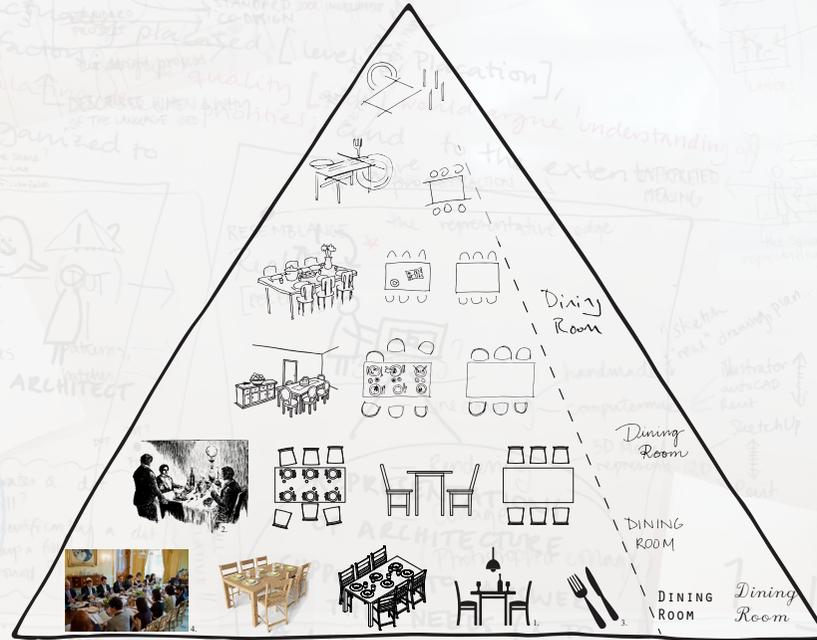


DECIPHERING



VIEWING

READING

UNDERSTANDING ARCHITECTS

Exploring representations of architecture to understand how architects communicate visually in a design process

Irmeli Magnusson, 2018

Chalmers University of Technology, Department of Architecture and Civil Engineering

Examiner: Peter Fröst

Supervisor: Elke Miedema

Understanding Architects

Exploring representations of architecture
to understand how architects communicate
visually in a design process

Irmeli Magnusson, 2018

Master's Thesis in Architecture, Healthcare studio

Chalmers University of Technology, Department of Architecture and Civil Engineering

Examiner: Peter Fröst

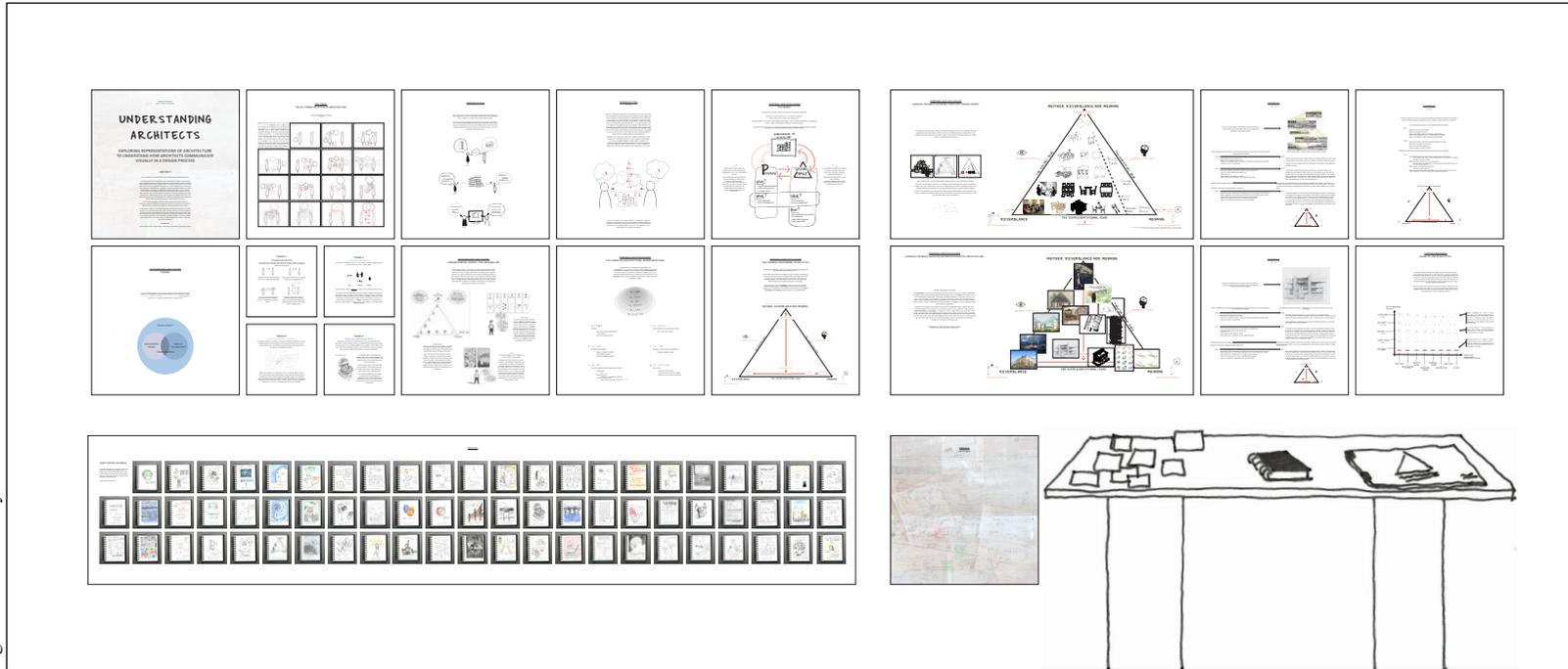
Supervisor: Elke Miedema

Master's Program Architecture and Planning Beyond Sustainability (MPDSD)



CHALMERS

Fig. 2: Exhibition layout



Understanding Architects

Exploring representations of architecture to understand how architects communicate visually in a design process

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Master's thesis in Architecture, Healthcare studio

Chalmers University of Technology, Department of Architecture and Civil Engineering

Examiner: Peter Fröst

Supervisor: Elke Miedema

Gothenburg, 2018.

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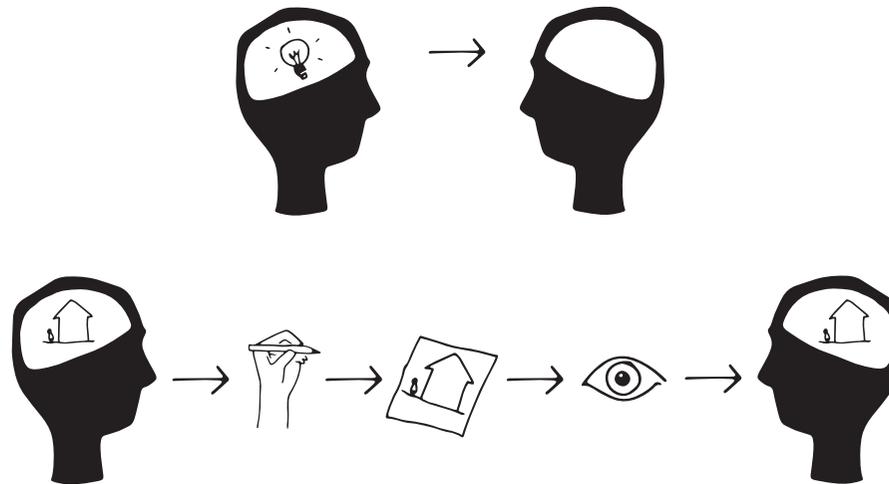


Fig. 3: Based on illustration of McCloud (1993, p. 194 - 195). Showing the non-existing communication on top (directly from mind to mind) and below the medium “the hand drawn sketch”, showing one example of how to communicate an idea of architecture visually between minds.

The title of this thesis is a homage to the book *Understanding Comics: The Invisible Art* by Scott McCloud (1993) which has been very important to me in my work, where I have tried to understand architectural representations by looking at them the way he looks at comics - as a media meant for visual reading. His way of using images and text, the medium comics, has inspired me greatly to use all means possible to convey this project, trying to prove that architectural research is not limited to being represented in text only.

The image on the cover, figure 1, is my interpretation of the Big Triangle by McCloud (1993) used to represent the function of a dining room showcasing the different types of abstractions it can be portrayed with.

Sources for images (cover image, fig.1) not produced by author: 1, Dining Room (Alp 2018). 2, Vintage, Old Fashioned (Prawny 2018). 3, Silverware (Sousa 2018). 4, File:Passover Seder Dinner at the White House 2011 (Sauza 2011). CC-BY.

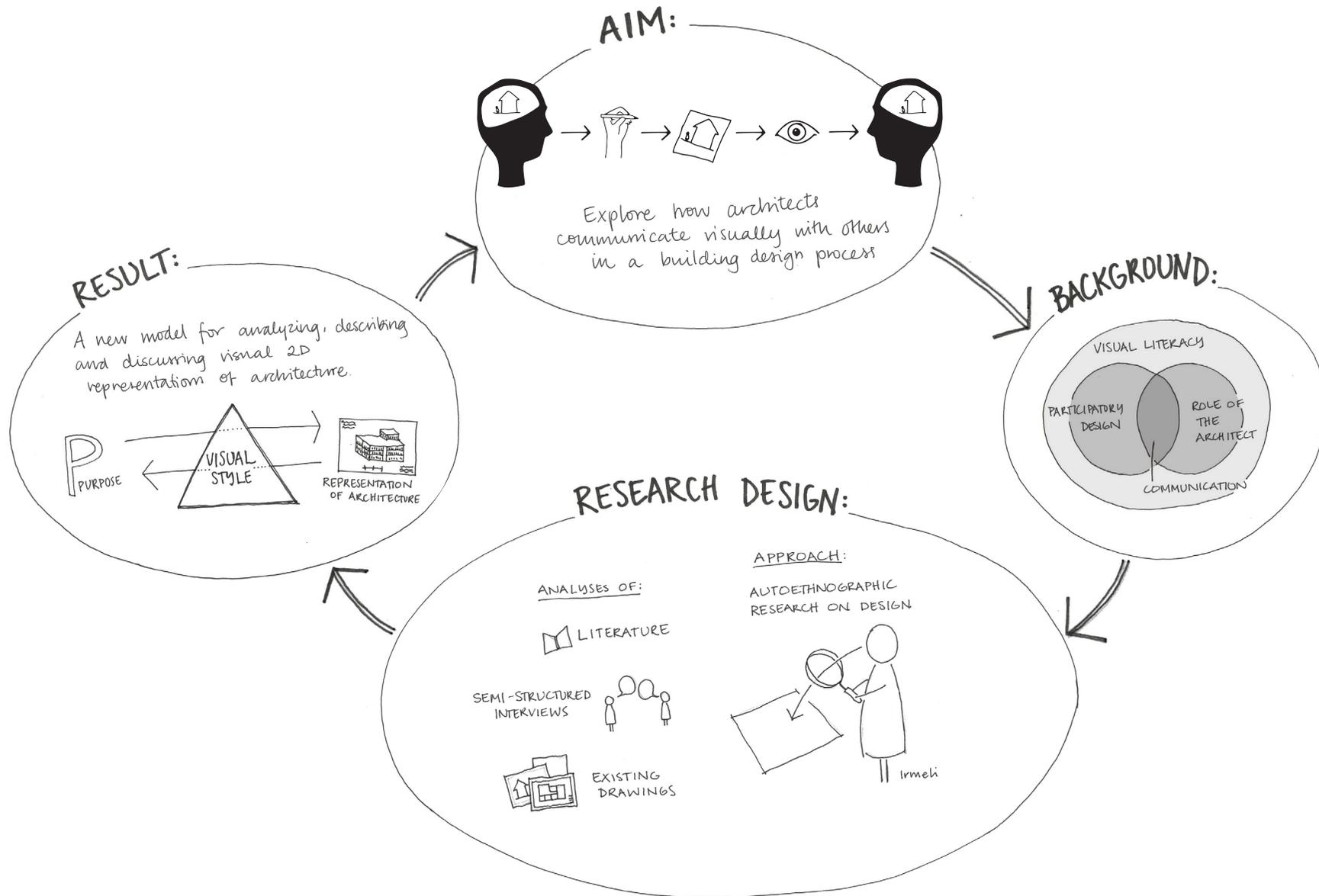


Fig. 4: Visual abstract

0.1 ABSTRACT

To me architecture is communication, and in communication understanding is key.

I would argue that most architectural projects are participatory design, especially large scale, complex projects involving many stakeholders and perspectives where the architect needs the dialogue with client, users and others. As architects we communicate a lot of our ideas visually, using our graphical language, but very seldom reflect upon *how* and *why*? I believe that if we understand how our graphical language affects the reading of our visual material which in turn affects the understanding of the architecture we try to represent, we can improve the dialogue on design and in affect improve the architecture we can create. Therefore, the aim of this thesis is to explore how architects communicate visually with others in a building design process, with the purpose to problematize the use of our graphical language. My research questions are: What types of graphical representations are used by architects? With what purpose? And with what visual style?

I have an autoethnographic research *on* design approach including analyses of literature, existing drawings and semi-structured interviews, through the four themes of: communication, visual literacy, participatory design and the role of the architect.

I claim that the reading of a representation depends on its layers: the purpose, the details, the form, the craft, the elements of the surface, and the visual style. I have taken theories from my research and translated them into a new model for analyzing, describing and discussing visual 2D representations of architecture via these layers. With this new model we can start to reflect upon and understand the graphical language of architects and the types of abstraction we use, and be able to compare different representations within the same frame of reference.

KEYWORDS:

Visual communication, design dialogue, architectural representations, participatory design.

0.2 READING INSTRUCTIONS

HOW AM I WRITING THIS?

This thesis is preferably read from cover to cover, but for those only interested in specific parts, this description might help you find what you are looking for:

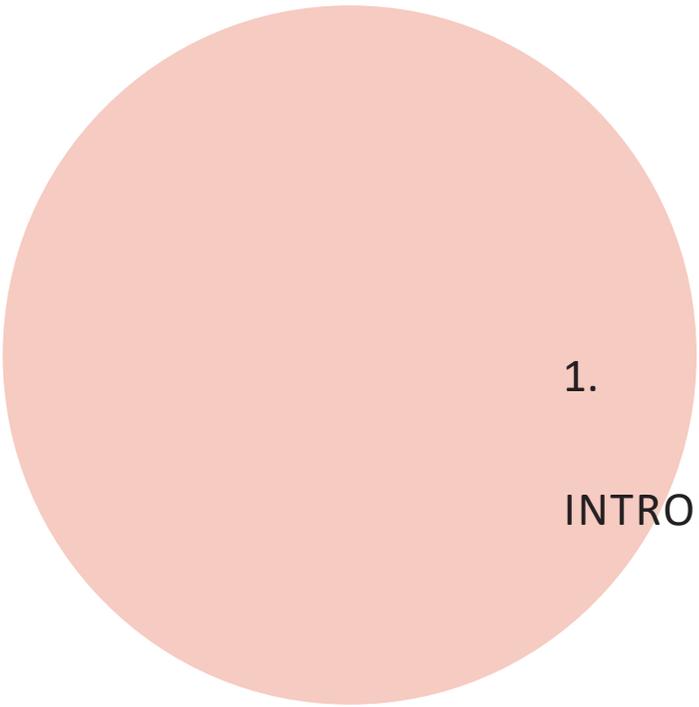
In the **first** chapter, Introduction, I will describe the problem focused on, the purpose and aim of this thesis, and answer the question of ‘Why am I writing this?’. The **second** chapter, Research Design, will state the design of the research conducted: the purpose and aim stated clearly, the research questions and the methods used. The **third** chapter will go over the Background and Theory I found relevant for this thesis, divided up into the four themes that I have researched, so that you as a reader know what information I have gathered in order to write chapter **four**, Findings and Discussion: what I have done with the information found. In chapter **five**, Conclusion, I state how this work relates to the bigger context, and what further research could be done based on the findings in this thesis. In the **sixth** chapter you will find all the References that have inspired me in the work with this thesis, divided up into the cited references and the inspirational ones. The **seventh** chapter is my way of saying Thanks to all the people whom without this thesis would not exist in the shape it is today. And if you want more information about me, you find it in chapter **eight**. As an **attachment** you will find a part of my process, my daily sketch journal.

Reading this thesis, I want to bring you attention to the importance of the images within this text. As my topic is visual communication, this booklet is made with the intention to read both visual material and text as if they were equally important, like in a comic.



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1.

INTRODUCTION

1.1

WHY AM I WRITING THIS? WHAT IS THE PROBLEM?

We as architects are trained to communicate visually when communicating an idea which do not yet exist - a representation of that idea - and we need to be able to evaluate it as if it did, often with the help from others. The way I see it, most architects are dependent on the input from others and I would like to argue that almost all design is participatory in some way or other. Especially large and complex projects, like healthcare projects. However the graphical language of the architect may look like other images, but we many times mean more than what people can read into it. We can say the same word (figure 5), look at the same building (figure 6) and at the same drawing of proposed architecture (figure 7), but what we picture in our mind while doing so may differ greatly.

The architect's graphical (and spoken) language might be hard to understand for someone who is not used to communicating using (or *reading*) plans, sections, diagrams etc. yet we many times need the input from others, users, to reach the best product possible. And therefore we are dependent on having a working dialogue with these people. In her master thesis Lisa Bomble, PhD in Architecture and Planning with a focus on participation and co-creation, suggests that the lack of linguistic understanding is the cause of many misunderstandings that seem to appear between us architects and the surrounding world. The language of our profession is one thing, but the attitude we have to our subject is something else. If we see our field as an art form, and the client is wondering how his or hers new every day environment will function hands-on, it seems to be obvious that there will be misunderstandings (Åhlström 2004, p. 107). I believe the same kind of misunderstandings can be seen due to the visual communication between architect and others, as we sometimes see our work as a work of art, and then we use it to communicate to users and clients who mainly are looking for understanding of their future environment, and not art.

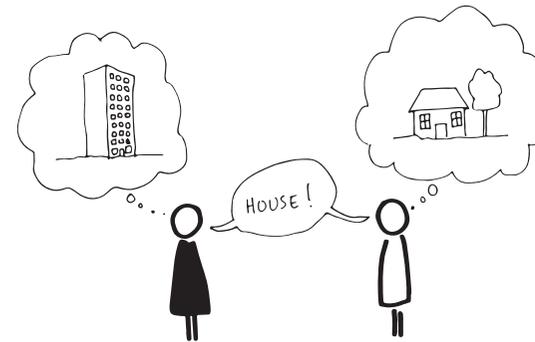


Fig. 5: What we picture in our mind when using the same word may differ.

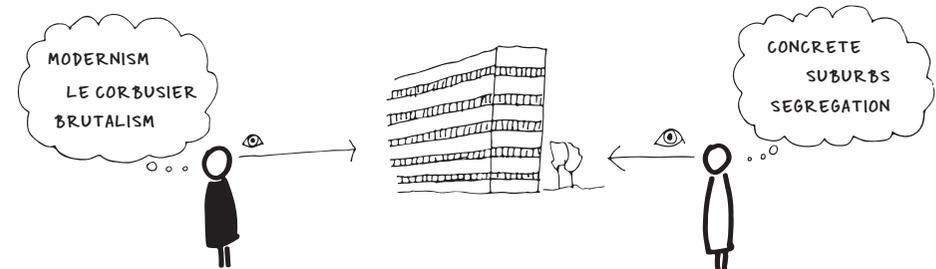


Fig. 6: What words we use to describe the same physical thing may differ.

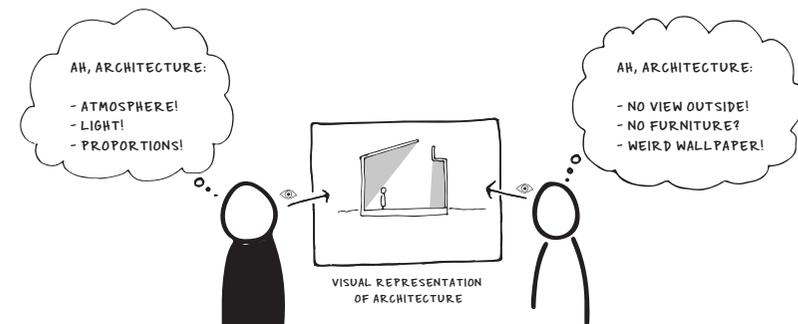


Fig. 7: And what we read into a representation of architecture when we see it may also differ.

Images have the possibility of being both exact with no room for interpretation or being ambiguous and room for a thousand interpretations. When working with visual media comes great responsibility, as they are a powerful form of communication. Therefore, understanding *how* they communicate is a great knowledge for anyone wanting to reach the understanding of their audience.

During my architectural education I've been confused; how can we expect to be good communicators without including it in the education? We use images and visuals so much for communicating but we seldom talk about *how* that image is representing your architectural idea. We talk about the architectural idea without being sure if the way we read the representation - leading to the image we have in our head of the proposed architecture - is the same? Perhaps we are just reading the image differently, hence have different understandings of the architecture we are evaluating together and therefore the discussion will suffer from misunderstandings. Please note: I value the different interpretations that can come from reading a representation of architecture differently - the problem comes if we are not aware we read it differently, hence discussing different things and not just differing opinions on the same thing.

Therefore I will, in this thesis, explore how architects communicate visually with others in a building design process, with the purpose to problematize the use of our graphical language. I see this topic as relevant to all architects working with representing architecture visually for the purpose of communicating ideas to someone else. Because I believe that our way of communicating influences not only our role as architects, but the architecture we can create.

1.2

WHY AM I WRITING THIS?

As an architecture student, I have an interest in the dialogue that takes place on architecture. And personally I have always found it interesting to understand communication and why people who say the same things can mean totally different things. The concept of being comprehensible [or the Swedish miss-use of the word 'pedagogy' in the context of *att vara pedagogisk*] is something that, in every thing I do, private or professionally, lies closest to my heart and is at the top of my agenda.

During my internship between the third and fourth year of architecture school I worked with healthcare architecture. I sat in many meetings with the client, other consultants, and with users of the future proposal, staff from the hospital. It struck me how much time went into explaining how to read the material we lay before them, before they could help us evaluate the proposal. After the meetings I still had a feeling that they perhaps did not get the entire picture after all, judging from the details we discussed. Could they read architectural representations well enough to be able to discuss the actual architectural proposal, and not just the representation of it? This sparked my interest to investigate how we visually represent architecture, as it is very important in the profession that I soon will be an official part of. And my personal positioning has steered this thesis into exploring the very structure that architectural representations are built upon.

1.3

WHY AM I WRITING **THIS**? THEMES

I have a research on design approach conducting thematic analyses with the aim to explore the visual literacy of the architect in a participatory design process with the purpose of communication, resulting in the four themes, see figure 8.

