

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Shi Zeng
Student number	5534739

Studio		
Name / Theme	AR3AD105 Dwelling Graduation Studio: Global Housing	
Main mentor	Nelson Mota	Architecture
Second mentor	Stephan Verkuijlen	Building Technology
Argumentation of choice of the studio	Facing population growth, the Global Housing Studio seeks environmental and social solutions from a global perspective. The studio considers the symbiotic relationship between architecture, the environment, and people in different conditions. So I'm motivated to learn the techniques and strategies from Brazilian affordable housing practices and try to implement their architectural characteristics in my future design.	

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Graduation project	
Title of the graduation project	Community Autonomy: participatory design practice with marginalized people
Goal	
Location:	Parque Cocaia, Sao Paulo, Brazil
The posed problem,	Sao Paulo is the largest city in Latin America and yet 19% of its residents live in poverty. Since the 1980s, urban public policies have started to focus on the resident's sense of identity in the periphery and their right to reside in a better living environment. How to improve the quality of the residents' lives with support from different stakeholders and residents?
research questions and	<ol style="list-style-type: none"> 1. What is the present and desired characteristics of local residential buildings? 2. How to achieve reciprocity through a participatory design process?

	3. What kind of roles can residents play in different stages of design?
design assignment in which these result.	<p>The unbuilt plot is located near the environmental protection area, and the project aims to relocate the families from risk and permanent preservation areas (Silvio, 2016). Considering the environmental, economic, and social concerns, the final design includes:</p> <ol style="list-style-type: none"> 1. a master plan connected to the present urban framework 2. typological analysis of a dwelling complex 3. landscape design along the river 4. guidelines for the development and future expansions in the ZEIS (The Special Zones of Social Interest)-4 area.
<p>The social housing projects will relocate the residents from the risky environmental protection area, provide them a better living condition, and reinforce a sense of community for them.</p>	
<p>Process</p>	
<p>Method description</p> <p>Following the research question, the documentary analysis will be conducted as a first step. I will start with a literature review because it addresses a particular aspect of the problem in a more specialized, comprehensive, in-depth, and systematic way. By synthesizing, analyzing, and evaluating the content reviewed, I can reflect on the authors' views and insights, which can help me better understand the background of PD and future application scenarios, and lay a good foundation for my subsequent graduation design. And from the case study, I can abstract the essential architectural and environmental attributes based on the previous local practices, and then implement these ideas in my own design. Through design-based research, the outcome can be tested and then modified as a guideline for both scholars and designers.</p> <p>Besides the design, social connections should also be taken into the consideration to engage public participation in the design and construction process. To create design principles and policy proposals to foster social interactions, agent-based modeling (ABM) will be used to develop, simulate, and test collaborative adoption, then it will</p>	

be converted into guidelines for designers and policymakers to enhance social interactions. ABM is an essential approach to investigating the formation of the overall structure and collective behavior based on the interactions between individuals. The individuals can be people, organizations, and materials. Thus, ABM is beneficial to creating design guidelines for defining and developing social and environmental enhancements.

Literature and general practical preference

Banathy, B. H. (1996). *Designing Social Systems in a Changing World*. Springer US.

Bonacin, R., Dos Reis, J. C., & Baranauskas, M. C. C. (2019). Universal Participatory Design: Achievements and Challenges. *Journal on Interactive Systems*, 10(1), 1.

Ferreira, A., 2011. *A cidade no século XXI – Segregação e Banalização do espaço*. Rio de Janeiro, Editora Consequencia.

Hertzum, M., & Simonsen, J. (2010). Effects-driven IT development: An instrument for supporting sustained participatory design. *Proceedings of the 11th Biennial Participatory Design Conference on - PDC '10*, 61.

Jungk, R., & Müllert, N. (1987). *Future workshops: How to create desirable futures*. Institute for Social Inventions.

Laura Ramírez Galleguillos, M., & Coşkun, A. (2020). How Do I matter? A Review of the Participatory Design Practice with Less Privileged Participants. *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Volume 1*, 137-147.

Pettit, B. (2004). Moving and Children's Social Connections: Neighborhood Context and the Consequences of Moving for Low-Income Families. *Sociological Forum*, 19(2),

Poderi, G., & Dittrich, Y. (2018). Participatory design and sustainability: A literature review of PDC proceedings. *Proceedings of the 15th Participatory Design Conference: Short Papers, Situated Actions, Workshops and Tutorial - Volume 2*, 1–5

Population living in slums (% of urban population)—Brazil | Data. (n.d.).

