

# Procedural Theory – Mental activity progressions, sketching and drawing procedure during the design process.

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### Introduction

Landscaping is the act of taking a piece of land and analysing, evaluating, and beautifying it, while focusing on maintaining and increasing sustainability, functionality, and usability for people in a cost-effective way.

The course *Urban Landscape Design* (LK0400) is a bachelor's level course focusing on design of urban green spaces, offered at the Swedish University of Agricultural Sciences, and run by the Department of Landscape Architecture, Planning and Management (LTV faculty). The course is run as a stand-alone course for national and international students and as a programme course in the Landscape Engineer Programme at Uppsala and Alnarp, and in the Garden Design, Landscape Engineer Programme at Alnarp.

The course deals with elements that, in various ways, affect the interaction between analysis and development of methods and concepts through studies of design theory via sketching to the final design proposal. Landscape visualisation is an important theme throughout the course, and contributes to increasing the student's awareness of the interplay between contextual relations and concept development. The students are encouraged to apply experimental approaches, where analyses and evaluation are mixed with theoretical reasoning. The main aim of the course is to use different ways of working with design in the urban environment, and – supported by design theory and good examples – apply, document and present design processes, both individually and in group work.

This factsheet is the product of the students' work with *Procedural Theory* in the course *Urban Landscape Design* during the spring term of 2022. The aim of the assignment is to reflect on and communicate urban landscape design working processes,

by studies of procedural theory. The assignment deals with elements that, in various ways, affect the interaction between method development, analysis and conceptual statements via sketching processes to the final design proposal.

The procedural theory or design process is a step-by-step procedure that takes a problem-solving approach to landscape design. Procedural theories aim to describe and explain design processes. In this factsheet, the focus is on clarifying the individual mental activity and sketching procedure during the design process. Three examples are presented of the process around design work, and the focus is mainly on mental activities that are considered central to the different stages of the design process.

The following abstracts and poster presentations present the students' thoughts and reflections through visualisations and descriptive text, and show an attempt to verbalise the design process steps/phases. The assumptions made and described in this factsheet are based on literature studies of procedural theory, as well as on the students' previous experiences of the design process and through individual and group reflections and discussions.



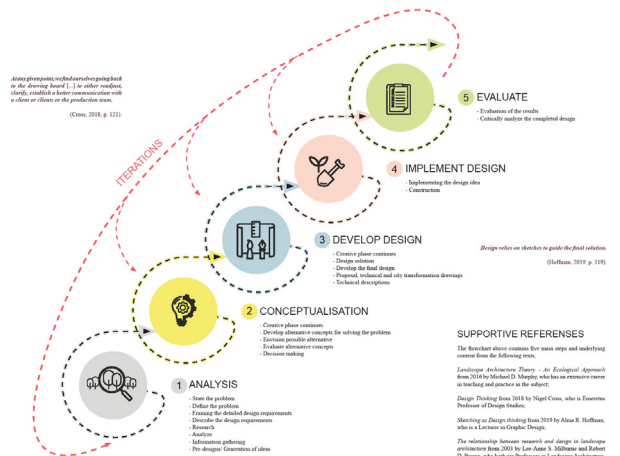
Our literary studies of procedural design theory in Urban Landscape Design LK0400 at SLU, has shown us that the design process can look in many ways. Influenced by four of these texts, the members of our group have together agreed on five main steps in the design process that match the experiences we have when it comes to landscape development. These five steps are illustrated in the flowchart below.

Five kinds of thinking are essential in the formulation of a design: creative thinking and rational thinking. Designers are aware of completely opposite attitudes about the way things should be done and cannot ignore it. It is better for completely rational because there are too many things that we do not know.

(Osipow, 2016, p.186)

design process and sketching based on the following steps: 1. to define problem, 2. to define requirements, 3. to define design requirements, 4. to define design requirements, 5. to define design requirements.

(Chen, 2018, p. 121)



#### SUPPORTIVE REFERENCES

The Bachelor thesis contains four main steps and detailing content from the following texts:  
 Landscape architecture Theory - An Ecological Approach Book 2016 by Michael D. Murphy, who has an extensive career as teaching and practice in the subject.  
 Design Thinking Book 2018 by Nigel Cross, who is Erasmus Professor of Design Studies.  
 Sketching as Design Thinking Book 2019 by Alan H. Hobbins, who is a Lecturer in Graphic Design.  
 The relationship between research and design in landscape architecture Book 2003 by Lars Åke S. Sjöström and Robert D. Steiner, who both are Professors in Landscape Architecture.



