

AR3A160 Lecture Series Research Methods

FROM CASE STUDY TO DESIGN

Self-Assessment for the use of case study research to discover new typologies

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Research thesis title "Searching for the boundaries of space efficiency"

Date 30th of January 2020

I. INTRODUCTION INTO CASE

Architecture is a stranger at a technical university, what is subjective and what is objective is a much heard question. The distinction between art and technical implication is difficult to determine. For an architect research can offer clarification. But how do you investigate a question that has no clear path and one-sided answer? For me this is one of the main struggles within the field of architecture. There is no clear yes or no and the positioning within this is very important for the outcome. By questioning the, presumably frequently used, working method, real in-depth knowledge about the systematic working can be provided and this gives tools for the architectural process.

The practical outcome of a chosen method frequently involves the analysis of existing buildings and their philosophies. Elise van Dooren, a professor at TU Delft, urges that by expanding the frame of reference and researching existing, tested and contemporary cases, a better understanding of the state of the art can be provided. Michael Pears, agrees in his paper about case-study research and contributes that architects do not always have easy access to appropriate cases because they are not organized in libraries, but are scattered in magazines, books and the memories of other designers¹. This is important because a big part of the architectural profession is his frame of reference. By increasing knowledge and recognition, choices can be better substantiated and a relationship can be established between the different professions. This allows a designer to position himself within the field. Van Dooren cites the psychologist Kneller who formulates it his way: "One of the paradoxes of creativity is that, in order to think originally, we must familiarize ourselves with the ideas of others."²

This paper is closely related with the graduation studio of Architectural Engineering during which I used the method of the case study, to expand my own frame of reference. This course was, for me, initially broadening in possible research methods and what they entail. The studio focusses around the 'second life' of existing buildings and a way to make them future resilient. My own mission lies on the design of a multifunctional building by integrating a numerous amount of different functions to attempt to create a new typology of building. For this to take shape I collected information about current multifunctional buildings by doing a case study research.

This personal frame of reference can be shaped and influenced in many ways, for example by books, contemporaries or own fascination. This made me wonder how this research into references, in the form of case study research, should be treated to make it broadening, but also effective. Specifically in the way of choosing cases that would not result a narrow minded answer but really explore the wide arrange of possibilities that would take the research to another level. This eventually resulted in the main question: "How did the selection and analysis of cases effected the outcome of the research?"

II. DISCUSSION OF THE STUDY

In the case study multiple cases were selected with the purpose of offering a broad perspective on current multifunctional buildings. This is one of the ways of conducting a case study. John Gerring, professor at Cambridge University, defines the method as an intensive study of a case or cases for the purpose of understanding a larger class of similar ones. Where a 'case study' is singular – focusing on a single unit – a case study research may refer to a work that includes several case studies³. Following this, my own work can be seen as a 'case study research'. The studio asked for a new program for an existing building. One way is to create a new one from scratch or by analysing historical structures. In this case it is about the transformation to a multifunctional building which is used 24/7 with as high as possible usage. Literature study provided search term that started the case selection being multifunctional, adaptable, hybrid.

In his book, *Research Methods for Architecture*, Ray Lucas sees case study research as an examination of context that allows a typology to be established by collecting references which follow the same rules in a repeating pattern. The method can be seen as a context-led research where in this case, Lucas uses the word 'context' to describe what the subject of the research is and what the boundaries of the choice of the cases are⁴. Searching for repeating patterns within the different cases allows the establishment of a typology. This by analyzing cases that can be seen as the context Lucas talks about.

The problem with defining and setting these boundaries of a case study, within the distinctions made by Lucas, lies in the broadness of the method itself. It can both be qualitative or quantitative depending on the type of answer the researcher aims for. The American social scientist Robert Yin urges that the selection of the cases will influence the outcome of the research. Cases can be chosen by how similar, extreme, diverse, or crucial they are which alters the result. By choosing the extremes on both ends the result will be in the middle or the cases are too difficult to analyze⁵. Yin's approach tries to create a very objective and measurable overview, but the analysis is still subjective because it describes a transformation into generalized data when comparing it to multiple cases. In this specific case I wanted a more quantitative focus, like Yin's, where it is more about the creation of a 'significant data set' like Lucas calls it⁶. For the case analysis I created categories that complied to the first research about adaptable architecture, which in its turn could facilitate the multifunctional program. Because my research included multiple criteria, together with selecting the most similar cases the research became too broad and difficult to conclude. This means a more etic approach where I did not go in-depth but had certain overarching themes⁷. The data was then visualized by making a schematic analysis of the cases. By schematically analyzing different cases I unintentionally conducted, in the words of professor John Gerring, a cross-case research⁸. This refers to a large-sample study where the sample consists of multiple cases analyzed statistically⁹.

