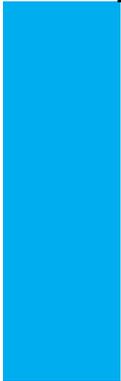


Graduation Plan

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	
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Studio	
Name / Theme	Urban Fabric
Teachers / tutors	Egbert Stolk, Birgit Hausleitner
Argumentation of choice of the studio	The topic of stress and city address the mental stress problem from the perspective of living environment. It is highly related to the space around us, which is exactly the focus of the Urban Fabric studio.

Graduation project	
Title of the graduation project	Stress and City
Goal	
Location:	Xiasha urban village, Shenzhen, China
The posed problem,	According to the World Health Organization, stress is one of the major health challenges of the twenty first century. Problems arise when the stress response does not switch off, as it affects the immune system, and raises the risk of psychiatric diseases. Recently, Cities where the stimulation is much higher are proven to cause harm to the mental health of the inhabitants. One of the leading psychologist blames density in city as one of the main drivers for stress and related effects. To solve the problem, minimizing the density is proposed. However, it is not feasible in the case of most cities.

	<p>In Shenzhen, China, the urbanization level keeps increasing rapidly with large amount of immigrants flooding into city. The increasing higher social and spatial density in the not good living environment of urban village pose serious challenge to the mental health of the already vulnerable immigrants. The measures to deal with the problem are needed to be proposed. However, there is still not enough attention from the highly related urbanism field. There is almost no research or design from the urbanism field to address the stress of urban immigrants in China from the perspective of living environment.</p>
<p>research questions and</p>	<p>Research question:</p> <p>How can the socio-spatial stress of urban immigrants in the highly dense Xiasha urban village be reduced by spatial measures?</p> <p>Sub-question:</p> <ul style="list-style-type: none"> (1) MECHANISM - How does the living environment contribute to the accumulation of stress? (2) CAUSE - How does the high density cause higher socio-spatial stress level in Xiasha urban village in different scales? (3) EFFECT - How does the socio-spatial stress problem affect urban immigrant's lives and behaviors, and perception? (4) DESIGN INTERVENTION - How can the stress in Xiasha urban village be reduced by spatial measures without reducing the density?

	<p>(5) STRESS PATTERN - What spatial strategies urbanist can take to reduce socio-spatial stress?</p> <p>(6) EXTENSION - How can the urbanist reduce the stress when renovating other urban villages?</p>
<p>design assignment in which these result.</p>	<ol style="list-style-type: none"> 1. Propose design interventions to reduce stress in Xiasha urban village without reducing the density 2. Create the inventory of stress pattern for more general use in the stress problem 3. Extend the knowledge from one specific urban village to renovation of more urban villages in broader context such as the scope of Shenzhen or in China.

Process

Method description

Thesis structure:

The thesis is mainly fall in the scope of environment - behavior study according to moudon’s category of concentrations in urbanism (Moudon, 1992), so the structure of the thesis follow the logic of the study which bases the research and design upon the relation of environment and behavior. This thesis consists of four parts. In the first part, the problems of stress and city for urban immigrant in urban village are identified, and based on them, the structure of thesis is built upon with research question, methodology and relevance. In the second part, theoretical framework is built up to review the theories related to stress, Asian dynamics and urban design, which serve as the basis of the thesis. In-depth analysis of the environment of urban village is carried out with the support of theories. In the third part, the environmental behavior of urban immigrants is investigated. It reveals the stress effect and the needs of people which can guide the design process. Last but not the least, the spatial interventions to reduce the stress in Xiasha urban villages are proposed. Furthermore, stress patterns and extended applications are discussed to contribute to this topic in general (figure 7).

Research methods:

According to Jack Breen, there are three principal forms of research: explorative, empirical and descriptive research (2002). This research is explorative as there's not a lot of research tackling this issue from this perspective. Various research methods are utilized to answer different questions in different parts, including literature review, mapping, questionnaire, interview, observation, induction and so on.

Part 0:

This part is mainly about the context and the problem analysis. The main method in this part is the literature review. The recent development of researches about stress and city, and the researches about urban immigrants and urban villages are reviewed and concluded.

