Chapter 20

Methods Manual

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"Architecture is not so much a knowledge of form,
but a form of knowledge."
- Bernard Tschumi

The methods manual is a reflective journey through which I develop a natural understanding of my design process. It involves documenting and reflecting on my methods based on my experience as a postgraduate student and the knowledge I have gained over the past three years. These methods prepare me to work with diverse people and the ability to understand any project brief from the beginning.

According to Bernard Tschumi, architecture represents a unique form of knowledge. To truly comprehend this phenomenon, we must explore and experiment with various methods and approaches. I have identified and categorised five methods based on their actions. This approach helps me remember the five basic principles before starting any project.

The first method, which I call the "crafting hand," involves creating conceptual models by hand. This method allows me to explore my concepts in a three-dimensional space and gain a deeper understanding of space and form. The second method, the "thinking hand," involves sketching to communicate ideas without the need for verbal description. This process helps me gather all my thoughts about a concept on paper. The third method is site analysis, which involves using my "senses" to develop a comprehensive understanding of my site and its constraints.

The fourth method is "seek," which involves referring to precedent studies or case studies to apply and refine the details of my projects. Finally, "interchange" is a collaborative method. Working in a collaborative environment stimulates my creative thinking and allows me to interchange my ideas with other design professionals.

In each research method that I delve into, I identify and examine the studies that also utilise this specific method. I would like to explain how I have used these methods in my research and outline how I intend to use them in future projects. I discuss the types of projects that these methods can effectively assist with and provide examples of their application. Additionally, I analyse the specific benefits and challenges associated with these methods, considering their impact on the overall research process.

"We are what we repeatedly do.
Excellence then, is not an act, but a habit."
- Will Durant

As designers, we know that the design process, the first three stages – inception, concept and viability, and design development – are the most crucial stages of any design. By applying these methods, designers develop a habitual mindset that guides their design decisions and actions, leading to more efficient, effective, and innovative outcomes. The methods manual becomes useful for personal reflection and collective learning.

Crafting Hand

Crafting the hand refers to the process of making conceptual models by hand. This method physically manipulates different materials to create conceptual models. I directly engage with materials to explore different forms, structures, and configurations, allowing me to refine my ideas and deepen my understanding of my concepts. Crafting by hand involves crafting by adding, twisting, stepping, or rotating pieces to create the model. I have consistently used this method in every project because it can visually communicate contrast, repetition, movement, hierarchy, scale, and figure-ground in a three-

dimensional space. This method can also assist in developing specific building form concepts and can be expressed through modelling facade skin studies/panels, building sun and shading systems/screening, and structural moments. This method stimulates my creativity and imagination to create forms, volumes, and spatial arrangements without constraints, and it allows me to explore different materials.

The continuous process of testing and developing my chosen concept allows me to have multiple iterations to explore my project's narrative and to have the option to choose at which stage the model aligns with my concept more.

In my third-year elective, I used polystyrene to create figure grounds for my building. I manipulated the polystyrene by cutting away pieces to help me develop a strong concept. My initial concept was to maintain the existing pedestrian movement paths on site and design a mixed-used, multi-story structure around it. I started cutting away the pieces that were in the existing pedestrian pathways to maintain the existing movement on site. After multiple iterations, I struggled with the form of my building. I then had to go back to modelling simpler iterations to assist me. These simple concept models formed the basis of my initial concept and helped refine my decision.

The act of crafting by hand offers an unlimited creative outlet and provides a way to explore concepts. It is a simple way of communicating ideas and gives me testable predictions. The entire method is based on exploration through testing, iterating, and improving conceptual ideas. On the other hand, model-making can present challenges and access the materials and equipment needed to construct a model effectively. It could be time-consuming when developing multiple iterations or comprehending the intricacies of concept models. Most architects do not have the time built into their schedule of deliverables to explore concept models.

