

Design Driven Doctoral Research in Architecture

Edite Rosa, Prof. Dr., UPC-ETSAB, DA-Universidade Lusófona do Porto

Joaquim Almeida, Prof. Dr., Darq-FCTUC, Universidade de Coimbra

This Paper regarding our research position (methods, approaches and techniques) on Design Driven Doctoral Research (DDDr) is essentially based in two different backgrounds. The first perspective takes in account the vision of our academic institutions on DDDr research, in Portugal. The second is acquired from our personal experience as teachers and researchers.

The Institutional and Academic General Position about DDDr in Portugal

In Portugal, studies in the domain of architectural research, of a scientific nature or doctoral scope, despite maintaining the disciplinary specificity, in its purpose, themes and questions, in a generalized way, uses methodologies borrowed from the field of the social sciences and humanities. These methodologies based, on systematic research and validation of data, history facts, documentary bases, carried out through analytical and descriptive studies, are closer to the inductive method.

There are some exceptions to this general rule, namely researches committed to the discovery of new design materials or techniques that are supported in the pure sciences or technologic research methodologies and that are closer to the deductive method.

In the architectural research domain, there are still some residual doctoral studies based on the analysis of their own designed products, such as the PhD thesis of João Mendes Ribeiro entitled “Architecture and scenic space” done at the Darq-University of Coimbra. In fact, more and more, independently of the general strategies of the universities research centers, the study subjects seems more often linked to one’s own professional design practice. But as mentioned, these recent researches, so far, support themselves in a retrospective reading and not in a methodology based on, or upon, an experimentation or action through their own particular disciplinary field methods or tools. This methodology could allow to tests their design hypotheses a priori and their relevance in a systematic research of founding’s and scientific argumentation based.

All these prevailing studies, despite being thesis of undeniable scientific value, constitute an a posteriori analytical observation about the products produced and are rarely a reflection of an a priori idea, a preconceived idea or a hypothesis prior to all and any experimental verification. As referred by Claude Bernard (Bernard 1865) a priori as an idea that is presented in the form of a hypothesis whose consequences must be submitted to the experimental criterion or as referred by Kant (Kant 1781) whose a priori, is, universal and necessary, pure forms or intuitions of sensitivity (space and time), as the categories of understanding and the ideas of reason. In this sense, the debate in Portugal around architectural and design research, has, lately, increased in approaches and themes with a special attention upon DDDr. Young researches rather than just focusing themselves on the analyses a posteriori of data’s, facts or products are more motivated in studying in the ways or forms of the conception of the products as a priori idea and its reason as a correlation design research. This approach even

seems to pursue the experimental design action as a means to unveil the process of designing as research.

So it seems imperative to define what may be DDDr for which we resort to the three models proposed by Margolin (Margolin 2002). According to this author there are three possibilities for a research study in design. The first Nuclear research over design consists mainly of traditional studies, studies of methodologies, products or ontological discourse and meta discourses. The second Research through the design is guided by practice, such as the study of the behavior of materials, technological development, methodological reflection or the development of a design project. The third Research for the design is where the results are carried out by the designed object and which this author understands to be the most difficult because it is on the borderline of what may or may not be considered research.

The two initial model are already well established in our field and do not raise doubts. We believe the ambiguity of his third Research for the design model has a disciplinary depth that properly and rigorously used and developed as a conscious a priori idea to be tested may allow to improve the validity of DDDr. Research model uses not only as subject but also as a method which is reflected in the ability of the researched product to constitute itself as a contribution to knowledge, this being the central objective of a doctoral research. Safeguarding, however, that the result of this research will not be the “product” itself, but the fact of materializing in graphic, verbal and written support a knowledge that constitutes itself as a critical reflection of itself, communicable to others as a thinking tool and as an advance of disciplinary knowledge.

Never the less, we understand that DDDr still shares with design practice a disciplinary autonomy based on parameters and processes as the need to elect an initial issue and some tools and resources that establish the process or method (methodological procedure). A solution that is configured in the produced “object” as a reflection and transmission of knowing being able to configure knowledge only in the scientific approach of DDDr.

Personal Position while Researchers and Teachers about DDDr

As researchers and professors we have whiteness, in the last three years, in the submitted work plans for the Portuguese National Architecture, Urbanism and Design PhD Research Scholarships call, an increased number of applications with thematic and methodologies, oriented to DDDr. Not that this small but growing percentage of research works reflects a change in the strategy of the universities, but it seems to mirror a change in the interest of researchers. So, in respect to our research position (methods/approaches/techniques) on DDDr for our unit, seems easier to us, than instead of saying specifically what it should be, to say what it cannot be, as mention above, leaving room for the unforeseen and for the various possibilities of a DDDr.

Being the DDDr approach important in all the fields of architecture including in the professional practice one, paradoxically we understand that this type of research should not be confused with the mere development of an architectural design project.

