The 'common locus' within the architectural design process

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Abstract of the architectural design process involving both the expression of the intuitive and tacit as well as the rational and explicit. The purpose is finding out the role and influence of design approaches and design methods within the design process regarding these opposites by reflecting on my own process in two design experiments. Results show that, although very differently perceived, design approaches and methods are of significant importance functioning as the overarching structure. It is the dialogue between the tacit and explicit, the intuitive and rational, that shapes the design process. The acknowledgement and awareness of this fact can help communication between teachers and students but also architects and clients about the content of the design process, which too often is perceived as an unexplainable and mystique process.

Keywords Design process, Design method, Design approach.

Introduction

The what and how of design

As architects we have always had the opportunity and privilege to define and design the boundaries of spaces. We use certain approaches and principles guiding this process. The only way for us to define a space is by classifying it. We, often unconsciously, understand a certain ordering when we see one: the ing and ordering, of finding this 'common locus', is connection between separate elements and how

This paper reports on the exploration these together form a unity, a whole. This also works the other way around: sensing and indicating 'the odd one out'. This 'way of understanding' is also explained in Polanyi's theory of tacit knowing with the assertion that "we can know more than we can tell" (1966, p. 4). To further illustrate this phenomenon I will quote a passage of Borges.

> This passage found in the preface of the Order of things by Foucault (1994) quotes a certain Chinese encyclopedia in which it is written that animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (1) et cetera, (m) having just broken the water pitcher, (n) that from a long way off 'look like flies'. When reading this passage several questions arise, a few described by Foucault: what is the ground on which we are able to establish the validity of this classification with complete certainty? On what 'table', according to what grid of identities, similitudes, analogies, have we become accustomed to sort out so many different and similar things?(p. XIV)

> What is the coherence in the above in addition to the alphabetic numbering? It has to do with the urge we have to find an all-encompassing underlying structure beneath all the elements around us: the so-called 'common locus' (Foucault, 1994, p. XIV).

> In architectural design the urge of categorizno different.

of the Faculty of Architecture from the University of gion, politics, science or education. Also, when we Sydney order can be seen as the foundation of unity, look at the following definition of Architecture from and unified formal organization is the basis of much the Oxford dictionaries (http://www.oxforddictiongood architecture. It is the principle whereby many aries.com/definition/english/architecture): elements or parts, separated and isolated in themselves, can form a qualitative whole that is distinct 1. from its constituents. A whole is both one and many, simple and complex, static and dynamic. A whole is greater than the sum of its parts. (p. 445)

and professor at the college of Architecture in Antwerp. He explicates that creativity within the design activity is reflected in three ways: first the individual urge to self-expression of a designer, second the importance of designing a 'new and orginal' product; being innovative and third the attempt to find unity within the diversity of data and phenomena found in designing. The urge of self-expression and distinguishing yourself as a designer, which 1.1 Foqué mentions, has also always played a mayor role in Architecture. According to Lawson & Dorst (2009) designers distinguish themselves by using a 'guiding principle': "These are collections of overarching interests and values that expert designers Here is implied that architecture depends on a cerappear to acquire over time" (p. 180). These principles derive from a limitless set of domains like form, American Architectural theorist C. Jencks, in his shape, proportion, technology or sustainability. Theory of Evolution diagram (see figure 1), com-Research scientist Kotsopoulos (2007) calls it a con- bines this personal preference, or 'specialization' as cept: "an intended interpretation guiding the actions he calls it, of the architect knowable as the intuitive, of designers"(p. 2). It seems there are several design logical, self conscious or activist with certain style approaches within the architectural culture that exist movements like the Amsterdam school, expressionalongside each other although are called differently ism, modernism, post-modernism, etc. He says of like: concept (Kotsopoulos, 2007), ideology architecture nowadays that: that: "The first and (Billings & Akkach, 2006), quality, guiding theme strongest reason for the rise of the icon is the decline (van Dooren et all., 2014), parti (Bermudez, 2006), of the consensual monument: the decline of relihypotheses, philosophy, etc.. These examples con- gious and social narratives that sustained the public sider a design approach as a fascination or personal realm and its discourse" (Jencks, 2015). Followed by preference within the expertise of the designer a more positive note that: "the biggest victory of the