Part 1:

This part consist of the theories review and in-depth analysis of the environment of urban villages. In the working process, they contribute to the development of each other by going back and forth. It answers the first two sub-questions – mechanism and cause. Various measures are used to answer different questions.

For the theoretical framework, related literatures are reviewed. The sub-question of mechanism is answered in this part. The relational mechanism serves as a way of researching and interpreting the relation between city and the stress.

For the environment analysis that is related to the sub-question of cause, literature review, mapping and comparison analysis are applied. The literature review in the theoretical framework is mainly about the density and environmental stressors. Then the theoretical understanding helps to map out the stress-related environment in the case of Xiasha urban village, which include the conditions of density, spatial phenomenon and the stressors. At last, based upon the relational mechanism of stress, comparison between environment in urban villages and environment of urban immigrants' main previous living environment are analyzed, which helps to further identify the stressful environment elements in urban villages.

Part 2:

Onsite investigation of environmental behavior is carried out which answers the sub-question of effect. Interview, questionnaire, on-site observation, space syntax analysis and mapping are utilized to test and adjust the mapping and analysis that are based upon theory, and reveal people's behavior in urban village under stress. Interview and questionnaire is used to investigate people's general thoughts and feelings towards the living environment and stressors. Observation reveals people's behavior in the environment. However, it is hard to reveal the general pattern of behavior in large scale with such a big group of people flowing every day, so space syntax is utilized to complement the investigation, which is helped to understand the

movement and active area of different groups in the scale of the whole neighborhood. Conversely, the on-site observation helps to adjust the result of space syntax for making it more rational and practical. At last, mapping of the behavior patterns is utilized to record and conclude the investigation. These patterns are related with the environment analysis of part 1 for revealing their interaction.

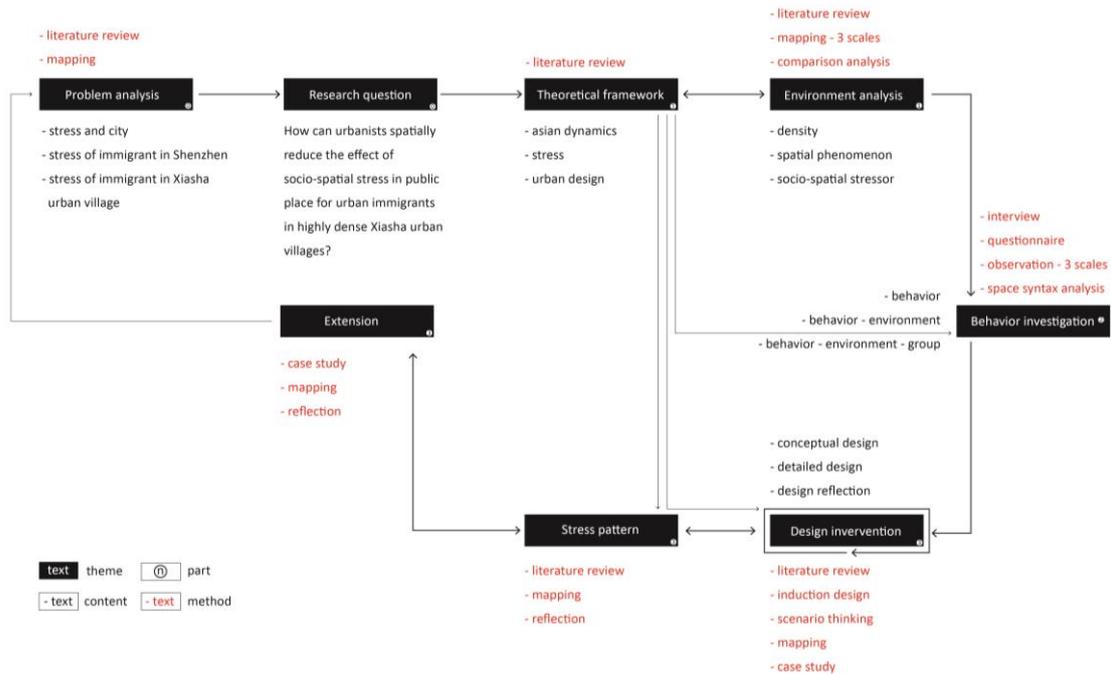
Part 3:

Design intervention in Xiasha urban village and discussion of stress pattern and extension are elaborated in the part 3. It answers the fourth, fifth and sixth sub-questions. They complement the answer for each other.

