How to Do a Thesis: Practice Models as Instigators for Academic Theses

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Within the architectural context of the American academy, a thesis constitutes the traditional conclusion to an architect's education. This piece of work is usually required for both professional degrees, Bachelor and Master of Architecture. It is commonly implied that a thesis is a design that must clearly and unambiguously define the soon-to-be-architect's position within the field of architecture. For this reason, it is usually expected that the student, through a fair amount of research, is able to define his/her position in conceptual, theoretical, and historical terms while using his/her design as a means to demonstrate and expand on the chosen position.

The results of this widely spread requirement vary from school to school but I believe it is fair to say that, in general, they are not great. The possible causes for this situation are several but in my opinion the main reason is that only some of the students find this academic pursuit easy to understand and follow. And, as it is seen semester after semester, only very few students are actually able to deliver what is asked from them. Most faculty members will probably agree with me since it is not uncommon to end a thesis review hearing critics mutter comments such as "It only works well for a few students" or "There has to be another way." However, and despite the slight but perennial disappointment that follows most thesis reviews, few schools start the following academic year with major changes regarding the organization or expectations for the new breed of students' theses.

In spite of this crisis, the thesis ritual is continued to be perceived and presented as the first step in an architect's realization of the type of design practice it is required for his/her self-positioning within the field of architecture according to his/her own interests. The question, then, that I cannot help continue to ask myself is: why do we—the architectural academic community at large—ask students to do a thesis if most practicing architects do not work in this manner? Only some architects practice by grounding series of projects through individual theses. Nonetheless, we insist on testing the students' abilities at this mode of working before they conclude their studies. And therefore, we continue to contradict ourselves when we present the thesis as the stepping stone for a future architect to project his/her understanding of what architecture is through how he/she believes that it should be practiced by only allowing students to follow one of the possible models of practice, the thesis.

With this paper I would like to propose a methodology that might open up the discussion by expanding on the traditional definition of thesis through its reconsideration from a practice-based point of view. I will lay out this method by, first, categorizing practice models through various groupings of the elements that constitute the usual structure of an architectural education. And second, I will extract from these practice models new options for what an academic thesis might be, pointing out specific strengths and weaknesses of some selected cases.

Current Architectural Educational Model or {{{{ Operations } Projects } Theses } Movements }

The education of an architect usually follows a structure that allows students to slowly confront progres-

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Figure 1: Possible alterations to the current architectural educational model as a way of practicing architecture.

sively complex designs. These degrees of complexity can be functional (such as scale, program, or site) or conceptual. As a starting point, it is a wide spread practice to have new architecture students do a series of exercises, each addressing a design operation focused on a specific architectural issue. These issues are as varied as the problems that the field of architecture encompasses and thus vary according to the profile and emphasis of each school. In general, most initial exercises involve techniques of production and representation, spatial and geometric experiments, site analysis, human scale and various understandings of the human figure, material explorations, etc. The most elementary conceptual lesson that new students learn at this stage is that it is only through an operation that an architect can exercise a design decision. Therefore, architecture is defined as a practice-based discipline and these exercises constitute the students' first practice at various basic design operations.

Only after a semester or a year of architectural training are students exposed to the design of a project. This transition is usually a tricky one and students can remain confused during the first weeks of this stage. Second year projects—or second semester depending on the school's pedagogic structure—are to me the most interesting ones since they are the ones that, in attempting to address this transition, can reveal more about a pedagogic model, a school, or a faculty member.

After a few more projects—all progressively increasing in breadth and complexity—and before they are allowed to leave the academic context, students are asked to do a thesis. This critical piece of work is expected to compile the knowledge the student has acquired during his/her studies while indicating how he/she is planning on using it.

Movements are usually defined as organized efforts to achieve a common goal. Within architecture, these usually are ideologically articulated, stylistically defined, or technologically motivated. In this paper, I will refer to movements as any artistic current, trend, or -ism, without making any distinction. What I imply with this term is the grouping that necessarily exists of individual positions under a broader framework. Students of architecture are exposed to this understanding in history/theory classes as well as in the design studio. When students work on a thesis, they are expected to define their position within the field of architecture and this is partially achieved by framing their work in relationship to other architects' positions. Thus, a student's thesis must necessarily imply an understanding of movements—according to my use of this term—that are broader than his/her individual position.