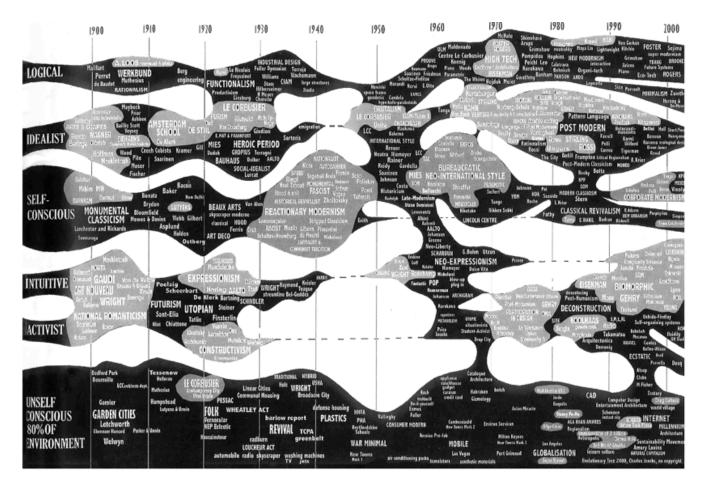
According to Professor Billings and Akkach (2006) without mentioning the influence of culture, reli-

The art or practice of designing and constructing buildings: 'schools of architecture and design'

'the art' seems to stand for some mystical way of This is also mentioned by Foqué (1975), engineer designing invented by the designer. When thinking of the profession architecture now it seems that the connection with place, culture and period in time too often is lost. The design approaches mentioned above relate to approaches of so-called star architects of the 21st century and the design of icon buildings. Let us look at a second definition of Architecture from the Oxford dictionaries:

> The style in which a building is designed and constructed, especially with regard to a specific period, place, or culture: 'Georgian architecture'

tain style and time period regardless the designer.



Theory of Evolution diagram (Jencks, 2015). Fig. 1

and the digital capabilities of design today, is the widespread acceptance of pluralism - at least in style and culture, if not in politics and tolerance" (Jencks, 2015). The pluralism Jencks describes is one of the reasons why the connection of design approaches with a certain place, culture, style seems to be lost. Clinical psychologist and psychoanalyst P. Verhaege describes this phenomenon within a changing society saying that "religion is replaced by science giving a new meaning to identity and ethics"(2015, p.700). The same applies for architectural design: the influence of religion is replaced by the influence of science thence design approaches now are more related to elements like technique and shape.

resurgent agenda, driven by globalization, Google Regarding this subject architectural theorists Billings & Akkach (2006) stated that as never before, people are now exposed, through Information Technology, to a whole range of ideologies and ways of thinking, which relate to many cultures not only throughout recorded history but also those which are currently evolving. This exposure is reflected in contemporary art and architecture, which is characterized by variety and change. The wide variety of formal expressions in contemporary architecture owes its heterogeneity to the rapidly changing ideologies of architectural design. [...] The ideological principles of individuals seem to derive from international trends of thought rather than from a particular culture or region. Ideology is here defined as a particular state of mind based on a

and appreciated. (p. 432, 431)

He also explains that there are several differences These examples show that there is not one corwithin these ideologies due to individuals with dif- rect method to use when it comes to designing. ferent personalities, cultural backgrounds, Both Avermaete and Schürer and Kuhlmann professional trainings and ways of thinking. The emphasize the relation of design methods with text above shows the urge of looking differently at the specific nature of a project. architecture and approaching design.

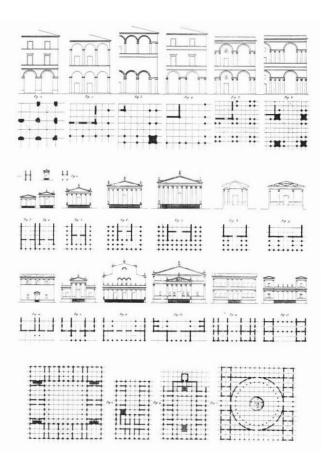
The diverseness in comprehending design approaches also applies for design methods.

The relation between them is described by Avermaete (2014), engineer and professor from the department of Architecture at the TU Delft, with an example of the architect Louis Durand: when Durand is no longer analyzing but designing a new building, he acts within the same episteme. His design for a new museum does not start from a programmatic analysis but rather from a typological proposal. It should come as no surprise that also the same tools are used. Indeed, we see again the drawing as the main tool of architectural action, both analytical and projective (p. 2) (see figure 2).

The design tool drawing is mentioned fitting the design method and approach, here called episteme, deriving from a typological point of view. The philosopher Flusser in Tools for Ideas (Gänshirt, 2007) describes a design method more freely as: "a method used by designers expressing their thinking, feeling Fig. 2 Jean Nicolas Durand 1802-1805, Precis des and wanting without any restrictions"(p. ...).