For the design intervention, literature review, induction design, scenario thinking, mapping and case study are used. The literature review is focused on restorative living environment in city. As what the design need to answer in the problem of stress is complex, the thinking of induction design and scenario are utilized to approach it rationally and comprehensively. The strategies and spatial interventions are mapped about, and case study provides reference and confirmation for the effect of design.

For the stress pattern, literature review, mapping and reflection are applied. Literature contributes to the discovery of more patterns and gives the scientific support for each problem-solution pair. Mapping shows the practical usage of patterns while testing them. Reflection identify the relations between the patterns, which is necessary for broader utilization and clearer definition of them.

For the extension, case study, mapping and reflection are used. Firstly, different cases of urban village in Shenzhen is studied, and the possible extensions are mapped out in these cases. In the process, the pattern and interventions can be reflected and improved in order to suit broader context in the stress problem.



Research methods, Resource: By author

Literature and general practical preference

To answer the questions of stress (well-being) and city (high density), the theory framework brings three themes of theory together: the Asian dynamics (context), stress (psychology perspective) and urban design (spatial perspective).

- This Asian provides the context of the topic which frames the scope of the thesis. It provides perspectives of the urban history, the urban development of Asian cities and the living status of the Asian people in the swift changing Asian countries. In this thesis, it is mainly about the urban village and urban immigrants in Shenzhen, China.
- The stress-related psychological theory provides the basic understanding of complicated psychological process of people and helps to reveal the stress-related problems in cities. The theme contains part of general research, environmental behavior, restoration and stress & space. It is important to notice that although the research about stress in city keeps developing, there are still very little empirical study to prove the exact and direct relation between stress and specific elements in city, especially in the case of urban village in the context of China. So in the thesis, some assumptions have to be made based upon the theory, and these gaps still require more empirical studies to fill in.

- The theme of urban design provides the spatial perspective in the discussion by relating the psychological study and Asian context with space. It mainly consists of three parts which are the density, territory, and stress & space.

They give a strong basis for a more comprehensive understanding of the high density related stress problem in Asian context from the spatial perspective. Different literature in different themes are combined flexibly to contribute to the research in different parts in the thesis. The following review is organized by what need to be answered in different parts in the thesis.

Reflection

Relevance

Social relevance:

The higher stress level in cities, which is contributed by high density in a lot of cases, is causing harm on its inhabitants. Just as mentioned before, according to the World Health Organization, stress is one of the major health challenges of the twenty first century. The increasing effect of the problem of stress can be seen in various resources. For example, according to Abbot, "In Germany, the number of sick days taken for psychiatric ailments doubled between 2000 and 2010. While in North America, up to 40% of disability claims for work absence are related to depression, according to some estimates" (Abbot, 2012, p.162). It not only does harm the well-being of the people, but also to the well-being of the society as a whole. As stated in a lot of researches, the problem of stress is not an isolated problem. Instead it is highly related to many other social problems such as crime, weak social bond and so on.

In the case of urban immigrants in urban villages, the problem of stress is severe. The highly stressful situation for urban immigrants are stated and proven by numerous psychological researches and facts. For example, in the psychological researches, Yang and Wang found that 81.3% of the urban immigrants feel stressful to settle in cities (Yang & Wang, 2014). And there is a lot of news in media about social conflicts, mental problems and even suicidal events among the urban immigrants. When asking about the experience of living in urban villages in Zhihu (one of the famous Chinese question and answer website), almost all answers are negative, in which they complain about the stressful noise, darkness and social relationship and so on. Apparently they are unsatisfied with but still have to live in urban villages that does harm to their well-being. As the major group in most of the big cities in China, the stress upon them is a great problem for our society to deal with.