A Case for Building Architectural Models

This study discussed the significance of building architectural models in design practice. Bob emphasises the value of physical

models in communicating design ideas, especially in an age where architecture is becoming increasingly reliant on computers. The author's practice prioritises model-making, considering it an integral part of the design process, regardless of cost constraints. Using physical models to capture clients and aid in visualising projects is an approach that Bob advocates for, stressing its significance in making meetings more productive with his clients.

Architectural Model Precedent Studies Creative Learning Method

This study discusses the importance of model-making in architectural design and focuses on the use of photography-based precedents of architectural models to create a resource for students. (Chu, 2017). The article discusses how models can be analysed by their form, structure, and composition to channel design ideas and concepts. The article discusses these categories: functions, types, materials, and scales of architectural models. The function of a model is important because it serves as a communication tool (Chu, 2017).

Models in Design Conversation This study discusses the role of models as tools of communication in architectural and engineering design processes. The author discusses three categories of model types:

1. "Models of", which are representational and illustrate what the final design would look like.
2. "Models for", which are experimental and are used for testing and validating specific functionalities of the design.
3. "Models with", which are conversational and involve collaborative conversation and reflection on changes (Thilakaratne, 2003)

I will probably continue making models in the future, but not as frequently as I would like to. In the work environment, everything is fast-paced, and there is no time to use models in the conceptual phase. However, when I do not have the opportunity to perform physical concept models, I will experiment with 3d modelling software. My method of crafting by hand is an invaluable method

for exploring and refining architectural concepts, encouraging creativity and communication, and developing problem–solving skills.

Thinking Hand

Thinking hand method refers to the process of sketching to communicate my ideas without the need for verbal description. It combines creativity with practicality in the conceptual design process.

This method is one of the most important methods used on a daily basis. I use this method to be able to work through and explore design ideas from spatial to construction details quickly and easily. The thinking hand is also a personal expression of identity, as designers develop our style and express it in our own manner. Additionally, the act of creating by exploring new possibilities and using intuition makes me curious about my designs.

My process of thinking by hand allows me to slow down and process my thoughts and ideas. By using tracing paper, I can layer the sketches and photographs of models to gain a better understanding of my designs. Thinking by hand is also a collaborative process. Communicating ideas to peers or lecturers through sketches can be rewarding and can influence new ideas, different cultural backgrounds, and narratives. I frequently use parts and schematic diagrams, which are an organised way of communicating the components of the site or concept of form in steps. These diagrams include ideas such as massing, programme, circulation, spatial hierarchy, public vs private zoning, transparency and solidity.

Over the past three years, I have been honing my skills in conveying ideas through sketching. During my first year in the architectural course, the emphasis was on the "thinking hand," where everything was hand-sketched and designed. It was the most challenging year, as it was difficult to get everything done on time. In my second year, I was exposed to a variety of sketching techniques, including digital iterations. While digital iterations are fun, they do not effectively capture the ideas and processes

one goes through. It is important to gain understanding through sketching, as it allows for a record of ideas and processes.

The thinking hand is a time-saving method in the workflow process. It is all about pen-to-paper interaction and the ongoing exploration of ideas that create an effective workflow for the process. It allows everyone to explore whether you can sketch or not. The challenge of sketching can be that it does not represent the conceptual idea. The other challenge that I face is that it sometimes does not look pleasing. Sketching is a skill that needs to be practiced perfectly in a way that conveys one's ideas easily.

Sketching As a Thinking Process: Methodical Approach

This study explores the role of sketching in the design process for the industrial design field. The study uses a methodical approach, which is an exercise given to students to progressively transform a simple abstract element through numerous configurations. (Leblanc, 03-04.09. 2015). This exercise aims to stimulate students' creativity and idea exploration in terms of quantity. This enables them to determine less interesting ideas and utilise the most unique creations. (Leblanc, 03-04.09. 2015).

Analysing Visual Thinking

This study uses protocol analysis to investigate the correlations between visual thinking behaviours and strategies. This method involves monitoring students in sessions using different sketching tools, such as hand sketches, tablets, and pen-input displays. They reported that hand sketching involves a more cognitive process (Chu, 2017). Additionally, this study has identified six visual thinking behaviours: transformation, manipulation, concretise, abstract, modify, and time scan; and four visual thinking strategies: thinking, feeling, watching, and listening (Chu, 2017).

