea in a former agricultural landscape now absorbed by obsolete early industrial developments and besieged by modern metropolitan infrastructures, including one of the Mediterranean's largest container ports. It is identified within local policies as a location for civic expansion and solving the housing crisis. This place provides the site for design-speculative research in a two-step process. Firstly, design appears as a vehicle for seeing, understanding and constructing subjective contexts by means of selecting, documenting, drawing and modelling fragmentary situations of opportunity. These interpretations make apparent the fragile physical and cultural topographies that conceal footprints of future possibilities. Infrastructural traces act as found-time catalysts, enhancing and giving direction to appropriation and transformation. These situations are researched at different and sometimes overlapping scales—City Edge, Urban Fabric and Room Ensemble—unveiling qualities from elements such as marine and agricultural memories, metropolitan traffic corridors, ordinary streetscapes and industrial yards, an accidental plot division of activity fields, warehouse vitality or prosaic row houses struggling to coexist within their changing context.

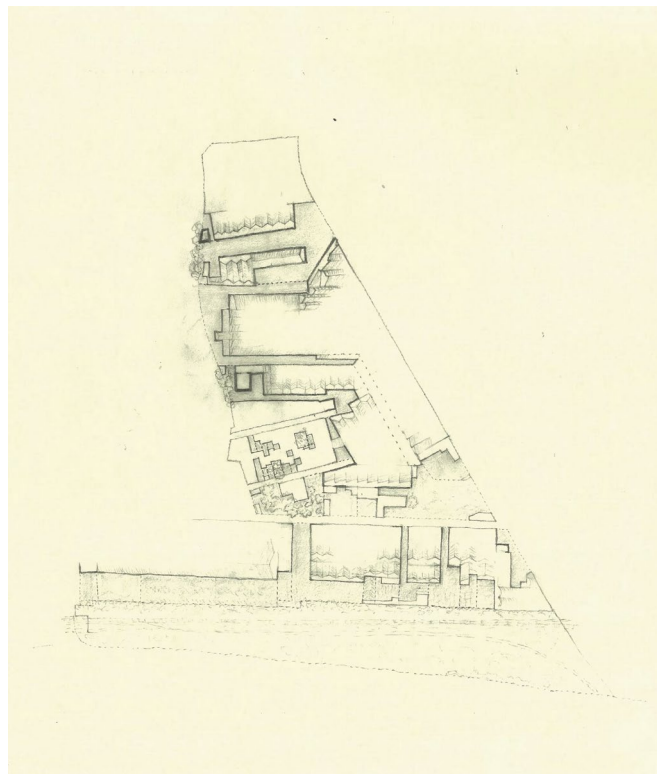


Fig. 1 Study drawing of ordinary yards and passages as found catalysts

In a second step, design emerges as a medium for wider speculation, imagining and releasing the promise of time into spatial form. This process occurs through a constellation of projects at different spatial, social and temporal scales—enhancing the previously found situations and at the same time creatively launching new time catalysts in distinct, fresh forms. At a larger scale, an artificial geological shoreline is proposed as an ecological corridor connecting Montjuïc to the delta's agricultural lands, with the purpose of enhancing the water cycle, recovering wetlands and promoting sea presence, biodiversity and microclimatology. In this way, the metropolitan corridor transforms from a back-entrance border to a front-door civic threshold, creating a new place where city edges are sharply visible yet permeable and where a proposed landscape infrastructure is a catalyst for the coexistence of horticulture, leisure, sport, workspace, living, exchange and mobility. At an intermediate scale, an accidental street structure is proposed by radically opposing a *tabula rasa* approach in favour of ordinary found contexts such as early industrial yards, alleys and oblique passageways. These prosaic existing infrastructures are qualified by having been crafted by countless individual decisions over time and make possible a sequential and progressive transformation—avoiding displacement—by distorting and breaking up the current plot structure to sustain productive activities while setting up potential for further habitation. At a smaller scale, a cohort of proposed support prototypes includes a city block 'plateau' for row habitation, a support structure for 'plots in the air,' assemblies under old-new industrial sheds, assemblies under stacked structural rhythms, and active and passive habitation thicknesses. These prototypes are explored as live configurations in-between typical built categories, seeking varying relationships between permanence and performance to transcend the support and infill dichotomy and open up ambiguous infrastructural gradients that follow temporal and dimensional scalar relativity.



