HERITAGE AND PRAXEOLOGY
Praxeology in architectural heritage research.

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I INTRODUCTION

As an architecture student and in the professional architectural design field, many different elements come together in a design. Designing architecture is a complex task where no single answer is the best or only option. From a very diverse array of subjects, knowledge is required. The technical design off a building is important as it keeps the structure physically stable, but the human element needs to be taken into account to keep a design stable within its societal and cultural place. This societal impact on architecture, and vice versa, will be different for all designs a designer can ever make. The diversity is almost endless. Therefore, learning about and from the physical, societal and cultural elements around the future design on many different levels will allow the designer to make a well-educated and impactful design beneficial to its surroundings. To start learning about the physical and societal surroundings of the future design, architects and other designers first need to ask questions.

What questions are asked will determine all future aspects of the research and design. By proposing the right questions and research methods, an original contribution can be made to the ever-developing body of knowledge in architecture.[1] The answers to the questions asked can be found through research. How one organises his/her research will have as great an impact on the design as the questions asked will have. Research therefore plays a fundamental role in the discipline of architecture and design as a whole.

The knowledge and data gathered though research is important to all scales found within design, architecture, and the build environment as a whole. From large urban scale sociocultural theories used in the urban planning phase down to the rain gutters for correct drainage, research influences every scale of architectural practice and building realisation. The use of well-organised research methods can greatly improve one's understanding of the case one is working on and help in creating a well-defined and multifaceted design throughout the different scale levels of architecture. The organisation of research starts with determining ones methodological approach to the research. The Research Methods lecture series serves as a platform for education and interactive discussions between lecturers, guest lectures and students about the different methodological approaches that can be taken to research the field of architecture. The lecture series showed how different methodologies of research can lead to differing answers to the same question, and therefore can lead to different knowledge gained. Critically positioning oneself with regards to the methodology and the methods used for research, before starting the research, is therefore of great importance.

In the Heritage and Architecture graduation studio, we are redeveloping and redesigning an old military complex once used for the making of artillery weapons and ammunition. This area is known as Hembrug. The Hembrug complex is located near the cities of Zaandam and Amsterdam. Hembrug was later used as a general industrial complex. The historic value of the buildings within Hembrug is of great importance culturally, as it was the only weapon and ammunition making and development site in the Netherlands. The Hembrug complex has not been used by the military for nearly 60 years. It has had no function for the last 15 years and has been abandoned for the same amount of time. This abandonment has a great impact on how one can perform research on the human element of the Hembrug architecture. One cannot simply hand out forms or observe how and why the architecture was used the way it was. As the former function and the way in which the architecture was used is such a critical element of its cultural value, this lead me to ask the following question: How did the users of the Hembrug area make use of and feel about the architecture? To answer this question, simply observing or asking the people was no option. Insight into the human aspect of the Hembrug architecture, while humans are no longer present, was needed. To combat this problem, a clear methodology to guide the research and determine appropriate research methods was needed.

II RESEARCH-METHODOLOGICAL DISCUSSION

The goal of the Heritage and Architecture Graduation Studio is to develop a deeper understanding of the architectural, cultural and heritage values of the project which is to be redeveloped and create a design within this understanding, which pays respect to those values through its new concept and design. This understanding of the place and how to operate within it, while being aware of the architectural and cultural values, is the framework in which each individual project will be designed.

Of great interest for determining these architectural and societal values are the previous functions of the buildings. How were they used? Who where they used by? With it being a military complex, the Hembrug area used to be very secure and secret. The military left at the end of the

[1] Lucas, Ray, *Research Methods for Architecture* (London: Lurance King Publishing Ltd, 2016), 7.

1960's. This means most people who used to work there when it was a military complex are no longer with us. Only now the area is being redeveloped, yet the people who once occupied the area are no longer around to provide answers to social questions, such as how the area made the users feel, what factors were important for morale and what memories of the Hembrug site the users hold dear? Because of the strong focus on the ways in which humans used and think/thought about buildings, a praxeoligicall approach to the research was taken. Praxeology being the notion that people engage in purposeful behaviour.[2] The praxeoligicall methodology involves a study of human action and conduct within the Hembrug area. Methodology being the theory of the methods which are used in a process; building design methodology applies to the theory of the methods for the building design process.[2]

