

# **Young People' Perception of the Determining Factors of Environmental Quality, Case Study of Surabaya- Indonesia**

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## **Abstract**

Experiencing urban space and identifying urban element are important for individual needs of human orientation and to define an urban/environmental quality of a city. The quality of the environment is determined by perceptions of the observer through representation and imageability of the environment. Lynch's theory of the 'Image of the City' in 1960, states that there is a strong correlation between the representability of urban elements; through mental maps; and the quality of an urban area. In psychology view, the legibility of place is part of place attachment and identity, while others are social life and process. The purpose of this research is to examine the urban meaning for and perception of young people, which are determining environmental quality for particular social group. This research has been conducted in Surabaya- Indonesia, with young people from a mid to high economic family background that have high dependency on private cars. Young people in the group are very much exposed to urban traffic and mobility. They also largely experience very specific building typologies such as malls, related to their lifestyle. Furthermore, they have different patterns in imagining the city in contrast to any official city identity and conventional landmarks and city structure.

*Keywords: perception, environmental quality, place attachment*

## **Introduction**

Urban design studies have widened its approach since the 1930s, going beyond physical and aesthetic to humanistic approach. The aim of urban design studies is not only to enhance the character and qualities of a place<sup>1</sup> but also to create sense of place to the users<sup>2</sup>. In 1960, Kevin Lynch in the book 'Image of The City' highlighted particular urban elements that will help human to create senses of the place through navigating in urban context. The urban elements were defined through exploration of human orientation behavior in three cities: Boston, New Jersey and Los Angeles. The Lynch's book has influenced many academics and practitioners around the world, both urban designers and architects. Lynch's research focused on urban elements as products of environmental image or perception, which is understood through analysis of a city's identity, structure and meaning<sup>3</sup>. To understand perception is very much affected by people's feel to the place; commonly known as sense of place or place attachment<sup>4</sup>.

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<sup>1</sup> Jane Jacobs, *The Death and Life of Great American Cities* (Middlesex: Penguin Books, 1962).

<sup>2</sup> Yi Fu Tuan, *Space and Place: The Perspective and Experience* (London: Edward Arnold, 1977).

<sup>3</sup> Kevin Lynch, *The Image Of The City* (Cambridge: The MIT Press, 1960).

<sup>4</sup> Tuan.

This paper is based on research undertook in Surabaya-Indonesia, with respondent of specific group of young people, which is very much different with Lynch's. The research focused on spatial knowledge (environmental image), to develop perception and place attachment. The research wanted to explore the significance of Lynch theory application in different urban setting and time; socially, culturally and urban typology. The perception of the respondent is the way that the observers identify the environmental quality of the city. City of Surabaya is the second biggest city in Indonesia with a population density of 7,400 per km<sup>2</sup>, and the lay out is dominated by street/ road for vehicle as the city structure. The city is known as the City of Hero and by its Maritime power (because of the location in the Java Island). The specific character of Surabaya city and the respondents give important background in reading the city referring to Lynch's urban design elements. The research results show that daily life, social life and ethnic background of the young people give significant rule in representing the place of the city based on their spatial knowledge.



### Urban Elements and Meaning of Lynch's Concept

According to Von Meiss<sup>5</sup>, human always have perception of its environment through their memory. This ability connects human to their environment and identifies as human's ability to situate and navigate him/her in the setting<sup>6 7</sup>. Meiss and Schulz stated that Lynch's study established to orientation of large-scale environment, using sign and familiar situation<sup>8</sup>. Lynch's theory of five urban elements will help observer to navigate in urban context; are: path, nodes, landmark, district and edges. Lynch stated that the image/ perception of the city is

<sup>5</sup> Pierre Von Meiss, *Elements of Architecture* (New York: Van Nostrand Reinhold Publisher, 1986).

<sup>6</sup> James Gibson, *The Perception of The Visual World* (Westport: Greenwood Press Publisher, 1950).

<sup>7</sup> Lynch, *The Image Of The City*.

<sup>8</sup> Christian Norberg-Schulz, *Genius Loci; Towards Pheomenology of Architecture* (London: Academy Editions, 1980).

needed not only to human navigation (way finding) but also to give emotional security as well as social role in the urban context.

Lynch believed that the five elements are the most legible elements in the urban context. He stated that legibility is the most crucial thing in city settings, not in terms of the city itself but how its inhabitants perceive the city. There is a conversation between the observer and the environment, which is analyzed into three components: identity, structure, and meaning<sup>9</sup>. The first and second are the most legible/ visible of physical elements in cities, while the third is very relative in cultures. In the 'Image of The City', Lynch focused his research on the two categories that are Identity and Structure. Lynch apparently put less emphasis on the category that most people believe is the most relative and uncertain factor: Meaning, because of its social and cultural aspects. However on the Lynch's later books, he put more emphasis on social, cultural and historical background of the observers and the city.