If the reader accepts this educational structure—which slowly confronts students with progressively complex designs—I can summarize the education

of an architect with the expression {{{{ Operations } Projects } Theses } Movements }.

This understanding, besides describing an educational structure, also implies a specific strategy for practicing architecture: it is a practice model based on an understanding of how architecture is conceptually constructed. Therefore, once a student is aware of this progressive nesting, the different options he/she faces by altering the given structure as a way of practicing architecture become obvious (figure 1). It is at this moment when the student should reflect on which practice model is more appropriate for his/her interests.

Students should not have to do a thesis, but rather they should be asked which type of practice they find more aligned with their way of thinking. In short, they should state—and this should be considered their thesis—which practice model they are going to follow as they define their position within the discipline of architecture.

What follows are specific examples that I have pulled out from the chart in an attempt to clarify the methodology I am proposing. The following case studies should also be considered by the students who would like to proceed with this method as examples of the weaknesses and strengths that a particular model can present.

Herzog and de Meuron or
{{{{ Operations } Projects } } }

The first case study I would like to concentrate on is a well-known architectural modus operandi where a project is defined as a group of operations, all of them responding to a specific formal idea worked out at different scales and through different materializations. This practice model shall be considered the most classical of all architectural modes of working and its understanding has traditionally implied how to spot a good designer. In traditional terms, good design is defined as the architect's ability to coherently group a set of operations under an overall and strict formal logic. This conceptual position results in unique, carefully controlled, and highly coherent formal systems—through which, as a result, we are usually able to recognize the 'hand' of different architects. This tacit understanding, along with its many variations and implications, has regulated many of the disciplinary discussions on architecture, always producing supporters and detractors. For instance, many, if not all, of the architectural -isms developed during the late part of the twentieth century can be read as a response to this deeply engrained principle.

Despite its long history, this practice model can still yield interesting results, especially if such conventions are questioned. For this reason, students willing to follow this model might want to study, for instance, the work by Jacques Herzog and Pierre de Meuron. With the variables I have just described under consideration, some of their designs, such as the Tate Modern or the Bird's Nest, should be considered as classical. The Bird's Nest, for example, can be explained as a tight grouping of operations exploring different irregular crisscrossing instances of folding straight lines at various scales and with different materials. However, they have also proposed other projects where these conventions have been questioned, attempting to yield other grouping strategies. One of these is their recently completed Caixa Forum in Madrid, Spain, where each space within the project is an isolated operation (conceptual, formal, material, geometric, and spatial) with few connections to other spaces located throughout the rest of the building. Conceptually, the project comes together as a discontinuous grouping of design decisions where formal continuity is rarely and only achieved by progressively morphing different formal logics throughout the building.

Aranda\Lasch or
{{{{ Operations } } } Movement }

This mode of operation is quite prevalent among designers working with new technological developments varying from computer scripting to digital fabrication processes to physical computing, just to give some examples. Architects following this practice model usually position their work within a specific movement by briefly framing in conceptual terms the technology they are interested in using. This broad theoretical framework acts as an umbrella that allows them to experiment without worrying too much about the conceptual consequences of each of the exercises they attempt.

In particular, the work developed by the office Aranda\Lasch epitomizes this very popular and current trend. Their book *Tooling*, published as the

issue number 27 of the Pamphlet Architecture series, is structured around seven operations or tools: Spiraling, Packing, Weaving, Bending, Cracking, Flocking, and Tiling. For each of these, the authors supply one of their projects as an example of what can be achieved with these operations. Attempting to regulate and exploit the design advantages of new technologies is not an easy process and therefore, thinking in terms of sets of exercises—each of them experimenting with a specific aspect of the new technological development—does seem to be a good approach. However, I remain doubtful about the capacity of the final product to resonate with architectural conditions beyond the ones that have been worked out through the experiment. For this reason, these proposals seem to present themselves more as a series of exercises through which to exploit the particular advantages of the listed operations rather than as complex and multifaceted projects.

Students interested in the controlled exploration of a specific tool emerging out of new technological developments should not disregard other practice models as viable options. But this mode of working might be the most appropriate for such experimentations.

Le Corbusier or
{{{{ } Projects } Theses } Movement }

This practice model will be of interest primarily to students with a very rational and logic understanding of their work as well as of the architectural discipline. Only with extreme clarity will this model yield acceptable results, thus well organized thinkers might want to consider it as a means of taking advantage of their well structured knowledge.

