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	Bowen Yuan
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Studio	
Name / Theme	Planning Complex Cites ｜ Urbanism
Main mentor	Gregory Bracken	Spatial planning, risk society
Second mentor	Maurice Harteveld	Public space, urban design
Argumentation of choice of the studio	The city is a complicated and dynamic system, which attracts me and makes me wonder how to make it more sustainable and habitable, especially I have seen that my hometown Wuhan has experienced drastic changes. Not just a fast-growing economy, there are also subsequent problems like land scarcity, social segregation, or unexpected hazard like pandemic Covid-19, etc. Therefore, I want to explore a systematic way to deal with those complex problems and build a more livable Wuhan. I am very interested in governance, civic participation, planning, and this studio can help me learn those subjects. I hope I can acquire enough theories and use evidence-based research on transdisciplinary approaches to learn spatial planning and urban development strategies.

Graduation project	
Title of the graduation project	Build Community Resilience beyond Covid-19

Goal	
Location:	Wuhan, China
The posed problem,	**Deficiencies in building community resilience** Communities in metropolitan areas have played a key role in China's pandemic control as a key battleground for closed management. However, the spatial planning chaos, inappropriate governance and inadequate human capital revealed in the outbreak control have dramatically compromised the community's ability to handle the crisis, undermining the health and well-being of residents and causing social segregation. New coronaviruses are still mutating and raging, and new infectious disease crises may also emerge in the future. How to reduce the impact of the pandemic on the community and improve the community's ability to cope is the subject of urgent research nowadays. In response to the above issues, the construction of community resilience will become the core.

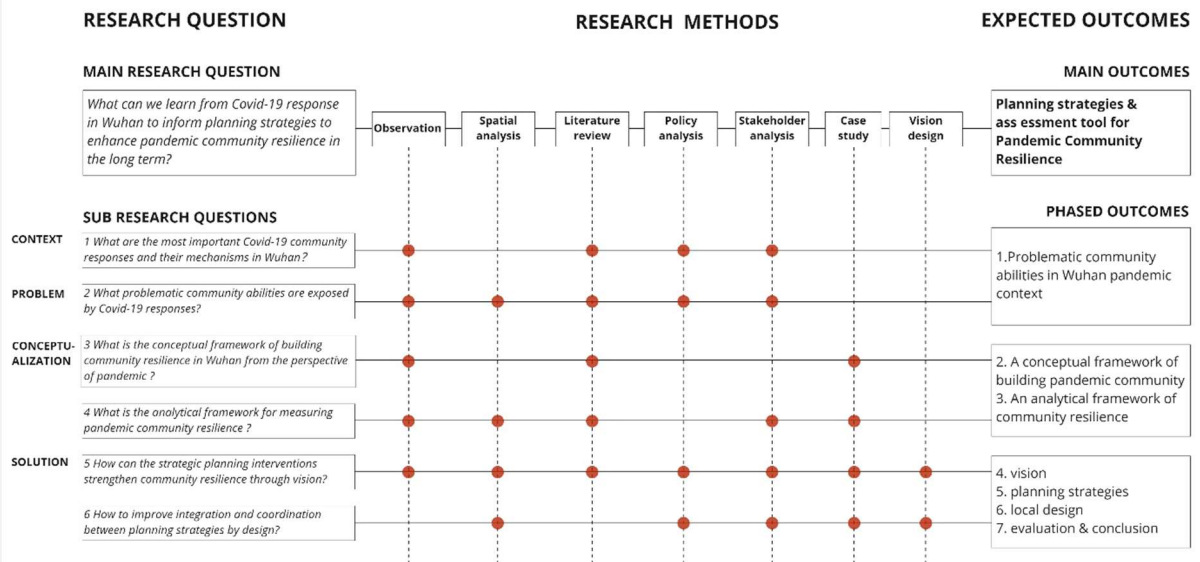|	In addition to real situations on problematic community capacities in Wuhan, there are knowledge gaps in Chinese research on community resilience. The primary is the limited scope of studies. First, most of the research in China is about natural disasters (earthquakes, fires, etc.), but there is less research on community resilience from the perspective of pandemics, and less exploration of governance, human capital, and human capital. Second, the resilience assessment framework is numerous and complex, and no assessment framework integrates spatial, governance, and community capital. Third, there are few strategies for integrating spatial, governance, and community capital, and there are few strategies for integrating disaster emergency planning with community building in general. This is followed by a lack of location-based practice. The first is that most of the studies focus on proposing strategies, but there is a lack of specific community practices in local contexts. In addition, there is a lack of research and comparison of different community differentiation.
research questions and	**Main research question** What can we learn from Covid-19 response in Wuhan to inform planning strategies to enhance pandemic community resilience in the long term? **Sub research questions** CONTEXT 1. What are the most important Covid-19 community responses and their mechanisms in Wuhan？ PROBLEM 2. What problematic community abilities are exposed by Covid-19 responses? CONCEPTUALIZATION 3. What is the conceptual framework of building community resilience in Wuhan from the perspective of pandemic? 4. What is the analytical framework for measuring pandemic community resilience? SOLUTION 5. How can the strategic planning interventions strengthen community resilience through vision? 6. How to improve integration and coordination between planning strategies by design?
design assignment in which these result.	This project aims to build an integrated strategy framework for improving pandemic community resilience in Wuhan in a long term, achieving a sustainable and livable urban environment, towards the goal of good health and well-being and sustainable cities and communities from SDGs (United Nations, n.d.). To achieve this goal, milestones of objectives are outlined below. Firstly, it is crucial to understand comprehensively how the Wuhan communities respond to COVID-19 and how the remarkable factors involved affect community resilience. Furthermore, combining Wuhan's actual response with domestic theoretical research, the building framework and measurement framework are put up with. Representative sites will be selected to test specific deficiencies in pandemic community resilience. Lastly, possible targeted planning strategies are proposed after reviewing the evaluation and designing the vision. An integrated planning framework could be figured out. Then, location-based design is needed to explore the feasibility and effectiveness of planning strategies.