Manual Sketching Relevance This study discusses the importance of sketching in the early stages of the design process (Goldschmidt, 2017). The method used in this study involves manual sketching and its important role in both practice and

education. The author makes a crucial point by discussing the limitations of digital tools, highlighting how they disrupt the fluidity and spontaneity of sketching allows a designer to experience. This study also connects with the other two studies in that manual sketching is a tool for creativity and enhances the cognitive process in design (Goldschmidt, 2017).

Sketching will continue to be an integral part of my everyday life, whether it is for personal or professional exploration. I would personally want to exercise my thinking hand by sketching more. I used to strive for perfection in my sketches, but I have come to realise that there is beauty in imperfect creations.

Senses

Site analysis uses my senses to develop a comprehensive understanding of my site and its constraints. Allowing me to be cognizant of my surroundings, I can see, feel, hear, smell, and sometimes taste in the context of my project. This method involves a few patterns that I am subconsciously aware of, such as typography; climate, wind, sunlight and shade; vegetation; noise; access and circulation patterns of the community; and, finally, appreciation of cultural and historical factors. Site analysis is the initial step in the design process. This method helps in understanding the physical and environmental aspects of the site. It is crucial in the design process, as it involves researching, observing, and analysing the context of a site to inform the early stages of design thinking.

I always begin each project with a site analysis. The first step is conducting desktop research to gather information about the site and its context. Once I am familiar with the details, I visit the site to gather additional information that cannot be researched but instead must be observed using my senses. Allowing the site to inform design decisions before starting the conceptual design process is an advantage. Site visits are valuable, as they stimulate creative thinking by allowing me to visualise the structure. This process helps gather information about the climate, geography, history, society, laws, and infrastructure of a specific site. Site analysis involves visually representing the

gathered information and onsite observations. It is important to synthesise the collected information in a way that is relevant and effectively communicates the findings through mapping exercises or diagrams. The benefits of conducting a site analysis include the opportunity for designers to identify constraints and design them according to the site and context. However, the challenge lies in ensuring that the information gathered is reliable and relevant to the site. If a site analysis is not properly conducted, it can lead to costly and difficult-to-resolve problems.

Volumetric Site Analysis

This study explores an interactive visualisation technique that allows the observation of a site in volumetric, three-dimensional software to reveal more information that cannot be identified in person on site. The approach of this study was to advance site analysis by considering the entire volume of the site and revealing properties such as solar radiation, airflow, and visibility.

Situational Analysis

The study examines how architectural sites are understood by considering human and non-human factors, discourse, and spatial features. To visualise these elements and their relationships, the author uses situational maps. By gathering situational knowledge, the author defines a comprehensive approach and provides a tool for engagement (Lieberman, 2019).

Research and Representation Site Analysis

This study is an academic review of the research and representation of architecture students' work during site analysis. It aims to create guidelines for students to follow during site analysis, and the author highlighted four categories: Site Selection, Site Survey, Problem Identification, and Suggestions for design approach as research methods for site analysis (Park, 2023). Site analysis is a critical aspect of architectural design, and I believe that my comprehension of site analysis will improve

from now on. Conducting site visits is essential for observing and recording vital information to be utilised in future projects.

A method that examines other real projects that have similar attributes is needed. This helps me seek specific information that I can apply and refine in my project. The method refers to previous studies, which I use in every stage of the design process to help apply and refine the details of my project. It is all about learning what other architects have struggled with and applying their trial-and-error methods.

Seek

This serves as a learning tool for gaining more knowledge about a certain structure that has already been researched and constructed by other designers. It also reflects on how I have come to understand the structure and how I interpret it from my perspective. This method can assist in gathering inspiration for an initial design concept. As designers, we gather knowledge subconsciously, and sometimes, seeking a precedent that aligns with one's idea can help initiate the design concept. It can also involve a more in-depth analysis of the precedent's functionality and technical innovation. Finding precedents with structural details is useful because designers have already designed a system, making it easier to gather those systems and improve them to implement them in their project. Additionally, previous studies can be used to understand sustainability practices. Precedents can help apply sustainable solutions to help reduce the effects of climate change. These are the four categories I look for when researching a precedent study. To conduct a precedent study, I start by looking for keywords related to my project to find the best-suited precedence. I also have a list of architect books that I frequently use for my research.