YEAR	TITLE	SUMMARY
1960	<i>The Image of the City</i>	He highlighted five elements of urban visual in order to understand large-scale environment, with case study city of Boston, Jersey and Los Angeles.
1976	<i>Managing the Sense of The Region</i>	He focused on the visual environmental quality of districts. Every district or region has its own characters as an expression of its meaning and function.
1977	<i>Growing Up in Cities</i>	The book was based on his research in Argentina, Australia, Mexico, and Poland by UNESCO investigated environmental perception by young adolescent in cooperation with social scientist of all nations.
1981	<i>A Theory of Good City Form</i>	Lynch formulized dimension in creating good city form: vitality, senses, fit, access, control. In 'senses' alone, there are three senses: sense of place, sense of event/ occasion, and sense of formal-structure.
1982	<i>What Time Is This Place?</i>	He argued that performance of the city through its artefacts should have its own story related to the history of the city.
1990	<i>City Sense and City Design</i>	The book is an accumulation of his writing and articles of conferences and meetings. ????

The table above lists six out of seven the Lynch's published books related to the city reading. We can see that his first book is a starting point of Lynch in exploring how people read city through Identity and Structure (transform in legibility). He defines Meaning on his later books. Meaning is developed by character/ quality of the elements and human's experience, and the five elements should be understood as an interrelated factor in developing the meaning. His later books explore the effect of location, history, and observers' background in reading cities. Each region or district has a specific meaning to its inhabitant, related to use, function and symbol<sup>10</sup>. Age is also an important factor to be considered in developing meaning<sup>11</sup>. He also stated that the history of a city creates specificity that could be defined as a character of the city<sup>12</sup>. He also put emphasis on sense of place as parts of creating a good city<sup>13</sup>. After he passed

<sup>9</sup> Lynch, *The Image Of The City*.

<sup>10</sup> Kevin Lynch, *What Time Is This Place?* (Cambridge: The MIT Press, 1982).

<sup>11</sup> Kevin Lynch, *Growing Up in Cities: Studies in the Spatial Environment of Adolescent* (Cambridge Paris: MIT Press UNESCO, 1977).

<sup>12</sup> Lynch, *What Time Is This Place?*.

<sup>13</sup> Kevin Lynch, *Theory of Good City Form* (Cambridge: The MIT Press, 1981).

away, Banerjee and Southworth in 1990 have compiled his papers and writings, which were unpublished before. In one of his paper, Lynch mentioned place attachment as one of important factor in city satisfaction <sup>14</sup>. In short, Lynch defines two important aspects in reading cities: physical and social aspects. The physical aspects are represented through legibility of the five urban elements, while the social aspects are developed by human's experience and background to the city.

### **Perception as a Determining Factor of Environmental Quality**

Perception is a mental representation of spatial knowledge, which was shown in mental map of Lynch's research. In psychology terms, perception is very much affected by people's feel to the place; called sense of place, place attachment <sup>15</sup>, place character or genius loci <sup>16</sup>. Lynch also mentioned place attachment as one factor in creating city's satisfaction <sup>17</sup>. Hence mental map could be defined as a spatial knowledge in order to examine the attachment to the environment. This research also uses mental map representation in order to examine the attachment and quality of the city.

Place attachment development has three dimensions: person, process, and place <sup>18</sup>. Person includes individual experience and memory, and culture group such as religious and historical activity. Process related to psychological process of each individual; includes affection, cognition, and behavior. The most important factor in place attachment is Place itself, which has two components: social and physical. In this model; known as Tripartite Model of place attachment, creating character and quality of place should be in regards to individual and group activities related to their religious and historical, when experience in place grows through its affection, cognition and behavior; which place is understood as physical container and social symbol. Green <sup>19</sup> stated that physical features play as stimuli to individual or groups to give meaning of the environment.

The general definition of place attachment is the tendency to stay close to the place <sup>20</sup>. Davenport & Anderson <sup>21</sup> said that quality of place was a vital role in developing the attachment.

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<sup>14</sup> Kevin Lynch, *City Sense and City Design: Writings and Projects of Kevin Lynch*, ed. by Tridib Banerjee and Michael Southworth (Cambridge: The MIT Press, 1990).

<sup>15</sup> Tuan.

<sup>16</sup> Tuan.

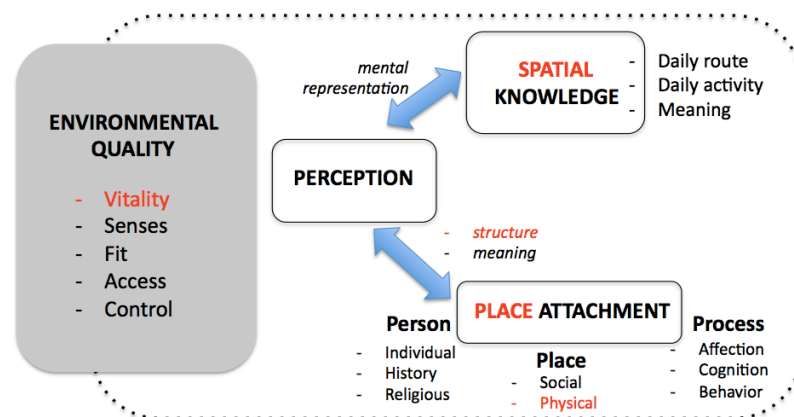
<sup>17</sup> Lynch, *City Sense and City Design: Writings and Projects of Kevin Lynch*.

