Introduction

The challenge of architecture is to focus on architecture itself — drawings, models, architectural texts and buildings — as its locus of knowledge and, specifically, on how that knowledge can become a tool of the design process. Drawings, models and architectural texts support buildings conception and, inversely, buildings are capital to continuously reformulate those.

One of the earliest attempts embody this thesis can be read in the two academic manuals, Précis and Recueil, elaborated by Durand in the early 19th century. If Recueil represented the search for an epistemological validation of a field previously anchored in the domain of metaphysics, Précis defined the hinge for a design methodology taking further the Vitruvian axiom architectura est sciencia, and answering Enlightenment’s anxiety for demonstration and systematization of knowledge. Durand sought to clarify the fundamentals of architectural praxis and the genealogies of what it produces by taking his history as its material and, through techniques of decomposing and recomposing, established the principles that guided the teaching of architecture until the 20th century, when their deterioration, oversimplification and direct implementation — partially because of their normative and hermetic character — became a target of criticisms. Nevertheless, the legacy of Durand’s effort to re-centre the discipline in its inaugural act opened the way for Peter Eisenman, almost two centuries later, to shift the focus of architectural discourse from its object to its process. As the underlying statement of his 11 houses reveal, he sought not so much how to draw a house, but rather how to draw the process of designing a house, being his diagrams more expressive of a set of intentions than the houses themselves.
Architectural representation and self-legitimation

This paradigm transformation undertake a (re)promotion of the conceptual tools both as expression and as a kind of mental concepts, as happened long before, in the Cinquecento, with the elevation of drawing to the category of liberal art, particularly due to Francesco Dori who related disegno with divinity speculation, describing its first act as that of God creating the universe; to Brunelleschi whose alternative approach to linear perspective defined a gradual and complex transition from a theory of vision to a mathematical and geometrical rationalization of image; and to Giorgio Vasari’s Academia del Disegno in Florence, that promoted the modernization of arts over medieval traditions, and the drawing as transcendental of its purely instrumental or documentary role. Thus, disegno identified as visual knowledge to be organized as a codified corpus, with its proper rules and aesthetics, which became embedded in our own culture. They are visible in certain kinds of sequencing models or drawings, lying somewhere between Serlio’s and Palladio’s variations and Durand’s typologies; in the materials used; in the minimalist vs. the expressive...
drawing to building, we attempted to translate existing representations (texts, drawings, paintings and music) to build up a reality by rescuing representation methods as a way of exploring its potentials both as techniques and background material.

The first research dates back to 2007, taking Italo Calvino’s book, Le città invisibili, as the subject of investigation. Each student had to choose one of the cities described by Marco Polo to Kublai Khan, interpret, synthesize and spatially translate it into an object (not a model, the scale should be 1/1 not bigger than a random) one cubic metre. Students were encouraged to experiment a range of materials, textures, colours, transparencies and opacities, different from those traditionally used in models, as a way of mediating the tension between reality and representation from the reading and, at the same time, to look for ways to relate constructive and constitutive logics.

The choice of a literary source as a basic material relied upon the recognition of an opportunity to work with what was already a representation as an operative support of intervention. The fact that the representation of literary fiction (the text) does not stand to represent something that is real, but, on the contrary, creates a fictional reality that is open to multiple interpretations — becomes evident, for instance, in cinema adaptations. The selection of Marco Polo and Kublai Kahn’s dialogue is twofold. First, because it was primarily a description of space. Secondly, my personal speculation that Marco Polo could be describing his home town, Venetia, as a kind of multilayering deconstruction and reconstruction of fragments that prompted 55 disparate and autonomous narratives of the same reality stand for a kind of promise behind our own predictions.

Reality, representation and imagination

One of the first problems we had to face was that, understandably, undergraduate students tend to describe the real as equivalent to the real (tangible) world, and therefore the knowledge representation in architecture relies in the built reality. Consequently, everything else was to be representations of that reality but never the reality itself. For that reason, in the first working days, a fair amount of studio discussions were attempts to avoid straightforward approaches that could have misleading to miniaturized versions, or three-dimensional illustrations of the cities described. And so, even before the final results, it appeared that what in the first instance seemed to be a good choice (a book specifically describing spatial atmospheres) became a sort of pitfall.