### The Procedural design process

By Mustafa Farttoosi, Moa Landstedt & Jessica Stenebo

The design process is divided into distinct phases, the first of which involves broad thinking and research. Through definition it is narrowed down to a focus on design objectives to deliver a viable design solution. This phase consists of seeking inspiration and gathering information to understand the context and factors to be considered. It is important in this phase to describe the design requirements to be met in solving the problem as a set of logically related performance specifications.

The second phase is for designers to identify the problem and look at ways to establish the most important priorities to help address the problem. Definition thus determines the design brief and presents the challenges to the design/development team. It is during this phase that alternative concepts are developed, by combining the different solutions with the least amount of compromise needed to satisfy the overall design requirements. This design phase usually refers to the process of creating drawings or sketches. By this stage there should be an existing-condition survey, photographs, measurements, and a statement of construction cost.

The third phase is when the design is developed, tested, revisited, and refined. Various options are analysed, and components are identified, designed, and tested. This process results in a set of drawings, calculations, and reports. The drawings include floor plans, exterior building elevations with representative openings and finishes, building sections, and typical wall sections.

The fourth phase is when the design is delivered and feedback gathered. The final design is selected, approved and finalised. By now we have a final design from which to start preparing construction drawings, notes, and the necessary technical specifications. The documents included are annotated sections, wall sections, elevations and floor plans, all dimensions, structure, drawings, and electrical power and lighting plans, etc. It is also this phase where the permit application is processed. During construction, the design will be built as per the design intent. If changes are needed, the changes and options will be discussed with the client.

The fifth step is to evaluate your or your team's work. This is where you will critically analyse the completed design. This is done by comparing how well the design fits the information regarding the problem and the design requirements, whether it meets client requirements and the needs of the users, and whether it fits appropriately into the conditions of the environment. This is an opportunity to evaluate the design delivery and implementation process. The results of evaluation after the process is finished provide the basis for improved design quality and future service delivery.

The last thing to empathise with in the design process is the iteration of all these steps. Cross argues that even if the design and/or creative process can be outlined in steps, this does not necessarily mean that this process is linear. Instead, it is a complex process with many overlaps, going back and forth, and a web of connections and ideas.

*Supportive references:* Cross, N. (2018); Hoffman, A.R. (2019); Milburne, L-A., Brown, R.D. (2003); Murphy, M.D. (2016).

## Comprehensive Approach in the Design Process

By Irina Borodina, Sara Karlmark Persson & Annie Kouns

A design process is a sequence of activities, from detecting a problem that requires a new design to the finished project. Between these, various factors influence the outcome of the project. Three kinds of mental activity are involved in formulating the design ideas – envisioning, representing, and evaluating.

In this context, representing is to illustrate a mental vision in different mediums. Drawing symbols is an example that encompasses a variety of tools and techniques included in the activity. Illustrating is a way to gain a better understanding of the ideas and to communicate them to others. It is easier to evaluate and reflect when looking at the representation of a thought. An illustration can be any kind of visual media, for example, a drawn symbol.

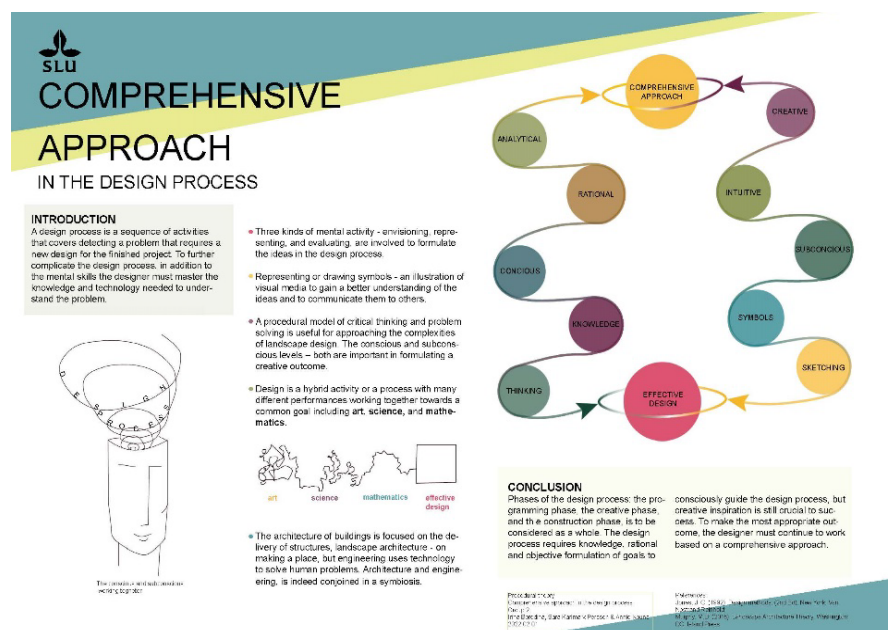
To further complicate the design process, in addition to mental skills the designer must master the knowledge and technology needed to understand the problem.