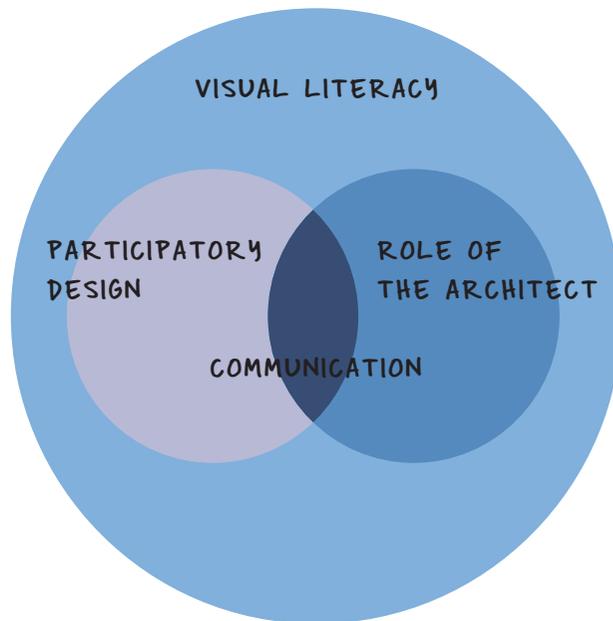


Fig. 8: Diagram showing how the themes relate to each other, and where I position my thesis: where they all overlap.

1. Communication after reading the book of architect Josefin Karlsson (2017) about rhetorics for architects communicating with clients, and the master thesis of Lisa Bomble (Åhlström 2004) on how to communicate architecture not only architects in between, I felt there was something missing within the field of architectural research dealing with communication: the visual communication. Communication is key in what we as architects do. You could even argue that architecture *is* communication; communication of our time, of function, of aesthetics, of history etc. (Åhlström 2004). It is therefore important to understand the core concept of communication to get to how we communicate visually. There are two types of communication, internal (with oneself) and external (with others). In this thesis I will mostly focus on external communication.

2. Visual literacy after reading *Understanding Comics* by Scott McCloud (1993) realizing that we can convey a message to all the senses via the one sense, sight. According to Peter Felten, professor of history, assistant provost for teaching and learning, and executive director of the Center for Engaged Learning at Elon University, visual literacy “involves the ability to understand, produce, use, and analyze culturally significant images, objects, and visible actions” (2008). How we interpret and perceive visual information is deeply rooted in our human nature and today we use images more and more for communication. Images and visual material deserve a proper place in academia as they are a large part of the media we communicate with today (Felten 2008). Another term used is visual competence.

3. Participatory design after my standpoint that most architecture is more or less participatory design, in the widest sense, since all projects has to be communicated to someone, i.e. inviting them to participate in your design process. I believe the topic of this thesis is extra important in the context of sustainable architecture. Because sustainability is such a complex topic that no one is capable of coming up with the solutions needed on their own. We need well functioning participatory design in order to include all the different perspectives to achieve a transdisciplinary gathering of knowledge before designing and constructing something today. This is especially true in the field of large and complex projects. Chilean architect Alejandro Aravena, executive director of the firm Elemental S. A., argues that complex problems needs participatory design methods to solve them since the starting point is not just trying to find the right answer, but rather “trying to identify with precision what is the right question to ask.” (2014). But even smaller and not so complex projects like a single house you are still dependent on communication with the client, the constructor etc. The level of participation differs however, something Sherry Arnstein, pointed out already 1969. Through her work at the U.S. Department of Housing, Education, and Welfare (HUD) she gained insight into the field of participatory planning (Sherry Arnstein 2017), and wrote about the levels of public participation in her article The Ladder of Citizen Participation. SKL (Sveriges Kommuner och Landsting) has made a Swedish equivalent: the Stair of Participation, and Pål Castell’s interpretation of it (2013) has been valuable input for me. Castell is a landscape architect with a PhD in sustainable urban development. Being a part of a Design Dialogue, a workshop based methodology developed by Peter Fröst, Artistic Professor at Chalmers University of Technology, (Fröst, Gustafsson, Eriksson & Lindahl 2017) has been a valuable starting point for my research within this topic.

4. The role of the architect after being a part of such a Design Dialogue at Sweco Architects and wondering where the role of the architect is in a design process depending so much on involvement of others, are we merely facilitators of a dialogue or are we part of it as active participants with our own area of expertise?

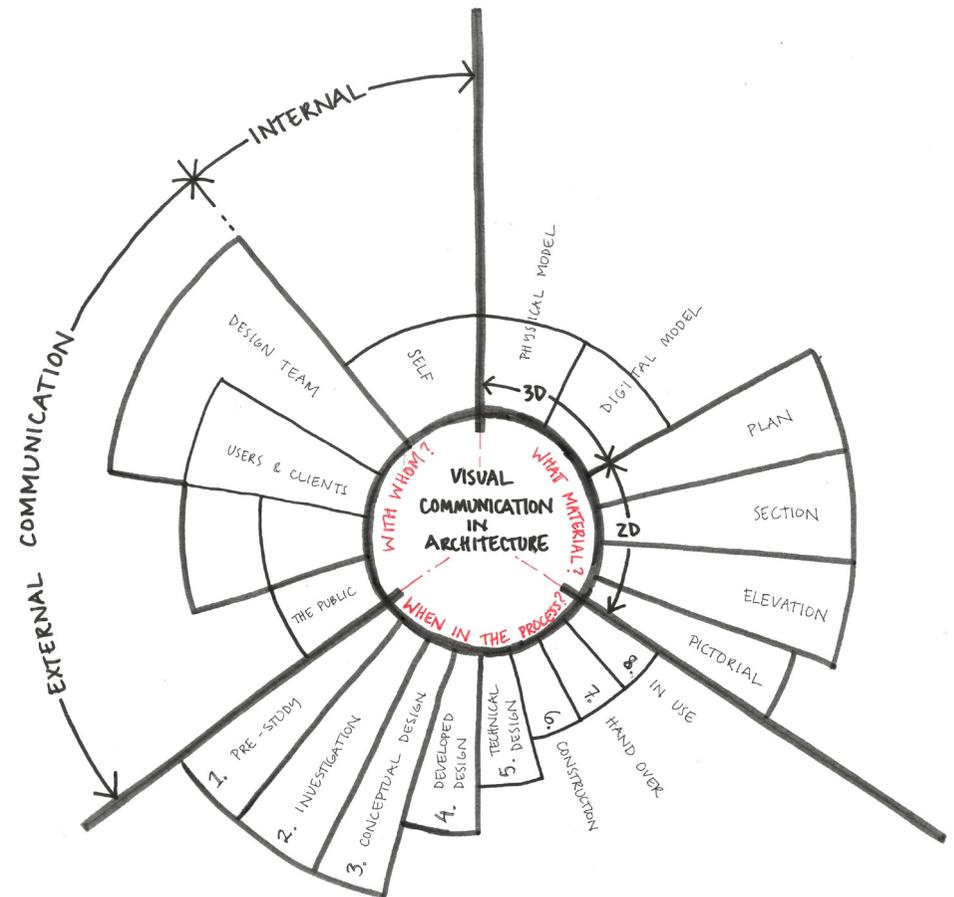


Fig. 9: Delimitation diagram, showing what I have been focusing on, comparing to other things that also relates to the topic but that has been given less attention in my research.



Fig. 10: A reference to the famous painting *La Trahison des Images* by Belgian surrealist painter René Magritte (*The Treachery of Images* 2018) with the original text *Ceci n'est pas une pipe*: This is not a house, this is a *drawing* of a house; a *representation* of a house.

I believe both. The role of the architect in a participatory design process requires a certain view on our profession where social sustainability takes a greater role.

What am I researching I have tried to identify as material we as architects use to communicate visually with others. I define it as: a (usually) two dimensional, vivid or graphic representation or description of something, usually perceived by sight. Words that normally describing these kinds of material are (and not limited to): image, visualization, representation, illustration, artwork, drawing, sketch, graphic, figure, render, diagram, photo, picture. I will in my thesis use the word **representation**, as in a representation of architecture or of an idea or a concept.

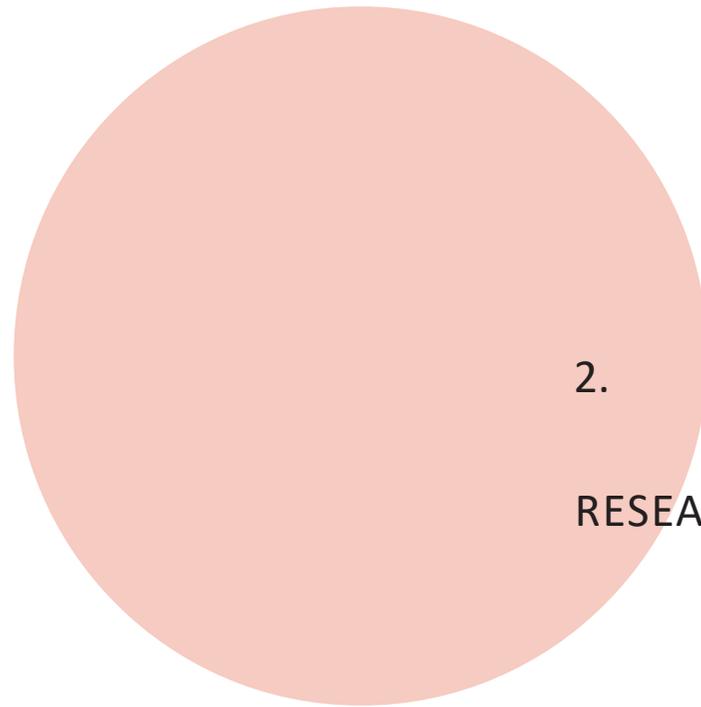
Important to state is the discussion I have been having with myself during this thesis: is a *representation of architecture* architecture? I define architecture as something that physically exists, hence, drawings of a building that does not exist is, in my opinion, not architecture. However, via representations of the building, or project it is possible to discuss and evaluate the architectural qualities that would be, by those who are used to reading representations of architecture and in their mind therefor see and experience the architecture proposed. Just like figure 10: it is not a house, it is a *drawing* of a house, my definition of architecture does not include the representations of it.

The process I am looking at in this thesis, how to visually communicate architecture to someone else, is shown on the opposite side (figure 11), and described in text below:

A dialogue using images is multiple steps, going through the steps of representing the image you have in your head (see red arrow no. 1, in figure 11), showing this representation to someone else; the information moves through the personal filter of your audience as they interpret your representation (arrow no. 2). The personal filter depends on all previous knowledge and encounters, social context, culture, education and profession. They then create their own understanding of what is represented (arrow no. 3), and then it starts all over again. Like this the information travels back and forth across the personal filters of the communicating parties, and in each step influence their mental images of what is the subject of the dialogue. They also gain more and more insight into each other's sides of the personal filter which also affects the medium of communication, the representation. Through this process, a fruitful and true dialogue, they have reached a common understanding, a common vision: see the last panel of the comic in figure 11.



Fig. 11: A comic about the different stages of a dialogue on design: 1, Representing the idea, visually and verbally. 2, Interpreting the representation, across the personal filter. 3, Creating own understanding of the idea the representation represents. 4 - 12, The process repeats, and the information passes back and forth across the personal filter of the parties involved, in order to reach (13) a common understanding of the subject of the dialogue: the architecture.



2.

RESEARCH DESIGN

2.1

RESEARCH QUESTIONS

The aim of this thesis is to explore how architects communicate visually with others in a building design process. With the purpose to problematize the use of our graphical language.

My research questions are: What types of graphical representations are used by architects? With what purpose? And with what visual style?

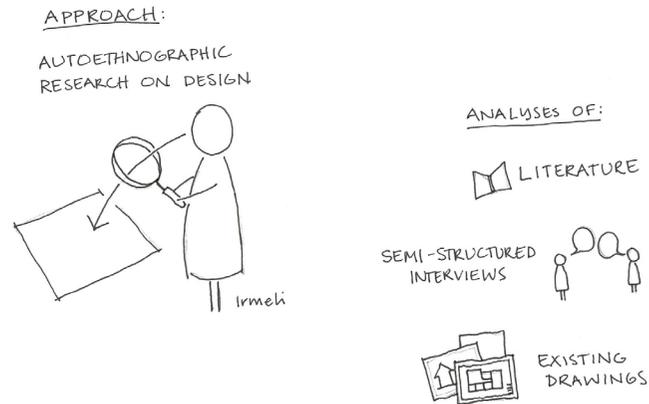


Fig. 12: Methodology visualized

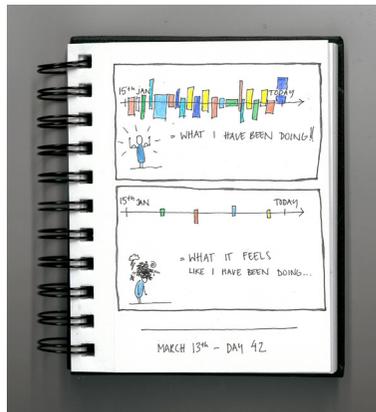


Fig. 13: Example from my daily sketch journal - day 42 of thesis work.

2.2

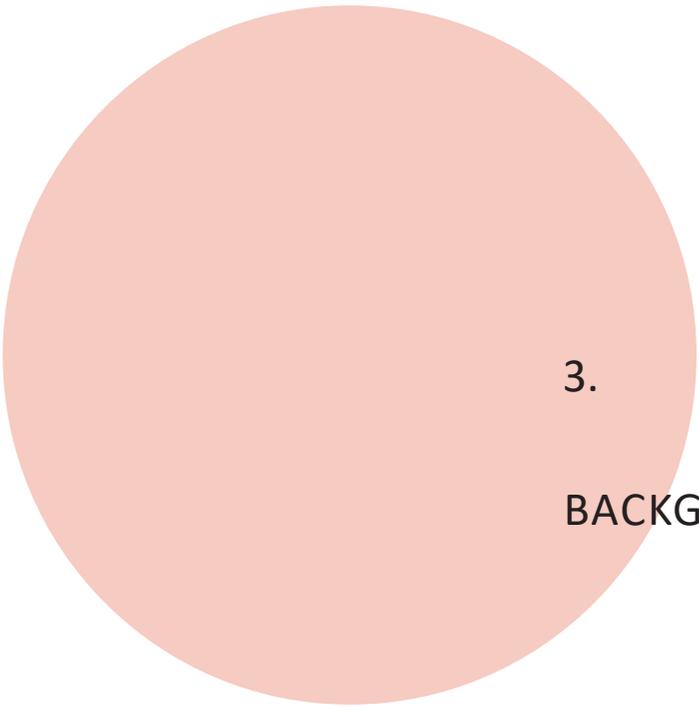
METHODOLOGY

This thesis is the result of an exploratory study with an autoethnographic research on design approach, see figure 12.

Literature studies, semi-structured interviews and analyses of existing drawings have been the main data collection. While reading and analyzing data I have been constantly sketching (visual interpretation) to process what I study, to be able to communicate it visually to others, and to practice my graphic thinking, a concept written about by artist and architect Paul Laseau (1980) where the sketching becomes a form of thinking.

To get an overview I have gathered all my drawings, thoughts and tests in a comprehensive logbook. I have also concluded each day with a sketch - see example figure 13 - in a daily sketch journal (see attachment 1). Another way to visualize my process have been using the white boards in the studio space to draw overviews of what I'm working with at the time. Generally I have been trying to do as much as possible by hand, as this is the most intuitive way of working for me, allowing myself to do multiple iterations of thoughts quickly.

Since my aim is to raise the discussion on how we communicate visually I have made sure to talk about my subject with as many as possible during my every day life. Raising the discussion in school amongst my fellow thesis students and with people I meet outside of school to broaden my perspective. And observing how both students and teachers at Chalmers talk about visual material at for example the mid-term seminars of the master's theses this semester [spring 2018].



3.

BACKGROUND & THEORY

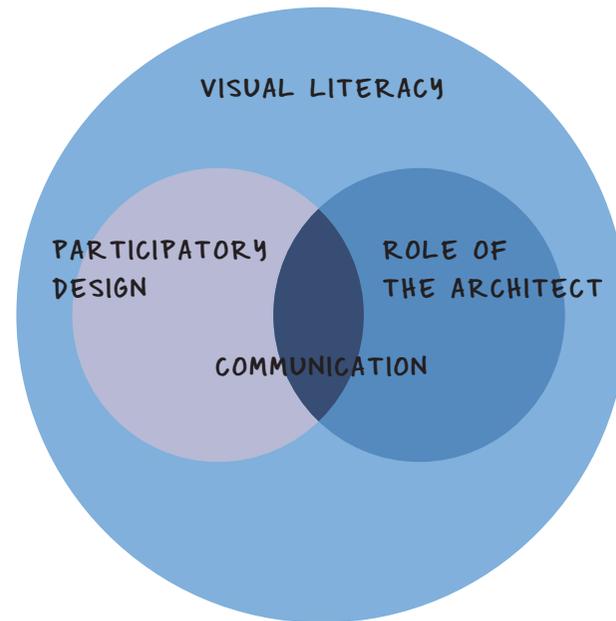


Fig. 14: This diagram that shows how I have handled the themes according to my purpose with this thesis: to explore the visual literacy of the architect in a participatory design process where the goal is a dialogue on design.

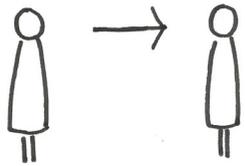


Fig. 15: Based on illustration by Lisa Bomble: *Information*, being one-way messages from one to another (Bomble 2016).

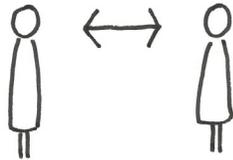


Fig. 16: Based on illustration by Lisa Bomble: *Communication* being two-way exchange between the two (Bomble 2016).

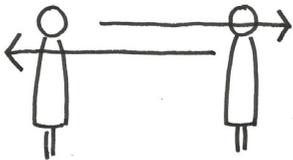


Fig. 17: Based on illustration by Lisa Bomble: “Two sets of monologues aimed at each other cannot be considered two-way communication”. (Bomble 2016).

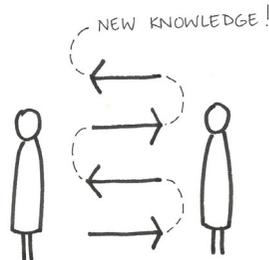


Fig. 18: Based on illustration by Lisa Bomble: Communication where “each response is influenced and builds on previous input, which builds understanding and knowledge between the communicating parties” (Bomble 2016); *dialogue*.

3.1

COMMUNICATION

“The imparting or exchanging of information by speaking, writing, or using some other medium” and “The successful conveying or sharing of ideas and feelings” (Oxford Dictionary, 2018).

The definition of communication is very broad, and Lisa Bomble distinguishes between different types of communication in her licentiate thesis (2016), see figures 15 - 18, where figure 18, dialogue, is the one resulting in understanding and the creation of new knowledge. Josefin Karlsson argues for the importance of proper rhetorics for us architects as we are, in fact, selling the product we present (2017). I believe that this is also true for our visual communication. We need to be aware of what can be read into our representations, and what can not; what needs to be explained in order for the communication to become a dialogue - and not just a two way monologue, as Bomble calls it (2016, p. 27) - and what is implicit to the reader, in order for us to sell the product in the best way possible.

In this thesis I am looking at the visual communication of the architect taking place in a participatory design process, however there are different types of visual communication, internal and external.

3.1.1

INTERNAL AND EXTERNAL COMMUNICATION

External communication is not as easy as one would think, as McCloud states: “the comic I see in my mind will never be seen in their entirety by anyone else, no matter how hard I try” (1993, p. 196) describing the phenomena that we will never *truly* see the same vision, however we can try by communicating. If we can reach understanding and development of new knowledge in a dialogue (Bomble 2016) we can start to understand each others visions and how they are similar and how they differ. In his master’s thesis, architect Lars Palmeby talks about

the “image in the mind” (2002) which I think is a representative phrase of the concept: something we are not clear of exactly what it is ourselves, but through communication, both with others and ourselves we can reach understanding of what it is.

Internal communication is for example developing an idea by representing it visually to see it again, a concept called *graphic thinking* as described by Laseau (1990). The iterative process of design work is very much built upon this form of communication, both internal and external, of the image of the mind. In a lecture on user perspectives in design, architect and professor Örjan Wikforss cites social psychologist Johan Asplund saying that problem solving is always a process of dialogue even though no one else is there (2016) suggesting that design is always a question of problem solving and therefore always this iterative process; a dialogue with one’s self.

McCloud also states that “communication is only effective when we understand the *forms* that communication can take” (McCloud 1993, p.198) which is why he came up with the models I will go further into in section 3.5. The form that architectural communication can take is something that Pari Riahi, architect, PhD and Assistant Professor in Architecture at University of Massachusetts Amherst, explores in the article *Expanding the Boundaries of Architectural Representation*: “The capacity of a distinct medium to carry ideas from conception to realization persists as an integral part of architectural practice ... These media share an internal and an external function. Internally they serve as a means of exploration and notation within the body of the architect’s practice. Externally, they become a medium for communication to others; holding a record of the work and designating its boundaries” (Riahi 2017). This quote is interesting because it suggests that using representations of architecture defines not only how we work with design and architecture but what the architecture can become.

“All media of communication are a by-product of our sad inability to communicate directly from mind to mind.”

(McCloud 1993 p. 194)

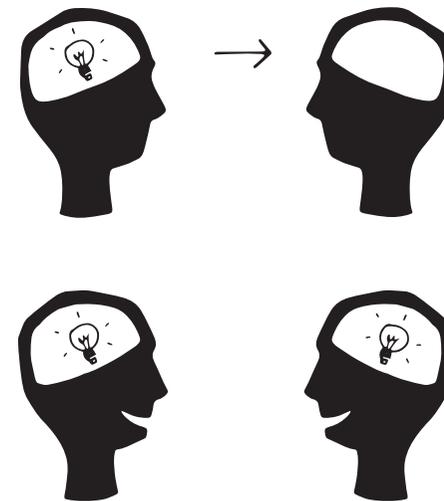


Fig. 19: Based on illustration of McCloud (1993, p. 194 - 195). Showing the non-existing form of communication: directly from mind to mind.

“Each medium (the term comes from the Latin word meaning *middle*) serves as a bridge between minds. Media convert thoughts into form that can traverse the physical world and be re-converted by one or more senses back into thoughts.”

(McCloud 1993, p. 195)

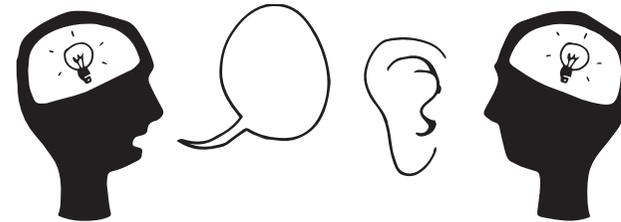


Fig. 20: Based on illustration of McCloud (1993, p. 195). Showing how the medium of the spoken word and how that helps a thought travel from one mind to another.

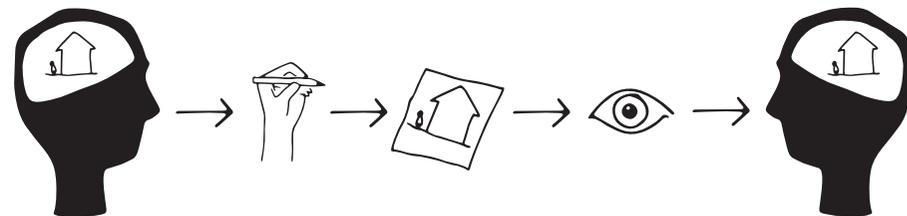


Fig. 21: Based on illustration of McCloud (1993, p. 195) but translated into the medium “the hand drawn sketch”, showing one (1) example of how to communicate architecture *visually* between minds (which is usually accompanied by spoken or written words).

