The Rules in Reconnecting the City Fabrics: A Morphological Study of the Regeneration Case

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Abstract. In the recent 30 years, Shanghai experienced fast urbanization which landscape shows various types of conflicts among the modern forms and the traditional forms. The insertion of new typologies in the traditional district introduces new urban characteristics and dynamics, which are not typically associated with the traditionally framed cities. The constructions of substantial industrial and commercial projects have caused the demolition of traditional urban forms. Urban designers aspire to revitalize the traditional neighborhood by combining urban fabrics without destroying the structure of the historic neighborhood. This paper attempts to exam the effectiveness of the urban network, the continuity of public structures and operational interactions between new projects and the local context through the study of a “failed” regeneration project in Shanghai, China. Consequently, this paper raised rules in reconnecting the city fabrics towards differential urbanism.

1. Introduction
The lack of connectivity, social diversity, or loss of social and economic dynamics have raised the issues of fragmentation, segregation, and marginalization (Pinto and Remesar, 2012)[1], especially in the traditional central area of metropolitan. Since the end of the 20th century, traditional compounds in the central cities of China had been replaced by modern developments. These new projects, supported by the state government, were constructed rapidly with little consideration of the public structure. These typical Chinese-pattern large projects included a central commercial complex, transportation hubs, and gated communities. The insertion of these new simple typologies into the traditional district are not typically associated with the traditional forms, which leads to discontinuity of public space, few interaction between the new project and local context and an inactive spatial network. Currently, the insertion of these new-projects had brought a series of problems in the traditional district.

2. Theoretical approaches
The fragmentation reality of the metropolis is never a new topic. Actually, during the rapid development of the post-war rebuilt of the cities, architects and urban theorists had already set the debate on how to combine the modern large-scale infrastructure and development projects with the more compact and small-scale traditional forms (Khaled A, 2017) [2]. Rowe and Koetter illustrated that even the most ancient cities were built in incremental fragments. In an appendix, they showed that streets work as urban elements in the cities (Rowe and Koetter, 1975)[3]. Rowe’s exuberance alienated Sir Leslie Martin, the head of Cambridge, to try to apply mathematical and proportional systems to the city. Also, here started Christopher Alexander. He summarized that the problem of the modern city is in its tree-pattern connection, while the natural city connection is semi-network. In the perspective of pattern and scale, Alexander advocated the “language” of buildings and paths in everyday urbanism.
Therefore, through the morphological “language” of the natural city, everyday social interactions can be combined into an organizational framework (Alexander, 1977)[4].

Subsequently, his former colleague and follower, Salingaros stated that it is possible to combine the modern form with the traditional form through the rebuilt of the city network. Salingaros interpreted that link, node, and hierarchy are the essential elements for the city to contain differential urban patterns (Salingaros, 1998)[5]. In addition, he believed that the smaller the scale, the more effective the pattern connected to the human beings. Therefore, the human mind can combine patterns into group from small to large. So, based on the fractal theory, he then proposed the urban network theory. There were scholars referred similar notion in the concept of “nodal structure” (Gosling and Maitland, 1984) [6] or “armature” (Buchanan, 1988)[7] to reinforce and distinguish the important elements and structures that combine several urban networks (Roberts et al., 1999)[8]. Other major classical streams of this topic include the work of Jane Jacobs (1960), Camillo Sitte (1965), Edmund Bacon (1974) and Zukin. They also emphasized the importance of the divergent and complimentary of the traditional spatial patterns. These approaches also linked to the conception of “re-urbanization”, developed by Portas et al. in 2011, where he stated that it is vital to combine activities inside urban fabrics (Pinto A J and Brandã o A L, 2015)[9]. Even in the traditional district, plots vary in size and shape, probably as a consequence of a historical and predominantly unplanned process of formation and continuous adaptation (Remali, 2015)[10]. However, private houses usually occupy smaller plots than public buildings in the traditional district which is essential to generate public network (Remali, 2017)[11].

To conclude, the core argument of this paper is as follows:

First, the procedural of the small to large network brings the most active personal connections at the beginning, and build successive patterns based an intuitively accepted base; Second, the public space plays a crucial role in the urban structure and social appropriation. Thus, through the study of the structure of the public structure in these areas, it is possible to understand the specific urban network in it; Third, we understand the public space as collective part of the city, forming a coherent whole and supporting morphological, economy, social and environmental issues of different natures (Carmona et al., 2003[12]; Pinto A J and Brandã o A L, 2015[9]). Therefore, public spaces cannot be studied as a sum of isolated elements but as a network (Pinto and Remesar, 2012)[13].