In the mid-twentieth century, along with the intuitive artistic methods of self-expression, ideas for rational and objective formu-

lation of goals entered the design process, an innovation in design thinking. However, as early as 1926, social psychologist G. Wallas developed a procedural model of critical thinking and problem solving that is particularly useful for approaching the complexities of landscape design. He acknowledged that effective design thinking takes place at both the conscious and subconscious levels, and that both are important in formulating a creative outcome. It is now known that the design process requires knowledge and a thorough understanding of key considerations and context to consciously guide the design process, but creative inspiration is still crucial to success.

One of the first to describe the design as a comprehensive process was landscape architect Norman Newton, who defined the process as a series of practical actions to facilitate the creation of form. He defined the three phases of the design process – the programming phase, the creative phase, and the construction phase – to be considered as a whole.

Design is a broad concept, and is considered a process with many different performances working together towards a common goal. Considering this within a comprehensive approach context, it rests on three types of implementations: art, science, and mathematics. The engineering designer John Chris Jones described design as “a hybrid activity, which depends for its



successful execution upon a proper blending of all three and is most unlikely to succeed if it is exclusively identified with any one.”

If we specifically look towards the design of architecture, the architecture of buildings is focused on the delivery of structures. Landscape architecture on the other hand is focused on making a place. Engineering contributes by applying technology to solve human problems. It would seem that architecture and engineering, if the design process is to be successful, are indeed conjoined in a symbiosis.

To enable the most appropriate outcome, the designer must continue to work based on a comprehensive knowledge – an objective understanding of environmental performance to determine the best possible solution.

*Supportive references:* Jones, J.C. (1992); Murphy, M.D. (2016).

## The Design Process Within

Theories behind Landscape Architecture  
By Barbro Brelid, Ebba Gallon & Bianca Habén

Landscape architecture is a dynamic process that often forms a dynamic design that develops over time. Landscape needs to be designed and understood as being in a persistent state of change (Murphy 2016:13). The design process is a continuous process of change within a landscape. An example is the planning of a forest being planted; there

is a design process in the planning of the forest, and there is a continuous process in the forest's growth in the future. In the book *Landscape Theory in Design*, Herrington (2016:8) explains the landscape's relation with time, and change of character over time. She also mentions the work of the landscape architect as sometimes not seen as intentional design, and therefore mixed with a natural process (Herrington 2016:8).

Daley (1984:294) describes seeing as an active process where the mind is not just a receptor but an agent, interpreting the imagery seen by the eyes. Information received visually has a strong connection to long-term memory, learning and retention. From an early age, we begin to explore doodling and the possibility of both discovering and explaining abstract thoughts and ideas through imagery. With the pen in the hand, thought, imagination, and memory are nurtured. In the sketch, thoughts are born where the line, shape and colour grow. In a way, you reveal and mirror your thoughts, actions, time, and place. In the design process, sketching is a quick and effective method of trying out different ideas and visualising thoughts. The benefits of sketching and doodling aid the retrieval of memory, when activating different parts of the brain (Hoffman 2019:21). It can also be used as a diary, a journal through the process. The sketch is a way to communicate both memories and thoughts, as well as serving as a dialogue with other people. The

design process could be placed outside the boundaries of verbal communication (Daley 1984:300).

A memoir in text, image, or form, places the abstract mind, otherwise easily vanished, in 'reality'. The abstract is made visible. It is our perception of the world that puts reality into perspective. So, the limits of what can be logically possible are determined by our natures and thereby the limitations of the individual mind (Daley 1984:295). Designing becomes limited by the designer's mind.

“To a significant extent, meaning in our lives comes from our experiences with one another and the environment.” (Hough 2004, see Murphy 2016:284). It is our senses that define the landscape around us, and our intellect that interprets it, thereby reflecting prior individual experiences. By enhancing cultural and social values within the landscape, a landscape architect can increase meaning and thereby quality of life through design (Murphy 2016:11).