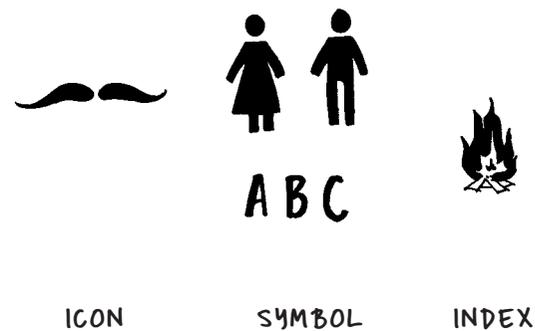


Fig. 23: Illustration of the three types of signs: icons, symbols and indexes.

today there seems to me, be a divide between the two, splitting up architectural representations into those who are artistically advanced, and those that can be understood by anyone, Lisa Bomble stating that this is the constant struggle of the architects working with communication to the public, to chose between being legible or being artistic, something that calls for the occasion to decide (personal communication, April 6th).

3.2.2

SEMIOTICS

In order to describe how we communicate with images, understanding semiotics is important. Semiotics is the study of signs and sign-using behavior, founded mainly by the Swiss linguist Ferdinand de Saussure and the American philosopher and logician Charles Sanders Peirce. Saussure coined the semiotic concept that a sign has two components: the signifier, which is the sign itself, and the signified, which is the concept or idea that the sign is signifying. Peirce categorized the signs into three main types depending on how the signified relates to the signifier (see figure 23): 1, an **icon**, which resembles its referent (such as a drawing of the outline of a mustache signifying a mustache); 2, an **index**, which has an actual causal link to its referent (such as smoke is to fire, or footsteps in the snow is to someone having walked there); 3, a **symbol**, which relates to its referent only by convention, rules, culture etc. (such as words, or the symbol of a man and a women signifying toilets). Peirce also stated that “a sign can never have a definite meaning, for it must be continuously qualified” (semiotics 2016).

For this thesis, the most important part to understand is how we chose to signify what we mean: if we are working with images as abstractions of reality, what type of abstraction is it? Iconic, as in it still resembles what it signifies, or symbolic as in the link relies on conventions and culture; previous knowledge, in order to read what is intended to be read.

3.3

PARTICIPATORY DESIGN

Participatory design, or co-design, is a big field of research and practice, involving all stakeholders in the design process, ensuring that the result meets their needs. This is one way of handling complex problems, so called ‘wicked problems’ as they keep changing and no one will ever have the entire view of the problem, only together can we tackle the wicked problems. Usually these participatory methods include system thinking, a holistic perspective, active participation, and an action-oriented way of learning (Fröst et. al. 2017).

Sherry Arnstein’s *Ladder of Citizen Participation* (1969) describes the different levels of participation there is and the power of the citizen within each level, all from manipulation to citizen power. Pål Castell has looked at the differences between Arnstein’s ladder and the contemporary Swedish example of the Swedish Association of Local Authorities and Regions (SKL), the *Stair of Participation* (2013), which removes the lowest and the highest levels, as they are not applicable within Swedish planning (see figure 24). Johanna Eriksson, architect and PhD in user dialogues, writes that both models lack the representation of the actual knowledge exchange and the creation of new knowledge. And she points out the fact that it visualizes very well the variety of user involvement and highlights the risk of “pretending to be on a step of a ladder when the prerequisites or circumstances are placing you somewhere else” (2013, p. 20). Bomble also points out that both the ladder and the stair implies an exercise of power that becomes very problematic if the wanted outcome is a dialogue (personal communication, April 6th).

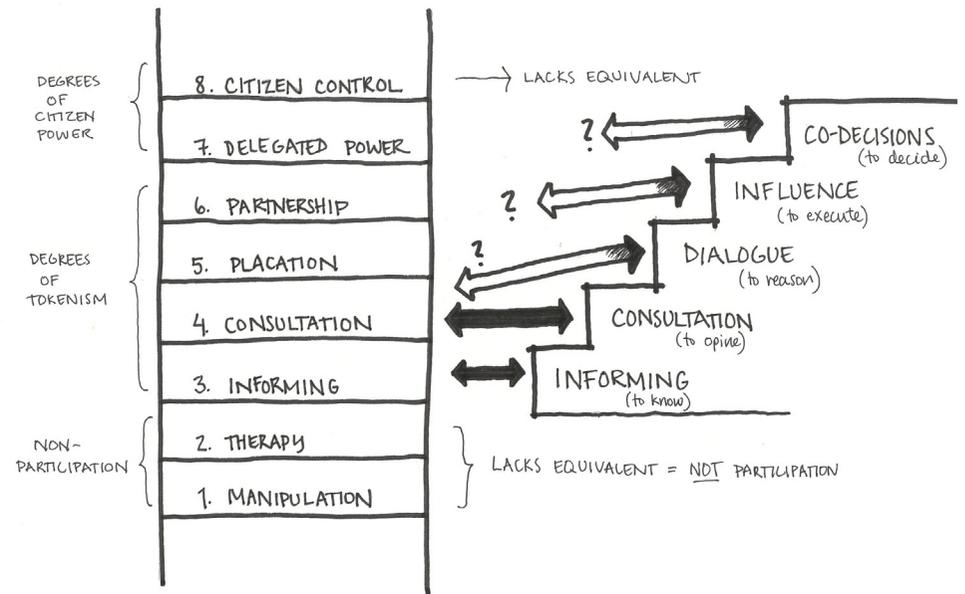


Fig. 24: Illustration of the Ladder of Participation (Arnstein 1969) to the left and the Stair of Participation of SKL to the right and how they correlate (Castell 2013).

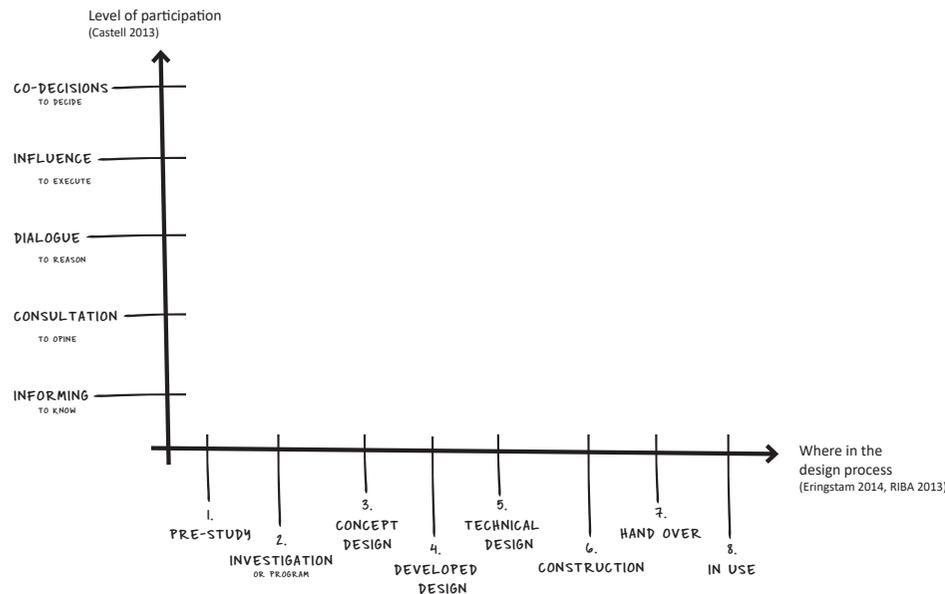


Fig. 25: This diagram has been a way for me to visualize what type of participation we are aiming at where in the design process. To understand when what type of visual style is required.

3.3.1

LEVEL OF PARTICIPATION IN THE DESIGN PROCESS

To understand and visualize the communication in a design process (Ernsting 2014) with what aim of participation (Arnstein 1969, and Castell 2013) from the other party of said communication I made a graph with the level of participation on one axis, and the design process on the other, see figure 25. This was a starting point for me, (that I will get back to in section 5.3 Further Research) and it has been important for me as a way to understand when in the process we need to use what type of language, in order to reach what level of participation. If we are aiming at high influence from the one we are communicating with we need to aim for a visual (and verbal) language they can understand.

3.3.2

LARGE, COMPLEX DESIGN PROJECTS

The value of participatory design is that it allows us to test and to evaluate architectural proposals before they are built, together with clients and users. In large scale, complex design projects this is extra valuable as you can get a chance to get all the different perspectives on the design task early on in the process.

One method developed with this as main purpose is the Design Dialogue by Peter Fröst (Fröst et. al. 2017). A workshop based method to gather information for and evaluate a design. In the workshops they create representations of reality together to invite the participants (clients, users, and other experts involved in the project) into the dialogue on the design together with architects (Eriksson 2013). Then the architect create a cleaned up version before the next workshop. In this way you can both co-design solutions and evaluate design proposals with many different stakeholders. The visual way of working is very important to the Design Dialogue, as both a way of simplifying complex projects into smaller partitions that you can talk about, but also a way of inviting everybody into the dialogue.

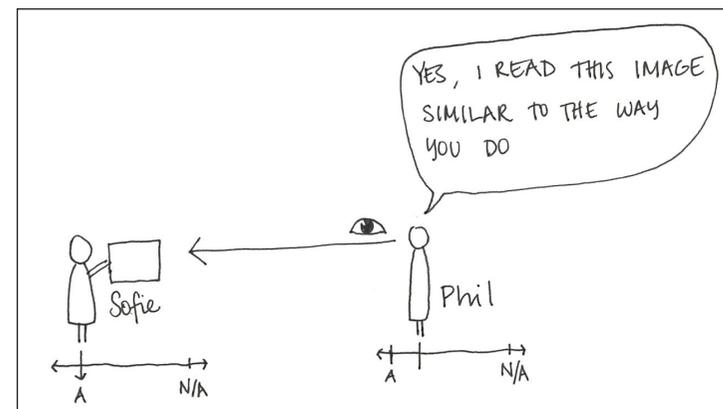
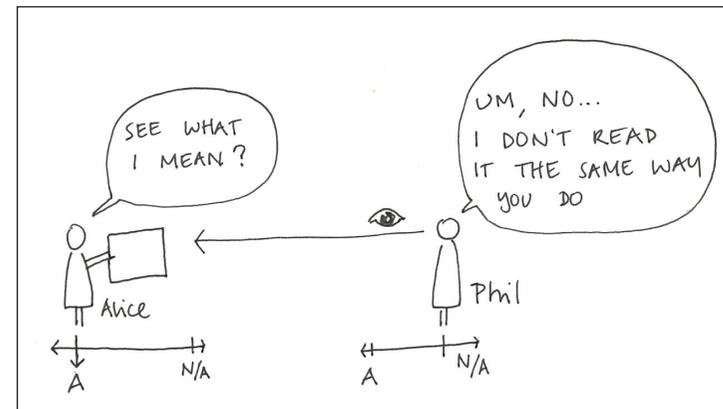
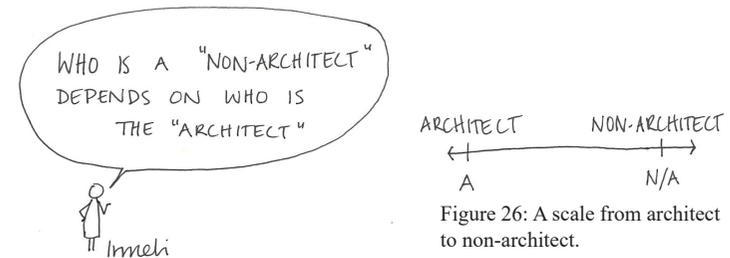
3.4

ROLE OF THE ARCHITECT

This theme is perhaps the one affected most by my own positioning within architecture: I believe that the architect is a communicator, that has a responsibility of conveying her ideas in an understandable way, as opposed to the architect as the artist. I want to do something that can be of as much use for as many as possible, and not merely manifest myself through my artwork.

In Lisa Bomble's master's thesis (Åhlström 2004) she gives one explanation to what an architect is that I find very attractive: as someone who communicate architecture to others. She often uses the simile of planners and architects being to their clients what doctors are to their patients. "The doctor may be the expert of the body and its functions, but the patient sure feels entitled to have some say in what is to be done with his or hers" (Bomble 2016). We as architects might know the solution to a problem, but we are dealing with peoples every day environment [read *life*] and therefore we have to be attentive in the process and conscious in our communication (Personal communication, April 6th). The delicate balance in communicating architecture is to do it in such a way that it isn't too complicated for someone who is not a trained architect, but also not too simplified so that our expertise loses legitimacy.

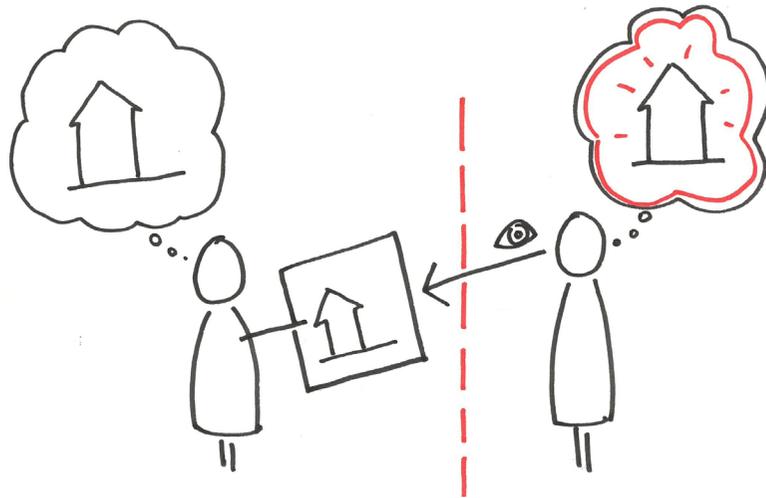
In this thesis I have been struggling with the definition of who is the architect and who is not. It is not just as simple as being educated or having worked as an architect (of course, at an office it might be as simple as this, but in the theoretical framework of this thesis it is a bit more tricky). Even within the "architects" the positioning of us determines how much of an architect someone else is, see figure 27 and 28: Person Phil might be an educated architect (or he might not, that does not matter) but in the context of Architect Alice, he feels as though he is not much of an architect (figure 27). However, in the context of Architect Sofie he feels much more as an architect, because their positioning within the field of architecture is similar (figure 28).



3.5

UNDERSTANDING COMICS: THE INVISIBLE ART

Understanding Comics: The Invisible Art written by Scott McCloud (1993) is a thorough exploration and explanation of the media of comics. As I read *Understanding Comics* it influenced my way of looking at the field I'm researching. I believe that the models he use to describe the comics can be used for describing architectural representations, because in effect, they are very similar: both try to convey a message to the reader's all five senses, via sight only (McCloud 1993, p. 89) see figure 29. McCloud is not alone in claiming that his work can be used to describe art in a wider sense than just comics (1993, p. 51, p. 57 & p. 169), John Holbo, Associate Professor of Philosophy at the National University of Singapore, suggests, in the *Art of Comics: A Philosophical Approach* that what McCloud has written is all art "intended for visual reading" (Holbo 2011, p. 24) and after the work with this thesis I am prepared to agree.



The difference between the two media, comics and architectural representations, is that comics is representing a story, a happening, where as architectural representations is representing space, affecting *what* is being represented. This is the main factor as to why the Big Triangle, the Six Steps and Closure are not possible to translate directly to architectural representations, but needs a few alterations, which I will explain in chapter 4, Findings and Discussion.

Fig. 29: Representing architecture visually is, to me, trying to communicating to all the senses through sight only, since architecture itself is to be experienced with all the senses, but drawings of it can only be experienced through sight and then we have to imagine what it would be like to experience it.

3.5.1

THE BIG TRIANGLE

This theoretical model is a way of describing the entire visual vocabulary that the comic artist have at their disposal, “from realistic representational art to the simplest cartoons to the totally abstract” (McCloud 1993, p. 202 - 203). He simply calls it “The Big Triangle” (personal communication, April 16th).

See figure 30: In the bottom left corner are the pictures that “resemble their realistic counterpart the most”, photos for instance (McCloud 1993, p. 28). Moving along the bottom edge towards the right corner are the “pictures that have been abstracted by stripping away everything else other than the essential meaning ... amplification through simplification”, called icons (p. 30). Going further along this edge, from reality and resemblance, we reach the ultimate abstraction, words; “meaning retained, resemblance gone” (p. 46 - 47), what others would call symbols. These two corners are different types of information, the resemblance is received information and the meaning is the perceived information (p. 49). Moving up through the triangle there is neither resemblance nor meaning, a non-representational abstraction, the information has to be deciphered. McCloud calls this corner The Picture Plane (p. 50 - 51).

McCloud’s interpretation of icons is much wider than the general definition, as he includes symbols in his. He states that an icon is “any image used to represent a person, place, thing or idea” and that “images we usually call symbols are categories of icons: “images used to represent concepts, ideas and philosophies ... and icons of language, science and communication ... and pictures: the images designed to actually resemble their subject” but he states that “as the resemblance of the icon varies, so does the level of iconic content”. (1993, p. 27). This is why he can keep the icon and the symbol on the same edge, but also why he has to add “the language border” (see figure 31).

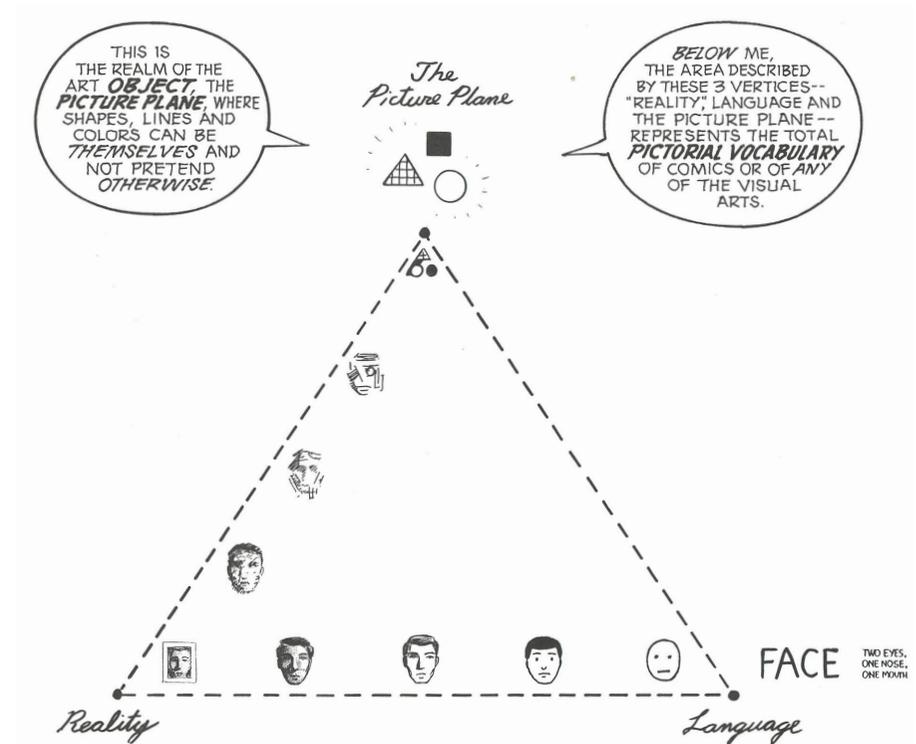


Fig. 30: The Big Triangle, by Scott McCloud (1993, p. 51) to describe the pictorial vocabulary of comics. The model describes the vocabulary as an area of different abstractions from reality: either it's a realistic representation (bottom left corner), or a iconic abstraction (bottom right inner corner) or even passing the language border to become a symbolic abstraction (bottom right outer corner), or a non-iconic abstraction into the realm of the art object with no attempts to resemble or mean anything (top corner).

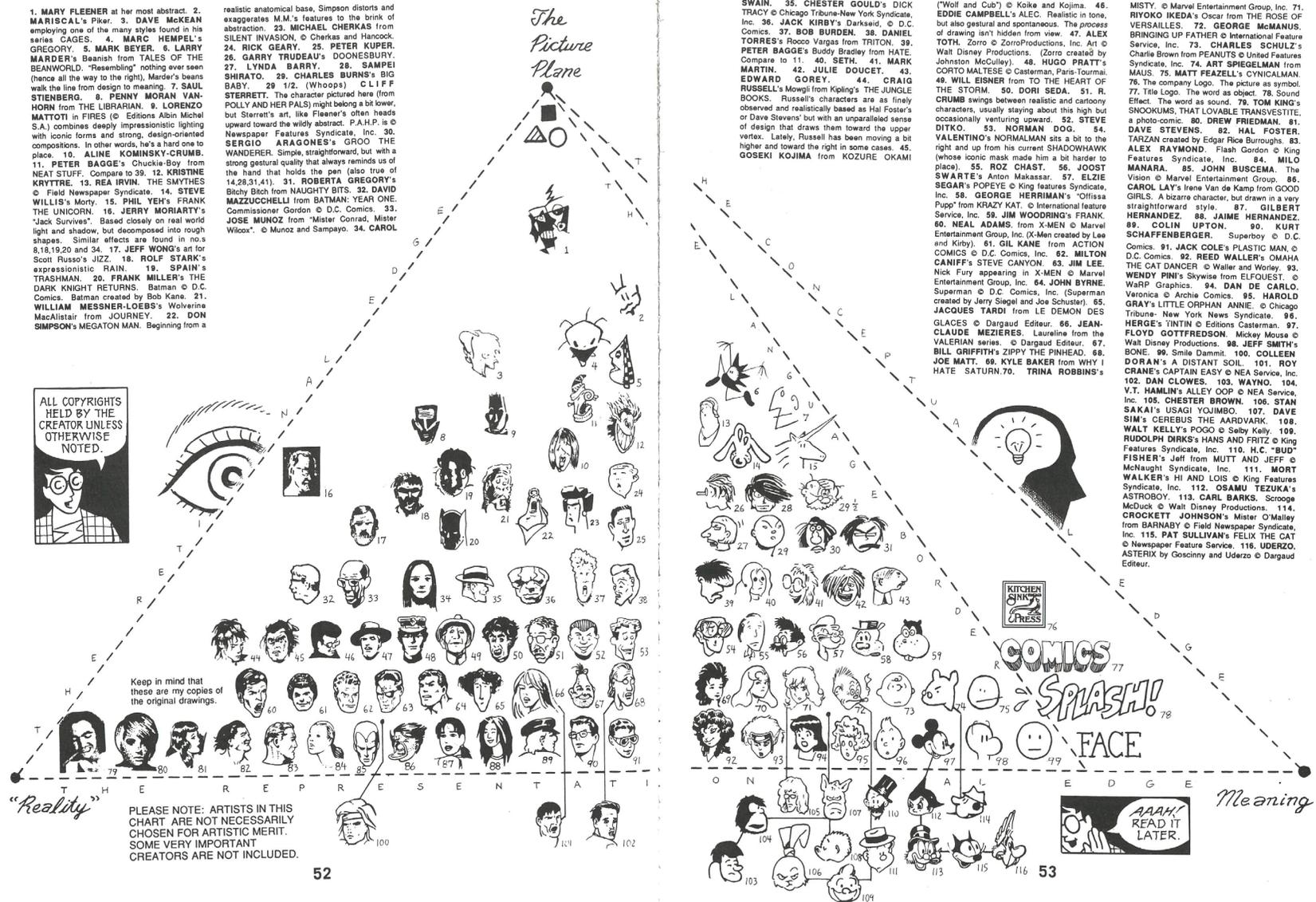


Fig. 31: Illustration by Scott McCloud (1993, p. 52 - 53) visualizing where different comics fit into the Big Triangle. Here is also where he names the edges, and hint that the left side is the "realm of the senses" and that the right side is the "realm of the concept" (p. 39).