Fig. 2 Design study plan of a human-made ecological urban threshold

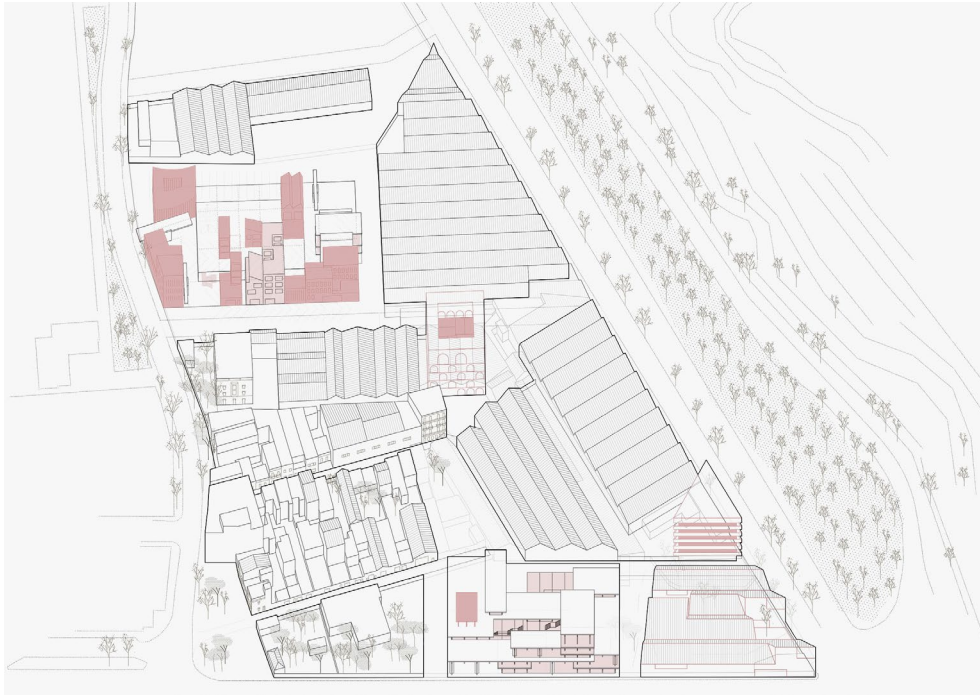


Fig. 3 A cohort of support prototypes

### 2.3. Towards a Family of Artifices

In the preceding paragraphs I have briefly discussed the research topics of my ongoing PhD. The research purpose of my thesis is twofold: methodologically it studies, suggests and evaluates an approach to architectural investigation through design speculation; thematically it is an attempt to formulate a deeper understanding of the design of cross-scalar catalysts for spatial appropriation and transformation over the course of time. The architectural artefacts resulting from the design chapters are conceived not as an end in themselves but as a prospective means towards interpretation. The last chapter of the PhD—currently being drafted—consists of a critical exegesis, discussing key findings of the design work in dialogue with precedent literature and pointing at opportunities for further research. Emerging from the design speculation of previous chapters, a series of extrapolative architectural strategies is sketched, analysed and eventually presented, representing visual-written strategies to be extrapolated in future time—artifices rather than artefacts. To be more specific, the thesis illustrates a designerly kind of awareness that demands upcoming inventiveness, an artistic process of making in futurity; in this way weaving together theoretical knowledge and practical wisdom.

### 3. An Optimistic Ending

The aim of this communication is not to question the pertinence of other kinds of architectural research. Instead it points to the possibility of embracing design speculation as a valuable research method within the wider field of architectural doctorates. As discussed, what is proposed is a transdisciplinary approach more concerned with the relevant than the verifiable, and giving preference to the qualitative over the quantitative. The approach engages with subtly tacit as well as explicit forms of knowledge, and represents a methodological pathway attempting to bridge theory and practice, which I argue have become disconnected in academia. Inevitably, design speculation as a method has the potential to produce either good or bad research. However, it

remains an important vehicle for grasping forms of knowledge specific to architecture, including the kinds of ambiguous understandings architects experience daily in their practice, such as the act of tentatively making pencil strokes on paper. It should be clear that the suggestion of integrating aspects of design speculation into doctoral research is not part of a quest to overlook or undermine academic standards. While this communication has identified and discussed precedent and current practice in doctorates by design, it remains a research methodology that is still relatively unknown and untested. Undoubtedly, the unexpected potential of a richly uncertain research journey is waiting to be embraced by architectural PhD candidates all over the world.

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