For much that architectural design project may use or even constitute investigation in a methodological and quasi scientific way, in principle, DDDr, for scientific research or doctoral purposes should have clearly distinct scope and objectives from that of an architectural project. For much that architectural design project may use or even constitute investigation in a methodological and quasi scientific way it has clearly distinct scope and objectives from that of a DDr for scientific research or doctoral purposes.

An architectural project has as main aim to respond to an order with specific users and is subject to contingencies of reality as well as other professional constraints (product delivery schedule, et al.). Even though, for the professional practice of architecture, investigation is important and is necessarily present in the best examples of our profession, the basic conditions, objectives and expected results are fundamentally different from that of a scientific research or doctoral thesis. In fact, in professional practice, the realization of a design has neither the ultimate objective of advancing knowledge nor configuring scientific research, that is, does not have as fundamental principle a systematic character of verification and validation of results, step by step. Above all, passable of being of transmissible universal knowledge, crudely meaning, for a specific question or problematic using the same methodology to obtain necessarily the same final result or expected frame of results.

We may say that the specificity of a DDDr with a scientific scope (research or doctoral), in addition to the disciplinary particularities of its subject linked to architectural design project, have differences that lie in its methodology and techniques. Specificities in the nature of its intrinsic disciplinary character that contaminate the approach, formulation of objectives, questions and expected results, methods and research tools. An understanding based on the reinforcement of DDDr as a process of transforming disciplinary practice and its conceptual path in the field of architecture, as applied art. In this regard, it also seems important to follow Mário Krüger recommendations in "The art of research in architecture" that bases the research on architecture in formulations of abductive hypothesis subjected to the refutation of methodological objectives and conclusions developed with the purpose of refuting not its reliability but its robustness. This author explains the importance of centering issues on abductive reasoning, given that, unlike other areas of knowledge, this prevails in architecture over deductive and inductive. "This research is done through the preposition of new theories or the analysis of new facts or even interrelating in a new way architectural facts and theories, established so that the advance of knowledge transforms the apparently inexplicable into a predictable result" Mário Krüger (Krüger 2001)

With regard to scientific methods, the DDDr may support itself more on the basic tools and techniques, of the practice, namely on the drawing (sketches or rigorous) or models not only as an element of documentary basis but also as register, investigation or communication. In fact the use of a graphic record as a disciplinary tool, improves design project research. We can also rely on the understandings of Prada Poole (Prada Poole 2000) who states that, besides the necessary exposure and analysis of the research with a great predominance of graphic elements as essential to the disciplinary area, also the communication support can be based on graphic elements although in his judgment hardly exclusively. It is from this point of view that we think it is important to focus on the understanding of the DDDr innovation potentialities.

The use of architecture tools in design driven taken as a work research method permit to highlight the visual intelligence as defined by Hélio Piñón (Piñón 1999). Visual intelligence is taken as judgment for evaluating the fundamental criteria of the design project in order to motivate theoretical critic and architectural knowledge. The DDDr method, grounded on instrumental analysis through sketches, models, rigorous drawings, details, photographs and writings, must expose the various disciplinary expertise's, in written and visual (graphic) reading of design production, so that, in parallel with other more traditional pertinent methods (as case studies analyses, et. al.) may allow to obtain and enhanced a more

disciplinary research result. These interpretative representations of the research are taken in order to multiple readings of multiple disciplinary configurations, so that the communication maintains a global coherence in the interpretation of the research work (facts, products, results) in order to when browsing its structure, one can make the interpretation of the work's contents viable also by the expression of its graphic elements, insisting on the DDDr methodology of "visual intelligibility".

Curiously, or not, it seems, to us, that drawing or others are, as a methodological process and tools, essential to DDDr and common to professional practice, and so, it is important to explore these tools as a register, investigation or communication support or combined in Research for the design driven. In fact, the instrumental component of the design project thus becomes a parameter for analysis. This understanding is, on one hand, of the design as an identifying vehicle of a way of doing and acting, on the other, to avoid the extreme danger of overestimating only interdisciplinary researches more than the specific ones of the design project and, therefore, allowing to assess the real weight of scientific Design Driven Doctoral Research.

Bibliography

Bernard, Claude. 1865. *Introduction à l'étude de la médecine expérimentale*. Paris: Collège de France.

Kant, Immanuel. 1781. *Kritik der reinen Vernunft*. Riga: Johann Friedrich Hartknoch.

Margolin, Victor. 2002. *The Politics of the Artificial: Essays on Design and Design Studies*. Chicago: University of Chicago Press.

Krüger, Mário. 2001. "A arte de investigação em arquitectura." *Em cima do joelho* no 5 (December): 22-39.

Prada Poole, José Miguel. 2000. *La investigación en el proyecto (recomendaciones para doctorado y tesis)*. Madrid: Departamento de proyectos arquitectónicos de la ETSAM-UPM.

Piñón, Hélio. 1999. *Miradas Intensivas*. Barcelona: Edicions UPC.