Scientists and Architectural theorists Schürer and Kuhlmann (2008) propose that it is thus important to choose a method that is most suit- The intuitive and rational in design able to the challenge of a particular assignment. I have always presumed that architects were to Familiarity with several methods offers the a great extent aware of their used methods and

set of principles, doctrines and any other form of designer the most flexibility. But a method is not mental concepts, which concerns a particular matter, a machine to solve architectural problems autoand within which framework this matter is viewed matically: it focuses, but does not curtail, the real work of solving design challenges (p. ...)



lecons d'Architecture. (Rodríguez, 2011)

architectural education and practice it seems this is not the case. Often architects are unable of explicating their design approaches to students. Architect Liesbeth van der Pol for instance calls designing: "an intuitive process, often, the concept can be seen only afterwards. Designing is not being bottom up, logical and conceptual" (personal communication research E. van Dooren, 2014). Schön (1984) used the following example to describe this dilemma: "when I ask bicycle riders which way they turn tions: how is this so-called tacit versus explicit the wheel in order to keep from falling many give the wrong answer, although they perform the right actions. Their knowing-in-action is incongruent with their descriptions of it" (p. 3). This corresponds with architects describing their design process as intuitive, mystique, complex and personal. Design approaches and methods are undeniably subject to a certain extent of implicitness. According to Architectural theorist and critic C. Abel (1981) the knowledge involved in architectural design is only ever partially explicit while the rest remains tacit. He also compares the architectural design process with Polanyi's theory of tacit knowing: "We acquire knowledge and skill without being consciously aware off all that is involved in the cognition" (p. 209). Professors Coyne & Snodgrass (1991) say there should be an effective dialogue between the intuitive and rational process in design.

Schön does offer some guidance by stating the importance of reflecting on our knowing-in-action when it comes to designing: "Competent practitioners can learn to reflect on their own reflection-in-action, revealing to themselves and others something of the way in which they function as on-line researchers, practitioners of on-thespot experimentation which can be rigorous or unrigorous in its own way" (p. 9). Maybe by reflecting on our knowing-in-action design processes can

approaches within the design process. Looking at Dooren, researcher and teacher at the faculty of Architecture TU Delft, there are undeniably similarities to be found between design processes. She defined a framework (van Dooren et all., 2014) describing five generic elements of design underlying different design methodologies: experimenting, a guiding theme, domains, a frame of reference and laboratory. According to van Dooren these generic elements can be found in every designer's process.

> The text above raised the following quesand rational versus intuitive thinking of designers expressed within the design process? How do these terms relate to design approaches and methods? With this the goal is explicating the often seen implicit design process. Much has been written about the design process (e.g. by N. Cross, 1992, 1996, K. Dorst, 1997, 2006, 2007 and B. Lawson, 2006) though these texts mostly address the design process as a whole. The focus of this paper is specifically on the role and influence of design approaches and methods using the framework of generic elements (van Dooren et all, 2014) to reflect and critique on the design process. First the design experiments will be explained and the main- and sub- questions are defined. Following the research method will be discussed where after the results are presented. In the final chapter conclusions and recommendations are described.

Focus of study

The research through design consisted of two design experiments for one fixed design task. The two main criteria for the design task were the suitability of the building for application of different design approaches and considering a manageable scale to be able to develop two designs within the graduation period. Eventually the proposed design is an art gallery on Katendrecht in Rotterdam. Although an be described to a certain extent. According to van interesting topic I will not elaborate on the typology

of museums. Summarized these typologies are the most open to interpretation and therefor fit best with these experiments. The two experiments were developed as far as the sketch phase (SO). For comparison statements were made within different scales concerning the urban context, the building as a whole and the building detail. The research outcome and requirements for graduation determined how to proceed after the reasearch period (P3).

The two design experiments are based on the use of specific guiding themes, as defined by van Dooren et all. (2014), chosen and explained below. These derived from inspiration found in literature studies, lectures and interviews with architects about their ways of designing and my own preference:

- "No specific guiding theme": the development of a design without a certain approach. The aim of this experiment was researching the necessity of a certain design approach within the design process.
- 2. "Literary guiding theme": Are there more qualities to achieve within the design when thinking of the relation between architecture and literature? How can this be translated and abstracted in design (research)? Architecture can be seen as a documentation of the past in material. Literature can be seen as a documentation of the past in writing. A juxtaposing of the physical and mental. Both are multi interpretable in our thoughts and memories because they are never unambiguous but shaped, formed and deformed by experiences, associations, fantasies, ideas, culture, education, etc.

French writer Patrick Modiano describes the scenery of the city of Paris throughout the perspective of characters who (re)live their life by reminiscing at certain places. Thinking of people, thoughts, spaces and associated feelings. On the other hand these characters also finds themselves in so-called 'neutral zones'. Places were they have no specific memory of or attachment to. These neutral zones provide the freedom to do whatever, randomness can take place and everything is still up to chance. The characters Modiano writes about are always on some sort of eternal quest, unaccepting or unaware of their faith, trying to grasp the meaning of (their) life throughout their memories.