3.5.2

THE SIX STEPS

McCloud states that “the creation of *any* work in *any* medium will always follow a certain *path*, consisting of six steps” (1993, p. 169 & p. 182). These six steps he visualizes as layers of an apple (see figure 32) where the inner most layer, the seed, is the core of the work: its **purpose** or the **idea** it wants to convey. The second layer is the **form** it takes, a book, a comic, a drawing, a song, etc. The third layer is the **idiom**, the school of art or genre it belongs to. The fourth, **structure**, is how to compose the work, what to include and what to exclude. The fifth is the **construction** of the work, applying practical skills and problem solving. The sixth and outer layer is the **surface** which is the production values, the finish. (McCloud 1993, p. 170 - 171).

How the artist focuses on these determines the depth of the work, as McCloud suggests, if we focus only on the *form* the work may seem artificial, like a seedless fruit [where the seed is the purpose] (p. 183) but if we only focus on the *purpose* the work may get overlooked in favor of the surface-focused which might seem hollow when interacted with (p. 171).

When asked about the correlation between the Big Triangle and the Six Steps he writes that “within a visual storytelling medium, the decisions represented in the Triangle would relate to the later steps, particularly structure, craft, and surface” but that it is the “cumulative result of all six steps that lands a given series of images in the Big Triangle” (personal communication, April 16th).

3.5.3

CLOSURE

Closure, is what McCloud calls what happens in between the comic frames. “If visual iconography is the vocabulary of comics, closure is the grammar”

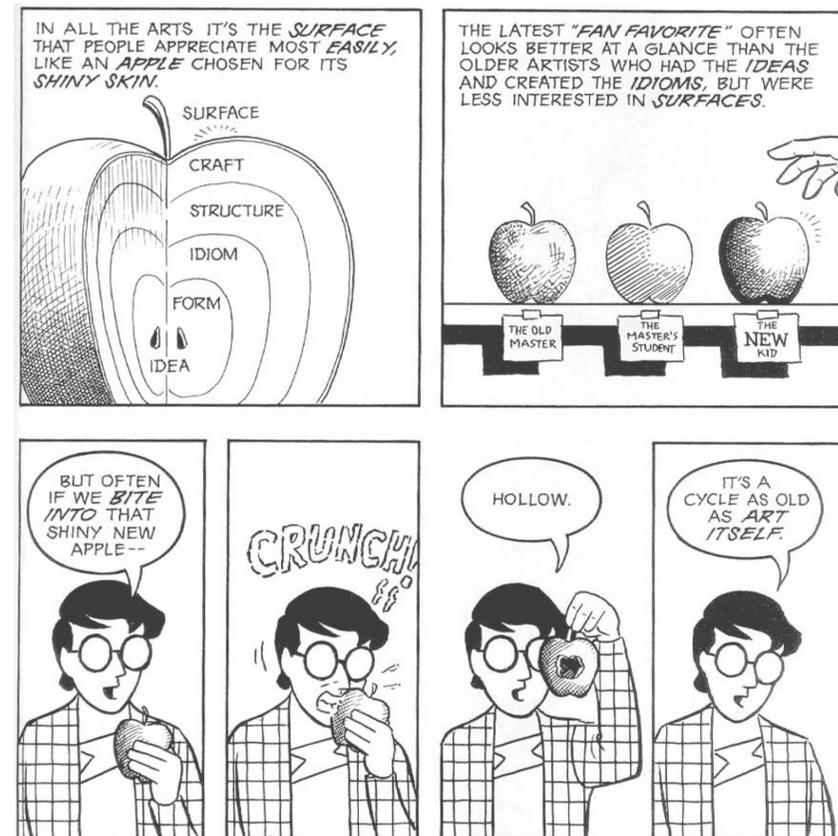


Fig. 32: Illustration from *Understanding Comics* where McCloud explains the Six layers and that often the surface is the one that gets the most attention at first, but when interacted with it might seem hollow, as the deeper layers are missing in a shiny new product of a young student (McCloud 1993, p. 171).

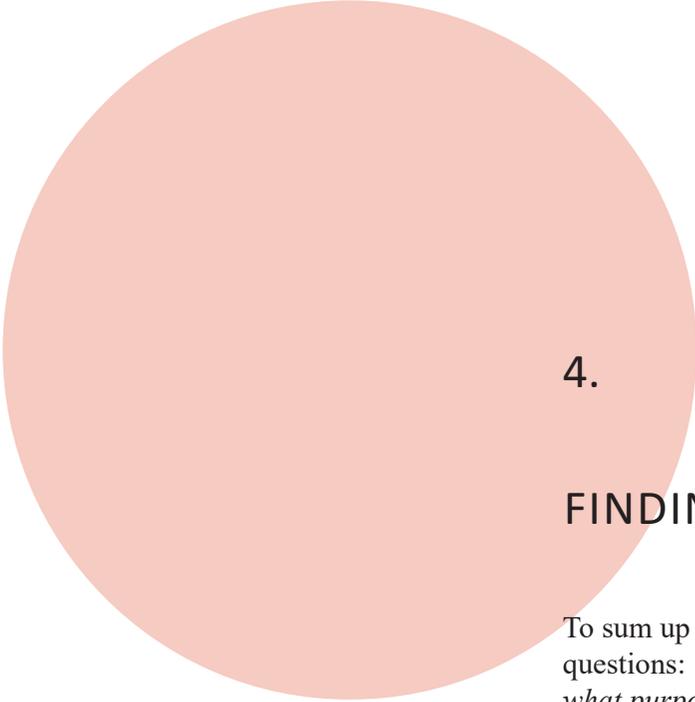


Fig. 33: Illustration from *Understanding Comics* where McCloud explains “The Gutter” - the space between the panels of a comic - where the reader has to imagine the story by themselves, in order to get a coherency with what happens in the next panel; the concept of closure (McCloud 1993, p. 66).

(McCloud 1993, p. 67). McCloud describes comics as a media purely visual that still engage the other four senses. “It relies on only one of the senses [sight] to convey a world of experience. Within the panels we can only convey information visually. But *between* the panels, none of the senses are required at all. Which is why all of our senses are engaged” (McCloud 1993, p. 89) By not giving any information in between the panels all the senses engage and we imagine what happens. What ‘happens’ in between the panels is what you read into something based on your preconception of what could happen there with the information given in the panel before and after; what you don’t see but read anyway (see figure 33) and this is the concept of Closure.

In a lecture, Jonas Carlson, Artistic Senior Lecturer at Chalmers, described McCloud’s idea of Closure as something to use as an architect to know what you do *not* have to show, but that people read into it anyway (personal communication September 6th). I think this is also true within each representation, what has to be shown, and what can be left out.

McCloud suggests that the visual style (the triangle) affects how well we can read what happens in between the frames, because the cartoon style (the iconic style) can easily jump into the realm of ideas where as the more realistic can not. He states “since cartoons already exist as a concept for the reader, they tend to flow easily through the conceptual territory between panels. Ideas flowing into one another seamlessly” as opposed to the realistic images: “theirs is a primarily visual existence which doesn’t pass easily into the realm of ideas” making them look “like a series of still images” (McCloud 1993, p. 90 - 91). This is something I think is very applicable to architectural representations as well. Knowing what style to use if it is a concept being conveyed, versus what would seem too realistic resulting in less engagement of the imagination from the audience. I believe the concept of closure can be used to analyze how we use visual styles to invite the audience to imagine what is not shown in a representation.



4.

FINDINGS & DISCUSSION

To sum up what I'm answering to in my research I repeat the research questions: *What types of graphical representations are used by architects? With what purpose? And with what visual style?*

These will be answered in this chapter, as I explain the model I have developed that will answer these questions for any given representation used to communicate architecture visually.

4.1

THE LAYERS OF ARCHITECTURAL REPRESENTATIONS

To understand how I am using the model, I will first describe the components it consists of: the layers of an architectural representation.

Many have done this before me, trying to describe the architectural drawing with all its layers and components (Dernie 2010, Eringstam 2014, Lorenz & Lizak 1988, Riahi 2017, Peris 2015, and Uffelen 2013). However after reading *Understanding Comics* (McCloud 1993) I felt the need of diving deep into the components of architectural representations and how they affect each other in order to understand the medium as a form of communication, like McCloud did with the medium of comics.

I describe the layers of architectural representations as 1, the **purpose**; 2, what is chosen to be portrayed, the **details**, and how they are portrayed; 3, the **form** or type of drawing created; 4, the **elements** used to create the surface, be it lines, fills or photos; 5, the **craft**, or tools, used and how that influences the drawing; and the result of all these layers: 6, the **visual style** used or created, as the form of expression the architect chooses to communicate visually (see figure 34).

4.1.1

PURPOSE

There is always a purpose of an architectural representation, in my opinion. Most often it is representing space, but it could also be the purpose of artistic expression to describe a feeling intended in a certain room, and everything in between. The purpose is the *Why?* of a representation. Starting by asking: what does it aim to communicate? To/with whom? And when, in what phase of the design process?

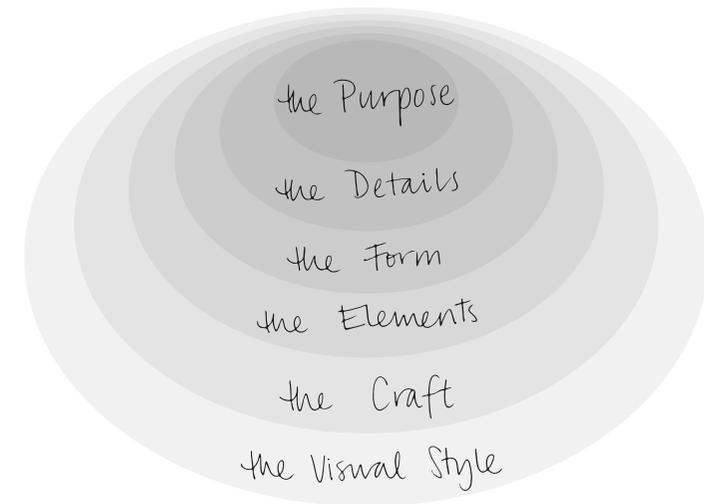


Fig. 34: The layers of architectural representations.

4.1.2

DETAILS

The level of details represented depends on the purpose of the representation: what is being portrayed? What is included and what is excluded? How much details from the proposed reality are we including to say what we want? Examples of details include space, spaces, rooms, materiality, space-creating elements like walls, floor, roof, structure, openings etc., and more abstract qualities like light, relationships, functions, soundscape, atmosphere and life. How these details are portrayed influences all the following steps.

4.1.3

FORM

The way I see it, you can understand the form of a representation by looking at it in 3 levels: the dimensions, the projection type, and the type of representation.

1, **The dimensions** are quite straight forward, either it is two dimensions (2D) or three dimensions (3D - which I have not looked at, the following steps would look very different if it was 3D).

2, **The projection types** can be looked at as mainly two different types: perspective or orthographic, but orthographic has important subdivisions, resulting in the three types of projections: perspective, axonometric and parallel projection.

3, **The types of representations** I have chose to categorize as many others also do, as: plan, section, elevation, pictorial (Lorenz & Lizak 1988) and scripted drawing (Dernie 2010). For example an axonometric drawing is a 2D orthographic pictorial. And a render from eye-height indoors is a 2D perspective pictorial. (Scripted drawings have, due to my limited knowledge in programming, not been part of my exploration in this thesis.

4.1.4

THE ELEMENTS OF THE SURFACE

The “surface” of a representation is what type of elements you use to create it. I categorize these as: (dots), lines, fills and photos (see figure 35).

Conceptually, neither dots nor lines have more than one (1) dimension. But for the purpose of creating a *visual* representation, perceivable by the eye, I use the words for these originally 1D elements to describe 2D elements.

(Dots) within parentheses because they could be defined as just very short lines, depending on the “thickness” of the dot. But for the purpose of analyzing a visual style of a drawing I include dots as they can, by repetition, create images by themselves with the result of a very specific visual style.

Lines can be used both as outlines or as markings of areas, then called hatches. A line could also move into the realm of fills depending on the thickness of it.

Fills I define as areas of color, which could be solid or gradients.

The last element that can be used to create a representation is the **photo**. Modified into patterns they appear more like fills, and used by itself one photo could be the entire representation.

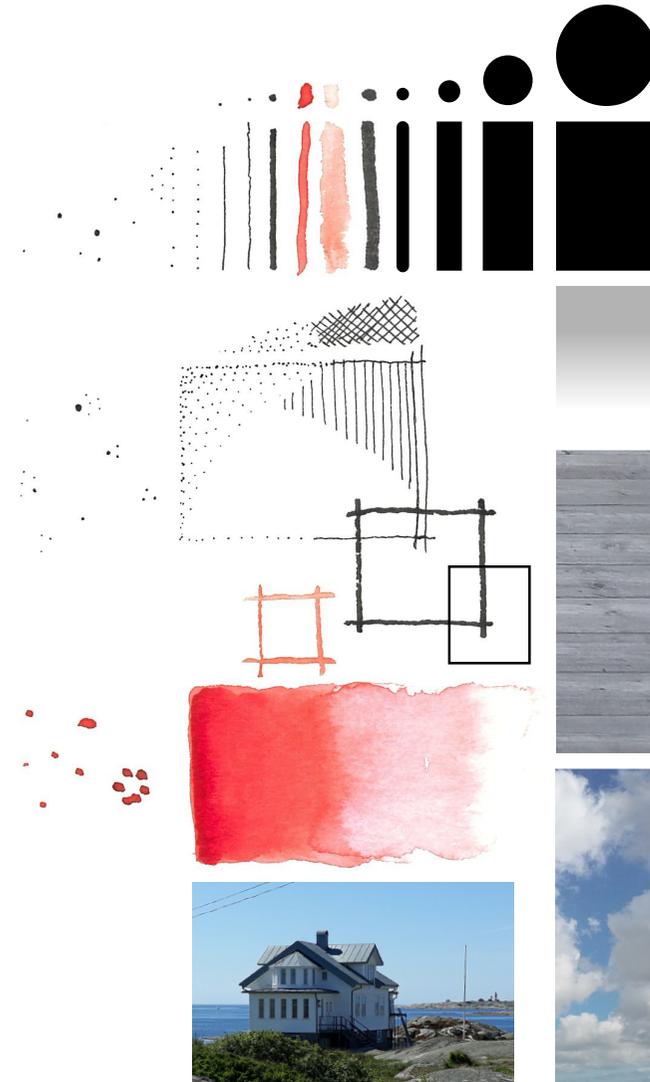


Fig. 35: Abstract visualization of the elements of the surface of a representation.



Fig. 36: Quote from Lisa Bomble illustrated.

4.1.5

CRAFT; THE TOOLS

The tools used to craft the representation is most simply divided into **analogue**, by hand using different tools, and **digital** using different programs, and the **hybrid** of these.

The digital programs used most frequently (Revit, ArchiCAD, AutoCAD) leave little room for personal interpretation as we use them today. As we (still?) are in the leap from analogue to digital there are many who have suggested that it is the knowledge acquired that determines the outcome of a specific tool: being in control of the medium and not vice versa. Which would mean that since we do not have the broad spectrum of styles within digital tools we do not yet master them. Architect Sir Norman Foster, founder and executive chairman of Foster + Partners, states, in *Architects' Sketchbooks*: "The pencil and the computer are very similar in that they are only as good as the person driving them" (Jones 2011, p. 145). And in 1980 Laseau stated that "The new equipment is of no value in itself; it is only as good as our imagination can make it" (Laseau 1980, p. 7) talking about computers, a statement that I think still is valid.

In an interview, Lisa Bomble said: "We build our digital limitations" suggesting the design is lacking because of our inability to design using computer programs (personal communication, April 6th) this is however linked to the tools we use *to design* and very different from this layer: the tools used for creating a *representation* of said design, however, very many times we use many types of representations as tools in our design work and then the two are the same. And I cannot help but wonder, can you ever separate the process of designing from the process of creating representations of the design? After writing this thesis, I think not.

4.1.6

THE VISUAL STYLE

The visual style of a representation is, simply put, how it looks. It is a combination, or a result, of all the layers: what details are described; how are they described; what form it has; what elements are used; and with what tool, using what media, it was created, and these are all, of course, based on the purpose of the drawing. The visual style is the form of expression of the architect, based on her positioning within architecture as a field and therefore what type of abstractions she usually use in order to express herself. For my purpose of describing the components of a representation it is important to state that I mean the visual style of a representation. As this can vary from the visual style of the building, or the design itself. The visual style of a representation can vary immensely even though the design is the same, see figure 37.

4.1.7

DISCUSSION

Scott McCloud shows an example of how the visual style of cartoons allows for a smooth reading from panel to panel - enabling closure easily - where as more realistic images have a harder time since they don't pass so easily into "the realm of ideas" and therefore they seem more like still images. Your other senses aren't as engaged in imagining what happens in between the panels (McCloud 1993). This is why I think the visual style of architecture firm BIG's conceptual diagrams is so very easy to follow - because the visual style engage your imagination. Where as if they were made from realistic renderings it would be hard to read them as a sequence of a concept. The visual style can engage the imagination to help or hurt the architect's intention with the representation. By depicting what you want the reader to "fill in" with their imagination as simplistic and abstract you can make the audience read that it is one of many possible scenarios, a proposal, and not the final decided product. Lisa Bomble (personal

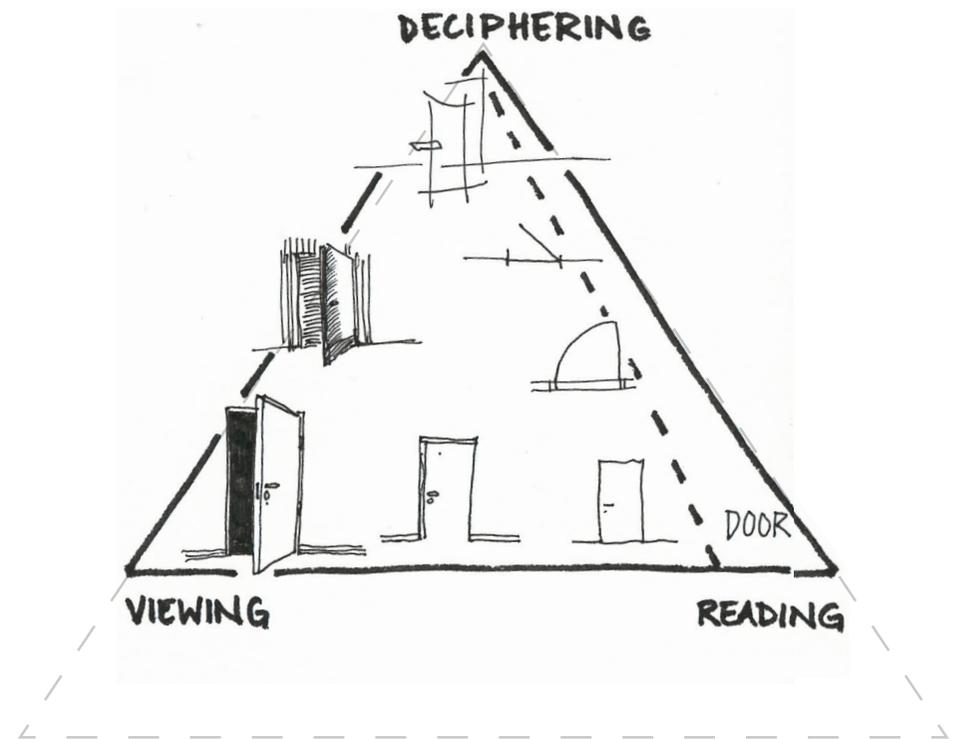


Fig. 37: The spectrum of the Big Triangle (McCloud 1993), the visual style, showcased by different drawings of a door. Note that since I decided to do this by hand, these illustrations are really in the top of a much bigger triangle: since my hand drawn style is a bit more artistically abstract than say a real image of a door (true bottom left) or a CAD drawn door (true bottom right?).

communication, April 6^h) told me about a exhibition she visited for the new proposal for Ground Zero, New York City, where they had a problem with people thinking the exhibited material was of *the* decided building and not *a proposed* building open for opinions. So they changed the rendering, from an over all very realistic looking one to one where they had changed only the people and trees to very simple and iconic abstractions - which, I think, helped the reader to see: “Ah, I am not in the real world, this proposed building is still in the world of ideas” which was only due to the surroundings being depicted differently.

What we want the reader to fill in with their own imagination we have to give hints about, by placing silhouettes of people for example. This may vary as the knowledge of the reader varies. A person with architectural background might be comfortable with replacing a white box for any type of house, where as someone not used to doing this might see the white box as the actual proposal if the surroundings are resembling reality too much. Or when the function is described with enough level of detail so that the reader can imagine how it would be to experience the space without being imposed with too much detailing of how it would be. The closure, dependent on the visual style, in architectural drawings is about leaving room for the imagination of the reader whilst carefully manipulating their imagination into what you as author of the representation want them to imagine. Being aware of this when creating representations for communication can help with representing your purpose as true as possible.

The personal positioning of the architect within the field of architecture will affect the visual style that she prefers to use. Because that includes the preferred way of communicating, what level of details is described, what is included and what is left for the reader to imagine themselves, and how these details are portrayed, what crafts etc. So it is not just the style of visuals that the architect prefers, the personal taste, but also their understanding of architecture as a field that affects how they communicate it.

4.2

THE MODEL

Understanding the different layers involved in an architectural representation is important because they affect the reading of a representation. McCloud states that the layers of a comic is important because there needs to be a balance between a pretty surface and a purposeful core (1993). When creating a representation of architecture we usually work with all the layers, but it is a quite tacit knowledge of architects that I believe needs a common framework. I propose this model of using the triangle (Δ) as one way to visualize and verbalize how we as architects use our graphical language to communicate visually. And by using the model as a common framework we can discuss and develop this knowledge of ours.

4.2.1

WHAT IS IT? WHAT CAN YOU DO WITH IT?

The model is a combination of the layers of architectural representations and the Big Triangle (McCloud 1993) that I have adapted for representations of architecture. I believe this model can be used to problematize the types of abstraction we use for what purpose, and to be able to compare different representations within the same frame of reference. Because I believe that if this is possible, we can start discussing how the visual style affects the way we read and understand representations.