	Expected Outcomes
	An assessment tool for Pandemic Community Resilience
	1. a community resilience analysis framework focused on space, governance, and human capacity, which also includes three stages of preparation, response, and transformation
	2. development goals or rubrics that change according to the stage of development
	Planning strategies
	1. A series of visons
	2. a set of planning strategies involving spatial planning, governance, and human capital (at neighborhood or community scale)
	Local design
	1. Using local design to understand local characteristics, then to integrate and apply planning strategies to the selected communities. (at community or building scale)
	2. A study on the different designs of modern and traditional community typology.

[This should be formulated in such a way that the graduation project can answer these questions.
The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description

Methodology with expected outcomes

1 observation
DESCRIPTIONS: It aims to dive into Wuhan local context during a specific period to study pandemic community response and find out general problematic community abilities.
OUTCOME: 1. Cultural and social-economic contexts, including urban development, gated community paradigm, the hierarchy of community management, etc. 2. Covid response measures and their mechanisms and characteristics 3. a preliminary summary of problematic community abilities

2 spatial analysis

DESCRIPTIONS: The purpose of this method is to refine the study scope of community response from the perspective of the built environment, deepening the understanding of relationships and conflicts between Covid response and community space.

OUTCOME: 1. Community-built environment maps with photos, regarding function, infrastructure, open space, etc. 2. Spatial adaption maps with photos during the pandemic 3. Problematic community abilities from the perspective of spatial planning

3 literature review

DESCRIPTIONS: The literature review aims to find theoretical underpinning for the project development. First, it identifies suitable theories such as community resilience for conceptualization. Then, by summarizing the domestic theoretical research and practice, combined with the actual situation of Wuhan, it refines the conceptual framework and analysis framework of community resilience suitable for the Wuhan pandemic perspective.