This raised the following question: how do our memories relate to neutral zones we find ourselves in, trying to grasp the meaning of life? In relation to the design: How are our memories of influence on how we feel in- and look at a certain place. How can visitors of a gallery be educated and included in the exhibition of Katendrecht and the city of Rotterdam. Because for me an exposition space in the 21st century should be about providing information and sharing knowledge regardless the subject. On the other hand what is the addition of these so-called neutral zones Modiano describes, when thinking of the importance of freedom, chance, randomness? How can and should this be entwined? It's maybe a question of the implicit versus the explicit? And maybe the most important question of all: how much of all of this is up to the architect?

The main question of the paper focuses on the relation between design approaches and methods within the design process. To be able to answer this question a few sub-questions are formed: (1) What is the role of a design approach is within the design process? (2) What is the role of a design method within the design process? (3) Is it possible to design without a design approach? (4) How are the rational and intuitive expressed within the design process? (5) What is distinctive for each experiment?

Method

The aim of the research is explicating the design process. To execute both two experiments it 1. was necessary to switch between the role of a 'designer' as well as the role of a 'scientist'. This is what Schön (1984) would call reflecting on my 'knowing-in-action'.

To accomplish this goal several methods were used. The foremost method to reach 2. this goal was research through design and keeping a logbook that originates from O. Pedgley (2007). According to Pedgley there's an efficient way of capturing and analysing your own design activity with help of an 'end-of-the-

day-diary' containing three types of 'pro forma stationery' of which I used two (see figure 3):

- 1. The 'no detailed entry' A4 stationery. This acts as a record of the main activity carried out each day of the project. The purpose is to track the specific subject within the design process that day within a broader project context.
- 2. The 'standard' A4 stationery. This provides blank space to contain general diary entries. It allows freedom of expression in any textual or graphical style. This should als be filled in each day of designing.

♦ Logbook of Designing		♦ Logbook of Designing
No detailed entry		Standard
Day Month Year Duration	Day's main activity	Day Month Sheet Main Activities
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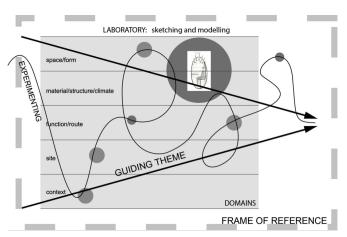
Fig. 3 'No detailed entry' and 'Standard' A4 stationery (adapted from Pedgley, 2007).

To this stationery of Pedgley I added a third stationery:

- 3. The 'generic elements' A4 stationery. This originates from the framework of E. van Dooren (2014). This stationary will only be filled in at the end of each of the designs. With the content of this logbook the similarities The framework describes the following five and differences in use of design approaches and generic design skills underlying different design methodologies (see figure 4):
 - 'Guiding theme': a focus, an inspiring direction or qualities, something to hold on to in an almost endles field of possibilities and to give character and coherence to the design.
 - 'Laboratory': the visualisation of thoughts closely connected with the use of a certain design method. Examples are: sketches, diagrammatic drawing, modelling, 3D modelling, painting, mapping, filming, etc.
 - 'Frame of reference': thinking of patterns, • images, literature, movies, paintings, clothing, people, places, etc. It's the knowledge stored in the built environment and in theory. Architects build up a growing library during their education, work and life. It's used consciously or unconsciously and modified and applied within the design process.
 - 'Experimenting': defined in the broadest Guiding theme sense meaning all sorts of exploring and decision making based on for example analysing, collecting, abstracting, associating, comparing, testing, evaluating, taking distance, etc.
 - 'Domains': for architecture five domains • are defined: (a) space and composition, (b) material, climate and structure, (c) function

and movement, (d) site and (e) socio-cultural, historical, philosophical context. Designers make statements, choices in all these domains, and in these domains a lot of criteria have to be dealt with.

methods were researched and described. The results in the following paragraph are described in relation to these five generic elements.



The five generic elements in the design processs (van Fig. 4 Dooren et all., 2014).

Results

In the first experiment the focus was on the possibility of designing with "No specific guiding theme". This seemed to turn out to be impossible after getting stuck in the design within two weeks. Eventually the process rebooted by using a specific design method. In experiment II a literary guiding theme was used. This principle relates to my personal fascination regarding the relation

between literature and architecture contributing to the design research of a gallery, by embedding how we deal with history of places through the memories we have or on the other hand the neutrality we feel. The role of literature as a guiding theme functioned as a source of inspiration. This made experimenting and decision making easier than in experiment I. Different elements of the design process, like references, decisions and options researched in domains and use of methods all attributed to- and could refer in a specific way to this guiding theme. Overall this concluded in a stronger feeling that all elements of the design together formed a unity.

