

## **P5 REFLECTION**

### **Introduction of the Thesis**

My thesis is titled “Urban Stitches.” The thesis is about implementing an innovative approach of infrastructure renewal projects in Taiwan. Enormous amount of emerging problems in urban environment have been neglected while most of the national or municipal resource contributes to the trend of infrastructure renewal projects, for example, underground and elevating project of existing railway. Furthermore, many of these urban problems have been tightly connected with the establishment of these transportation infrastructure systems, for example, the unbalanced development and fragmentation of the urban environment. Therefore, the thesis delves on the integrative approach of utilizing implementation of traffic infrastructure system as opportunities to trigger urban regeneration actions that alleviates existing urban problem. TRA Taoyuan Railway Underground Project (referred as TRA Taoyuan Project), an ongoing project which the existing 18km of ground level railway will be transferred underground, has been selected as the case study project.

### **The Relationship between the project and the Wider Social Context**

The implementation/renewal of transportation infrastructure could bring tremendous adverse impacts to the society, which are proven by the evidence in the thesis. The inconsiderate transportation infrastructure planning practice has resulted several urban issues tightly related to the performance of urban environment, including over-densification of city center development, introduction of industrial activities which interfered urban environment, and unbalanced development due to the physical presence of infrastructure. Moreover, it is inevitably that the implementation of transportation infrastructure projects will always introduce complex actor relationships which further induce serious social conflicts. These conflicts include development-induced replacement and uneven distribution of resource between powerful stakeholders and general public.

The mentioned problems impact social sustainability of an urban environment. Chilean economist Manfred Max-Neef defined social sustainability by the nine human needs to achieve healthy society, which are subsistence, protection, affection, understanding, participation, leisure, creation, identity, and freedom (Hitchcock and Willard, 2009). As the implementation of transportation infrastructure affects both spatial performance of urban environment and actor complexity, it influences on several needs mentioned by Max-Neef: Subsistence as resource distribution, participation as inclusion of citizens in decision making, leisure as basic requirements of a well-performing urban environment, identity as place attachment of city, and freedom as equal right of space and service between involved actors. Therefore, the establishment of transportation infrastructure has it heavy influence with the social context of its located urban environment.

The objective of the thesis therefore addresses on how to integrate transportation infrastructure projects with the actual need of urban environment and trigger urban regeneration of other parts of urban environment, further consolidates social sustainability. The urban design outcome and the design process from the thesis are therefore aimed to demonstrate understanding and probable solution of the addressed urban problems. By utilizing design and presentation via various media as the comprehensive dissemination of the research, it is also hoped to also bring up awareness of people in related urban issues. Eventually, the outcome of the thesis, particularly the urban design and design process, will be evaluated on how effective it meets the objective of the thesis. Yet, since the problem and

objective of the thesis involved with social complexities, evaluation on the outcome of the thesis become much less explicit. Comparing to particular urban performance topics, for example, traffic connectivity which can be evaluated by SpaceSyntax or water/climate topics which can be quantified with respective softwares, it is constantly challenged if a more objective method (or if being objective is necessary) to evaluate the thesis could be formulated.

### **The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object)**

The selection of research group for my graduation thesis is “Design of Urban Fabrics.” According to the given definition from the research group, urban fabrics refers “both to the physical urban environment (elements, materialisation, form, scales, density, networks), and to its psychological, socio-cultural, ecological, managerial and economical structures” (reference from website “Design of the Urban Fabric: Research Group of the department of Urbanism – Delft University of Technology”). In this research group, urban fabrics is understood through design in two perspective, which are the studying of actual design and its implications, and studying of the design process before actual implementation.

In the thesis, the objective is clearly physical/spatial, which is the design actions to be implemented on the evacuated 18 km railway corridor. With the further development of the thesis, the aim of the design is set to alleviate existing urban problems introduced by transportation infrastructure, as well reconnect urban environment that is fragmented by the establishment of these infrastructure systems. These described problems are manifestation of the dynamic but complex relationship between social, political, economic, ecological structure in physical urban environment. Therefore, corresponding to the theme of the research group, the thesis is about the studying of how the design intervention of the TRA Taoyuan Project could respond and hopefully, solve the existing urban problems.