See figure 38, this is the most common way of working: we have something we want to communicate (a purpose with the representation, P) and the representation itself. I propose, as shown in figure 39, defining the purpose and the visual style, within the triangle (Δ), best suited with that purpose. The model goes two ways, either start with a purpose and see what type of visual style can communicate that purpose the best), or start by looking at the visual style of a given representation to understand what purpose it communicates.

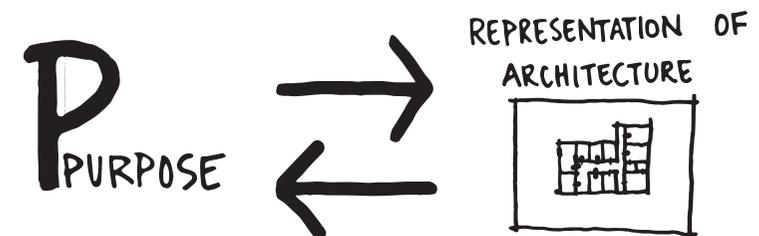


Fig. 38: A general description of how architects work - having something to communicate, a purpose, and creating a representation of architecture that communicates this purpose, not really defining *how* it is done.

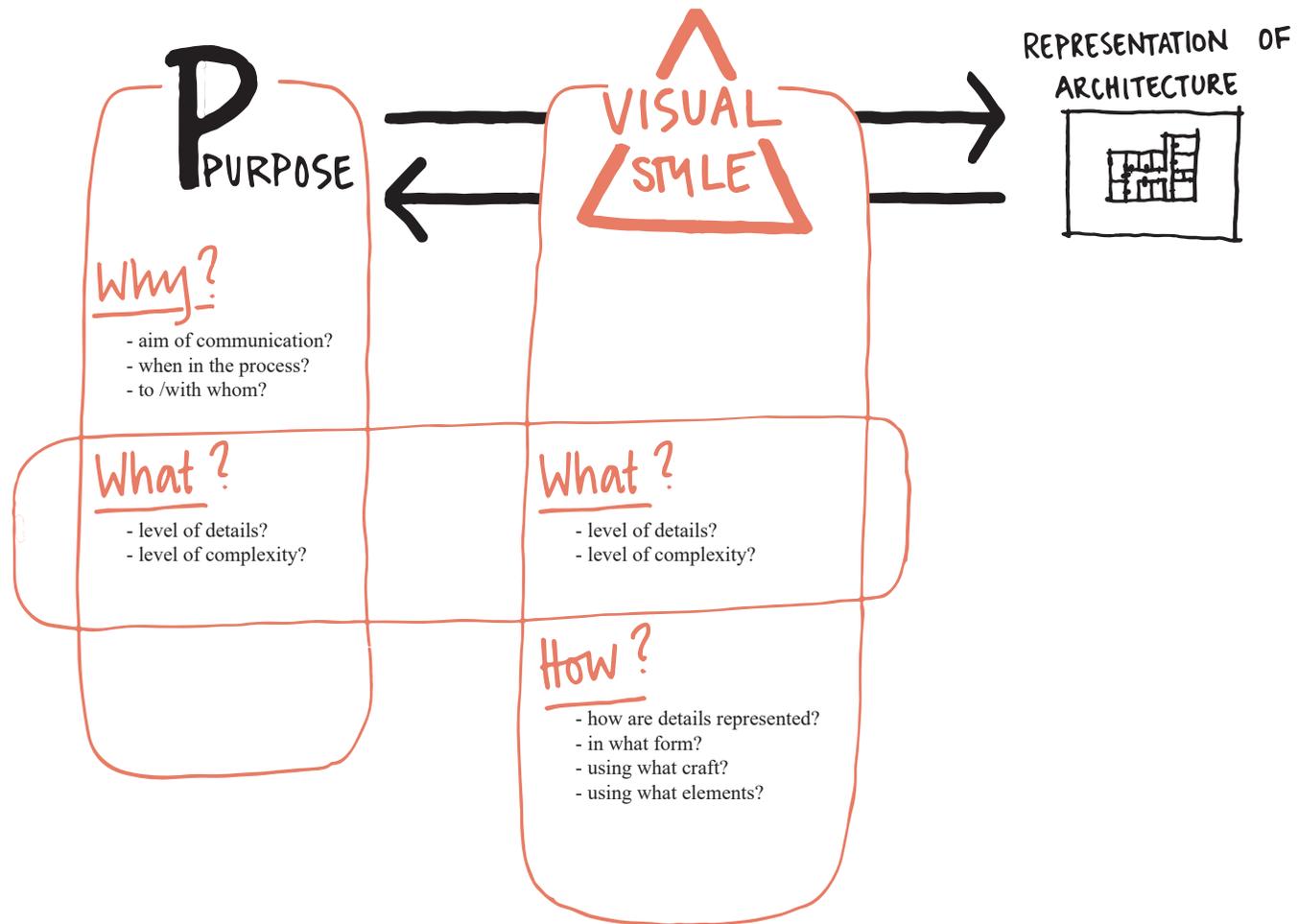


Fig. 39: A summarizing description of the model, using the layers of architectural representations and the triangle to define the visual style that acts as the link between the representation of architecture and its purpose.

Placing something within the triangle, to describe its visual style, is based on *your* perception and *personal* interpretation of what *you* analyze, therefore it may differ from person to person. However I believe that if we have a common framework a discussion can take place, and therefore I will start by defining the framework; the triangle.

When translating the Big Triangle (McCloud 1993) I removed the language border. As architects we often use a mix of images and text, making it hard to keep a strict border between the two. And I think the further you reach up into the triangle the more this border vanishes as there is neither resemblance nor meaning. Other than that I have kept the borders, and corners, the same, see figure 40.

The word ‘abstraction’ has many definitions, and two important ones to be aware of when using the triangle are (Oxford Dictionary, 2018):

Definition 1: *The quality of dealing with ideas rather than events.* Which would be the definition of conceptual abstraction, moving into the realm of the concept.

Definition 2: *Freedom from representational qualities in art.* Which would be the top corner, opposite of the representational edge.

Here follows a detailed walk-through of the triangle, please refer to figure 41 to also *see* what I write about: The **Resemblance** corner is where something is portrayed as realistic as possible: a realistic representation for example a photo. Moving along the Representational Edge we get to the **Meaning** corner, where we have iconic and symbolic representation, or abstraction (according to definition 1): when something is reduced to its essential meaning. Thus, the Representational Edge is where something is depicted in a recognizable manner, and as such, it moves in between the two corners of either a realistic recognizable manner (the information is **received**), or iconic recognizable manner (the information is **perceived**). Moving up in the triangle we move further away from the representational edge towards the non-iconic abstraction (definition 2), where there is (the corner of) **Neither Resemblance nor Meaning**, it is “abstract

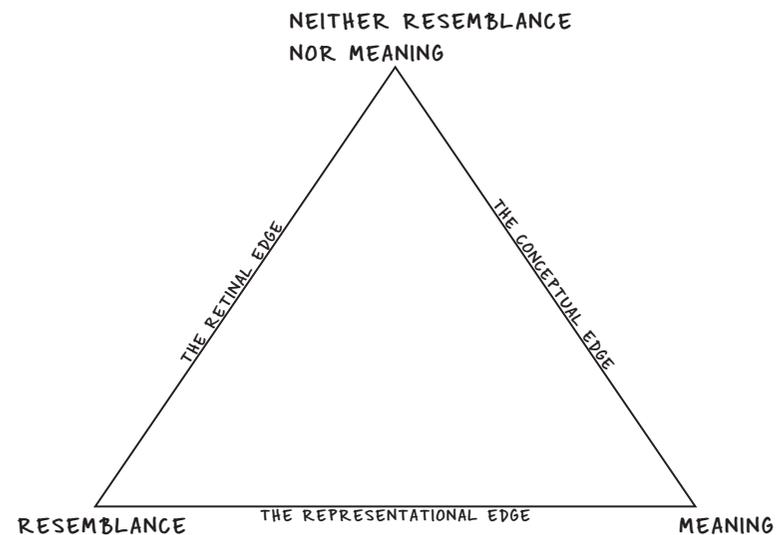


Fig. 40: The triangle, comprising the entire range of graphic language used by architects to represent ideas and architecture, based on original by McCloud (1993).

Artistic expression, where the *READER'S OWN INTERPRETATION* is half the purpose

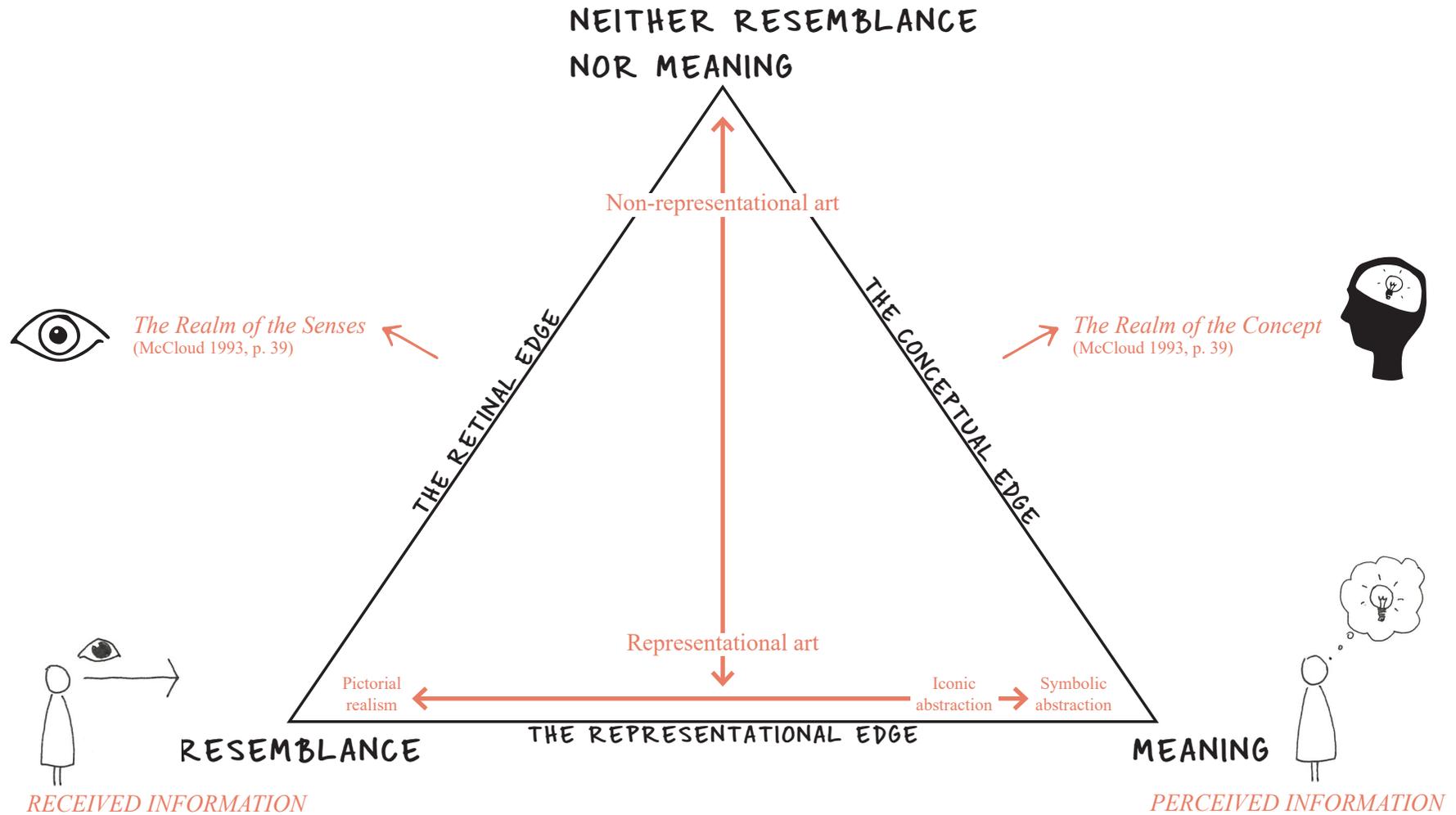


Fig. 41: The triangle as I understand it, based on the original The Big Triangle, by McLoud (1993).

art”. The two edges moving up to this point is, on the left side, the Retinal Edge, meaning that towards the left side of the triangle we have the realm of the senses. On the right side we have the Conceptual Edge, meaning that towards the right side of the triangle we have the realm of the concept. Where the Retinal Edge talks about what is received via the senses, the Conceptual Edge talks about what is perceived, or read into something, both on a scale from total resemblance or meaning to no resemblance or meaning at all.

4.2.2

THE MANUAL: **HOW** TO USE IT

The model can be used in two ways, see figure 39 (page 47). Since the main difficulty is the positioning of a representation within the triangle, I will begin to explain how to go from \triangle to \mathcal{P} :

$\triangle \rightarrow \mathcal{P}$: Step 1, Details

When finding the position of a given representation within the triangle, start by looking at *what* is represented (the *details*, as described in section 4.1). Starting big, what realm is it part of? Is it trying to resemble reality, the realm of the senses, or describe the essential meaning of something, the realm of the concept? And then going on to *how* these details are portrayed, using the triangle to differentiate between different types of abstractions, see figure 42. For example if the function of a dining room is described, and it is portrayed by the text “dining room” it would be close to the right side of the triangle as text is symbolic abstractions. And if it were portrayed as an icon of a table and chairs, it stays close to the right side but would move in from the edge. But if the dining table is portrayed as how it would look in the middle of a dinner, as one moment in time, it would move the entire representation further to the left, getting closer to the retinal edge, and the realm of the senses. This is of course affected by the following steps: the form, the craft, and the elements of the surface, but I think this is the best place to start.

$\Delta \rightarrow \mathcal{P}$: Step 2, Form

Looking at the form of a representation will guide you towards the position within the triangle at large, see figure 43. Answering the questions of how many dimensions? (Note that I have only tried the triangle on 2D representations so far); What type of projection is used? And what type of drawing is it? However, as these might mix for example in a section perspective, the representation will also move outside of these guiding areas. And the further up you reach, the less importance the projection type will have as it neither resembles its purpose nor conveys the meaning of it.

$\Delta \rightarrow \mathcal{P}$: Step 3, Craft

The tools used to make the representation will affect the visual style of it. For example if it is analogue the style will be more towards the Neither Resemblance nor Meaning corner as it will be more of an artistic expression than of a representational art. However, how this layer affects the visual style could be further researched, going into different tools within the categories of craft that I have stated (in section 4.1.5: analogue, digital and hybrid).

$\Delta \rightarrow \mathcal{P}$: Step 4, Elements of the Surface

The elements of the surface (section 4.1.4: dots, lines, fills and photos) will affect the positioning within the triangle by how they are used to portray the details they are describing. For example, are the lines used as a hatch to portray shadow to resemble the way a shadow falls in a room, then it would be towards the Retinal edge. But if the lines are used to portray direction as arrows, it would move more towards the Conceptual edge.

I believe that step 3, Craft and 4, Elements of the Surface are not as important for the position within the triangle as step 1, Details and 2, Form, however they do affect it a little.

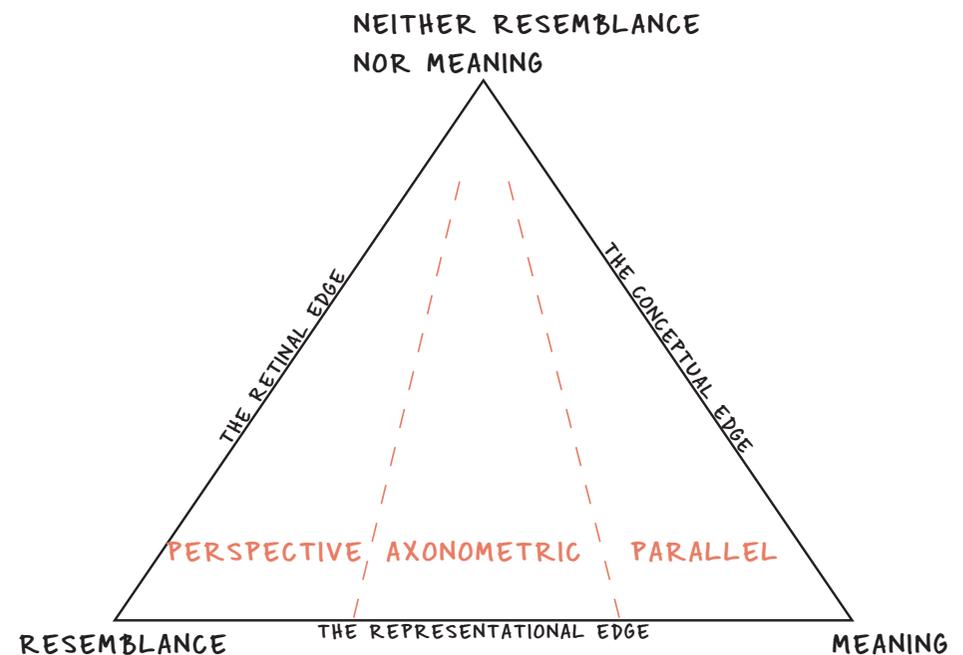


Fig. 43: The form, more specifically the type of projection used, guides the positioning at large within the triangle.

$\triangle \rightarrow \mathcal{P}$: Final Step, Purpose

In the final step of working in this direction with the model, is to look at the visual style; the placement in the triangle that you have reached, and ask yourself what was the intended purpose? I am by no means saying that this is the correct way to find the purpose of a representation, but doing it like this is one way of reflecting upon if this visual style is the best choice in order to convey that certain purpose. I believe the corners of the triangle give a hint of the purpose of the representation. For example, if it is positioned far up into the triangle, towards the top corner, then the artistic expression is very important to the creator, stating that your interpretation as a reader is half the point. However if the representation is placed close to the lower left corner, it can be interpreted as if the creator of the representation wanted to depict something as it really looks. Where as if the representation is positioned towards the lower right corner, the creator probably wants you as reader to get the significant message of the concept or idea they are trying to convey.

Now that you know the basics of using the triangle, I will explain the other way of using this model, going from \mathcal{P} to \triangle . This is when you not yet have a representation, but aim to create one, wondering what type of visual style might suit your purpose:

$\mathcal{P} \rightarrow \triangle$: Step 1, Purpose

The first step is defining the purpose of the drawing, the *Why?*; what does it aim to communicate? What am I depicting with it? To whom? What is the intended outcome of using this representation to communicate? Do I want understanding so that I can receive input on certain details, or do I want to promote a certain alternative, or do I want to showcase what I am picturing when someone says “use wood” for example. *When* in the design process am I communicating using this representation?

$\mathcal{P} \rightarrow \triangle$: Step 2, Details

The details, when going from this direction in the model, is very closely linked with the purpose, as you have to ask yourself: *What* do I want to communicate? What *level of complexity* will I show? What *level of details* is appropriate, what to include and what to exclude? Then it comes down to what type of abstraction you wish to use to express it, and if this goes together with your intended purpose: looking at the triangle's corners and edges and mentally visualizing what type of visual style would fit the purpose: pictorial realism? Iconic abstraction? Symbolic abstraction? Non-representational art?

$\mathcal{P} \rightarrow \triangle$: Final steps, Visual style

The final steps of working this way is to go through the outer layers of a representation: the Form, the Craft and the Elements of the Surface to see if these match your intended purpose, to understand how you should work with these. Does the form answer up to be the best form to describe what you want to describe? Are you capable of using that tool to communicate what you want to say, by creating elements that will convey your message in a comprehensible way to someone else? This is something that I, whilst working with this thesis, have come to the conclusion is one main part of the architectural education: knowing how to portray what you want to say. Not saying that anyone has ever made the effort to talk to me about this, but that it has been learning by doing. Creating this model is my way of trying to explain how we portray what we want to say.

The way the model is now, I can see that it is difficult to use it from \mathcal{P} to \triangle , as the triangle not yet can work as a guide on it's own (I imagined it would have to be filled with examples). However, when knowing how to use the triangle you might still be able to picture in you mind what type of abstraction could be appropriate in order to land your representation at a certain wanted position within the triangle.



Fig. 44: The Seattle Central Library - program section (Image courtesy of OMA).

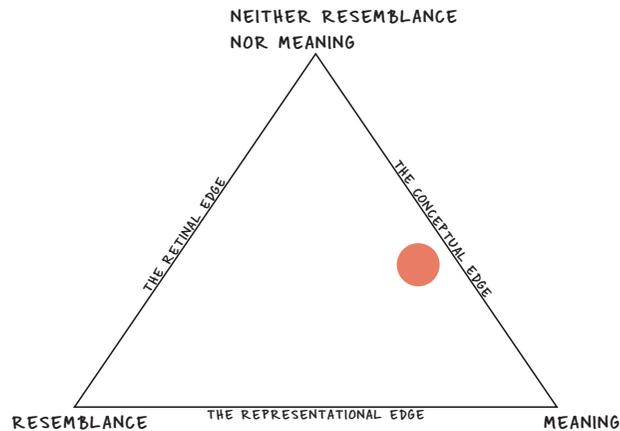


Fig. 45: ...and the position I would give it (fig. 44) within the triangle.

4.2.3

EXAMPLE OF PLACING A DRAWING WITHIN THE TRIANGLE $\triangle \rightarrow \mathcal{P}$

Look at figure 44: Starting by answering *What?*

There are functions described, and the building's outer shape and floors (because I have seen the Seattle Library before, I know this, otherwise it could be really hard to guess). Therefore I believe this aims to communicate how the functions, the program, of the building are organized vertically.

The next step is to answer *How?*

The functions are described, generally, represented by symbolic abstraction (the text) making this representation starting really close to the Meaning corner. The texts are grouped with color, probably representing different groups of functions. The building shape and floors are described with a single computer made line. Knowing the building shape beforehand, I can say that this is a 2D, parallel section, otherwise it could have been a 2D parallel plan, or even a 2D parallel pictorial.

Altogether this representation belongs close to the conceptual edge, due to the way the functions are described, but moves quite far up towards the Neither Resemblance nor Meaning corner, as it requires some previous knowledge or supplementing image making the shape of the building clear, see figure 45.

This position (fig. 45) guides you towards what the intended purpose, the *Why?*, could be: communicating the concept of the program of this building, as the position is closest to the conceptual edge. This is in my opinion a suitable visual style for the intended purpose, however on its own it can be too abstract for someone who does not know the building. Due to its position I would say it could either be in the beginning of the design process communicating to clients, or in the very end, when the building is in use and then it is a description of the core concept of the building communicating to other architects and the public.

4.2.4

DISCUSSION

I believe that with this model we can visualize the entire range of how we represent architecture and start to discuss and reflect upon *why*. We can then start to discuss the consequences of using a specific style.

