AR3A160 Lecture Series Research Methods

Self-Assessment on Research Methods

The conduct of Practice-based Research and investigation into Architectural Typology:
Is experimental approach a valid research-method, and how does it contribute to explore new architectural typologies?

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I INTRODUCTION

In a lecture at the TU Delft in 2017, Elise van Dooren discussed whether architecture universities pay sufficient attention to educating students about the design process. Every project is different which ultimately makes every design process different, even though there are still recurring elements pertinent in every design process. This phenomenon intrigued Van Dooren to conduct research on this matter which ultimately resulted in a framework that distinguished five generic elements that are always present and are defined as the main aspects of every design process.[1] Although designing is conceived as a complex and creative venture, the saying "practice makes perfect" is a fair substantiation.

However rigid and factual as it may seem, designing is also a very much intuition-rich and personal process. The deficiency of "process teaching" in our education, as a result, leads to many uncertainties and anxiety among students, as there is no objective framework that validates their design/research process which ultimately determines the final outcome of the project. Van Dooren argues that students have to be taught to consider the design process as a step-by-step exploration where they have to be encouraged to conduct experiments, make mistakes and to learn from them.[2]

Although architecture partly being a form of art, experimenting and "making mistakes" is more integrated into the process of visual art. A widely known quote of Jackson Pollock is: *"I want to express my feelings rather than illustrate them"*, which emphasizes the fact that he does not know the exact steps he wishes to take in advance.
Experimentation is a practice-based research whereby the results are usually unpredictable, which is its main advantage. Examining the outcomes lead to the next step and contribute to the further investigation on the subject. This ultimately makes the architectural practice a form of research in itself.[3]

Research and design are fundamentally connected as two interdependent practices.[4] Research can be either qualitative or quantitative. Therefore, research-methodological awareness starts from the beginning as each method offers different results. Rather than awareness of which method to apply, it is more critical to be able to identify which method(s) could contribute most effectively to a specific project. This will essentially contribute to construct a solid research-methodological approach.

The lecture series were inspirational and very instructive. I was particularly drawn to the topic on Typological Investigation. This lecture has piqued my interest on the development of architectural typology, and explore how experimenting 'can be and has been' used as a research-methodology. It relates to my graduation project within the studio "City of the Future", on the topic of hybrid buildings and how their mixed-use structure enhances the social, economic and societal quality of the city. Hybrid buildings, however, are a result of modernity, technological advancements and particularly experimentation with pre-established types and typologies.

This paper is intended as a critical self-assessment on my research method(s) and focuses on the theoretical framework and episteme of typology. The objective is to understand if typology is a solid construct, as one may assume, or only a communicable model contingent on ever-changing conditions. It also attempts to validate the 'experimental approach' of architecture through framing the historical context of its development.

II RESEARCH-METHODOLOGICAL DISCUSSION

In his book Research Methods for Architecture, Ray Lucas classifies experimenting as a form of practice-based research. He describes it as *"a loop of reflective practice, acting and thinking as a continuum",* which enables us to approach research differently, and to look beyond literature by acknowledging the discipline on its own terms as a distinct practice.[5] Lucas begins by drawing attention to the common misconception that when practice lacks research, it is merely practice and less valuable than research. He invalidates this explanation through explaining that this is a result of a misinterpretation, and that learning through practice i.e. experimentation can add value to the knowledge of a discipline which he describes as practice-based research.[6]

Experimentation is a dialectical process where the designer thoroughly interrogates the situation and conducts a reflective dialogue.[7] Designing requires creativity, flexibility, critical reflection, and experimentation. It is a dynamic and iterative process, rather than linear. Experimenting is pertinent in every domain of the design process but requires hypotheses and different guiding themes relating to space, material, site, function and socio-cultural context.[8]

In contrast to (many) scientific disciplines, the architectural design process consists of several research methods. This is a strong quality of the discipline that enables researchers to explore and investigate a wide range of issues.[9]