It seems that my approach had a more phenomenological base where the perspective of the research defines the world depicted in the conclusion and not the actual one. My research gave, subconsciously, a personal interpretation of the elements of adaptable architecture. Eventually my battle between the praxis or the phenomenon resulted in the absence of praxeology in the case study. This resulted in a non-fitting case study research, a step had to be taken back.

III. REFLECTION OF THE CASE STUDY

Case study research as a method for enrichment is very popular nowadays placing itself as an everyday form of exposition in popular media. "Let's write a case study" or "We need to find a case" are frequently heard and the effect of this is that there is a large stream of case studies which have been highly informative and useful. However, it is more common that these case studies do not necessarily follow any explicit research procedures. Instead, Robert Yin sees the modern day case study as 'non-research one' and Helena Harrison, professor at, even calls them 'teaching cases'. Yin sees case study research as a mode of inquiry which he defines into three types; survey research, experimental designs and random assignments. The translation of this is possible as quantitative, by having many observations, or qualitative by having few observations. In large sample research, case selection is usually handled by some form of randomization¹⁰.

Case study research as a strategy for methodological exploration dates back to the early nineteenth century with the example of the biography of Charles Darwin. Contemporary case study research is said to have its origins in qualitative approaches to research in the disciplines of anthropology, history, psychology and sociology¹¹. This approach, just as Darwin's, studied multiple cases in depth and for a long period of time. The method of case-study research evolved through its time because it follows the zeitgeist of the practitioners, like the positivism of the last 1940 and 50's where this study became more quantitative focused on the social sciences. In the 60's and 70's this changed into a method to describe or study a specific phenomenon, which at the same time led to early criticism for the inability to provide limited validation and value for this kind of research. This led to a division in research approaches: those supporting positivism and quantitative approaches and the constructivist which used qualitative methods¹². In my research I worked with multiple criteria and multiple cases which created a vague understanding of the cases for they needed to be analyzed generally. Taking multiple cases can prove a certain hypotheses but lacks quality. A quantitative research, done within a short amount of time, by a unexperienced researcher will produce incomprehensible results. In this case I had an quantitative research wanting a qualitative answer. The case study as a research method evolves over different points of views and educational shifts were two main participants form important contributions: Robert Yin and Robert E. Stake.

The researcher Robert Yin, a positivist, defines a case study as a form of empirical inquiry and describes this approach as using a "realist perspective"¹³. By accepting that background, knowledge and values of the researcher can influence what is observed he concludes that within a research measurements are always imperfect. Therefore multiple methods are needed to understand what is happening in reality to discover the "truth"¹⁴. Yin connects his background with quantitative research methods, where case selection is based on theory. In this way, it seems that imperfect data out of the selection of the cases is not per definition incorrect. But this notion of imperfection is for me difficult to deal with. Therefore the, in Yins words, 'critical' cases are tested in stead of analyzed. Professor at the University of Illinois, Robert E. Stake worked in a more holistic way by experimenting and focusing on understanding the experiences in the context. He produced knowledge that is critical and sees reality as multiple and subjective experiences. Understanding this requires an experience of the activity of the case as it occurs in its context and in its particular situation¹⁵. He describes a more holistic way of selecting cases more on the experimenting notion.

My own research is located between Stake's holistic approach and Yins structural one. I wanted to analyze a phenomenon where the critique of validation was certainly present. At the beginning of the research, being an unexperienced researcher, the case study research was not a link in a bigger research but a demarcated research within a larger process. I expected that the research would link immediately to the main research, which is in line with Yin's interpretation of what a case study research should be. But this was eventually not reached in my opinion because the cases selected and analyzed did not broaden but proved the things I was eventually aiming for therefore by personal interpretation steered the selection and analysis.

IV. POSITIONING IN CASE STUDY TO DESIGN

The opening lecture, by Jorge Mejia Hernandez, about Heuristics was enlightening in regards to the understanding of decisions in architectural design, and the importance and place of architectural research¹⁶. The challenge I found with his messages was about the time it takes to evolve heuristic abilities. Evolving abilities of the architect are non-solvable, only by time, but prove a message and corresponded with Van Dooren's statement about the frame of reference. This also results in the way new architects have to approach case study research, by selecting cases more in a holistic way.