I am doing my fifth and last year of architecture education, and so far I think that we have a tendency to praise the artistic expression to such an extent that it is not readable unless you get an explanation. This leads us to believe that the Representational Edge is much further up in the triangle than it really is (see figure 46). Because when talking to your peers, a specific group of people with the same frame of reference of how to communicate architecture visually, you can go further up in the artistic abstraction and still be understood. This creates, in my opinion, a special type of visual language in school that reinforces the divide between architects and others outside of school. How we as architects communicate visually with each other creates a special language - or jargon - and when we later on use the same language to communicate with others it becomes problematic, similarly to what Lisa Bomble argues for in her master's thesis about the verbal and written language we use (Åhlström 2004). This is problematic in the sense that we, when it really counts, argue for architectural values most often do so in front of an audience not of architects, but of people who have not been to architecture school. In reality, where factors like money have huge influence on the building design process, we as architects need to be able to argue for all qualities of architecture, and therefore be able to describe them in a comprehensive way in *all* our media of communication - especially our drawings, since they often stay after the architect has left and speak for themselves, see figure 47 and 48.

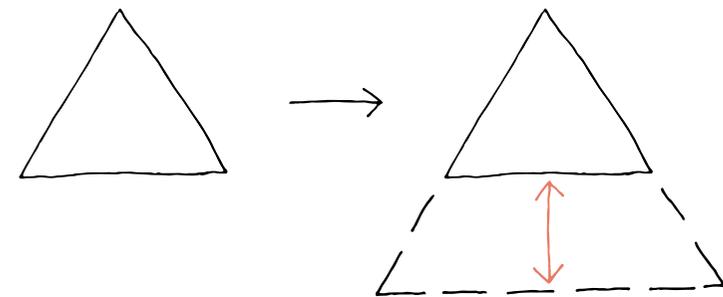


Fig. 46: Within a specific group of people the representational edge might move further up in the triangle (since they can use a more abstracted language to still fully represent what they talk about). This might become problematic when communicating with others outside of the group, if not realizing that the representational edge is half-way up into the triangle.

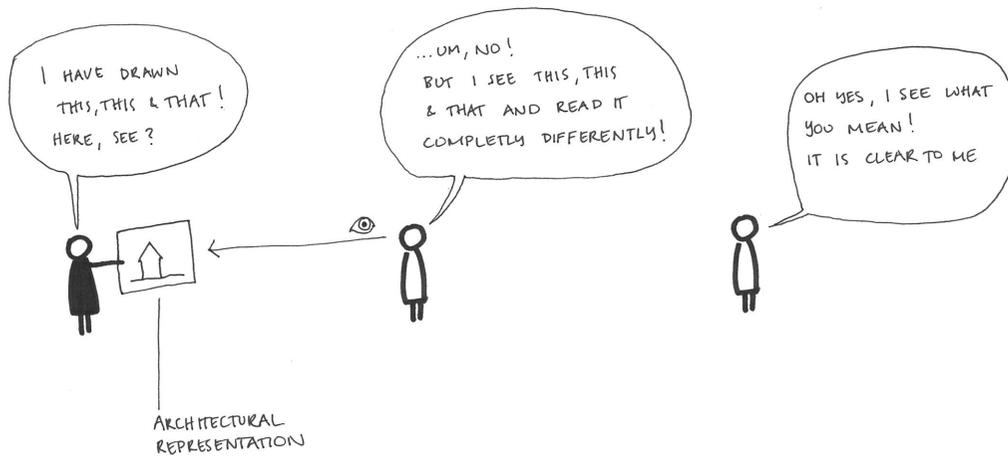


Fig. 47: When witnessing the reading of your representation (as an architect) you can many times understand what has been read in another way than you intended it. Many times this brings up discussions that you hadn't thought about and it is valuable input for future use.

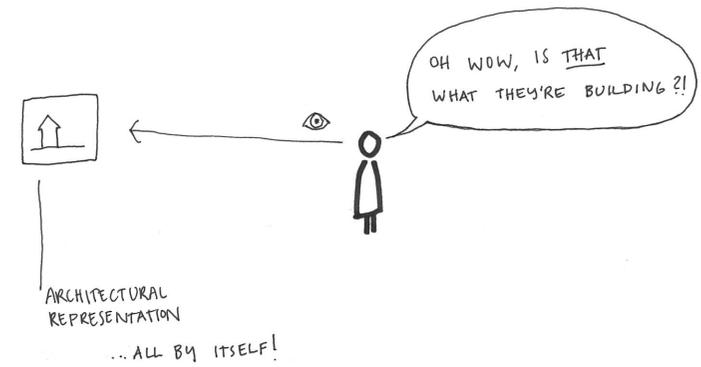


Fig. 48: But when not there to witness the reading of the representation, neither you, nor the audience, can know what is a misinterpreted reading of the representation and the outcome can vary greatly. Knowing how your material is perceived is (in most cases) valuable information for any architect, since the material we produce is many times spread far beyond our reach to explain them.

Using this model we can also start to talk about target group adaptation of our representations: *Who are we talking to?* and to reach understanding in that context *What type of visual language should we use?* I believe that, just like architects, each profession has their own jargon and believes the triangle to be smaller than it really is, see figure 46, which could of course be in whatever part of the triangle that the profession feels most comfortable with.

So far I have been using the model to look at other students' work in school, and at competitions that has been published during this semester (spring 2018), to see how they position themselves within the triangle and how that corresponds with the purpose they wish to express. Listening to seminars and discussions I have tested how well their visual style of representations harmonizes with what they want to focus on in the discussion. And when the visual style leads the audience into a discussion that the author of the representations did not intend - what could have been done differently in the representations?

At the mid-term seminars of the master's theses this year I listened to many discussions, and reflected upon how the different studios would position themselves (or rather, be placed by me) within the triangle, to understand their purpose with their representations. Some value the comprehensibility of their work greatly, while others value the artistic expression and the personal interpretation more. This leads to very different discussions within the studios, and many misunderstandings seem to appear when the opponent student comes from a different studio than the one they are giving critique to, anticipating different purposes with their opponent's work.

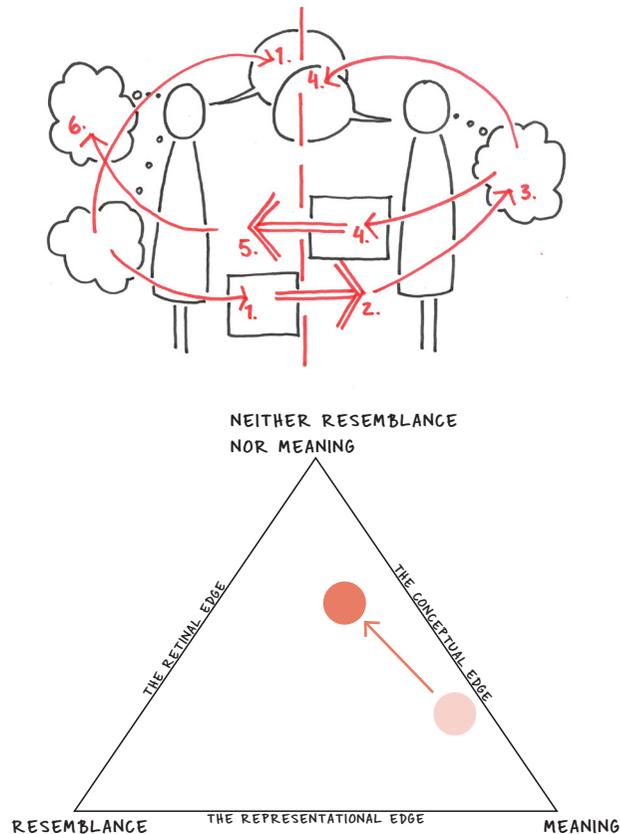
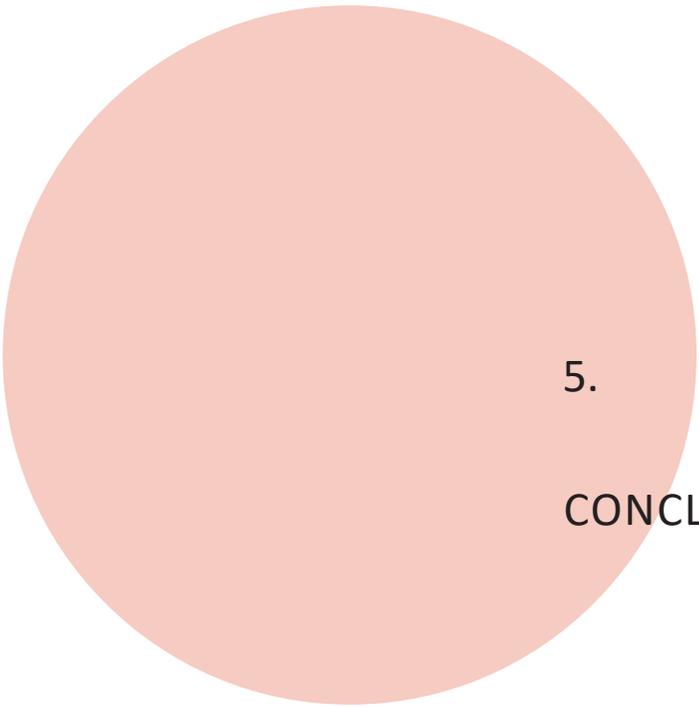


Fig. 49: This is my test to use the triangle to explain the mistake I made when choosing the visual style to communicate this thesis: I ended up to far up into the triangle without realizing it myself. Trying to simplify something complex can many times make it harder to understand, if you are not well informed in the topic and the ongoing discussion - which my audience will probably not be, hence I forgot to adapt my visual material for my audience, making my illustrations wander quite far up into the triangle, and not be placed as close to the meaning corner as I was aiming for them to be.

At my open seminar, I got the question if I had thought about the triangle during my work with producing this thesis; if I had thought about the visual style used to communicate what I wanted to say whilst trying to do so. And of course I have. I answered what I thought then and there, but the question lingered with me and I now see that I have been blind in my own work. I have tried so hard to simplify my topic so that I could talk about only one part of it that I have over-simplified it, creating my own jargon. In my quest to describe the concept of a design dialogue I have wandered off towards the top of the triangle. Partly because I wanted to, I wanted to make sure that you as a reader understood that I greatly value *your* interpretation of it and therefore used my hand made, sketched people and their thought bubbles etc. to represent very complex topics. But partly unconsciously. Afterwards I realized that I had been fooled by the very problematics I was trying to discuss. However, I must say that using the triangle to describe this issue - the mistake I made whilst trying to communicate this thesis - helps me put words on what mistake I made (see figure 49). I think I tried to hard to find the optimal abstractions that would communicate as much meaning to as many people as possible without realizing that I also wanted a certain visual style of my illustrations, because of what I am comfortable producing and what style I like, visually. And perhaps my message would have been clearer in my illustrations if I did not cling on to that idea of the visual style having a certain look. But on the other hand, I chose quite early to describe this thesis using mainly text so that my message could be interpreted by as many as possible and, with hope, the meaning would be retained.



5.

CONCLUSION

5.1

METHODOLOGICAL REFLECTIONS

Looking back at my process, it is easy to say what I should have started with from the beginning (using the Big Triangle to look at architectural representations). However I do believe that I would never have come to that point if I hadn't spent the majority of the time trying to understand what exactly it was I was interested in: how to describe architectural representations, and start a discussion around how we can represent architecture differently with different purposes.

This insight came to me after months of searching, reading and testing of other things. After having tried an exploratory research method I now know that it both suited my thesis and my person but was a constant struggle and at moments I suffered more than I should have. I do believe that the thesis could have gone further if I had had the time to do workshops to test readability of different visual styles, but then I would not have had the time to develop the model as far, which, in the end, was worth more to me. Instead I have learned a new way of thinking and widened my perspective of how we represent architecture, and how *I* communicate visually, something I will have use of in my future work as an architect.

In the process of working with this thesis, I have tried to simplify a very complex topic, to get a grip of it myself. In this quest I have also over-simplified my own work into something that might sound very linear and obvious - but the journey has been a cloud of different topics as I have wished to explore the entire range of visual communication that is or could be used within architecture. I have in this book presented just parts of this process, in a polished format, to try to get one clear message across:

5.2

CONCLUSION

The layers and components of a representation, see figure 50 (1), affect the reading of the representation (2), which in turn affects the understanding of it (3), which in turn affects the dialogue that can take place (4) of the architecture (or idea) that is represented. Which is why it is so very important for us to understand how we communicate visually.

Using the model might help in creating a more conscious use of representations as it provides a tool for verbalizing and visualizing the visual style of a representation, in regards to its purpose and how people read and perceive it. Just like you would chose your words carefully when giving a speech in a delicate situation, we as professional architects have to carefully pick our visual style to match what we want to say, and how we wish to say it. Since so much of our work is about communicating ideas that do not exist other than in our mind we have to be aware of how the way we communicate said idea affects other people's understanding of the idea itself.

If we can describe vastly different representations within the same framework we can start to understand what impact the visual style of representations has on the design dialogue.

I believe that with raised awareness of how we communicate visually we can become better at communicating the values of architecture worth fighting for, and in the debate expand the definition of architecture from the pure looks of a building to all its qualities, physical and abstract.

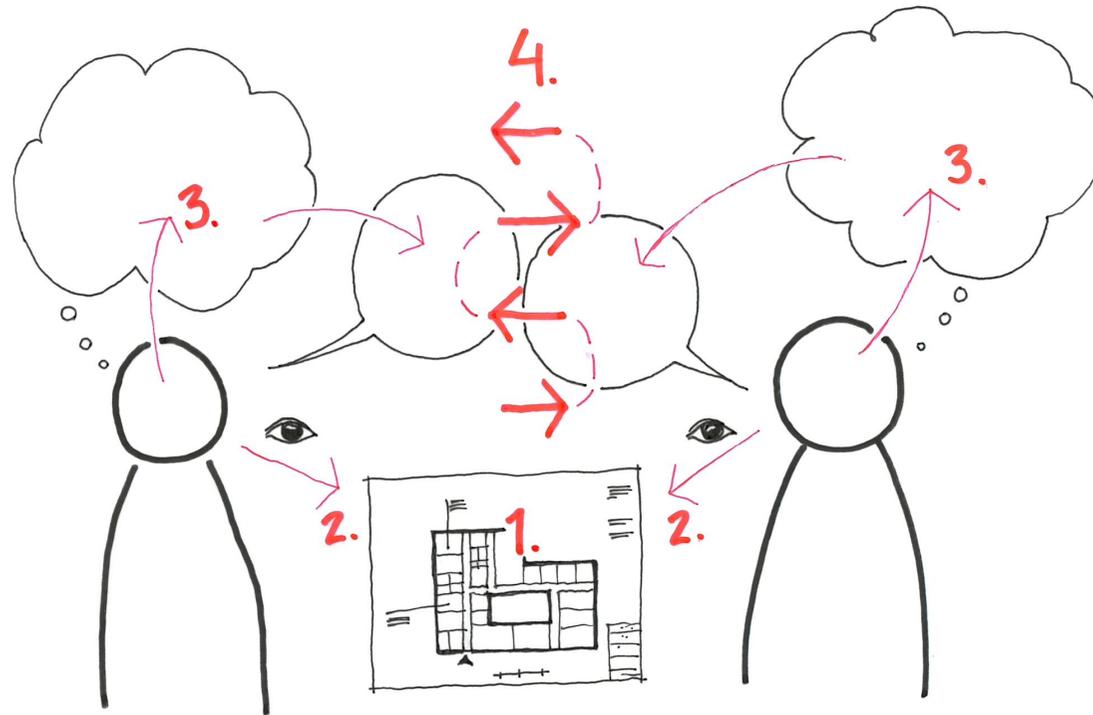


Fig. 50: Illustration showing how the layers that make up a representation of architecture affect the dialogue on the design it represents.

5.3

FURTHER RESEARCH

If I had more time, I would like to continue where I started (see figure 25, page 31). Now that I have my model to describe the visual style I could research *when* to use what type of graphical language with *what purpose* (figure 51). Thereby answering the question of how the dialogue is affected by the visual style in a dialogue between architects and users, and between architects and clients. In order to produce a material relevant for any architect working with participatory design.

Other possible continuations of research could be:

1. Research how the reading of visual media differs between architects and others, using the model to categorize the visual media used in the research.
2. Research how the model could be used to help with target group adaptation of visual material in a design process.
3. Research how the user judge, or read, the already built? What architectural values that we fight for are later on readable in the actual architecture? How does the architecture itself communicate to the user? My thesis investigates how we try to convey these values before it is built - how well do we succeed after the transformation into built architecture?
4. Investigating how the drawing style of the architect influence and shape the design itself, looking at the link between the design and the representation of design.
5. Expanding into my delimitations investigating the role of VR as means of visual communication with others than architects, by exploring the level of abstraction possible in a medium we submerge into (being surrounded by the visual representation) and the repercussions that this results in.

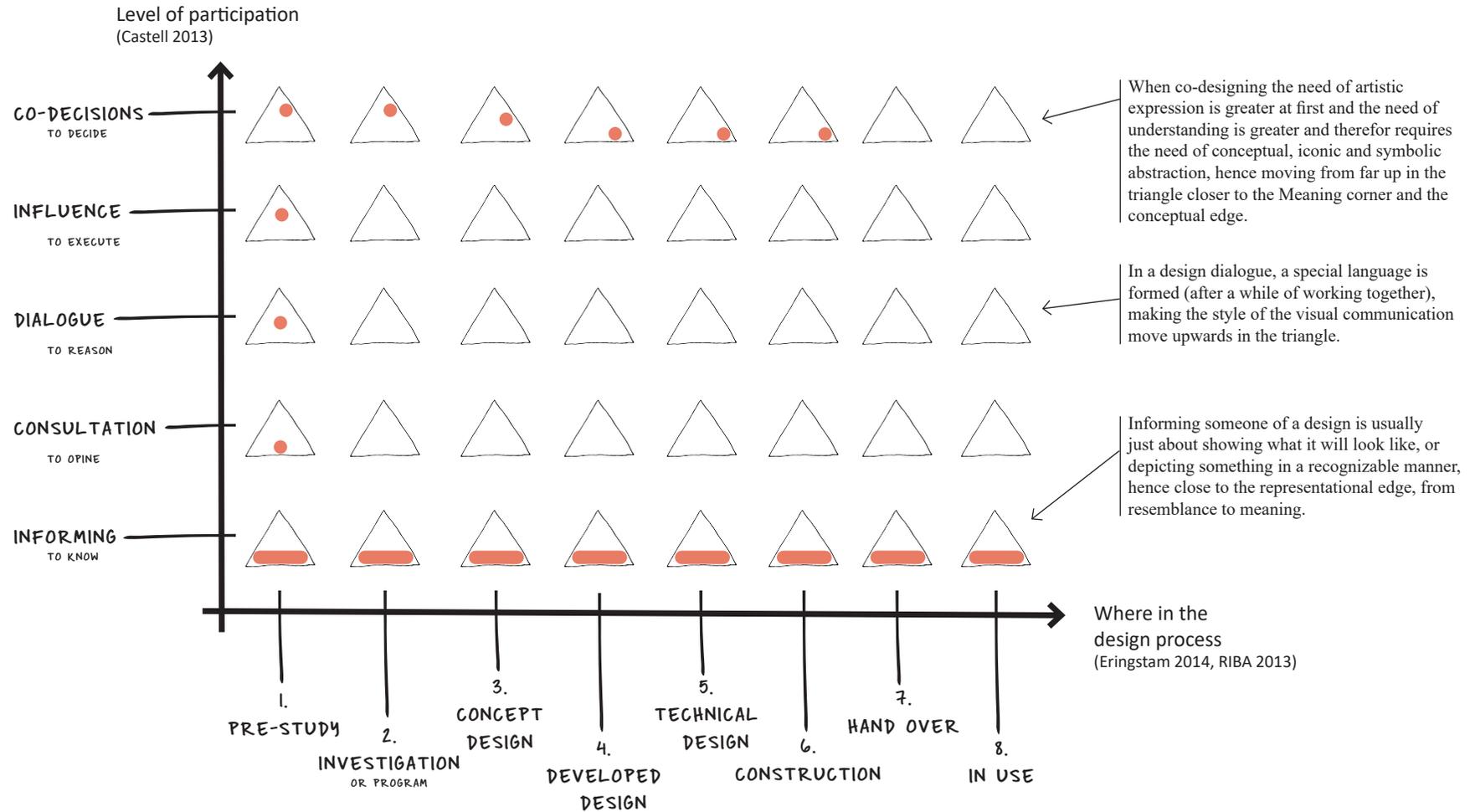
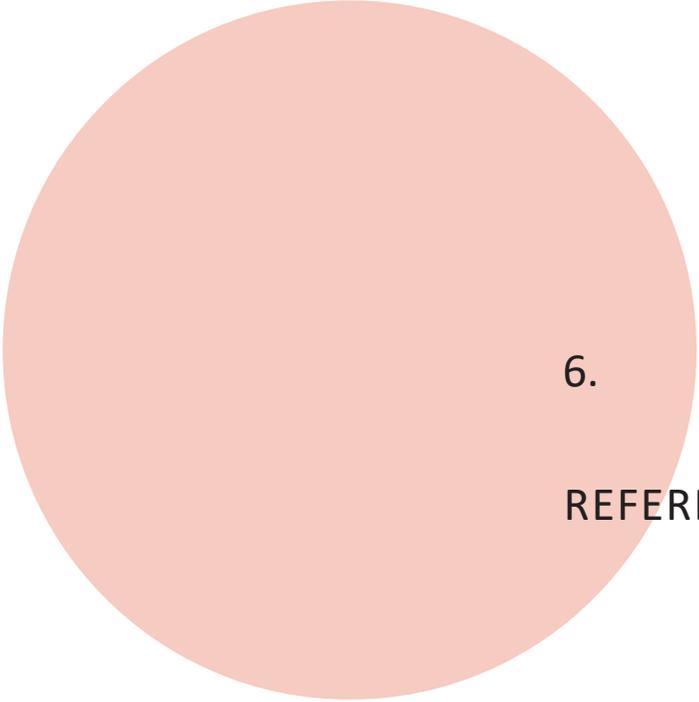


Fig. 51: With this model, it would be possible to within this diagram describe the visual style used best at what phase of the design process, aiming at what purpose. If I had more time, this is what I would develop. However, it needs more research into what is most suitable and how the material is received with the intended audience. Please note that the specified visual styles described within is just my educated guess, and not something I propose.



6.

REFERENCES

6.1

REFERENCES VISUALIZED

Every reference in the reference list is categorized according to which of the themes it relates to (fig. 52), visualizing what type of information I got out of it. To the right you can see the division of references after theme (figure 53).

Note that a reference can relate to multiple themes.

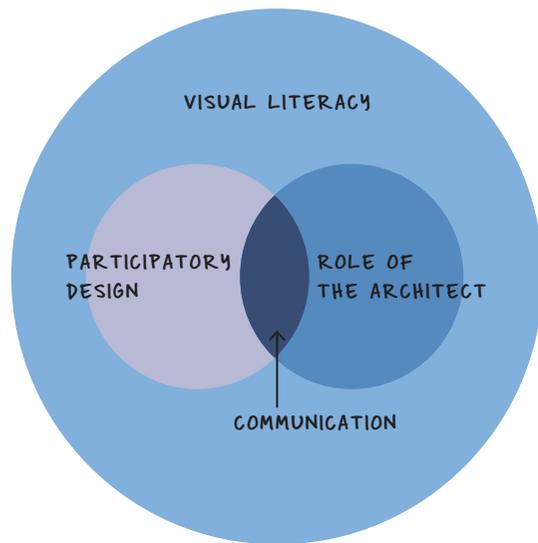


Fig. 52: The diagram of the themes to show their corresponding color.