The City of the Future is a research project initiated by BNA (the Royal Institute of Dutch Architects), to investigate, in collaboration with ten design teams, how we can develop a transformation area into a future-proof urban environment.[10] The pre-Venice Biennale research phase was devoted to understand the spatial context of one of the five predefined sites by BNA. In a subgroup of two, the objective was to focus on one square kilometer of Rotterdam Alexander, and collate as much data as possible for three weeks. Local and plenary meetings were attended to get more involved in the actual study of the design teams. From a phenomenological perspective, we began to conduct observations with an etic and anthropological approach to understand the spirit of the space (genius loci), record the daily social interactions and map-out the use of the public sphere.
The field recordings were categorized into drawings, writings and photographs to serve as essential ingredients for conducting experiments for future scenarios. In Venice, a workshop with five other universities was organized to collaborate and exchange knowledge in regards to this global issue. A pragmatic roadmap, elaborated through both qualitative and quantitative research was constructed as a communicable tool together with the students from the University of Architecture in Venice (IUAV) with whom we collaborated. Ultimately, the results were proposed in a concise presentation for the teams, stakeholders and students involved.

The studio proceeded with defining a personal fascination engaged with the improvement of future cities. Departing from a curiosity and interest for typology, the graduation project is focused on hybrid buildings, due to their evolving character and inherent potential to adopt and anticipate on ever-changing advancements.[11]

The episteme of typology has a paramount importance for the genesis and development of the hybrid building as a 'new' emerged type. Reflecting on this progression constitutes sufficient evidence for the relevance of experimentation in the design process of our discipline. Moreover, it also validates my personal position towards an experiment-driven research-methodology, and encourages me to investigate how experimenting can contribute to explore new architectural typologies.

III RESEARCH-METHODOLOGICAL REFLECTION

Experimental research has an important and profound role in the emergence of the (modern) hybrid building. Technological advancements, such as the elevator, structural framing, air-conditioning, central heating and electrical wiring opened possibilities for architects to explore the sky. With the advent of the skyscraper as a new typology during the Modern Movement, the physical embodiment of the hybrid building was reinvented.[12]

The taut line between hybrid and (the current understanding of) typology is that they both developed from taxonomy and experimentation. Typology is a collective term for the attempt to categorize and systematize different architectural types. A 'hybrid' is a collective term for the 'cross breeding' of various functions and is therefore not expressible in a single type or form.[13] However, based on his empirical studies, Joseph Fenton distinguishes hybrid buildings into three types of categories: Fabric, Graft and Monolith. Although he stresses that they possess a limitation due to overlapping, and only serve to provide a clearer understanding of the building.[14]

Experimenting, as a research-method, is a form of "knowledge-based design" that fundamentally thrives innovation but provides space for mistakes. Van Dooren describes this as a process of trial-and-error where the misconception of finding a single perfect solution for the entirety at once should be abandoned.[15] Experimenting essentially means conducting action to test a specific idea or something new, in order to gain and expand the boundaries of knowledge. Albert Einstein once stated: *"A person who has never made a mistake never tried anything new."*

In the late 1960s, many avant-garde movements started forming that endeavored to rethink the functionality of rapidly growing cities.[16] Architectural groups, such as Archigram, Archizoom and Superstudio created radical experiments that both questioned the status-quo and proposed a redefined position for architecture through (hypothetical, mainly technology driven) evocative projects.[17] Archigram's "The Walking City" and "Plug-in-City", and Archizoom's "No-Stop-City" were (a few of the many) attempts to breakdown the idealistic disposition of architecture, and experiments to liberate both the individual and society from its repressive binds in order to explore unorthodox ways to create a 'better' future.[18]

The search for a free and unconstrained architecture rejected the traditional episteme of typology. Many projects demonstrated new and unconventional forms that transcended the rational dimensions and functionality of the physical environment.[19]
This radical avant-garde, however, influenced many pioneering architects (of today) which is notable in the early works of, among others, Rem Koolhaas, Zaha Hadid, Richard Rogers, Renzo Piano, Norman Foster, Santiago Calatrava and many more.

Stemming from the instinctive need for shelter, architecture gradually developed from the primitive hut to mega-structures. A fundamental influence to this progression, however, could be traced back to the act of classification/categorization of architectural 'types' and hence the genesis of typology.

In the field of architecture, typology may appear to be a confusing topic. Typology is defined by Oxford English Dictionary as *"A classification according to general type,..."* and *"The study and interpretation of types and symbols,..."*. This reveals an interesting polarity between 'interpretation' and 'classification', as there is a certain degree of subjectivity.