Distinctive for experiment I was the constant urge of organizing the different design elements. Questioning how decisions about for example the domains construction, function and context together could form a coherent whole, a unity? The search for a certain ambiance, experience of space and human scale overarched and connected all the specific design criteria. The same can be said for experiment II. Although using a 'literary guiding theme', the search for ambiance, etc. was very much present in a implicit way.

Laboratory

In the research part of experiment II the tools fitting with the guiding theme based on literature consisted of texts from the location of my own, historians and storytellers. The tools fitting with senses as a method were sound fragments, fragrances and sights in photo's and sketches of several sources including my own. Eventually these were implemented in a collage to grasp the essence of the location. For the design part the tools used are similar to that of experiment I: 2D, 3D sketches for the first design ideas and Sketchup, Autocad to use for the developing of the design. In both experiments there is a division recognizable in three phases: the rational, intuitive and reflective phase. Hand sketches give the freedom to experiment and think making it a more intuitive tool while the computer is used more analytical and rational to further develop rough sketches. After this a phase of reflecting and critiquing took place in text form (see figure 5). Specific for experiment II was the use of

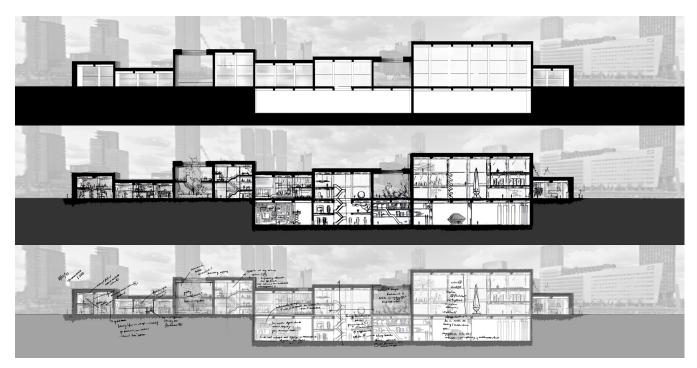


Fig. 5 From top to bottom: the rational process, intuitive process and reflection process regarding experiment I (own illustration).

axonometric drawings and perspectives related to different storylines. This suited the literary guiding theme best.

Frame of reference

References were applied in both experiments abstractly and concrete. Some of them closely related to design methods. References of museums for example were used in an abstract way defining patterns in routing, organization, function, efficiency and light. References regarding the domain construction and in specific detailing were used more concrete when thinking of façade layering, climate systems, measurements, thickness and height.

The patterns of C. Alexander inspired me to use several design criteria as a method to design in experiment I (figure 6). The two weeks before setting up these criteria the designprocess got blocked. The appliance of these criteria enabled me to answer questions concerning the different domains which I could not answer in the two weeks before because I had no guidance whatsoever. Everything seemed possible until that point. This means these criteria were a necessity to be able to start designing. Also in experiment II the relation with design methods is strong as well as the relation to the literary guiding theme. Architect and writer K. Havik provided an overview in her thesis Urban Literacy on how to use literature as a method or strategy in design research. The famous book Townscape of G. Cullen provided the same inspiration in discovering how to walk through and experience spaces from different points of view. Significant for experiment II was the influence of several novels of P. Modiano and the book Invisible Cities of I. Calvino. These novels inspired me to think of different ways to describe, see and draw places. In both experiments I used the reference book Neufert's Architects Data for spatial requirements in building design and site planning to figure out if and why some functions should exceed minimum measurements or accustomed shapes in relation to the design approach and/or method

Experimenting

The largest part of both design processes was

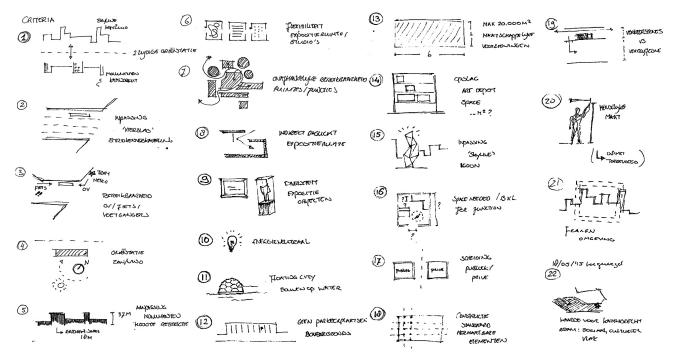


Fig. 6 Diagram of the design criteria from experiment I (own illustration).

occupied by experimenting in a specific way. This includes researching, analysing, associating, reflection and decision-making. Experiment I being a more linear process and experiment II a more circular one. Experimenting is done in a sometimes explicit or implicit way. In general experiment I seemed to be more of an explicit and rational process. After setting up several criteria decisions were made based on my personal preference, thinking of the best fitting solution and relying on my expertise as a designer. The exploring of options in experiment II had a close connection with the literary guiding theme. This made the experimenting also rather intuitive: sketching different options while not being aware of the qualities yet. This is why it relates to a form of tacit knowledge where only after reflecting on these sketches I could distillate the significance.

