

The Why Factory Graduation Reflection Paper

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Research and Design

The Why Factory approaches design by the use of “The Triangle” (figure 1). Three aspects of the design and research are abstracted here:

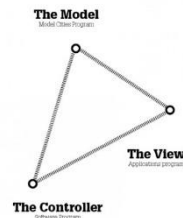


Figure 1. The Triangle (T?F)

1. The Model
A theoretical model of cities, consisting of a set of parameters that allow for maximum exploration of future scenarios. These models are translated to physical models, here they can be analysed for their qualities.
2. The View
A platform for comparability. The theoretical models are compared with existing cities, giving the opportunity to test the projected scenarios.
3. The Controller
A library of knowledge. The knowledge that derives from the interaction of the previous two aspects needs to be accessible for others. Often design knowledge is embedded in a drawing which is stored in a cabinet somewhere. This knowledge is stored implicitly in the designers head and hands. Creating a difficulty in exchange of knowledge. The controller is a concept which gathers and communicated knowledge between designs.

This year there is one central question: “*what makes a housing block?*”.

We started collectively to answer this question. We did this by developing a controller, called The Blockmaker. This library is the base for all of the design proposals. By exploding the housing block into its constituent parts we were able to create a framework to describe the block in. This allows for comparability between projects.



Figure 2. Transformation of the slab - Bending

In one of these layers such as mass, different options are developed and analysed for their qualities and quantities shown in figure 2. As they are designed using the same method they can be compared giving insight how well they act. This knowledge can then be used to make design decisions within the project.

Similarly other questions concerning the design are addressed. By translating the systematic design actions into Grasshopper scripts or model matrixes the research can be added to the Blockmaker and used by fellow groupmembers.

A healthy lifestyle

In addition to the theme of housing I added sports. I was interested in movement eventually manifesting itself in the question “How can movement be combined with housing to create a healthy lifestyle in an urban context?”

Within the set boundary of 100x100x100 meters a sportblock would arise. The location is strictly theoretical and consists of a set of parameters such as rainfall, temperature, people density, FAR and sunradiation.

Within the collective framework we developed a ‘default’ setting. This consisted of the climatological and urban data of Barcelona. In my project the lifestyles of the citizens is analysed as well. Weight, preference for sport and diet is considered in developing a problem statement. As the density of cities is rising we start to live more compact reducing the distance we need to travel between locations. In addition transportation technology is rapidly developing, reducing the effort of travel even further. This combination could have a negative impact in terms of physical activity of citizens. To react to this problem statement a scenario is explored in which residents engage in a healthy lifestyle. The resulting hypothesis is an impact of this scenario on architecture.

A step-by-step method

As research and design are strongly interlocked by the definition of the triangle the method used by the graduation studio is also used by the student in the design and research process.

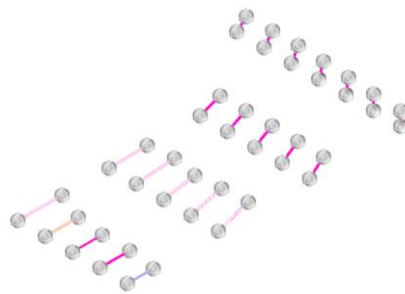


Figure 3. Quantitative research – Inclination to kcal

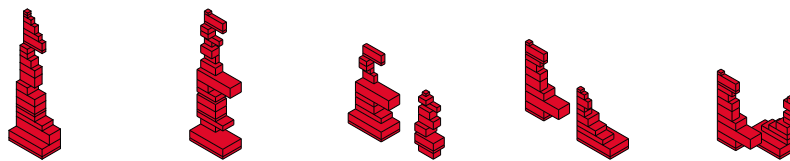


Figure 4. Qualitative research - Massing

The central research question is translated to a set of sub questions that are researched. These questions are simple and research a specific aspect of the design. This can be about quantities, such as the relation of kcal and inclination shown in figure 3. But it can also be about qualities such as the definition of building mass shown in figure 4.