The understanding of design process of TRA Taoyuan Project is also crucial in this thesis. As the whole project scope of TRA Taoyuan Project is 18 km, it would not be feasible to complete the design of the whole corridor with the given timeframe and resource in one year of thesis work. Therefore, the design is initiated from neighborhood scale, which urban design is applicable. The design process has been constantly review, optimize, and document, then finally translate into design methodology. As the design methodology is conducted, it will become a powerful guideline to be repetitively conducted, in order to complete the other segments of the TRA Taoyuan Project.

However, there are limitations with the approach from the scale of urban design. The identified problems within each segments could be solved theoretically with the bottom up approach of designing regarding to exclusive segments. Without more precise overview of larger scale, problem analyzed in larger scale would be hard to tackle. For example, while spatial and social problems on urban problems within the over-densified station neighborhood or sprawling neighborhood could theoretically be solved with the bottom-up approach, the structural and principle problems of the causation of these phenomenon are unfeasible to be dealt with small scale that the thesis worked on.

Furthermore, the power of the scale of urban design is accentuated in the methodological approach in the thesis. The importance of the developed method of “thematization of segments” has been emphasized in the thesis. Giving themes to the segments in urban design scale utilizes cognitive categorization and analogy to identify, familiarize, and compare different site characteristics and urban problems. In terms of transferability, it could make the implementation of the bottom up integrative approach more feasible by setting different parameter with the criteria to “thematize” the segments, or compare and categorize similar segment identities to replicate similar decision and design making process. However, whether the thematization approach in design further create disconnections between different spaces due to potential of completely different outcome between each segments remains unknown. Therefore, it is important to include regulations or suggestions on the continuity of spatial and social design when adopting this overall research-design developed process into practice approach.

## **The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework**

In both Design of Urban Fabrics and Flowscape (graduation studio of my 2nd mentor), the relationship between research and design in this particular thesis could be described in these two approaches: “Research-based design” and “design-based research.” Methods to approach the thesis research and design are aligned with these two aspects.

According to Nijhuis and Bobbink (2012), in research-based design, “research feeds the design process with the ultimate objective to improve the quality of the designed object and increase its credibility.” In the thesis project, the designed object is the evacuated corridor once the replacement railway is constructed underground, and the objective of its design is to alleviate existing urban problems and reconnect the opposite sides of railway. Therefore, research is focused on unfolding the specific urban problem presented on the site of TRA Taoyuan Project. First, in the problem analysis, the inventory information from several scales has been analysed and interpreted in order to understand the core of the related urban problems. Conclusions are made in order to identify the next actions to be taken, including the goals to be achieved through the design and the selection of the test design sites where these urban problems have been the most emerging. Once the urban problem is clearly defined via research, the objective of the thesis could therefore be more effectively approached. After the problem based research, the next aspect of research has been theoretical research on understanding of problem and finding of solution. Once the “what to be done” and “how to do” of the design objective is clearly defined, it elevates the quality and credibility of the upcoming design outcome.

On the other aspect, in design-based research, “design (or the process of designing) are used as a vehicle to make spatial problems visual and spatial (‘framing’) and to generate solutions. (Nijhuis, Bobbink, 2012)” In this thesis, once the problems and their potential solutions are defined, test designs are exercised as spatial translation of these solutions. Options of design have been made and will be evaluated if they meet the objectives set from the analysis. Also, as the thesis proceeded to test design, it also serves as an examination on the whole process of thesis. As the process of design starts to integrate with aspects space, ecology, social, etc., it also reveals the insufficiency in research process, for example, the need of supplementary information or missing arguments. Therefore, in this thesis, research and design complements each other in problem solving and forms a reiterating process.

The downfall of the approach is the difficulty of completion in the given timeframe of a year. As previously mentioned, the process of “research-based design” and “design-based research” is a reiterative process. In the thesis, a huge part of the time is contributed to the build-up of the research-design process. Adding upon the completions of graduation course deliverable, it has been hard to conduct examinations on how the research-design process’ potential to be adopted to practice approach, or examine thoroughly on its transferability in different scale and scope.

## **Reference**

Hitchcock, Darcy, and Marsha Willard. *The business guide to sustainability: Practical strategies and tools for organizations*. London: Earthscan, 2009. Print.

Nijhuis, Steffen, and Inge Bobbink. "Design-related research in landscape architecture." *J. of Design Research* 10.4 (2012): 239. Web.

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