Domains

The domains shape, function, routing, material, urban context and socio-cultural context all have been addressed in a somewhat circular way in both experiments ending with material and detailing (see figure 7). Within experiment I the domain context and socio-cultural context are the least developed. In experiment II the domain context is again a bit underexposed.

The domain socio-cultural and philosophical context is quite good explored in experiment II because of the overlap of this domain with the literary guiding theme.

Conclusion and recommendation

Design approach & design method

The overarching elements associated with the design approach like self-expression, education, styles, movements and culture appear in both design experiments in an implicit way. First of all the level of self-expression and distinguishing yourself as a designer unconsiously plays a role in my design process. A certain recognizable style of drawing, e.g. perspective sketches, reflects my 'way of designing' and is how I unintendedly distinguish myself. Secondly the linear design

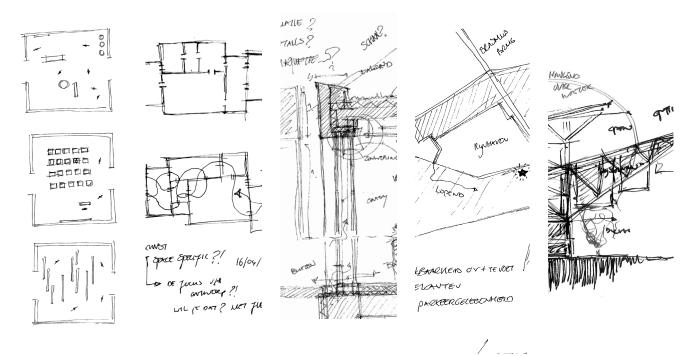


Fig. 7 From left to right the domains: function, shape, construction, site, cultural context.

process, of starting with context and ending with detailing, can be found in both experiments. Designing related to function, program and context, apparent in these experiments, rather than shape, form and expression is generally taught at the faculty of Architecture in Delft. Looking at styles and architectural movements, again, these are not considered consciously in the design process but the influences are there. The architecture itself, with rough materials like concrete and steel, considering detail and ornament, wanting to create a building of significance, a preference towards geometrical shapes and looking at function, relates to a plularism of styles. Finally my upbringing and the culture I grew up in are of significant importance in my design. My frame of reference is build up by my memories of buildings, places, and images seen in the Netherlands. An overarching design approach containing the elements discussed had a significant impact on both the design processes.

Within both experiments design methods were used. These methods related closely to the guiding theme, frame of reference and my personal preference. The criteria in experiment I (see figure 6) seemed to function as a method to structure and in some way rationalize the design process, which until then was discontinued. In experiment II the literary guiding theme offered the possibility for the juxtaposition of several design methods. The use of literature and senses (smell, scent, sight, hearing and taste) as a method provided several tools to design with.

[De]control in the design process

The results show an overlap between the terms design approach and guiding theme. Therefor a division should be made when speaking of a design approach. Answering the first subquestion a design approach for me entails the 'baggage' of the designer including culture, upbringing, education and fascinations. Because the term includes these seperate elements it remains partially tacit and intuitive but is always represented within the design process. Though, while most of these elements are more or less imposed, the element fascination relates to the personal preferences of the designer. Let us compare this to the framework

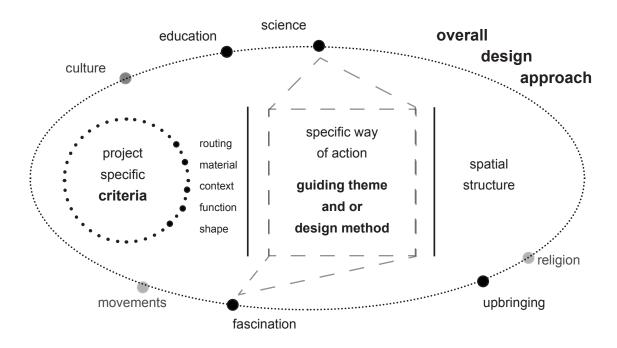


Fig. 8 Diagram of the definition of an overall design approach (own illustration).

is defined as: "an inspiring direction: a guiding theme or qualities as something to hold on to during the design process and to help create a coherent and consistent result (p. 8)". This inspiring direction relates to the personal preference and fascinations of a designer. Therefor a guiding theme can be placed within the overal design approach functioning, next to design method, as as a more explicit, abstracted and specific element. This guiding theme is triggered by fascinations or by inspiration found in the project at hand. Nowadays this derives more from a scientific point of view whereas before it derived from a religious time period. The shift of focus makes sense in an ever changing society (see figure 9).