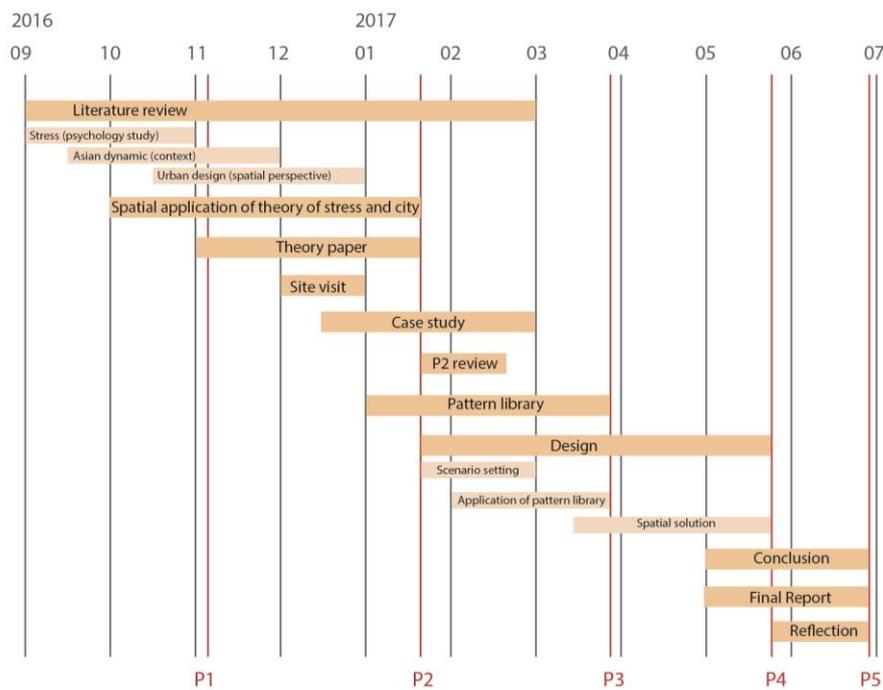
Scientific relevance :

Stress is more regarded as a social topic by the people and scholars, but meanwhile it is also highly related to the spatial aspect in the field of urbanism. There are several reasons to support the relation between stress and city. Firstly, the physical living environment of city imposes some direct or indirect bad impacts on well-being of its inhabitants, such as noise, crowding environment, and urban heat island and so on. These stimulation contributes to higher stress level. Secondly, spatial and social aspects are inter-related, which makes it insufficient to only address the stress from social perspective. Their relation started to be addressed in urbanism by Hillier and Hanson who stated that the social and physical dimensions of space mutually embody each other (1984). Their idea is proven in many researches such as space syntax. The inter-related physical and social environment is reflected on human perception & cognition. It is explored a lot in urbanism. For example, Rapoport regards built environment as a form of non-verbal communication to inhabitants (1977). Thagard takes the human as a system of multilevel interacting mechanisms involving factors of environment and diverse changes in human being such as the psychological changes (2014).

Stress and city is highly related and it is within the field of urbanism, the spatial aspects of the problem stress is insufficiently researched, as mentioned before. More attention is on the psychological and sociological investigations in the problem of stress. The gap makes the analysis of the problem not comprehensive, and makes the solution of the problem insufficient. It is clearly reflected by the lack of address concerning stress of people in urban design and planning system. Moreover, Lots of researchers from various fields, such as Adli from the psychological field and Evans from the spatial field, emphasized the necessity and urgency of addressing the stress problem from the spatial perspective. It can add a new perspective to the stress problem, and combine with the researches from the psychological and social perspectives into a more comprehensive research system. Here, the thesis is trying to contribute to the process of filling up the gap.

Time planning

The time arrangement mainly consists of 4 parts, including the literature review, environment analysis, design intervention, and development of stress pattern and extension. The first 2 parts are finished before P2, and the last 2 parts would be carried out from P2 to P4. The site visit and behavior mapping is the connection of the first 2 parts and the last 2 parts, which is carrying out around P2.



Timetable for graduation project, By author