# MAPPING THE INTERARCTION BETWEEN PEOPLE AND SPACE IN TRAFFIC BOTTLENKCKS

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I INTRODUCTION

In ancient times, people gathered and set up the living settles which always staid in walking-distance scale, dwellers were able to build a clear and strong cognition about their living environment. As the expanding and developing of the city, people surviving in modern lifestyle gradually lose their ability to construct the visual connection on the urban scale. Just like the animals inhabiting in the jungle who can only reflect their living space as a lot of different types of tree and the light going throw the slots of leaves, the image of the city in individual's perception become fragment and vogue. In the mind of the modern people, the conceptual image consists of specific areas and the traffic lines. Especially because of the highly advanced technique, the transportation system becomes convenient and also complicated, which even exacerbates the unclarity of the city's image and scale in people's mind. For example, the subway system introduces a black boxes system into the city in which people go underground at one point, through a long tunnel and pump up at their destination. Hence, the modern lifestyle relying on the convenient transportation system block the interaction between individuals and city. Since the flows of people are greatly driven by the transportation network, the bottlenecks in the city gradually been formed and attract various activities and events happened around. Time by time, these formal or informal station act as a nuclear of its nearby blocks, in the other words, these bottlenecks become the microcosm of urban life.

The methodology I choose depends on my research interest of the city. As mentioned above, due to the expanding of the city and the intervening of the transportation system, individual's mental picture of the exterior physical has been reshaped. They are motivated to structuring and identifying the city space in their range of daily routine, and unable to draw the image of other parts of the city by ether language or image. Transportation network, street scale, ground pavement, monument etc, every element in the city will promote or block the interaction between people and city. In order to present ambiguity, complexity and other characteristics of the relation between people and city space,  I introduce mental mapping as a novel and hybrid research methodology for examining the spatial perceptions of local citizens. The mental mapping contains two research parts: large quantity sketch of the city and reflection of the city. The first one documents the existing events and phenomenon in physical space, while the reflection writing capture the fleeting feeling in specific moment. Mental map is synthesis which successfully collects quantity information in different fields into one drawing board. What is more, the mental map is open to edit, with the in-depth investigation, the researcher is able to delete or add new information to it.

My research about Valparaiso focuses on these bottlenecks which are able to mirror the most aspects of the city. Valparaiso is a harbor city, lying a plenty of hills and facing the ocean. In the past hundred years, the city expends itself towards hills. To overcome the height difference and connect the coastal area and hills, Valparaiso developments a specific transportation system, including funicular, taxi, metro, and bus. Through the research and observation of several important bottlenecks, my research question is to find how does the quality of the nodes in city shape people's behavior and emotional experience.

II RESEARCH-METHODOLOGICAL DISCUSSION

Space, events, and people are the essential elements to consist the city space. Mental mapping is a method to present physical spaces and abstract mental reflection, as well as the interaction between subjectivity and objectivity. The research of the "transportation bottlenecks " requires the capacity of the mental mapping. Firstly, these nodes have a sense of shift, they are primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of the shift from one structure to another[1]. Secondly, human activity is the vital part of these nodes. Some of them are the nuclear and

miniature of the surrounding area and radiate their influence. Hence, in terms of this topic, the research is supposed to cover a plenty of information in different fields.

Before the fieldwork, the drawing of the mental maps mostly relies on the third-party information from book, internet, and video. This information collecting process helps me quickly built the general understanding of the city and basic structure of the further research. During the field research,  my research, bearing the general understanding of the city, mainly focus on the certain nodes. I research these bottlenecks in different time of the day and observe the difference in terms of time and place. Most of my sketches are about the people's behavior and activities, which have tight relation with the characteristics of the space. Then, based on the map structure, the sketches and notes can be assorted to one large drawing board. After that, all the information are logically collected together, and the invisible information and relation in physical world pump up and could be analyzed in the future.