After overcoming those contingencies, the results were, in general, quite surprising (fig.1-3). Students managed to move away from the idea of model, both in terms of content, form and materials. Exhibited in the school’s gallery, as we moved through from one object to the other, we could really have an imaginary and personal experience of architectural space according to the range of different states — between Lilliputians and Gullivers — that each of us assumed for ourselves. In that sense, representation could be understood as the space for the construction of ideas, a provisional condition for a series of possible transformations.

Representation’ systems as support of critical processes

In subsequent years, we attempted to push forward the re-appropriation of representation systems for purposes other than those for which they are usually intended, looking for the possible outcomes of their hybridization or inversion (such as reading plans or elevations as perspectives and invert the process, etc.), and the reinterpretation and variation of representations.
and/or existing realities as support of critical processes of transformation. If the purpose of translating a text into an object was to exploit mental concepts of space, the interpretation of El Lissitzky’s painting, Proun, searched for spatial depth expressed in the relationship between figure/ground, the constructive materiality and thickness perceived by the quality of the trace, the scale and proportion between parts and the whole, the contrasts of light and shadow that define a space, the surface quality (fig. 4). With Rodrigo Leão’s music we intended to pose questions of structure, order, rhythmic sequences and u-
rhythmic threads, repetition, hierarchy, pause and tension (fig. 5). Lewis Carroll’s Alice’s Adventures in Wonderland and Alice Through the Looking Glass provided the ground for exploring spatial sequences, frontiers, and motion perspective (fig. 6,7). On another occasion, after having discussed Le Corbusier’s Cabanon, students were asked to build up their own cabanon within a defined perimeter in the school, aiming at projecting one’s body into the space in question exploring through dimensioning and tecton- ics, issues of perception (fig. 8).

The role of knowledge representation in knowledge production

The recognition of the important role of knowledge representation in knowledge production as a new approach to design, not the architecture of the object as in the beaux-arts’ tradition, nor the process of architecture in its various nuances that occurred between the theories of Durand and Eisenman — the former imposing specific methodologies, the latter at the risk of students represent a process that may never have existed, paradoxically transforming itself and again, in (regressive) object representations —, could suggest the fragmentation and isolation of the multiple spatial issues that stand as an integral part of a design project, turning each in the main goal of investigation. That would include a variety of prob-
blems such as mass/void, light/shadow, color/texture, proportion/scale, etc., that deprived from its cir-
cumstantial aspects could bring about new possibilities, but also more tangible and specific ones such as site and programme. The (re)reading of both not as an hypothetic object but as an end in itself, by ex-
ploring the limits of its representation and different from the sort of mapping and “organigraming” that most of the students usually fall into, highlighting qualities, tensions and fractures, with no reference to codified forms of architecture, might allow a deeper understanding of its importance in the unfold of original proposals.

The gradual reassemble of what has been previously broken up does not rely in the conviction of a suc-
cessful step-by-step learning programme, but rather in the possibilities that might arise by starting to correlate them through the instrumentalization of representation techniques, and its potential to im-
prove students capabilities to do in a more conscientious and critical manner, what architects have al-
ways done — re-elaborating and working upon others’ work as a simulacrum for analogies through transformations, transpositions and variations, conferring new meanings to what is already known. That is to say, using architectural knowledge by making specific choices on existing material according to the problem identified — since in the meantime students are supposed to have acquired that ability from subjects, such as history and theory of architecture, but also by their own perceptual experience — rea-
soning about past and contemporary architecture. And therefore contribute to the continuous construc-
tion of critical arguments in the process of conception through the very act of designing, integrating as-
pects of theory and practice.

Acknowledgments

The author wishes to thank her colleagues Ana Vaz Milheiro, Gabriela Gonçalves and Pedro Mendes for their enthusiasm and meaningful discussions when preparing the mentioned exercises for our students.
Notes

References