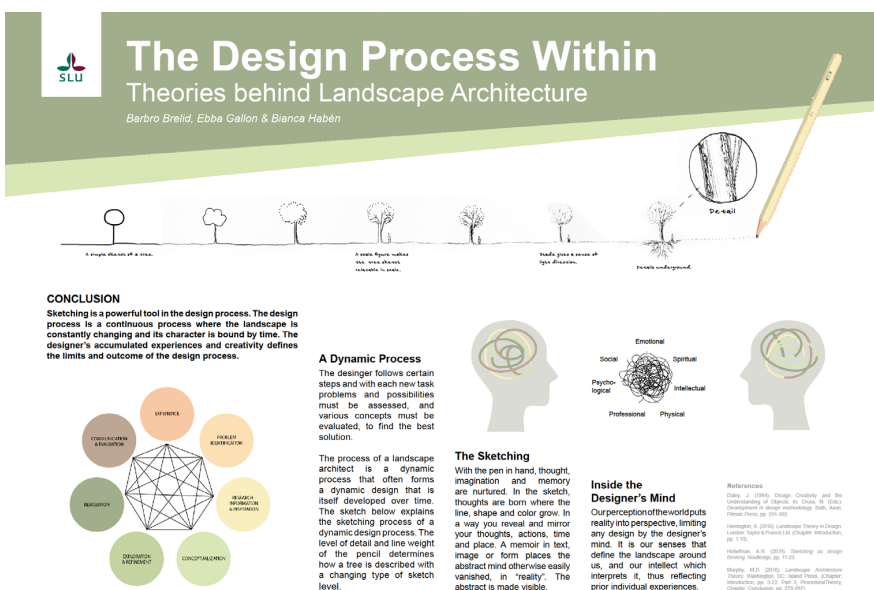
*Supportive references:* Daley, J. (1984); Herrington, S. (2016); Hoffman, A.R. (2019); Murphy, M.D. (2016).

## Conclusion

In the line of work of landscape professionals the procedural theories concern the essence of phenomena dealt with during the design process. The transformation during the various phases may move from a broad context to detailed information, or move in the opposite direction. According to Lawson (2005), changing direction of thoughts and adapting mental tricks during the design process can yield astonishing design results.

The work presented in this factsheet shows a few different ways of relating to the design process, and illustrates from different perspectives the difficulties of describing it in clearly definable phases. The phases are characterised by an iterative design process, a methodology based on a cyclic process of varying degree (Murphy 2016).

The students' presentations suggest that there are an almost infinite number of methods both in describing and performing the design process. The ways of approaching design work are deeply personal, so there is no 'correct' method that is viable in all contexts (Lawson 2005; Cross 2018).



**CONCLUSION**  
Sketching is a powerful tool in the design process. The design process is a continuous process where the landscape is constantly changing and its character is bound by time. The designer's accumulated experiences and creativity defines the limits and outcome of the design process.

**A Dynamic Process**  
The designer follows certain steps and with each new task problems and possibilities must be assessed, and various concepts must be evaluated, to find the best solution.

The process of a landscape architect is a dynamic process that often forms a dynamic design that is itself developed over time. The sketch below explains the sketching process of a dynamic design process. The level of detail and line weight of the pencil determines how a tree is described with a changing type of sketch level.

**The Sketching**  
With the pen in hand, thought, imagination and memory are nurtured. In the sketch, thoughts are born where the line, shape and color grow. In a way you reveal and mirror your thoughts, actions, time and place. A memoir in text, image or form places the abstract mind otherwise easily vanished, in 'reality'. The abstract is made visible.

**Inside the Designer's Mind**  
Our perception of the world puts reality into perspective limiting any design by the designer's mind. It is our senses that define the landscape around us, and our intellect which interprets it, thus reflecting prior individual experiences.

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Cross, K. (2018). *How to Think Like a Designer*. Cheltenham, UK: Nelson Thornes.

Attempts to rationalise the process and divide it into clear steps have proved to be difficult, as it contains to varying degrees parts characterised by an intuitive process (ref). The intuitive process takes place on an unconscious level, which still plays a not entirely unimportant role in the work of many designers (Murphy 2016).

The students' presentations emphasised the importance of the sketching process, even if it takes place to varying degrees, as a means of releasing the landscape planners' perception, abilities, and the opportunity to try out ideas and communicate them both with himself, with colleagues and other parties involved. The students' work shows the need to communicate in different ways in the design process, and emphasises the importance of sketches and drawings. The work also illustrates processes that are not easily explained but enable the necessary communication between different actors at different stages.

From the perspective of a group activity and the task of working with a personalised process, the students have performed well and been successful in demonstrating the ability to extract the principal ideas of Procedural Theory. The presentations in this factsheet show the students' increased understanding of their own assumptions in the design process, and development of their critical approach. We, as teachers on the course and practicing landscape architects, would also like to take the opportunity to thank the students for interesting and fruitful discussions about the mental progressions, sketching and drawing procedure during the design process.

### Further information about the course Urban Landscape Design, see

<https://www.slu.se/en/education/programmes-courses/course/LK0400/30239.2122/Urban-Landscape-Design/>

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