As no people were left to tell the tales of the Hembrug area in its original use as a military complex, the praxeoligicall approach started with an unstructured capturing of Hembrug. Through photographs and drawings, the buildings were analysed and initial data on where humans could interact with the architecture were captured, i.e. doors, stairways and windows. This combined with more structured research by interviewing the people currently responsible for the sites on what they know/have found out about the area. This provided insight into the working of the area on a human level, such as the functions of each area, what people worked there, and what their jobs entailed. This research was mostly quantitative research[3] based on objective facts and does not capture the human element and its subjectivity. It would become the ''hard core''. The hard core is methodologically considered irrefutable.[4] This hard core than served as guide for the qualitative research, in this case old photographs, drawings and written reports about the area originating from the time the area was still a military based. Although qualitative and quantitative research can be their own research methodologies[5], within this research, they have been made under the praxeoligicall umbrella. A sort of part-time research methodology, within the larger methodology. The old photographs of the Hembrug area taken by the workers show the day to day activities through their subjective view, as do the old reports on social gatherings. This qualitative[6] research was historical research, but within the context of the human element in architecture. Only human activity and interactions were looked at and related back to the ''hard core'' to give this human element a place and time within Hembrug. This data in turn provided the answers to the main research question: How did the users of the Hembrug area make use of and feel about the architecture?

III RESEARCH-METHODOLOGICAL REFLECTION

The praxeoligicall research methodology has been around for a very long time, with the basic principles discovered and researched by Greek philosophers.[7] In the ancient Greek language praxeology meant: the study of deed, or action.[7] Modern praxeology came around in 1182, when the term praxeology was coined again by Louis Bourdeau in his Théorie des sciences: Plan de Science intégrale.[8] In this paper, Praxeology was coined to highlight the order of the whole and its unity when research had been conducted in many different fields, which remained scattered and uncoordinated when working within the scientific method.[9] The scientific method entails 5 basic steps:[10]

Step 1: Make observations

The scientist observes empirical regularities, or "laws," between variables.[11,12]

Step 2: Formulate a hypothesis

Hypothetical explanatory generalizations are constructed, from which the empirically observed laws can be deduced and thus "explained."[11,12]

Step 3: Design and perform experiments

Since competing hypotheses can be framed, each explaining the body of empirical laws, such "coherence" or consistent explanation is not enough; to validate the hypotheses, other deductions must be made from them, which must be "testable" by empirical observation. [11,12]

[2] Eekhout, Mick, *Methodology for Product Development in Architecture*, (Amsterdam IOS Press, 2008), 1-8.
[3] Newman, Carolyn R. et al. Qualitative-quantitative Research Methodology: Exploring the Interactive continuum (Illinois, Southern Illinois University, 1998), 3
[4] Anderson, Stanford, Architecture in the age of Empire, (11th Internationales Bauhaus-Kolloquium, 2010. Weimar: Universitätsverlag, 2011), 163-175
[5] Kumar Ranjit, ''Research methodology, a step-by-step guide for beginners'' (London: SAGE Publications Inc., 1999)
[6] Wang, David, and Linda N. Groat. *Architectural Research Methods.* (Hoboken: Wiley, 2013), 218
[7] ''*What is praxeology?*'' Roderick T.Long, accessed May 10, 2019
[8] Bourdeau, Louis, *Théorie des sciences : plan de science intégrale.* (Paris, G. Baillière et Cie, 1882)
[9] ''*What is praxeology?*'' *Kerry Baldwin,* accessed may 12, 2019
[10] ''*The Scientific Method - How Chemists Think*'' LibreTekst libraries, accessed may 12, 2019,
[11] Rothbard, Murray N., *the Logic of Action One* (Cheltenham, UK: Edward Elgar, 1977), 28-57.
[12] *"The scientific method''* Khan Academy, accessed May 12, 2019

Step 4: Accept or modify the hypothesis

From the construction and testing of hypotheses, a wider and wider body of generalizations is developed; these can be discarded if empirical tests invalidate them, or be replaced by new explanations covering a still wider range of phenomena. [11,12]

Step 5: Development into a law and/or theory

The praxeoligicall methodology holds that in cases of social sciences, so where human beings and human choices are involved, step 3 to 5 become impossible. Praxeology was the humanistic response to the scientific method. It is impossible to hold all variables constant when working with human and their choices.[9] Therefore, the standard scientific approach cannot be maintained when dealing with the human aspect. This, of course, related very well to architecture, where humans are ever present. Architecture is made, in almost all cases, to serve humans, to please them and provide them with their comforts, needs and wants. These are extremely subjective topics, which make the scientific method impossible, as all cases are different and no ''law'' or theories can always be said to be true. Different people, different ways of using architecture. Tracing the human aspects back by looking at historical data and art strongly resembles the methodology and methods used in both the archaeological and sociological disciplines. Within the archaeology discipline, archaeologist are able to reconstruct many phenomena of interest in the social sciences based on little physical data. This can be social structures, market economies and political institutions.[13] As archaeologists increasingly invoked the importance of social relations for understanding past human societies, they simultaneously became self-critical and began to question scientific objectivity.[14] This also happens in architectural research, where one always has a frame of reference. This means that when trying to understand old architecture, this reference frame affects ones view and interpretation of said architecture, placing a layer of subjectivity over the research.