Quatremère de Quincy was the first to develop a coherent and explicit formulation of an idea of type in architectural theory, at the end of the eighteenth century. For Quatremère, type was identified through

the logic of form connected to the reason and use.[20] Durand, however, approached typology in a compositional way by analyzing and reducing buildings to schematic plans and categorizing them according to their program/use.[21] The concept of type, however, had undergone numerous changes throughout the twentieth century. From its rejection during the Modern Movement, to its transformation to 'prototype' in the era of mass production, to an ideological content where the architect sought to communicate his position through the use of types.[22]

Throughout history, many architects and theoreticians have built-upon or diverted-from the previously established understandings of typology. It has been a continuous process of transformations, to this point where typology is mainly understood as a 'mechanism of composition' depending on the inventiveness of architects.[23] Experimenting, creativity and courage seem to be the methodological ingredients that were necessary for this process.

One might say, *"Is experimenting important for research? Can it even be a research-method? Is it not already an integral part of the design process?"* My answer is yes, however only if applied consciously. Experimenting goes beyond the conduct of devising alternatives. It is a realm where convention and certainty are excluded. At first, experimental research endeavors to escape the constraints and distraction of reality in order to instigate innovation. Subsequently, it requires a pragmatic approach to adapt the results to the physical environment.[24] However, it is imperative that the experiment is backed with extensive research, and takes the social, societal and political context/changes into account. This requires additional research-methods to complement the experiment in order to prevent the results from becoming inconsequential. On a negative path, you end up with idealistic and utopian ideas that will never reach reality.

IV POSITIONING

Jorge Mejía Hernandez's opening lecture on Heuristics, Research and Design proved to be very enlightening in regards to understanding the significance of research within the architecture discipline. The talk that was most intriguing, both from a personal and graduation point of view, was Robert Alexander Gorny's lecture on Investigating Typologies.

Henandez focused on breaking down the architectural research into cognitive terms, such as ontology, epistemology and methodology. He outlined the design process as four substantive procedures. The question as its *purpose*, the design as its *form*, the technical development as its *technique*, and the presentation as its *communication*. In contrast to common belief that only the domain of 'purpose' entails research, he emphasized that research is equally active in all four domains.
Gorny's lecture entailed a more epistemological approach that elucidates the understanding of type, typology and model.

However, another talk that covered a crucial aspect of the discipline, which has not yet been addressed in this paper, is Marieke Berkers' lecture on Praxeology. Berkers describes praxeology as *"the study of human action and conduct"*. She advocates that studying the praxis of architecture allows us to identify and better understand the 'actual' end users instead of the imagined ones. Understanding the context requires immersing into its culture, which is known as ethnographic or anthropological research. The drawback of these methodologies, however, is that they are longitudinal processes in which the quality is improved by the length of time.[25] Nevertheless, observational research, both etic and emic, has a decisive role in the success of our creations. They enable us to formulate hypotheses and test their outcomes through experimentations.

The graduation studio City of the Future, as well as the study conducted by the design teams assigned by BNA, requires a scenario or prediction-based approach derived largely from phenomenological and empirical research. Due to the length of the project and the pragmatic structure of the graduation year, it is not feasible to conduct a profound praxeological research. However, demarcating this involvement to a number of interviews and sporadic observations could still provide valuable outcomes.

Unlike other forms of art, which can be significantly less costly, gauging the actual success of an architectural experiment is usually most accurate after it has been built. All experimental results are merely based on hypothetical speculations and simulative calculations. Praxeological investigation therefore serves as the foundation on which the experiment must be built in order to minimize the incertitude of the anticipated outcome.

Given his past in journalism and scriptwriting, Rem Koolhaas relates architecture closely to the latter. A building consists of a sequence of actions that are implicitly (or deliberately) designed and orchestrated by the architect. Koolhaas states that every context is different, which demand us to respond differently.[26] When we are designing a building, it is essential to understand the demands of the users. Our role is to be the mediator that tries to find ways to connect the present (such as the context, culture, people and identity), to the absent (such as the needs, requirements and improvements). Therefore, adopting an analytical attitude is crucial to trigger innovation and invention, which is ultimately possible if we reach a state of "new thinking".

Architecture has passed numerous movements and has currently arrived at a unanimous consensus that it should serve the needs of people and contribute to enhance the quality of life. Architecture is, to a certain extent, a form of social science which requires us to invest time to understand the social circumstances and the contextual relationships in order to transcend the intervention for the individual

into an asset for the collective. Therefore, because of the varying phenomenological and socio-cultural circumstances that surrounds each single project, it is, I believe, unrealistic for architecture to ever become an autonomous practice.