Le Corbusier's work can in many instances be described as pedagogic, due to the extreme clarity of his mode of working. Analyzing some of his proposals, the reader might even want to argue that his practice model was in fact {{{{ Operations } Projects } Theses } Movements }. And I would not disagree. In very few other architects' work can the inner workings of the nesting process be so clearly perceived.[1] Clarity of approach, however, should not be confused with simple results. Undoubtedly, it was Le Corbusier's clarity of work—at least when he described it through his many publications—what allowed him to publicize his work so easily. And what

enabled him to contribute to the construction of the Modern Movement with easily comprehensible strokes. But this clarity should not misguide an interested student regarding the complexity of the results that can be attained. Carefully looking at some of his most holistic proposals, such as City of Three Million Inhabitants or The Unité d'Habitation, is probably the best way of getting acquainted with this practice model.

OMA or
{{{{ } Projects } Theses } }

OMA's work exemplifies the project/thesis dichotomy. No other architectural office has been so precise in the production of groups of projects exploring specific architectural issues from clear and well articulated theoretical viewpoints. Amongst the theses we have enjoyed so far are the Culture of Congestion, Junkspace, Bigness, Generic City, Typical Plan, etc. Despite their interest in well defined disciplinary positions, OMA has always resisted its inclusion within a movement. In a way, it could be argued that their ambition has been to create a movement. And in many instances they have come very close to it, if not plainly achieved it.

This mode of working became quite popular in the mid-1990s coinciding with Rem Koolhaas and OMA's reputation surge but it has stayed under the radar ever since then. In the early 2000s, architects' attention shifted to other models primarily because this mode of working only yields successful results when architects have reached a certain stage of maturation in their ideas. The bursting of new technologies within the profession has triggered a multitude of experiments, many of them attracting much attention due to their novelty, but in most circumstances these explorations have not yielded mature positions yet. Therefore, the work that results from this practice model does not usually openly accept recent innovations but rather questions previous developments to propose new designs.

For all these reasons, this modus operandi might only be appropriate for those students who start their thesis with a record of projects—not just exercises—already leading to clearly defined theoretical positions demonstrating that they have achieved a certain level of maturity. Most usually, although not always, these conditions are only met by older

students who have taken time off to work or teach during their education or in-between degrees.

Bruno Taut or
{{{{ } Projects } } Movements }

Architects practicing in this manner are the split personas of the architectural world since they simultaneously act as leaders and followers. As leaders, they take a predominant role in the definition of new disciplinary currents. As followers, their projects respond to broadly stated principles that they attempt to exploit or question. They do not concentrate on simple operations and they are not too worried about defending particular positions. Their interests lie in broad theoretical frameworks and specific projects as responses to those frameworks.

I have selected Bruno Taut as an example because of his amazing variety of initiatives and achievements, both as an entrepreneur and as a team member. For instance, he initiated the Glass Chain, a German utopian correspondence group; he published *Alpine Architecture*, a major contribution to the Expressionist architecture movement; he was named chief architect of GEHAG, a progressive modern housing cooperative; and, he wrote *Houses and People of Japan*, the leading publication on Japanese architecture and culture from the second quarter of the twentieth century.

However, other architects such as Philip Johnson are also representative of this mode of working. In his leading roles, Johnson was the founder of the Department of Architecture and Design at the Museum of Modern Art in New York City and one of the three organizers of the influential MOMA exhibit "The International Style: Architecture Since 1922." As a follower, his work for Mies van der Rohe or his numerous projects responding to different stylistic currents is well known.

Enric Miralles or
{{{{ } Projects } } }

The work of Enric Miralles (first with Carme Pinós, then with Benedetta Tagliablue) relied on very personal means of expression. All throughout his work it is easy to establish genealogical links between projects—or families of projects, as Miralles himself called them once—but as it seems clear from his personal history, his ambition was never to group

these projects in order to state a theoretical position. Each series of projects is to be seen as a meditated exploration where progressive variations, from one project to the next, allow for the constant rethinking and reappraisal of the issues considered. Under this category I would group most architects that demonstrate deep personal design interests and abilities, and whose work can be organized as series of variations without a strong theoretical positioning such as, for example, Zaha Hadid, Hans Scharoun, or SANAA.