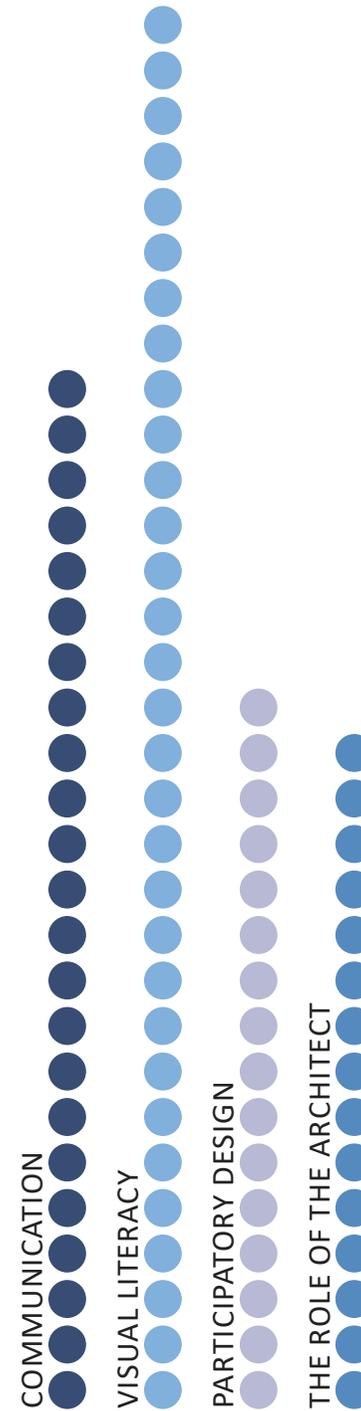


Fig. 53: References visualized.

6.2

REFERENCE LIST

6.2.1

CITED REFERENCES

- Abstraction (2018, May 17). In *Oxford Dictionary, English*. Retrieved from <https://en.oxforddictionaries.com/definition/abstraction>
- Aravena, A. (2014, October). *My architectural philosophy? Bring the community into the process* [Video file]. Retrieved from https://www.ted.com/talks/alejandro_aravena_my_architectural_philosophy_bring_the_community_into_the_process
- Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, 35 (4), 216-224. DOI: 10.1080/01944366908977225
- Bomble, L. (2016). *Communicative Interfaces for Planning – Social Learning in Participatory Local Networks in a Swedish Context*. (Licentiate thesis, Gothenburg, Sweden). Retrieved from <http://publications.lib.chalmers.se/records/fulltext/239764/239764.pdf>
- Castell, P. (2013). Stegen och trappan – olika syn på deltagande [Translation: The Stair and the Ladder - Different Views on Participation]. In Stenberg et al. (Eds.), *Framtiden är redan här: Hur invånare kan bli medskapare i stadens utveckling* (pp. 36-41). Gothenburg: Mistra Urban Futures., Chalmers University of Technology, Department of Architecture., University of Gothenburg, Department of Social Work.
- Communication (2018, May 17). In *Oxford Dictionary, English*. Retrieved from <https://en.oxforddictionaries.com/definition/communication>
- Dernie, D. (2010). *Architectural Drawing*. London: Laurence King.
- Eringstam, J. (2014). *Arkitekt 1.0: Guide för projekterande arkitekter* [Translation: Architect 1.0: A Guide for Architects]. Stockholm: Svensk Byggtjänst.
- Eriksson, J. (2013). *Architects and Users in Collaborative Design*. (Licentiate thesis, Gothenburg, Sweden). Retrieved from <http://publications.lib.chalmers.se/records/fulltext/192688/192688.pdf>
- Felten, P. (2008). Visual literacy. *Change: The Magazine of Higher Learning*, 40(6), 60-64. 10.3200/CHNG.40.6.60-64
- Fröst, P., Gustavsson, A., Eriksson, J., Lindahl, G. (2017). *Designdrivna dialoger: för arkitektur och samhällsbyggnad* [Translation: Design Driven Dialogues: for Architecture and Urban Planning]. Gothenburg: Center for Healthcare Architecture (CVA) Chalmers University of Technology.
- Jones, W. (2011). *Architects' Sketchbooks*. London: Thames & Hudson.
- Karlsson, J. (2017). *Retorikens Kraft: Hur arkitekter talar med beställare* [Translation: The Power of Rhetorics: How Architects Speak with Clients]. Lund: Studentlitteratur AB.
- Laseau, P. (1980). *Graphic thinking for architects and designers*. New York: Van Nostrand Reinhold Company.

- Lorenz, A. & Lizak, L. (1988). *Architectural Illustration Inside and Out*. New York: Whitney Library of Design.
- Holbo, J. (2012). Redefining Comics. In A. Maskin, R. Cook, & W. Ellis (Eds.), *The Art of Comics: A Philosophical Approach* (1st;1; ed.) (p. 3-30). Malden, MA: Wiley-Blackwell.
- McCloud, S. (1993). *Understanding Comics: The Invisible Art*. New York: HarperCollins Publishers.
- Müller, M. (2008). Visual Competence: A New Paradigm for Studying Visuals in the Social Sciences? *Visual Studies*, 23(2), 101-112. 10.1080/14725860802276248
- Palmeby, L. (2002). *Namnbyte: Ett arkitektoniskt projekt i skriven form* [Translation: Change of Name: An Architectural Project in Written Form]. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Riahi, P. (2017). Expanding the Boundaries of Architectural Representation. *The Journal of Architecture*, 22(5), 815-824. 10.1080/13602365.2017.1351671
- RIBA Plan of Work. (2013). *Guide to using the RIBA plan of work 2013*. London: Riba Pubns Ltd.
- Scott Frisch, N. (2010). *To See the Visually Controlled: Seeing-drawing in Formal and Informal Contexts*. (Licentiate thesis, Trondheim, Norway). Retrieved from <http://hdl.handle.net/11250/145832>
- Semiotics. (2018, May 17). In *Encyclopædia Britannica*. Retrieved from <https://academic.eb.com/levels/collegiate/article/semiotics/66717>
- Sherry Arnstein. (2017, June 27). in *Wikipedia, The Free Encyclopedia*. Retrieved 11 June 2018, from https://en.wikipedia.org/wiki/Sherry_Arnstein
- Treachery of Images. (2018, June 12) in *Wikipedia, The Free Encyclopedia*. Retrieved 19 June 2018, from https://en.wikipedia.org/wiki/The_Treachery_of_Images
- Uffelen, C. v. (2013). *The Book of Sketches + Drawings: Architecture*. Salenstein: Braun.
- Wikforss, Ö. (2016, June 13) *Rummets Renässans* [Translation: The Renaissance of the Room] [Video file]. Retrieved from https://www.youtube.com/watch?v=tIBdJf8-_mo
- Åhlström, L. (2004). *Att kommunicera arkitektur - dialog - inte bara arkitekter emellan* [Translation: To Communicate Architecture - Dialogue - Not Only Between Architects]. (Master's thesis, Chalmers University of Technology, Department of Architecture).

6.2.2

INSPIRATIONAL REFERENCES (NOT CITED)

- Axelsson, A. (2016). *Guilty (?) Pleasure: Exploring and Challenging the Role of Ornament in Contemporary Architecture*. (Master's thesis, Chalmers University of Technology, Department of Architecture).

- Bergstrand, L. (2016). *Kolandoto on Call: Developing an Emergency Department through Participatory Design*. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Boulé, J. (2014) *Co-designed Högsbo Community - Multi-faceted Design*. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Chung-Hwa, H., & Tsung-Lin, L. (2015). The Relationship of Creativity Between Architecture and Visual Communication Design. *International Journal of Organizational Innovation*, 8(1), 87-102. Retrieved from <http://proxy.lib.chalmers.se/login?url=https://search.proquest.com/docview/1698285215?accountid=10041>
- Desportes, B. (2016). *How this architecture firm is using VR to engage clients with its work*. Retrieved from <https://www.virtualreality-news.net/news/2016/may/12/how-architecture-firm-using-vr-engage-clients-its-work/>
- Dondis, D. A. (1974). *A Primer of Visual Literacy*. Cambridge, Mass: MIT Press.
- Evans, R. (1986). Translations from Drawing to Building. *AA Files*, (12), 3-18.
- Ewehag, H. (1986). *Skissen som arbetsmetod: Examensarbete i visualiseringsteknik* [The Sketch as a Method of Working: A Master's Thesis in Techniques of Visualization]. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Joklint, M. (2001). *Form Follows Image: Arkitekturmanagement och arkitektur som media ur ett marknadsföringsperspektiv* [Translation: Form Follows Image: Architectural Management and Architecture as a Media from a Marketing Perspective]. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Karlsson, J. (2014). *Retorikens kraft inom arkitektur: ett examensarbete om hur arkitekter talar, presenterar och diskuterar med beställare* [Translation: The Power of Rhetorics: A Master's Thesis on How Architects Speak, Present and Discuss with Clients]. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Lupton, E., & Ebook Central (e-book collection). (2011). *Graphic Design Thinking: Beyond Brainstorming* (1st ed.). New York; Baltimore: Princeton Architectural Press.
- Manning, A. D. (1998). Understanding Comics: The Invisible Art. *IEEE Transactions on Professional Communication*, vol. 41(1), 66-69. 10.1109. Retrieved from <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=661632&isnumber=14477>
- McLuhan, M. (2001). *Understanding Media: the Extensions of Man*. London: Routledge.
- Miranda Carranza, P. (2017). *Program Matters: From Drawing to Code*. (Licentiate thesis). KTH Royal Institute of Technology, Stockholm, Sweden.

- Novik, N. (2017). *Common Ground: A Tool for Dialogue and Decision-making to Encourage Sustainable Lifestyle in the City Neighborhood*. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Peris, M. C. (2015). *Let's Talk About Architecture Instead! A Way to Talk About Architecture with Non-architects*. (Master's thesis, Chalmers University of Technology, Department of Architecture).
- Rose, G. (2016). *Visual Methodologies: An Introduction to Researching with Visual Materials*. London: SAGE Publications.
- Rosell, G. (1990). *Anteckningar om designprocessen* [Translation: Notes about the Design Process]. Stockholm: KTH Royal Institute of Technology.
- Simu, F. (2016, May 13). *Fredrik Simu, Tengbom - Visualisering av vårdrum med 3D* [Translation: Fredrik Simu, Tengbom - Visualizing Patient Rooms with 3D] [Video file]. Retrieved from https://youtu.be/oD28YLJ_508
- Strate, L. (2017). Understanding the Message of Understanding Media. *Atlantic Journal of Communication*, 25(4), 244. 10.1080/15456870.2017.1350682
- Wang, D., & Groat, L. N., & Ebook Central (e-book collection). (2013). *Architectural Research Methods* (Second;2. Aufl.;Second;2; ed.). Hoboken: Wiley. Retrieved from <https://ebookcentral.proquest.com/lib/chalmers/detail.action?docID=1166322>.
- Zantides, E., Ball, R., & Ebook Central (e-book collection). (2014). *Semiotics and Visual Communication: Concepts and Practices* (1st ed.). Newcastle upon Tyne, England: Cambridge Scholars Publishing.

6.2.3

FIGURE REFERENCES

- Alp, M. (2018). *Dining Room* [Online Image]. Retrieved from <https://thenounproject.com/search/?q=dining%20room&i=938341#>
- OMA (2018). *Seattle Central Library - program section* [Digital image]. Reprinted with permission.
- Prawny. (2018). *Vintage, Old Fashioned* [Online Image]. Retrieved from <https://pixabay.com/en/vintage-old-fashioned-victorian-1892037/>
- Sousa, E. (2018). *Silverware* [Online Image]. Retrieved from <https://thenounproject.com/search/?q=knife%20fork%20glass&i=8907>
- Souza, P. (2011). *File:Passover Seder Dinner at the White House 2011.jpg* [Online Image]. Retrieved from https://commons.wikimedia.org/wiki/File:Passover_Seder_Dinner_at_the_White_House_2011.jpg

7.

THANKS

There are many people involved in my process from start to finish that I would like to thank from the bottom of my heart. They would fill this entire page, and they should: they mean the world to me.

Without you, no thesis.



Elke, thank you for being the best supervisor there ever was! You made me believe in my own skills and encouraged me to be brave, and for that I am forever grateful.



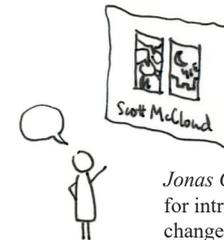
Edvin, with your unconditional love and support, I can handle anything, even this thesis.



My friends outside of Chalmers, thank you for reminding me that school isn't everything.



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*Jonas Carlson, thank you for introducing the book that changed it all: *Understanding Comics*.*



My thesis-buddies on the fifth floor, thank you for your input and support, and the wonderful discussions we've had.

Fig. 54: Illustration of all the people who have supported me along the way.

8.

ABOUT THE AUTHOR

EDUCATION

2011 - 2014 BSc in Architecture, KTH Royal Institute of Technology

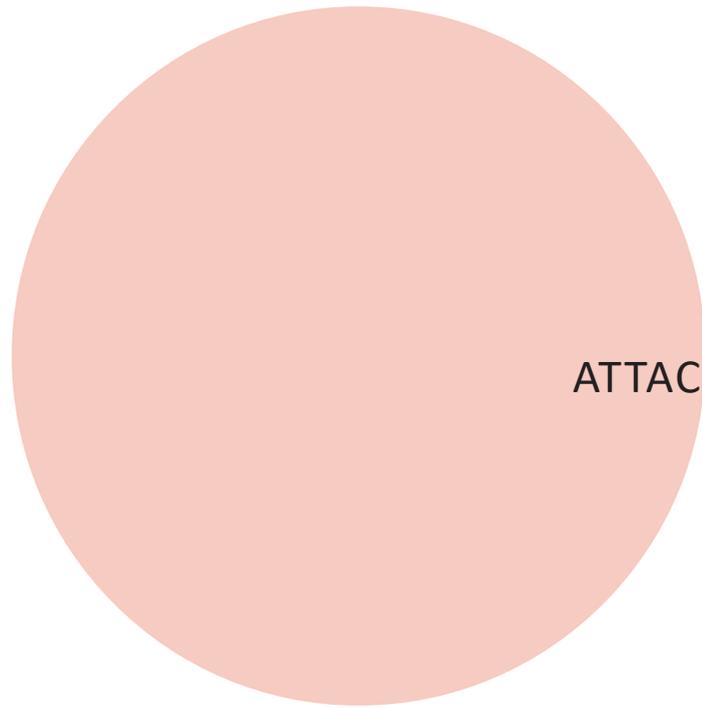
2016 - 2018 MSc in Architecture, Chalmers University of Technology:

- Sustainable Development and the Design Professions (7,5 credits)
- Planning and Design for Sustainable Development in a Local Context (22,5 credits)
- Design Systems (7,5 credits)
- Sustainable Architectural Design (22,5 credits)
- Masters Thesis Preparation Course 1 and 2 (3 + 4,5 credits)
- Future Visions for Healthcare, Housing and Work 3: Healthcare Architecture (22,5 credits)

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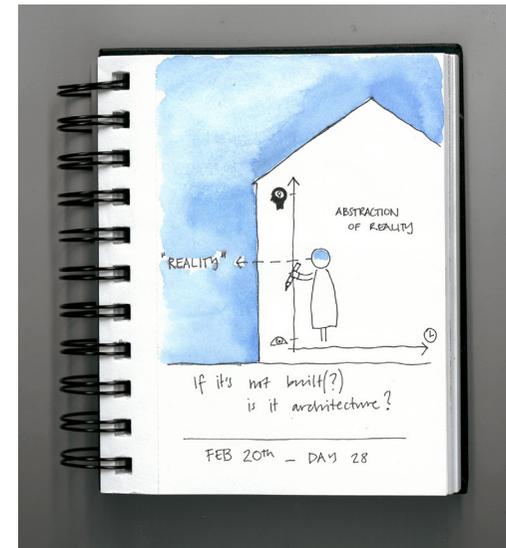
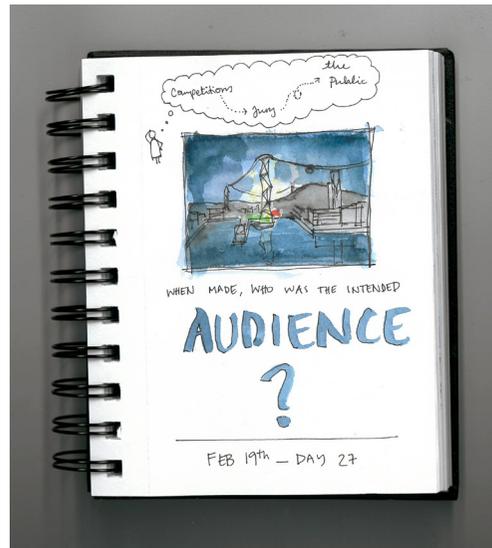
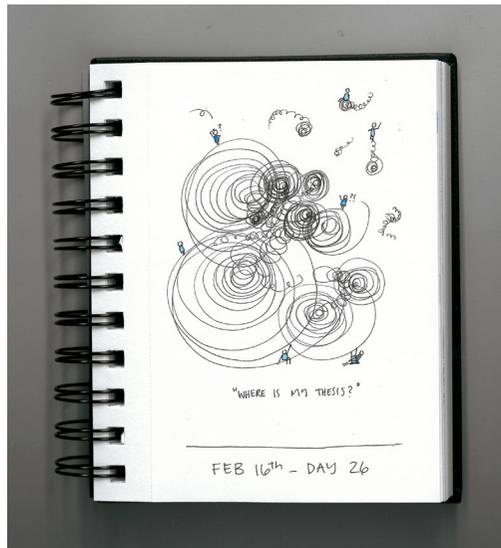
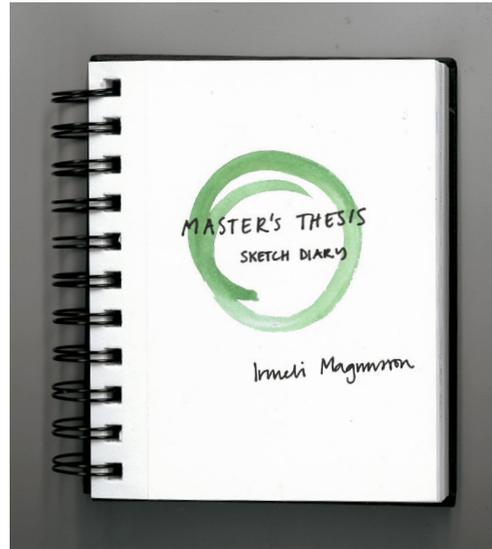
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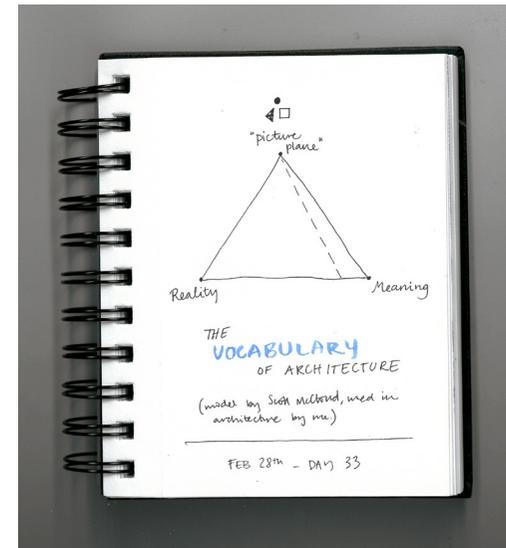
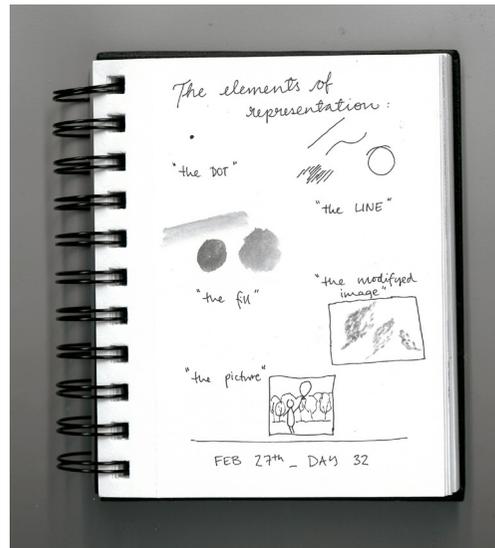
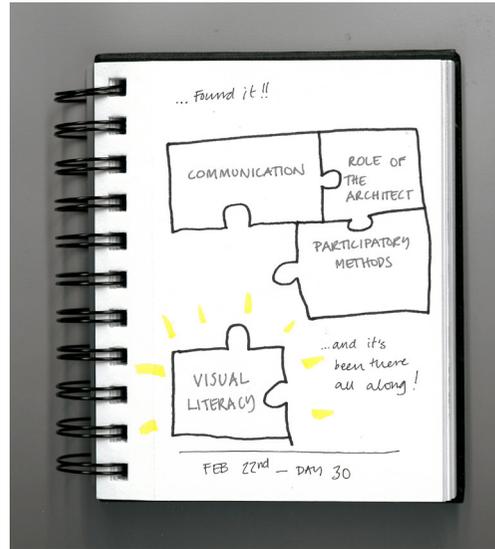
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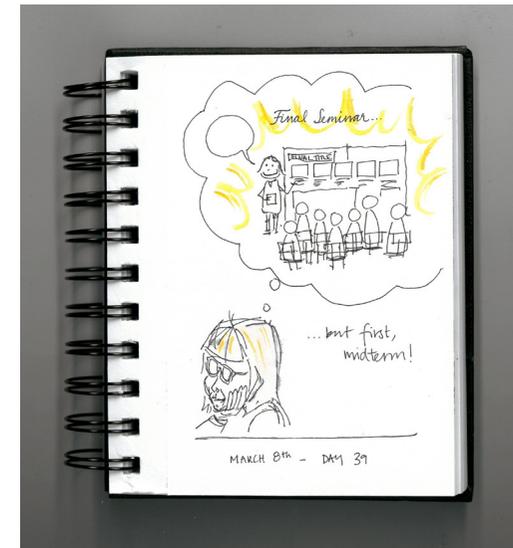
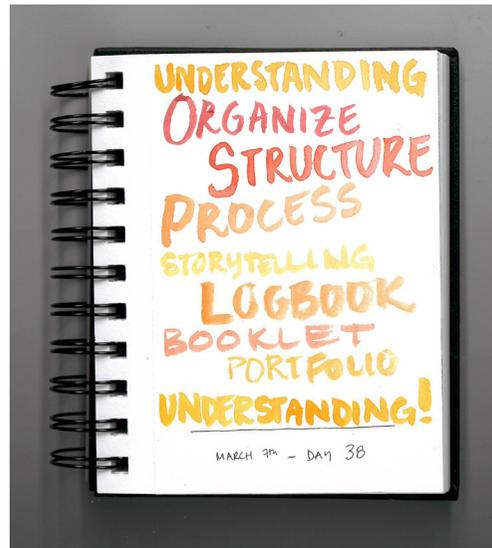
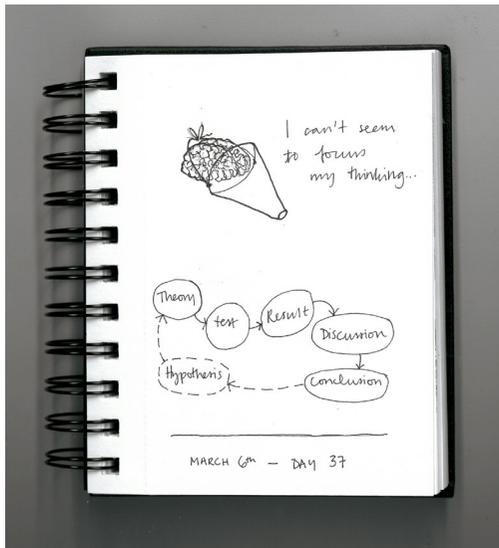
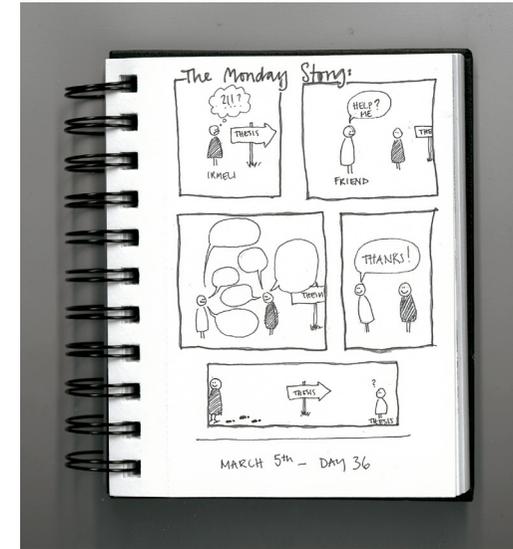
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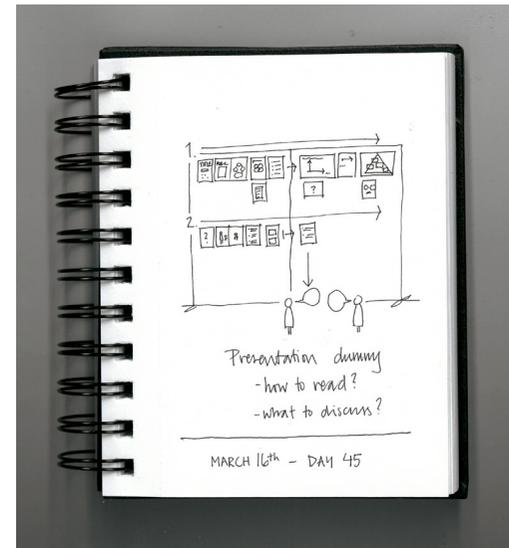
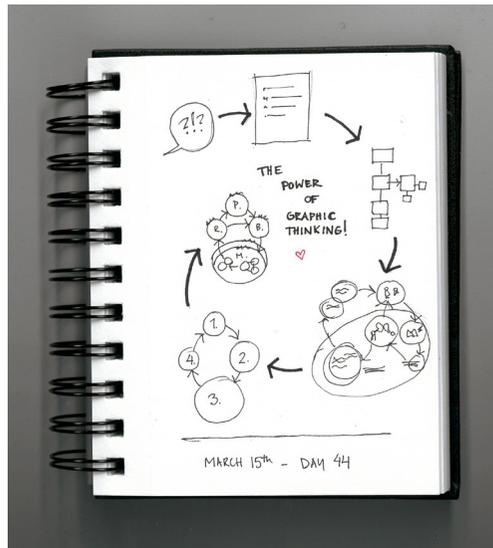
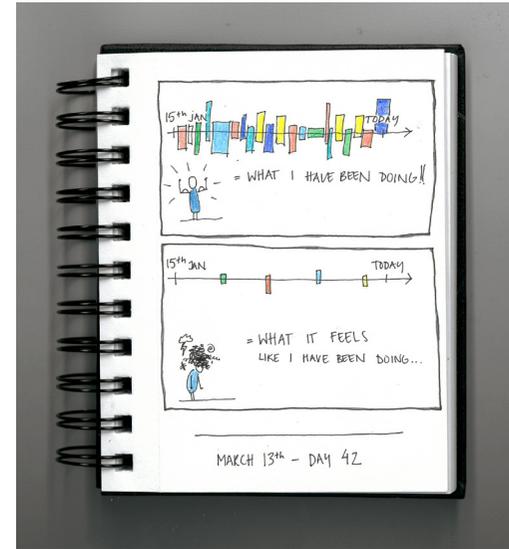
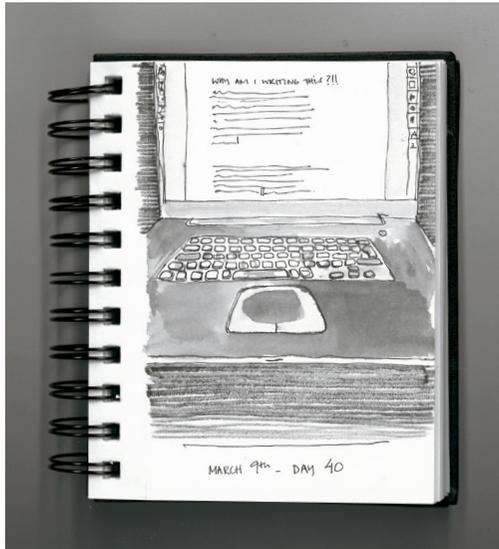
Some time had past since I started my thesis, and I missed the sketching that usually occurs in a design project. Feb 15th 2018, I decided to start a journal, ending every day with an unconditional sketch. To stay creative. Thank you Annie for the inspiration (Axelsson 2016).