Amercian architect Kevin lynch used a lot of mental diagrams to complete city research in his seminal publication <The Image of the City>. These diagrams were the combination of the real city space and the abstract cognition, and clearly reflected the visual and mental relation between people and city. Based on the interview with locals, he made a new type of map and named these drawing as "mental map". He emphasized the importance of legibility in terms of the city setting. The suitable environment would provide citizens with the sense of security and help them build the interaction with the external world. While the "mental map" in this books are concise with clear aiming, I would like to categorize them into the conceptual diagram. Lynch was more interested in the different levels of structure in the city than the events and activities happening on the site. While in nowadays research, with the development of the computer science, digital drawing become the mainstream within the profession. The mental map can be made by computer and internet without the field research. However, the mental mapping in my research is different from the other two types mentioned above. It more emphasizes the diversity of the information and the presence of the researcher, which means that all the resources(sketching and writing)  the mental map are made in the site.
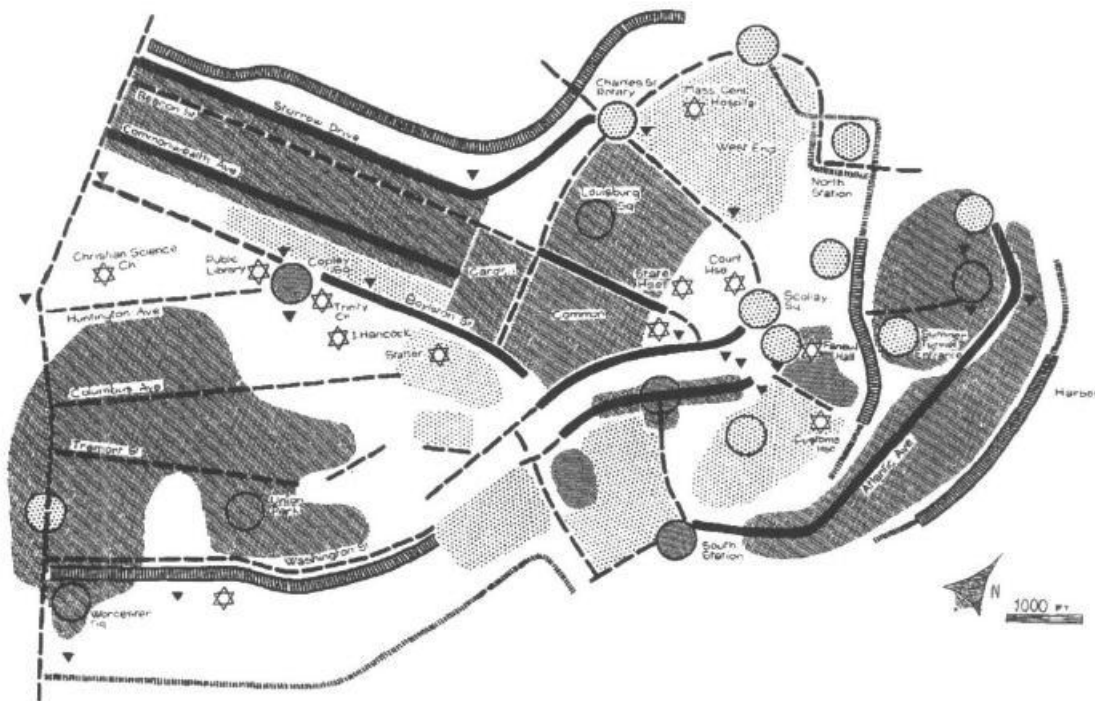


Figure 1 Kevin Lynch, The visual form of Boston as teen in the field ( resource:The Image of the City ,The MIT Press, 1960, P19)

## III RESEARCH-METHODOLOGICAL REFLECTION

Mental maps are an outcome of the field of behavioral geography. The imagined maps are considered one of the first studies that intersected geographical settings with human action. Kevin Lynch introduced this method to the field of architecture through the <The image of the city>. After that, mental map has been largely utilized in the research of city spacial quality. A study by Matei et al. in 2001 used mental maps to reveal the role of media in shaping urban space in Los Angeles. The study used Geographic Information Systems (GIS) to process 215 mental maps taken from seven neighborhoods across the city.[2] The mental map has also been used to the study of the city experience of the target group. Olga den Besten did a research in 2008 concerning the children's preference and dislike of the city in Berlin and Paris. This research starts from the children's point of view and reflects the emotional projection of city space. What is more, Peter Gould and Rodney White talk about the people's desire of living environment in the book <Mental Map>, they come up the concept "surface of desire for various areas" and show the environmental preference of people. [3] Furthermore, mental map is also employed in the strategic analysis. Australian strategic analyst David Brewster has applied the concept to strategic conceptions of South Asia and Southeast Asia. He argues that popular mental maps of where regions begin and end can have a significant impact on the strategic behavior of states.[4]

On the one hand, my research aims to find the projective relations between people and external work, and pick transportation bottlenecks as the researching point. Different from other mental mapping research, I would like to show the similarity and difference of one place at different times of the day. I used a lot of sketches which document the event and activity at different times. For example, at 8:00 am, at one of the bottlenecks where locate 2 bus stops, all the roads and alleys are full of bus, cars, and taxi. Most of the stores are closed, while everyone on the street walks fast. The speed of the traffic flow and the noise of the car and other environmental elements which are shaping the space quality are supposed to be documented by mental map. While at 1:00 pm, the atmosphere change. The stores are open, street vendors start to sell different kinds of things, people slow down their peace and start their social life. On the other hand, different from another mental map concerning the issue in city scale, my research only picks up several small areas and focus on the interaction between the different elements in these "always busy" nodes. To sum up, comparing to the traditional mental map, my research narrow down the researching area and add more types of information such as sketch, time information and etc.
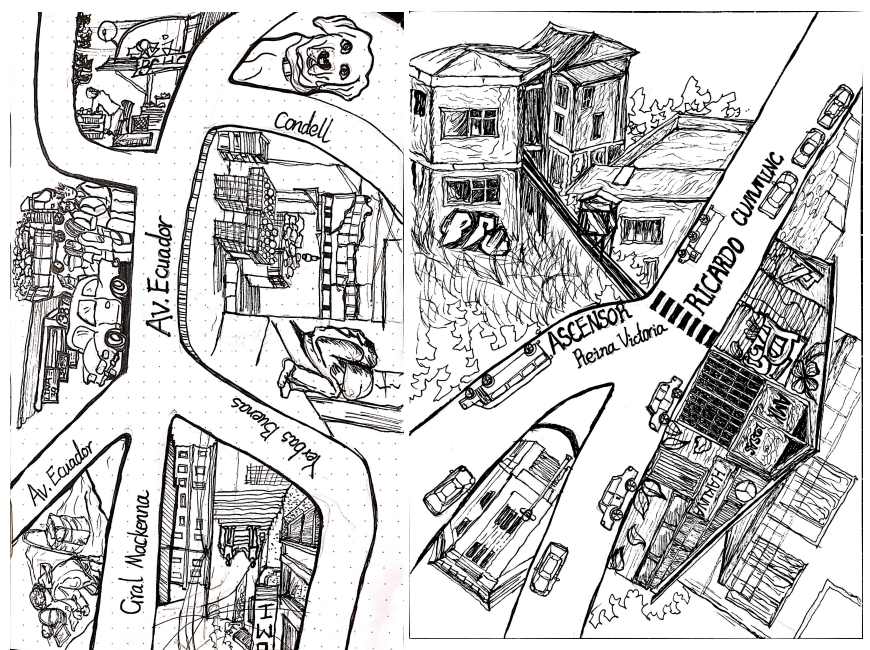


