Architectural and Media Studies - Report

Hyperbody Studio MSc 1
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In order to define an initial design challenge for the Hyperbody Studio, we started off by looking for user needs that are not well addressed by contemporary student housing. This approach lead into a design agenda exploring considering different scales, creating a meaningful spatial experience between the built environment and its inhabitants.

We looked for primal needs and insights about what people thought, did and felt about their own housing experiences. Next to guided interviews, we created further supportive techniques. The first method was an adaptation of Kevin Lynch's mental mapping to the apartment scale, the other one a method that we called lonely island. It allowed us to gain insights about emotional ties to space and items at home, and their relation to privacy and community in the inhabitants' everyday life.

We conducted ten interviews, paying attention to a mix of our interviewees in terms of their backgrounds and gender. Most of them currently live in student dormitories. Furthermore, we augmented our insights with literature research about how people orient in space[1]. We used this information to inform our script later on.

Following, we created several persona statements that extracted most interesting insights and needs.[2] Usually we looked for those statements creating a conflict between a certain need and the respective environmental context. While interpreting the gained raw information, we separated peoples' actions from intents and opinions and prejudices from feelings and emotions.

Examples for such a persona statements are the following. A formula to create these statements would be: User + Need (person related) + Insight (environment related) = persona

- To Katherine common space is mostly about the activity. She needs common space to be fostering and adaptable due to the activity.
- Silence and solitude make Daniel feel lonely and scared. He needs liveliness outside his window during the day, especially when he studies.
- Private space is about safely reinforcing Hannah's identity. She needs her room to allow for spatial stability of her own items.

What stood out to us was that many students don't feel at home at their place in a student dormitory. They expressed an inability to make the place feel like their own. Insecurities and conflicts about convivial living were likely to arise, as well as diminished care and comfort.

We assumed that areally connected to this problem was a lack of intermediate spaces on the public-private gradient common in traditional student housing. Either social activities would take place in a cramped

[1] Alexander et. al.: A Pattern Language. Towns, Buildings, Construction. (1977) Oxford University Press.
Gehl, J.: Life Between Buildings: Using Public Space. (2011) Island Press.
Hunter, S.: Design Resources. DR-14 Spatial Orientation, Environmental Perception and Wayfinding. (2007) http://udeworld.com/space-syntax-and-the-importance-of-access-to-architectural-theory.html
Whyte, W.H. The Social Life of Small Urban Spaces. (1980) https://vimeo.com/111488563
[2] This method is based on Design Thinking as applied by IDEO and the D.Schools at Stanford University and Hasso Plattner Institut

and very personal space, or in publicly perceived space that tends to elude an appropriation of space by the inhabitants. Both of these spaces can easily create a negative feeling of exposure.

Moreover, many interviewees seemed to i.a. base their positive identification with their home on visually satisfying views: wide views to the outside and sun-drenched space invite to stay.

Our design agenda began to form around making the flat more adaptable to students' use of space. The central architectural element which enables this is a flexible and adaptable wall. Its configurations form spaces that are optimized for different types of activities that we identified according to the research. In the center of each individual unit we decided to employ a structural core, which constitutes the only fixed place in the unit.

The Hypercell presented by Jia Rey Chang during the GSM has a resemblance with the setup of the unit: The multifunctional Hypercell is potentially able to transform into any spatial adaptation through form, process and system. This approach takes the evolution of the architectural element itself in the center of its consideration. In our project we chose a reversed approach and started off by thinking about the evolution of the architectural negative space itself. Following, the behavior of two complementing systems forms a variety of different spaces.

Our computational strategy is build up from two different operational sequences: One for the placing of residential units and types of areas. The other one creates and optimizes a pathway system in relation to walkability, views and orientation. Qualitative information was translated into a strategy describing spatial geometric relations and rules. Quantitative information from our literature research was additionally consulted.

In order to set up the definition on site scale, we translated the site analysis into overlapping zones, opening up or excluding the possibility for the definition to scatter units on ground level and create pathways, plazas and green areas. The zones were residential, green and sealed open zones. Based on sunlight angles, noise sources, intricacy and coziness of surrounding nature we concluded which areas were most suitable to be assigned for residential zones.

Furthermore, we took into consideration unique aspects of the identity of the site such as its adjacent social gathering points in addition to proximity and view towards water. Desirable views into the surrounding were assigned as attraction points. Areas of increased human activity close to the campus and the sports and cultural center were assigned as repulsion points for units, in order to create an open "entrance" to the site and foster easy accessibility and visual orientation on site. This can also contribute to liveliness and a sense of security on site.

The orientation of the units was optimized towards an orientation that provides overall wide view and sunlight. We defined the possible optimum range of distance between both individual units and unit agglomerations to maintain privacy inside the units and to avoid single extremely offset units. The script starts by letting agents travel from the center point of each of the assigned residential zones. In this process, they attract and repulse each other. The zoning lines act as repulsion lines for the travelling units.

The strategy for sunlight optimization was to avoid casting many shadows. We chose an afternoon position of the sun and assumed that this would be the daytime students would spend the most time at home. We used the swarm plugin Quelea and vectors generated from the sun in an afternoon position as drivers.

Subsequently, the script created major public paths on ground floor level for the site. First, we let a small swarm as agents travel from the entrance areas roughly towards the center of the site. The points stopped travelling whenever they met each other. By the path they had taken, they created a closed way system across the site. In order to make the paths more inviting to walk, we made the points travel in a straight line for no longer than a certain distance. The radius employed for the direction of the following travel line was defined by a radius corresponding to visual predictability. Visibility here was meant to enhance orientation on site and a feeling of security.

As a last step, we made the points travel backwards the way they had just created – towards the entrance areas of the site. During this second iteration, they readjusted the position of the adjacent units to a small degree in favor of wide visibility from the respective point on the pathway, with priority given to the ones closer to the entrance areas. This way the entrance areas became more welcoming to the outside.

It would be interesting to test the site development with people e.g. in a virtual space. This way we would be able to refine our strategy and parameters. The approach would be comparable to the housing project presented by Martijn Pool during the GSM. By offering a base design to his clients and asking them for feedback after they have been living in the finished house, he is able to sell an improved design every time.