In 1998, Steve Jobs stated: *"A lot of times, people don't know what they want until you show it to them."* Just like Archigram or Koolhaas, Jobs also had the urge to challenge the status-quo and had a nature to look beyond the obvious. Although I strongly believe that architecture must respond to the needs of people, I appreciate the boldness and courage of the 1960s avant-garde and their influence on contemporary architecture. Their predilection for experimental architecture was ultimately a contention against the iteration of rationality and conventional typology.

Architecture is a complex and multifaceted field where no single approach can possibly deliver all the answers you need to know.[27] Research always requires a hybridization of a number of approaches to complement each other along the process. History indicates that experimenting can be used as a main research-methodology. However, depending on the context, client or brief, additional methods must be consulted to raise the reliability and validity of the experiment. Every building is essentially an experiment, since we are not able to look into the future. Therefore, we must prevent "delusions of grandeur" or utopian imaginations, and derive our designs principles from both praxeological and socio-cultural episteme.

NOTES

1	Elise Van Dooren, et al., *Making explicit in design education: generic elements in the design process* (International Journal of Technology and Design Education, 2013), 53-71.

2	Ibid.

3	Ray Lucas, *Research Methods for Architecture* (London: Laurence King Publishing Ltd., 2015), 43-45.

4	Charles Jencks, *Architecture 2000 and Beyond: Success in the art of prediction* (Chichester: Wiley Academy, 2000).

5	Ray Lucas, *Research Methods for Architecture* (London: Laurence King Publishing Ltd., 2015), 43.

6	Ibid.

7	Donald Schön, *The Design Studio: An Exploration of its Traditions & Potential* (London: RIBA publications Limited, 1985).

8	Elise Van Dooren, et al., *Making explicit in design education: generic elements in the design process* (International Journal of Technology and Design Education, 2013), 53-71.

9	Ray Lucas, *Research Methods for Architecture* (London: Laurence King Publishing Ltd., 2015), 45.

10	BNA Onderzoek, *De stad van de toekomst: Stad maken in tijden van grote transities* (2018).

11	Job Floris, et al., *Tekenboek Stadsgebouwen, Functiestapelingen, publieke binnenwerelden, in één blok* (Rotterdam: AIR, Centrum voor Architectuur, 2011), 254.

12	Joseph Fenton, *Hybrid Buildings, Pamphlet Architecture (no°11)* (New York, San Francisco: Princeton Architectural Press., 1985), 5.

13	Leen Van Duin & Herman Van Wegen, *Hybrides: Stedelijke architectuur tussen centrum en periferie* (Delft: Delft University Press., 1999), 20.

14	Joseph Fenton, *Hybrid Buildings, Pamphlet Architecture (no°11)* (New York, San Francisco: Princeton Architectural Press., 1985), 7.

15	Elise Van Dooren, et al., *Making explicit in design education: generic elements in the design process* (International Journal of Technology and Design Education, 2013), 53-71.

16	Dietrich Scheunemann, *Avant-Garde / Neo-Avant-Garde* (Amsterdam: Rodopi B.V., 2005), 17-18.

17	Simon Sadler, *Archigram: Architecture without Architecture* (Cambridge, Massachusetts: MIT Press., 2005).

18	Renata Hejduk, *Beyond Architecture: Technology, Freedom, and Play. Getting Real: Design Ethos Now* (Arizona State University, 2006), 231-232.

19	Peter Cook, *Experimental architecture* (London: Studio Vista, 1970).

20	Rafael Moneo, *Oppositions: On Typology* (Cambridge: MIT Press., 1978), 28.

21	Ibid., 28-32.

22	Ibid., 37.

23	Ibid., 27.

24	Clemens Steenbergen, et al., *Architectural design and composition* (Bussum: THOTH Publishers, 2002), 25, 159.

25	Ray Lucas, *Research Methods for Architecture* (London: Laurence King Publishing Ltd., 2015), 38.

26	Markus Heidingsfelder & Min Tesch, *Rem Koolhaas: A Kind of Architect* [Online documentary]. (USA: Arthouse Films, 2008).

27	Ray Lucas, *Research Methods for Architecture* (London: Laurence King Publishing Ltd., 2015), 21.

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