3. The study of the “failed” regeneration project in the 1990s in Hongkou District

The north Sichuan Road District is located in the Hongkou district in Shanghai, China (Figure 1; Figure 2). In the late 1990s, there was a regeneration of the North Sichuan Road district following the national commercial planning. However, when the new construction of the elevated highways, subways, large commercial centres, and large-scale modern gated residential blocks were planted inside the traditional neighborhood, they have not brought a long-term revitalization. (Figure 3; Figure 4).

Figure 1. The location of the North Sichuan Road in central Shanghai. Source: Redraw from the studio work.

Figure 2. The photograph of the traditional residential house (left) and the new projects (right) in the Sichuan Road district. Source: photographed by author.
3.1. Declined linkage of the public space
The traditional public structure was destroyed when the small-scale paths had been demolished (Figure 5; Figure 6). The streets and alleys, which initially linked the differential urban patterns, were cut off by the reformed squares and towers. Besides, the North Sichuan Road, which had worked as the pedestrian commercial street in this area, was transformed into main vehicle street with huge shopping malls. The current mixture use of pedestrian and vehicle had caused severe safety problem and traffic jam.

3.2. Decreased interaction of the various nodes
The unrelated relationship among the present commercial function and the local community need to bring further hardship in the development of the North Sichuan Road district. It is hard for the small shops to compete with the super-malls, so they gradually closed or had been demolished. Nevertheless, these new commercial complexities were built to full-fill the consumption of the middle classes, while more than half of the residents in this district remain the low-income immigrants. Although there were
still traditional residents remained, they lost most of their local commercial shops and other societal nodes such as small gardens and lanes. The various interaction nodes in this district severely decreased.

4. Rethinking the future conservation and renovation

The issue I raised here is how to rebuild the public structure in a way which can manage vehicle transportation, as well as the pedestrian communication and the historical interface. As stated by Foucault, the core mission of the conservation and regeneration of the North Sichuan Road district is to entertain the claims to the attention of local, discontinuous, disqualified, illegitimate knowledge against the so-called order (Foucault, 1980)[14]. Through the micro-renewal of local links and nodes, the connectivity of the traditional neighborhood could be repaired. (Figure 7).

4.1. Reconstruct the hierarchy of the street system

There is a hierarchy structure in current cities in which the capacity of activities improved from narrow paths to highway channels. Through the reconstruction of the order of the public space, the platform of the human behaviors in differential scales could be built. In order to increase the connectivity of each level in the North Sichuan Road district, there are three key points to improve the street capacity of the pedestrian behaviors and vehicle transportation: (1) reconstruct the hierarchy of street system; (2) increase the number of the small-scale paths; (3) improve the diversity of the sidewalk design based on specific function of the street.

4.2. Recover the typical traditional nodes

Prominent buildings and monuments provide nodes for long-lived community interactions. Thus, start with the rebuilt of these significance nodes, it is possible to trigger the interaction of societal activities and recover the episodic memory of traditional neighborhood. In the case of the North Sichuan Road district, the large squares of the new projects can be redesigned to link the remained small paths of the surrounding plots. It can be achieved through three strategies: (1) design the new projects with local morphological patterns; (2) recover the typical traditional nodes, especially the old memorial landmarks of the site; (3) Rebuilt the small-scale continuity paths to link the essential modern and traditional urban nodes.

4.3. Coordinative operation to long-term manage societal interaction

Through the coordinative operation of the large and small projects, the city area would develop new networks towards differential urbanism. The large-scale projects in the North Sichuan Road district run a single function facing similar customers which had established the intangible boundaries. However, the original local business contained functions facing differential needs throughout the whole day. Shops and offices open during the day, restaurants and opera houses open in the night, and small bars serve to late night. Thus, if these large projects can be subdivided into small functional units, and partly cooperate with the surrounding private shops to cover the various kinds of entertainments and facilities. In this case, it should be useful in attracting residents and even tourists, form new nodes and manage long-term societal interaction in the North Sichuan Road district.

Figure 7. The conceptual approaches in reconnecting the urban network:(1) Reconstruct the hierarchy of the street system;(2) Recover the typical traditional nodes;(3) Coordinative operation to long-term manage societal interaction. Source: Redraw from the studio work. Source: TMstudio.
5. Conclusion: Rules towards a differential urbanism
To sum up, this research responds to the questions on how to revitalize the traditional district and the approaches to connect differential urban fabrics. The urban texture is a way of guiding the city to establishing order. It deals with "possible forms of the urban environment (Lynch, 1984)[15]". With the deep understanding of the existed urban fabrics, strategies on physical elements can trigger a vivid city image and social reality.

6. References
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