It is worth noting that this mode of operation is very similar to classical artistic practices defined by autonomous artists with no theoretical ambitions. Giacometti or Calder, for instance, are names which immediately come to mind. This type of artist does not rely on a theoretical framework to position his/her work within the field. Their positioning strategy relies on serialization: it is through sheer repetition and slight variations—enabled by their unique talent—that their work becomes positioned within the art field.

For students with a strong and deeply entrenched design personality showing no tendency toward any theoretical argument whatsoever, series of projects around one of their design interests should, following the argument that I am proposing in this paper, be considered an acceptable thesis.

Diller + Scofidio or
{{{{ } } Theses } }

I am primarily referring here to the series of works developed by Elizabeth Diller and Ricardo Scofidio at the beginning of their partnership,[2] such as Slow House, Tourisms: Suitcase Studies, Bad Press: Dissident Ironing, or The Withdrawing Room. Every project from that period of time is unique and singular, poignant and intense. The poignancy and intensity of each design stems out of their ability to address the complexity of the issues constituting each proposal. In my opinion, the projects are successful because, in each of them, Diller and Scofidio stated a unique position capable of singularly defining a relationship between architecture and the cultural conditions they were facing. With each proposal, Diller and Scofidio redefined the role of architecture as a cultural agent by demonstrating what design can do with its unique capacities and outrageous pitfalls. For these reasons, each of

these projects should be considered a thesis in itself. In most situations—and this is indicative of the singular and unique nature of their work from that period of time—each thesis was not explored under other circumstances.

Some contemporary artists interested in a myriad of mediums and effects, such as Olafur Eliasson, need to work in a similar manner since, due to their disparate and broad range of interests and the difficulties implied in establishing connections between all of them, each piece of their work is required to stand on its own—and this can only occur by establishing an autonomous and strong aesthetic and conceptual position for each piece of work.

In general, however, it is uncommon to find students or architects that can follow this mode of operation. But, and as I am sure that the reader has concluded, these are the students that find the thesis requirement to be the happiest and most productive time while at school. It is also worth noting that, in many cases, these same students might have experienced what is commonly referred as "productivity issues" in standard studios where 'simple' projects are expected—and where a high degree of detail is demanded without a broader theoretical position. Unless these students were attending schools with a high thesis-like tendency in every single one of their studios or unless the students were lucky enough to have an instructor that allowed for their thesis-like positioning interests, these students might not have necessarily received the best grades in previous studios.

EPILOGUE

I wanted to end with Diller + Scofidio's practice model because their work exemplifies what many faculty members understand to be a desirable thesis. However, and as I hope that I have been able to demonstrate, this is only one of the multiple modes of operation that architecture students can follow as they finish their studies. I hope that this paper can help faculty reflect on how we teach thesis as well as encourage them to reconsider the expectations that we hold at this stage of the students' education. But most importantly, I hope that this paper will be used by students in their pre-thesis course as a map of the different options they may encounter as they start a stage of self-introspection that should lead them to the realization of who

they are and how they work as architects.[3] This is, in the end, what a thesis should provide.

ENDNOTES

1. The fact that the nesting process can be so clearly perceived in Le Corbusier's mode of working raises an important and unavoidable question regarding the educational structure I have described at the beginning of this article and that I am using as the means to classify different practice models. Should it be deducted that this structure is a modern invention since it is in Le Corbusier's work, the highest exponent of Modernism, where this structure can be most clearly perceived?

2. If I have chosen not to focus also on the work developed by their current office, Diller Scofidio + Renfro, it is simply because I believe that their mode of operation has changed since the beginning of their original partnership—probably due to the type of commissions they are now able to undertake following the wide success that they have been enjoying. In any case, my decision to focus only on one part of their careers does not imply any judgment on the work that is now produced at Diller Scofidio + Renfro.

3. These endeavors will have to be left for a future paper but the methodology I have proposed could have two other important applications. First, it is fair to assume that it should be able to help establish appropriate pairings between students and advisors. A logical outcome of the method I have proposed is that different practice models probably require different advisors: thus, as a 'thesis horoscope,' this method could be able to point out pairings to look for as well as pairings to be avoided. Second, different modes of working are better appreciated in different working environments and by different working partners. As students realize what type of practice model is more suitable to their disciplinary position, they should also come to understand under which circumstances—offices or business partners—will they be able to take the most advantage out of their mode of working.