OUTCOME:1. a conceptual framework of building pandemic community resilience in Wuhan, focusing on process development and criteria/goals of each stage 2. an analytical framework of pandemic community resilience, combined with qualitative indicators and quantitative indicators

4 policy analysis

DESCRIPTIONS: It can first summarize the policies during the pandemic and provide contextual understanding for community outbreak prevention and control measures. Then, future planning policies can indicate the importance of resilient community development and the direction of urban renewal.

OUTCOME: 1. Policy timeline of pandemic measures 2. Policy guidance on future community building

DATA RESOURCES

5 stakeholder analysis

DESCRIPTIONS: This method is used to refine the study field of community capacities from the perspective of governance and human capital, increasing the comprehension of tensions and potential threats between pandemic response and community ability.

OUTCOME: 1. Stakeholders' interest and power diagrams and relationship network; 2. Demographic structure of residents and relevant knowledge levels etc. 3. Problematic community abilities from the perspective of governance and human capital

6 case study

DESCRIPTIONS: It means seeking references from many existing strategies in China and abroad, and drawing up a list of strategies that can be applied to the construction of Wuhan's community resilience.

OUTCOME: A range of planning strategies

7 vision design

DESCRIPTIONS: The design of the vision guides the development of a resilient community appropriate to the Wuhan context. Neighborhood-scale planning strategies and community-scale design can achieve integration toward a unified vision.

OUTCOME: 1. A vision of smart governance 2. A vision of normal and pandemic integration 3. A series of collages

Literature and general practical preference

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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)?

The theme of my graduation project is the construction of community resilience in the context of the Wuhan pandemic.

A community is the smallest living unit of a city and part of the urban system. So my master track Urbanism covers my research topic. At the same time, the study of Urbanism provides a multidimensional and quantitative-qualitative approach to political, cultural, social, and economic research to help me understand cities and communities in the context of the Chinese epidemic through the analysis of urban systems.

My studio Planning Complex Cities focuses on achieving sustainable urban environments through spatial planning and governance. This also fits with my approach and goal of community resilience building. This studio also illustrates the importance of integrating spatial strategies and governance strategies. At a large scale, my projects use a unified vision to guide and integrate strategies across dimensions; at the local scale, design is the integrated approach.

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

This project aims to reflect on six aspects.

The first is its focus on community resilience in the Chinese context of the pandemic. China's success in containing the pandemic to a low level cannot be separated from its unique political, social, cultural, and economic context. For example, China's unique planning paradigm of gated communities, the administrative mechanism of community committees, the self-organized properties of residents, the prevalence of online group purchasing, and so on. All these constitute community resilience in the Chinese context and are worth studying.

The second is that it improves the community's ability to respond to pandemics and reduces public health crises, improving urban environmental sustainability. An outbreak of the virus seriously affects the normal life and work of residents, not only posing a threat to physical health but also causing psychological stress. If community resilience is maintained at an appropriate level, i.e., communities have sufficient resources with flexible governance mechanisms, the negative impact of a pandemic will be mitigated.

The third point is that it reduces inequality and enhances social inclusion. Vulnerable groups such as the elderly or the poor are more vulnerable to the pandemic due to their low education or mobility. Similarly, workers who are overworked in the pandemic need social assistance due to lack of manpower and low public participation. Social assistance for vulnerable populations is implemented through integrated spatial, governance, and human capital planning strategies to achieve social cohesion.

Then, it expands the dimension of community resilience research. At present, community resilience research in China is still in the exploratory stage and mainly focuses on disasters such as earthquakes and fires. Moreover, the assessment of community resilience is complex and unfocused. This paper focuses on the measurement and enhancement of pandemic community resilience and combines the usual situation with the pandemic situation, broadening the research scope.

Fourthly, it explores the linkage of research fields. Few domestic research fields on community resilience involve human capital, human capital, etc. This paper integrates governance, spatial planning, community capital, and other components of community resilience, and uses design to integrate these fields, exploring the interrelations and integration possibilities of different fields.

Last, it can bridge the lack of local practice. Much of the research on community resilience in China has emphasized the formulation of strategies, but little has been done in terms of site-based practice and testing. In this paper, the target sites are selected for design to test the feasibility and effectiveness of the planning strategies.