Significant contribution was given in the lecture of Robert Alexander Gorny, with his lecture on 'Investigating Typologies'. Where it is on itself more or less vague, the creation of a new building is usually born out of a pre-existing one. He continues that type has a relation to which different people may conceive works of art having no obvious resemblance to each other¹⁷. The importance for a new experimental typological mix lies in the understanding of the existing.

And by outlining these case studies, with their selection and analysis, more as a non-research method, like Yin calls it, for me acknowledges this modern day research method as a possible holistic one. The quantitative oriented structure and especially the selection of the cases influenced the outcome of my research being too vague. Therefore a more holistic approach might have fitted better with my ambition of the research. In my case the 'most-similar'-case, meaning the purest which are similar in all respects except the variables of interest, should have been executed. My study stretched from the exploratory, which is hypothesis-generating, to the confirmatory where a strong hypotheses alters the outcome of the selected case studies.¹⁸ This means that the cases selected are not compliant to the eventual hypotheses and new cases had to be added to create any form conclusion. Personally I find it very interesting that, initially, a qualitative research method is becoming a quantitative one, where I, possible unknown, became slave of. Within a case study defining this framework in the beginning is most important because this defines the answer you are going to get. The outline defines the cases, the cases define the type of answer and therefore the position of the case study within the main, overarching research.

My analysis investigated individual cases connecting them to the mass. This way of thinking changed the position of the case and the outcome which I directed towards my unintended hypothesis. The missed opportunity lied in identifying and addressing the most plausible rivals and not necessarily to deal with all of them. Yin urges that a broader spirit of rival thinking should pervade all your case study work, not just as the main quality control in interpreting your findings¹⁹. In the eventual research none of these rivals were chosen, therefore no challenge was arranged.

Within the studio the freedom of the student was subsequently present through the design process. By stating a research question within the first two weeks, without proper preliminary study to base the method structure on made it difficult. The notion of Harrison about the development of the case study in modern day research has all to do with this lack of depth. This where the case study is mere about 'teaching cases' which possibly underpins the notion of critique about the method in the 60's that it had difficulty with validating the analysis of the cases. Therefore, in the studio research, the case study eventually became part of a bigger process and not a stand-alone visualization of the state of the art which it was initially intended to be.

In conclusion it emerges that the case study made within the studio never reached the full broadness that I intended the research to be. Cases were selected merely to the likeness of me, which is not necessarily wrong, but not fitting to this case study. Selecting cases on theory, based on searched themes, is doable but harmful if not framed correctly in the beginning of the research.

V. END NOTES

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3. John Gerring. „*Case Study Research; Principles and practices*”. (New York: Cambridge University Press, 2007), 212
4. Ray Lucas. „*Research Methods for Architecture*”. (London: Laurence King Publishing Ltd, 2016), 12-13
5. John Gerring. „*Case Study Research; Principles and practices*”. (New York: Cambridge University Press, 2007), 89
6. Ray Lucas. „*Research Methods for Architecture*”. (London: Laurence King Publishing Ltd, 2016), 37
7. *ibid.*, 10
8. John Gerring, Lee Cojocar. „*Case-Selection: A Diversity of Methods and Criteria*”. (Boston: Boston University, 2015), 4
9. John Gerring. „*Case Study Research; Principles and practices*”. (New York: Cambridge University Press, 2007), 213
10. *ibid.*, 216
11. Helena Harrison, Melanie Birks, Richard Franklin & Jane Mills. „*Case Study Research: Foundations and Methodological Orientations.*” (FQS: Forum: Qualitative Social Research, 2017: Art.1).
12. *ibid.*
13. Robert K. Yin. „*Case Study Research and Applications; Design and Methods*”. (Los Angeles: SAGE, 2018). 17
14. Helena Harrison, Melanie Birks, Richard Franklin & Jane Mills. „*Case Study Research: Foundations and Methodological Orientations.*” (FQS: Forum: Qualitative Social Research, 2017: Art.1).
15. Robert E. Stake. „Multiple case study analysis”. (New York: Guilford, 2006).
16. The lecture of Jorge Mejia Hernandez, in the Lecture Series: Research Methods, an explanation about methods was given.
17. Robert Alexander Gorny. „*A brief history of and against typological thinking*”. (Delft: TU Delft, 2019), 1-6
18. John Gerring. „*Case Study Research; Principles and practices*”. (New York: Cambridge University Press, 2007), 131
19. Robert K. Yin. „*Case Study Research and Applications; Design and Methods*”. (Los Angeles: SAGE, 2018).

VI. REFERENCES

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