The benefits of precedent studies are that they serve as inspiration and an opportunity to learn from designers' successes and failures. However, I think the most beneficial aspect is the knowledge you gain from researching the preceding studies. The only challenge I find with previous studies is that sometimes they are too complex for me to understand or convey, which can be

frustrating. Additionally, searching for a "perfect" precedent that aligns with a project can be time-consuming.

Precedent–Based Instruction

This study discusses the errors that students make when researching previous studies. It provides instructions based on precedent to avoid false and non-contextual solutions. The three mistakes we make are romanticising decisions in previous studies, neglecting context, and shallow application of precedent studies (Yaseen, 2022).

Precedent Study Patterns

This study analyses numerous buildings in three categories: analytical diagrams, formative ideas, and Partis. This book provides a legend of sketches on how to read the analysis of these previous studies to understand their special characteristics. It makes it easy to understand and to apply to your project (Clark, 2012).

Reflection in Action

This study delves into the method of conducting interviews to gain insight into previous studies. The author conducted open-ended interviews and recorded the responses of expert designers, which he later synthesised. The author reported that the activities of reflection in action, drawing, and sketching were the core characteristics of previous studies in the design process (Defazio, 2008). As we can see, previous studies do play an important role in the design process; they offer insight from previous projects to refine and be innovative.

Interchange

Interchange is the method used to collaborate with other design individuals. In a collaborative environment, I am able to stimulate my creative thinking and seek critiques from my peers or lecturers. It is important to understand that everyone comes from a

different background. Without collaboration, no building would be constructed, which is why it is one of the methods I choose to explore. Collaboration is deeply ingrained in the architectural institution, and although we may not always enjoy it, it prepares us to work with a diverse group of people. Collaborations help to build trust, respect, and mutual recognition among my peers and colleagues.

Interchange can assist in the effective communication of individuals in a collaborative environment. Cross-collaboration allows us to learn from other disciplines, which inspires curiosity to gain knowledge. This method also represents an adaptive approach to the design process, which allows new techniques and explorations to emerge. I discovered that allowing others to view my work helped me to see my concept from a different perspective. The collaboration method that I enjoyed the most was called 'speed dating'. During this exercise, we moved around the table to explain our concept while the stationary listener sketched the ideas that came to mind. We continue this method every 5 minutes to generate multiple iterations. This was a collaborative exercise that helped us get to know one another and gave us an opportunity to discuss and explore the outcomes. This method of collaboration made us aware of how we communicate our ideas to one another. At the end of the exercise, everyone had different outcomes and a different perspective from which to evaluate and reflect.

Cross Discipline Collaboration

In this study, I identified an international conference that explored sociological, psychological, and mathematical methods in architectural design. The speakers of the conference demonstrated research presentations on their individual topics, followed by discussions and debates around these methods (Leopold, 2019).

Teacher Student Communication

This study examines the methods used by teachers and lecturers to provide critical feedback. The study analyses the process of giving and receiving critiques. The author evaluated the lecturer's

performance by identifying their teaching profiles and assessing the quality of their teaching and response. This assessment is based on their professional skills, knowledge, and experience (Goldschmidt G. H., 2010).

Collaboration and Community

This study emphasises the significance of critique as a technique for both students and teachers at art colleges. It establishes a framework where students and lecturers can question and investigate their teachings, learning situations, and relationships. These techniques include active learning through discussion, formative assessment through revisions, and building a community through shared purpose and positive interactions (Flynn, O'Connor, Price, & Dunn, 2022). Interchange is the method that designers use to share ideas, receive critiques, and refine concepts in a cross-disciplinary environment.

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