For quantitative research the computer is used as a tool for data visualisation, translating numbers into physical objects with a defined set of parameters that can be manipulated by design.

In qualitative research design proposals are made by sketching and modelling. The different proposals are compared and evaluated, creating the ability to make a design decision.

By indulging in a step-by-step approach the main question is answered in its subsequent parts. The design focusses on bringing the different elements together.

This method allows for an easy overview of design decisions, making it possible to communicate how and why the design result is as is. This method requires to ask a simple question that eliminates or freezes a

set of parameters to research the relationship between two elements and its impact on the question at hand. In the design process however the overview of the question is often not straight forward as different elements are interrelated, making it difficult to isolate the interrelations using a simple question. For example in the development of the massing of the building (shown in figure 4) a horizontal and vertical organisation of programme provide qualities for the dwellings. When changing the organisation, the qualities get affected, but so do different aspects as structure and dwelling typologies. When looking into these aspects it gives more insight in other organisation types creating a game of ping-pong between research questions. When starting the design process this game is not apparent and needs to develop. When looking back at the preliminary design process this method did not allow for the engagement into further and deeper questioning as the question at hand had not been fully answered. The result is that in my process I got stuck in creating an endless array of organisations not finding an answer for the question at hand as it appeared later in the process.

When indulging in this step-by-step method freezing steps is very important. By doing so the design can develop in more detail exposing opportunities and threats at deeper layers. When finding these opportunities and threats the frozen step should be revisited to adjust the design decision, keeping the newly gained knowledge in mind.

As The Why Factory would like to make this knowledge explicit, or at least insightful, it is important to show how in a chronological process knowledge appeared and was used in the design process.

Positioning in a broader perspective

The project consists of two elements, the collective Blockmaker and the individual project the Sportsblock.

In the Sportsblock a scenario is explored in which a healthy lifestyle is lived by the residents of the block. The position of architecture as facilitator of this healthy lifestyle can be an important step in the densification of cities. As pointed out before the current development of cities promotes a sedentary lifestyle. Currently healthy environments are fitted into cities in the form of fitness centres and promoting running on the streets. These activities seem to be dislocated from our routines as a high degree of people drop this activity when time is scarce. It is the responsibility of design to alter the spaces we live in to create a healthy environment. This project explores living and the daily routine with health, creating qualities out of the integration of these themes. The result is qualitative living both in the sense of dwelling quality, but also in quality of lifestyle.

The Blockmaker positions itself as a library of knowledge. As pointed out before knowledge gained from the design and research process within architecture is embedded in a drawing, stored in a cabinet. The implicit knowledge gained is carried by the members of the design team. This knowledge is therefore difficult to communicate and gain without engaging in a design process with one of those members. By making an effort to be explicit about the design decisions by a step-by-step method the knowledge can be extracted and made explicit.

The Blockmaker resembles the idea of CIAM's catalogue. It is a comprehensive library of architectural options that allow for use in the design process. They are categorized in different aspects to make them comparable. This allows for evaluation of which option fits best for the design problem at hand. Where the CIAM catalogue failed was that the library was not able to grow, it was not flexible to accommodate new options. This is where the Blockmaker takes different approach. It is an open platform in which options can be added. This makes the process of developing a Blockmaker not an exhaustive process where all the options should be given. It is therefore not a catalogue but a library, it is a platform for the storage and communication of knowledge.

The result of the Blockmaker is therefore not a design, instead it should inform the designer giving access to knowledge to fuel the design process.

Looking forward

The design has had a strong relationship with research leaving it at a quite abstract level of design. Therefore the design as is mostly focusses on the integration of theme and building in a clear concept. This is developed in a systematic way leaving almost no room for specific design of spaces. When taking a systematic approach to building design the rule is important, leaving little room in the design for the exception. In the upcoming period the rule has been established where the design can lean more towards working out the exceptions creating new spaces and atmospheres that exist within the design.