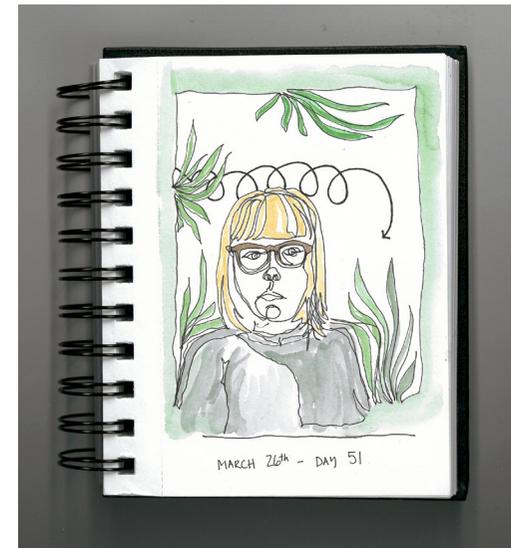
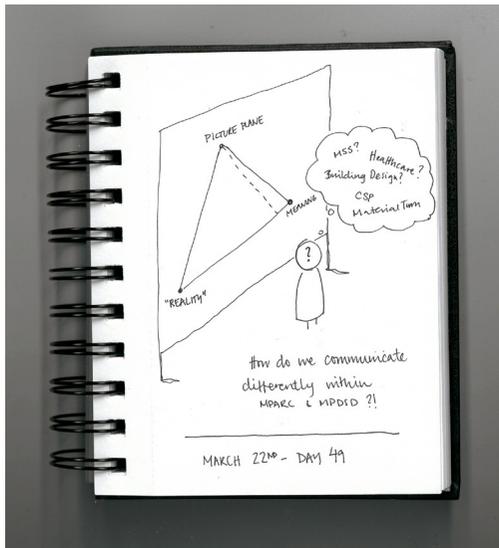
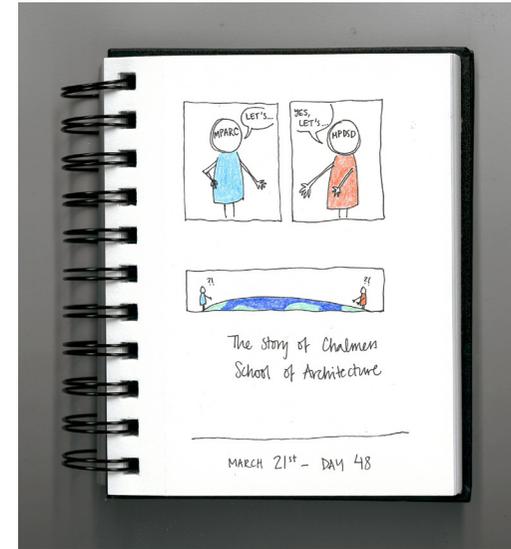
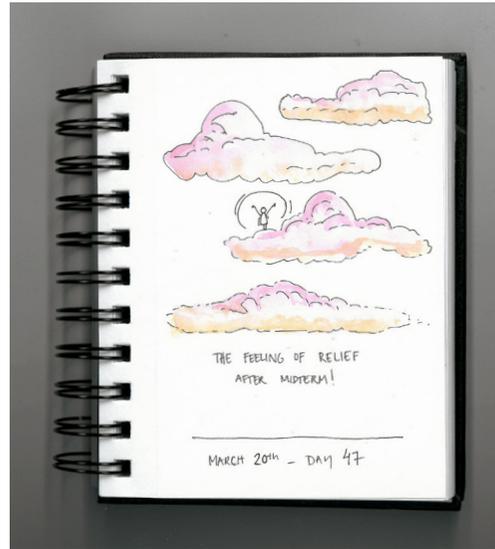
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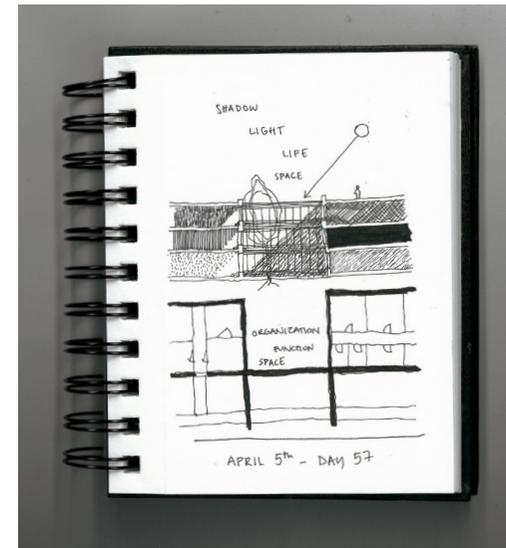
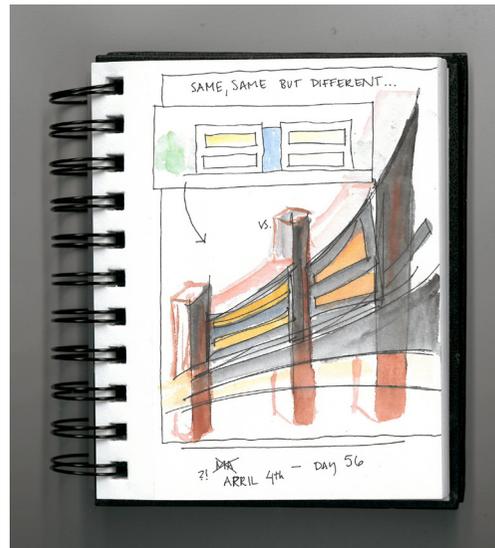
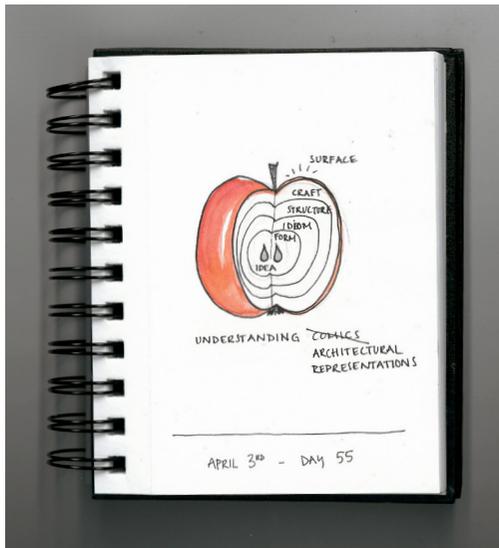
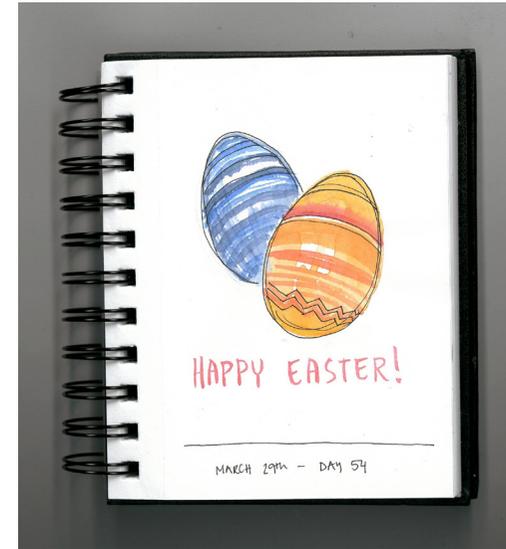
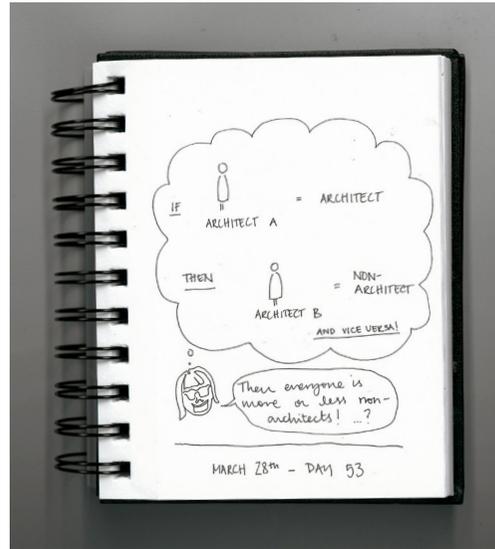


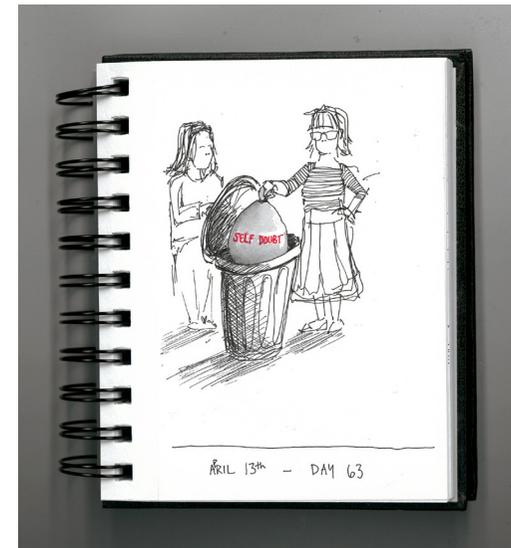
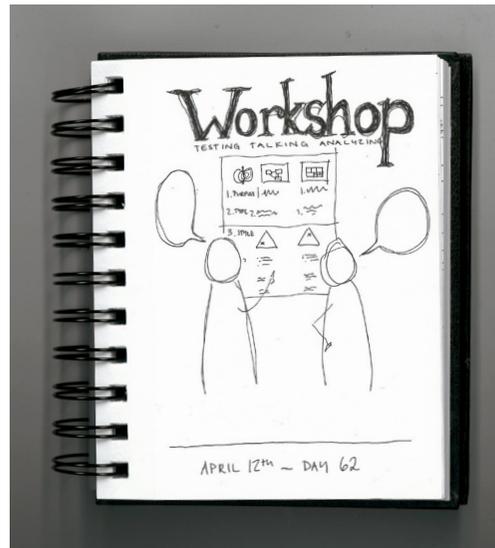
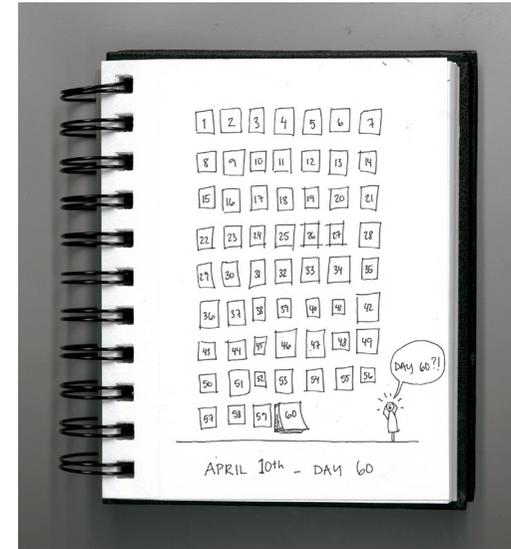
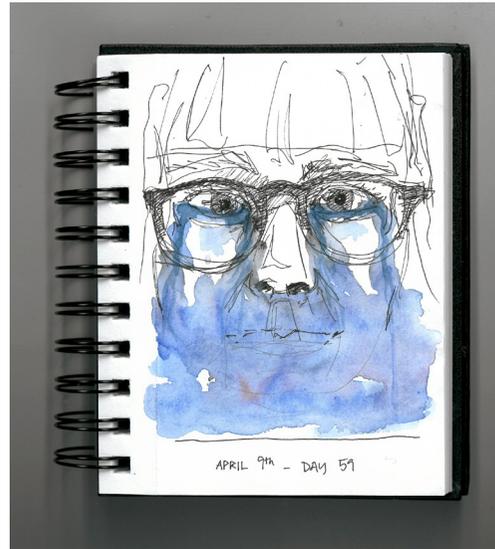


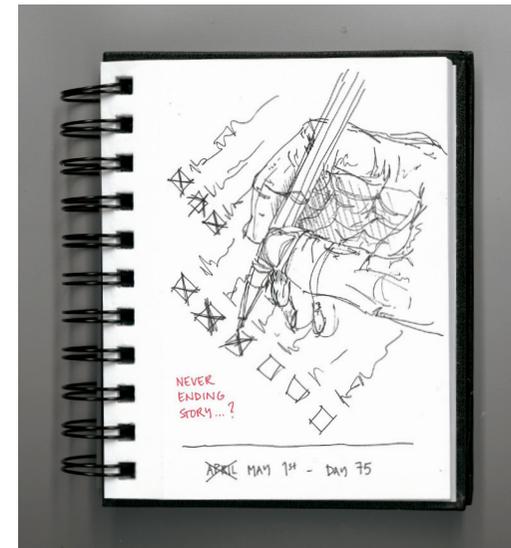
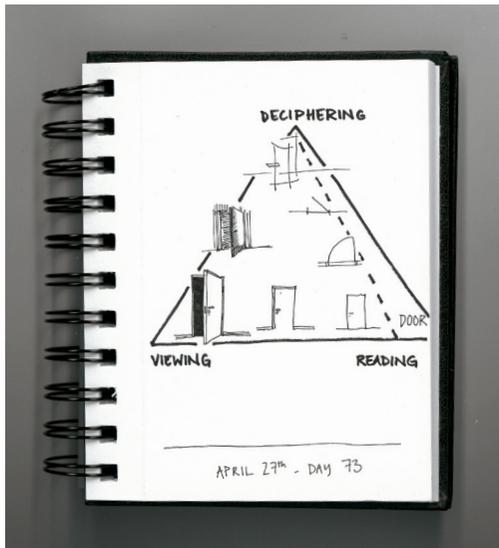
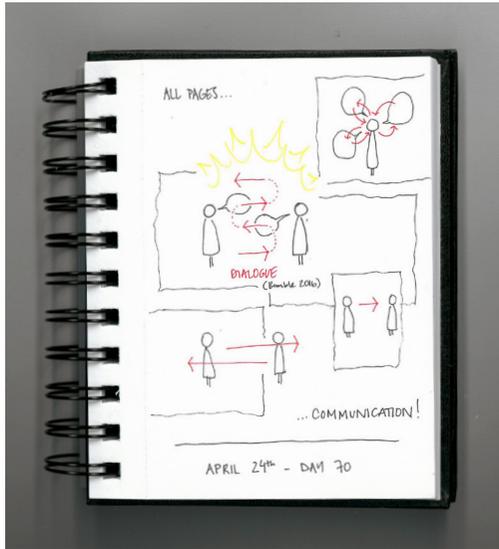


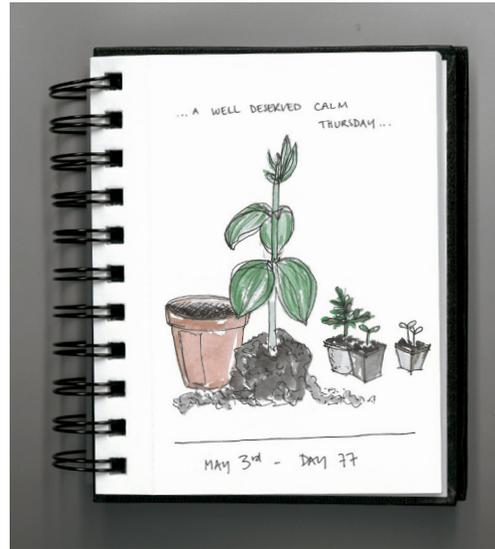


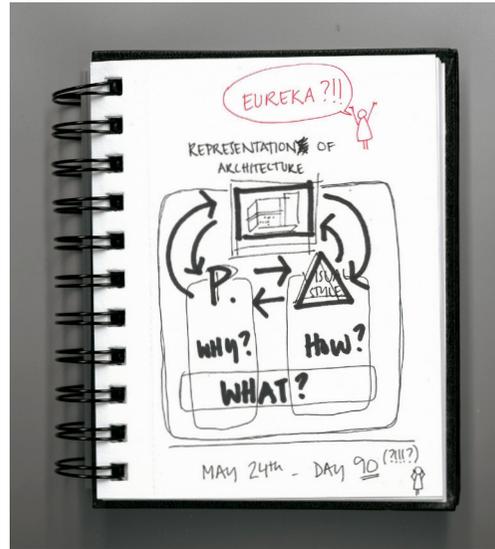
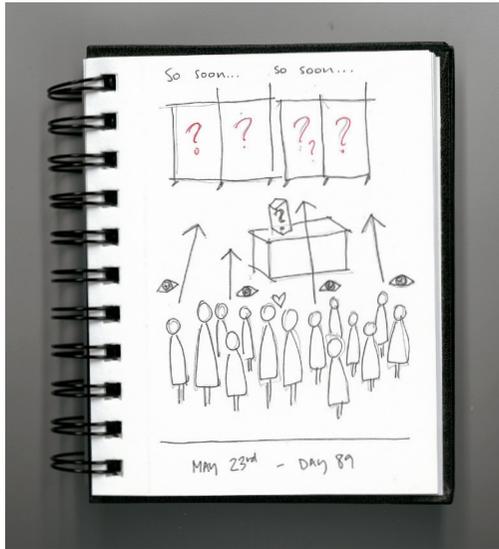












In this master's thesis I am proposing a new model that allows us to articulate and visualize *how* we as architects use our graphical language, and for what purpose.

Irmeli, 2018



CHALMERS