Relating the above to the design experiments the specifically chosen literary guiding theme used in the second experiment relates to my fascination regarding the relation between architecture and literature. This guiding theme can develop throughout the process as a train of thoughts overarching the criteria and preconditions of the building and site. It then emerges in an intuitive way while designing. It also gives the confidence that the design forms a unity, or whole, which eventually is what designers are looking for. The experiments also show other possibilities: designing without a guiding theme or specifying one beforehand. This means it is not obligatory to use a guiding theme when designing although it does provide guidance and a direction making it especially usefull for inexperienced designers who have not fully developed, or are aware of, their design approach.

Answering the third sub question this means that it is impossible to design without a design approach if defined as mentioned above. Simply because you can not erase your 'baggage' as a designer and go into a design unbiased.

of van Dooren et all. (2014) where a guiding theme A guiding theme usually fits best with a specific method. The sequence of appearance within the design process is not fixed. It is possible to first develop a design method and afterwards think of a guiding theme or the other way a round. As already mentioned in the introduction by Schürer and Kuhlmann it gives focus within the design process. Regarding the term design method I agree that with every project there is a particular, best fitting method. While using such a method, you as a designer, should be able to think, act and design as free as possible, as Ganshirt also mentions, within the, sometimes, invisible boundaries of your knowledge and experience (see figure 9)

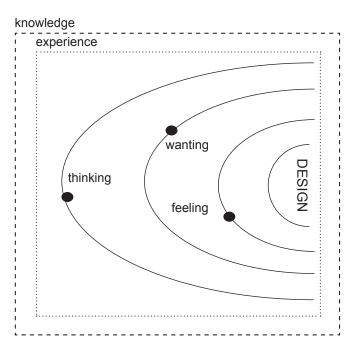


Fig. 9 Diagram of the definiton of a design method (own illustration).

Answering subquestion two while a guiding theme can be used as inspiration source very intuitively, a design method on the other hand converges,

structures and provides order. A design method can therefor be considered more rational and explicating the design process.

Summarized the explicit and rational cannot exist without the implicit and intuitive. It is the dialogue between the tacit and explicit, the rational and intuitive, already described by Coyne & Snodgrass, together shaping the design process.

As well architectural practice as architectural education can benefit from being more aware and acknowledging both the explicit and implicit within the design process. Between architects and clients and teachers and students it is helpful in communicating about the design process, specifically in explaining spend hours of designing. For students it is crucial to feel more comfortable in [de]controling the design process. It is meaningful to learn about, and be aware of, underlying generic elements to fall back on while designing but at the same time you should trust your intuitive thoughts and see designing as a trial-and-error experiment.

Discussion and limitation

I should mention again that all the results and conclusions are only based on my personal design experience within this research. It seems impossible to think of my design process without including intuitive and tacit thinking, questioning, reflecting and critiquing processes, sketches and trial-and-error experiments. Then again, it was never my intention to defragment the design process providing some sort of toolbox to successfully develop a design and explicate the whole design process. It is undesirable to lose the mystique, which has always been associated with designing.

The level of self-expression and distinguishing yourself as a designer, as explained by Foqué, seems less relevant for designers now who, stimulated or forced by the economical crisis which I will not elaborate on here, are more thinking of co-creation, sustainability, etc. than it was a century ago with the so-called 'star architects' creating iconic buildings. Although this is a positive development I do believe that on the faculty of Architecture on the TU Delft we are still educated as individual designers. I would propose that for a further research on this topic more experiments should be done with multiple students relating more to architectural practice. Having studied only in the Netherlands I can only judge the influence of culture relating to my own process. When designing with multiple students they all would add their own 'baggage' to the process making the differences between design approaches more clear. I agree with Jencks that the mixture of movements found in my own design process has to do with the acceptance of pluralism in styles excising alongside each other instead of following one main movement. In the development of this topic it is interesting to delve deeper in research regarding the history of designing and the origin of Architecture. Finally, switching between designer 'mode' and scientist 'mode' turns out to be difficult within the process. In the so-called flow of designing it is hard to stop, look over your own shoulder, and reflect upon what you are doing. There is always the fear of not being able to get back into the designing 'mode'. This consequently meant that in the process not all thoughts and questions that came up were immediately documented.