Figure 2 sketches ( resource:self draw)  Figure 3 mental map ( resource:self draw)  Figure 3 mental map ( resource:self draw)

IV POSITIONING

In the lecture "On Discourse and Narratives ", Klaske Havik talked the importance of narrative in the field of architecture and listed some interesting novels and fictions which contains great description about space, atmosphere, and city. For example, in Italo Calvino's most famous novel <Invisible City>, the attractiveness of the space has been illustrated in a skilled way. In these writings, the qualities of the space have been depicted, which are even more charming than what contains in the drawing. In the writing, the pictures of spaces gradually unfold with the movement of people. During the process of making the mental map, I also realized the importance of storytelling to the space shaping. Every people and even a small behavior will add another layer of color to the city space, for example, in a bustling street corner, everyone walks quickly in the rain, while there is a homeless man sitting in the corner and smoking. This body gesture suddenly gives this normal street a sense of storytelling. Within our profession,  architects can not merely satisfied with designing volumes to the city, at the same time, they also need to observe and document the current situation. Hence, I would like to position myself to be an observer and note taker of the city, through the making of mental map, deeply understand the existing structure of the city and the life patterns of people.

Based on the exploring of the behavior pattern and emotional projection of people, my further content is to activate the city space which is able to evoke the emotional resonance. In nowadays society, people have shouldered much more press from different kinds of aspects, which exerts the negative influence to the public city space, as well as the social space between peoples. Concerning about this problem, some researchers come up with the concept "urban acupuncture". This is a environmental theory that combines contemporary urban design with traditional Chinese acupuncture using small-scale interventions to transform the larger urban context. Different from the traditional city design, it faces to every citizen and tends to release the people's negative emotion and pressure. These kinds of intervention cover many fields, from urban design, landscape design, to art and sculpture. These projects usually develop through the dialogue with designer and communities and invite the participation of the people. Through the process of designing and building, people not only gain the joys but also social life with others. In the high-density modern city, the content of the design is supposed to concerning every living creature and bring more human touch to these concrete forest.

As a conclusion, I would like to argue that architect in this era cannot only pursue the spectacular shape and high-tech construction, it is time to go back to the humanity. Since the industrial era, the city gradually becomes more and more mechanized, as the host of city, people have lost their control and become passive to their living environment. The high-density, convenient transportation, modern infrastructure shape a convenient but indifferent life pattern. Hence in such circumstance, the representation and reflection of city space play an even vital role, which is able to reveal the puzzle accumulated in the urban development. Mental mapping assist researcher build an overall understanding of the city, then throw themselves to the nodes of the city and do the observation. This process can reveal tensions in the space, for example, in the research of Valparaiso, I find people do not build the positive emotional relation with space. The speed and noise of cars, the absence of staying space, dirty corners refuse the communication between people and environment, parents hold their children tightly because this space does not give them the sense of comfort. These informations can hardly be presented at the traditional design, the plan, section, and elevation. Hence I firmly believe that concerning the humanity, the capture and design of emotional projection should become the mainstream of research and design within the architectural profession in the future.

1          Kevin Lynch, The Image of the City (The MIT Press, 1960), 56.
2          "Mental mapping." Wikipedia, Wikimedia Foundation, 23 Oct. 2017, en.wikipedia.org/wiki/Mental_mapping#cite_note-Gregory-3.
3          Gould, Peter; White, Rodney,  Mental Maps. (New York: Rutledge,1986), 93.
4          Brewster, David. "Dividing Lines: Evolving Mental Maps of the Bay of Bengal." Asian Security,
www.academia.edu/7697999/Dividing_Lines_Evolving_Mental_Maps_of_the_Bay_of_Bengal "Dividing Lines.