Refworld | Leaving No One Behind – The Imperative of Inclusive Development. (n.d.).

Silvio Cesar Lima Ribeiro, Marcelo Nakano Daniel, Alex Abiko (2016). *ZEIS maps: Comparing areas to be earmarked exclusively for social housing in São Paulo city*,

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

From the literature review, I discovered that simply demarcating ZEIS does not give adequate incentives to commence social housing construction, nor does the design of enormous building blocks. From a broader scale, the project should showcase its own identity in the city, and provide some convenience for the people living nearby. Access to shops, schools, nurseries, health centers, cultural amenities, recreational spaces, and public transportation for the new housing projects should also be considered. Because residing in a unit of accommodation entails far more than merely occupying a private area. It involves residents getting out and forging links with a range of public spaces where they can meet, organize, socialize, etc. So as an architecture student, my role is not only focusing on the building itself but also on bridging the gap between people and the urban framework. From the units to the blocks, and then the neighborhood, people are gradually connected to the social and physical environment based on different scales and aspects, thus the sense of community and feeling of home can be achieved.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

The idea behind the participatory design is to involve those who may be affected by a new design or technology in its development (Participation in Design Things | Design Things | Books Gateway | MIT Press, n.d.). But occasionally, those who have faced difficulties because of prejudice based on their sex, ethnicity, economic and immigrant status (Refworld | Leaving No One Behind – The Imperative of Inclusive Development, n.d.) are less powerless to speak up.

This research aims to identify effective ways to involve underprivileged groups in the design process. because there are greater barriers for them. Additionally, based on Research through Design (RtD) approach, my graduation project will offer some conclusions and suggestions for enhancing both present and upcoming PD practices. At this stage, I come up with the "Triple-E" concept (engagement, empowerment, and establishment) to facilitate public participation in the design process.

Engagement

The designers' capacity to deal with the practitioners has to be considered, and the designers must be aware of their limitations (Bonacin et al., 2019). And according to Natasha Iskander, modifying design tools for varied innovative contexts plays a significant role in the participatory design process (Design Thinking Is Fundamentally Conservative and Preserves the Status Quo, n.d.). In the research, Galleguillos and Coşkun categorize the typical involvement process into three steps: a) ideation, in which designers define the issue with

participants; b) building, in which designers develop ideation activities with participants and use this data to create prototypes; and c) validation, in which designers present their work to participants for feedback (Laura Ramírez Galleguillos & Coşkun, 2020).

Empowerment

Self-built homes have lots of convenience for locals, but how to engage the voiceless groups to stand up for their rights? Empowerment can be achieved in two different ways. On the one hand, it can be done through preliminary policy-making, which refers to the government's policy adjustment to encourage residents to be more involved in the design. For instance, in the case of Conjunto Casarão Celso Garcia, citizens can participate in the construction by using their labor to mortgage the initial rent. On the other hand, designers should give citizens certain possibilities in the operation and maintenance, and extensions of the building. For example, With the rapid increase in population, the original floor plan was no longer adequate for the daily life of the family, so some residents in Jardim São Francisco added partition walls inside the building to separate the spaces, while others extended the balcony to increase the bedroom space. Compared to the projects completely designed by the architects, some new residents in Comuna Dom Helder Câmara have repainted the facades with brilliant colors or replaced the brick façade with ceramic tiles, adding to the vibrancy of the neighborhood.

Establishment

After residents have taken an active part in the design and construction process, there is a need for prompt feedback and ongoing follow-up on design, maintenance, changes, or extensions. This helps to solidify the relationship between citizens and architects and promotes the long-term sustainability of participatory design in the community. Through reading the research literature, Poderi and Dittrich discovered that a longer-term participatory design intervention that gradually involves all participants can yield more beneficial outcomes (Poderi & Dittrich, 2018). Thus, It's necessary to focus on the practical value and the improvement of PD projects. By participating in the practical projects, inhabitants feel connected to the site, and they develop a sense of commitment, which consolidate their ownership and embody their efforts and success. This facilitates the involvement of residents in the building construction process, thus shaping their sense of empathy for the site. The development of skills and competence can be aided by the same process. Participants frequently employ their own abilities or experience that is frequently disregarded in daily work by rearranging the duties, and activities, and generating new goals. And according to participatory design, each of these elements helps to produce a result that is more long-lasting.