References

Abel, C. (1981). Function of tacit knowing in learn ing to design. Design Studies, 2(4), 209-214. Retrieved from http://www.sciencedirect.com/science/article/pii/0142694X81900521

- Alexander, C., Ishikawa, S., Silverstein, M., & Jacobson, M. (1977). A pattern language; towns, buildings, construction. New York: Oxford University Press.
- Avermaete, T. (2014) Architecture and Its Epistemes: Lecture Notes for Students. Retrieved from https://blackboard.tudelft.nl/webapps/portal/frameset.jsp
- Bermudez, J. (2006). On the Architectural Design Part. https://www.academia.edu/4020964/ On_the_Architectural_Design_Parti Retrieved from https://www.academia. edu/4020964/On_the_Architectural_ Design_Parti
- Billings, K., & Akkach, S. (1992). A study of ideol ogies and methods in contemporary architectural design teaching: part 1: ideology.
 Design Studies, 13(4), 431-450. Retrieved from http://www.sciencedirect.com/science/article/pii/0142694X92901716
- Cross, N., Christiaans, H., & Dorst, K. (1996). Analysing design activity. Chichester: Wiley.
- Cross, N., Dorst, K., & Roozenburg, N. (1992).
 Research in design thinking; proceedings of a workshop meeting held at the Faculty of Industrial Design Engineering, Delft University of Technology, The Netherlands, May 29-31, 1991. Delft: Delft University Press
- Dooren, van E., et all. (2014). Making explicit in design education: generic elements in the design process. International Journal of Technology and Design Education 24:53–71
- Dorst, K. (2007). Design research: a revolutionwaiting-to-happen.
- Dorst, K. (2009). Design expertise. Oxford:

Architectural Press.

- Dorst, K. (1997) Describing design: a comparison of paradigms.
- Dorst, K. (2006) Understanding design 175 reflections on being a designer. BIS Publishers
- Foucault, M. (1973) The Order of Things: An Archaeology of the Human Sciences (trans. Alan Sheridan). Vintage, New York. 387 p
- Gänshirt, C. (2007). Tools for ideas an introduction to architectural design. Basel: Birkhäuser.
- Groeneveld, R. P. (2006). De innerlijke kracht van de ontwerper: de rol van intuïtie in het ont werpproces. (Dissertation), Technical University of Delft, Delft. Retrieved from http://repository.tudelft.nl/view/ir/uuid: 896c852a-078e-4af0-8057-04121bff9c79/
- Havik, K.M., Barbieri S.U., Pallasmaa J.U. & Avermaete T.L.P. (2012) Urban Literacy : A Scriptive Approach to the Experience, Use and Imagination of Place. Ph.D. Thesis, Technical University of Delft. Retrieved from https://tudelft.on.worldcat. org/external-search?queryString=havik+ur ban+literacy&x=55&y=13&searchradi o=on
- Jencks, C. (2011). 2000 July: Jencks' Theory of Evolution, an Overview of 20th Century Architecture. http://www.architectural-re view.-

com/2000-july-jencks-theory-of-evolution-an-overview-of-20th-century-architec ture/8623596.article Retrieved from http:// www.architectural-review.com/2000-july-jencks-theory-of-evolution-an-overview-of-20th-century-architecture/8623596.article

Jencks, C. (2015). In what style shall we build? http://www.architectural-review.com/ essays/in-what-style-shall-webuild/8679048.article Retrieved from http://www.architectural-review.com/ essays/in-what-style-shall-webuild/8679048.article

- Kotsopoulos, S. D. (2007). Design concepts in architecture: the porosity paradigm. CEUR Workshop Proceedings, 294.
- Lawson, B. (2006). How designers think the design process demystified (4th ed.). Amsterdam: Elsevier.
- Pedgley, O. (2007). Capturing and analysing own design activity. Design Studies, 28.
- Polanyi, M. (1966). The tacit dimension. Garden City, New York: Doubleday & Company.
- Rodríguez, J.H. (2011). Compendio de lecciones de arquitectura (1802 – 1805). Retrieved January 11, 2016, from https://unamaquina lectoradecontexto.wordpress. com/2011/09/02/jean-nicolas-louis-durand/
- Schon, D. A. (1984). The Architectural Studio as an Exemplar of Education for Reflection-in-Action. Journal of Architectural Education, 38(1), 7.
- Schürer, O., & Kuhlmann, D. (2008). Basics design methods. Basel: Birkhäuser.
- Verhaeghe, P. (2015). Identiteit. Amsterdam | Antwerpen: De Bezige Bij

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