Determining the societal aspects, as is done in archaeology, was the aim of the research done on the Hembrug site. The aim was to understand the society which was within Hembrug, but specifically, the place the architecture and buildings occupied within this society. Therein this research differs from archaeology.

Doing research with a praxeoligicall approach, a lot of data gathered during the research is interpreted by individuals or groups of researchers before and during and after the research is complete. It is than again interpreted by the readers of the reports which come from the research. Whereas ''hard core'' sciences, such as chemistry and physics, provide data which is replicable years or even centuries later providing the same results and therefore can be approached using the scientific method, reports about humanity can be very different, even on the same day, depending on who is researching. As architecture is so connected to the human aspect and each architect will have their own opinions and interpretations of data, each architect uses their own research methods in a different way. This can be very clearly seen in the Hembrug course, as many different people are researching the same building but drawing different conclusions and coming up with different designs, depending on their perspectives of their own actions and the actions of others.

IV POSITIONING

In the talk given to us by Marieke Berkers at the very beginning of the AR3A160 Lecture Series Research Methods she introduced the notion of: ''By studying the praxis of architecture one can develop an eye for the actual users of building, and not the imagined ones.''[15] The research done on the Hembrug area uses this statement in a slightly different way than intended, as during the research, an eye is developed for the actual users of the buildings, but as these users are no longer around, some part of them still has to imagined by the researcher. The research is done not to develop something new for imagined users, but to determine the workings of something old by retroactively imagining the users based on empirical data. Combining this with the problem stated in the same lecture by Marieke Berkers of the ethnographer never being a ''neutral observer'' a distinct difference in researching for historical knowledge and for new visions of the future becomes apparent. Both research types are done in the now, with the architect being a non-neutral observer on the users, but in the historical setting the users have already been, while in the future setting the users are still to come. Both sets of users are viewed from the ''now''. This also creates a distinction between the

[13] Smith, Michael E. Et al. *''Archaeology as a social science''* PNAS, May 15, 2012
[14] Nassaney, Melissa S., *Social Archeology*, Encyclopedia of Life support systems (United Kingdom, Eolss Publishers Co Ltd., 2010) 262,263
[15] Berkers, Marieke, *Lecture Praxeology*, TU Delft, February 14, 2019

Heritage and Architecture studio and other studios offered by the university. In the Heritage and Architecture studio, a lot of effort is put into understanding the place you are working on. Boundaries are determined not only physically, but also culturally with the use of cultural value matrices as a method of organising. The design aspect of the Heritage and Architecture studio being so interwoven with cultural values sets one on a course of praxeoligicall research methodology. The human element of valuation and interpretation is immediately present, whereas in other studios, project can sometimes be almost culturally context less, focusing much more on technical aspects or entirely fictive social and cultural structures. Designing buildings for the future, with users who are still to be determined by the architect themselves. Such is the case, for example, in the Complex projects graduation studio. This studio makes for a nice contrast to the Heritage and architecture studio as both are approximately 100 years from now, Heritage and Architecture designing in buildings from the 1900's and Complex project designing for the 2100's. This project being so far into the future, with the intended users not yet even born, it is very hard to study the praxis of this architecture as it is simply not there yet, therefore requiring a different non praxis based, methodology to be used. This will result in different methods of research and a differently focused set of starting data on which to base a design, thereby already affecting the final outcome.

The main question of my research was: How did the users of the Hembrug area make use of and feel about the architecture? By approaching the research into Hembrug through a praxeoligicall lens from the very beginning, a clear focus on the users was always present when deciding what research methods to use. Having the focus of a clear methodology allowed for much quicker, more focused research methods to give specific data instead of an unclear direction producing large amounts of quantitative data without providing the qualitative data one is looking for. However, what methodology is appropriate is to be determined on a case by case bases, and will be a designer or researchers choice, thereby influencing all results.

Through the AR3A160 Lecture Series Research Methods I have developed a greater interest in the starting points of research and the reasoning behind why they are chosen. The effect of the chosen methodology upon the research methods and the final positioning of a designer and an architect within his/her design is something which has become much clearer to me and altered my view on the architectural process. Whereas I used to think architects used to have a certain sense of ''gut feeling'' which had to match with the clients to be able to align interest during the design phase, clearly discussing a methodology before the start of a project can align the architect and his/her clients viewpoints on the project and architecture as a whole. This will be a tremendous help in determining what to research and how, off which the results will trickle all the way down into the final details of the design.

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