<sup>18</sup> Leila Scannell and Robert Gifford, 'Defining Place Attachment: A Tripartite Organizing Framework', *Journal of Environmental Psychology*, 30 (2010), 1–10.

<sup>19</sup> Ray Green, 'Meaning and Form in Community Perception of Town Character', *Journal of Environmental Psychology*, 19 (1999), 311–329.

<sup>20</sup> Carmen Hidalgo and Bernardo Hernandez, 'Place Attachment: Conceptual and Empirical Questions', *Environmental Psychology*, 21 (2001), 273–281.

The place should encourage people's feeling and perception through experience with its recognizable and familiar elements in the urban setting <sup>22</sup>. According to William (in Shamsuddin and Ujang 2008), successful place depends upon its legibility, vitality, diversity and comfort; and Jacobs <sup>23</sup> adds activity as an indicator. In Lynch's book of 'Growing Up in Cities', he defined that environmental quality could be defined through the relation of the three dimensions of place attachment; pattern of sensory stimulation, area of vital and behavioral activity, and area of interpersonal relation<sup>24</sup>. This research tries to relate the quality of the urban element of Lynch's to the place or sense attachment, which this relation will define the satisfactory factor of the city to the observer.



In summary, spatial knowledge, perception, and place attachment give significant role in developing the environmental quality: socially and physically. We can conclude here that attachment to place in urban setting will be defined by the perception of the observers through social interaction and physical appearance of the city, while the attachment is an indicator of environmental quality as a whole. The observers through their positive or negative, strong or weak perception of the city will define the degree of attachment; while the perception will be build from observer's experience in the social interaction in the physical container of the city. The idea of perception as an indicator to environmental quality could be seen in the diagram above.

## The Research and Case Study

Surabaya is the second biggest city in Indonesia, with a population of 2,765,908, size of 696.9 sq mi, and density of 7,380.1/km<sup>2</sup>, based on the 2010 census. Surabaya city is more than

<sup>21</sup> Shuhana Shamsuddin and Norsidah Ujang, 'Making Places: The Role of Attachment in Creating the Sense of Place for Traditional Streets in Malaysia', *Habitat International Elsevier*, 32 (2008), 399–409.

<sup>22</sup> Tuan.

<sup>23</sup> Jacobs.

<sup>24</sup> Lynch, *Growing Up in Cities: Studies in the Spatial Environment of Adolescent*.

700 years old, which its existence brings significant contribution in young people's perception. Historically, the city had strong power in maritime and business sector, and currently the city focus on business and service sector especially for the East Indonesia area. The economic power of the city is encouraged by its facility of business, education, offices and housing estates. Once, the city's icon was represented through elements related to maritime and business activity, such as *KaliMas* River (major transportation of delivering goods from hinterland) and *Jembatan Merah* (the Red Bridge – to connect business district and ethnic groups housing).

The main purpose of this research is to examine the urban meaning for and perception of the young people and to identify the factors, which are determining environmental quality for this particular social group. There are two components of research methods: mental map drawing followed by interview, and group discussion. Respondents were asked to imagine their city through drawing of mental maps and were also interviewed in order to understand the reasons behind their choice of location and route in the maps. Through discussion on drawn city maps, respondent were also asked to define the best condition to represent the city in terms of navigation in the city setting.

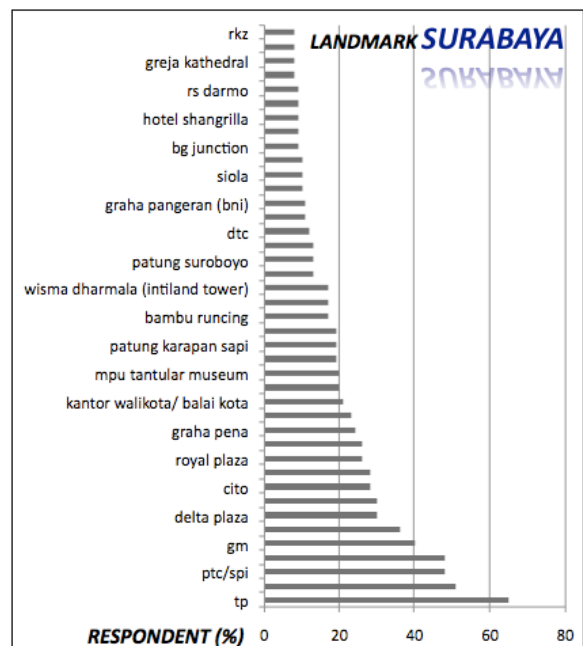
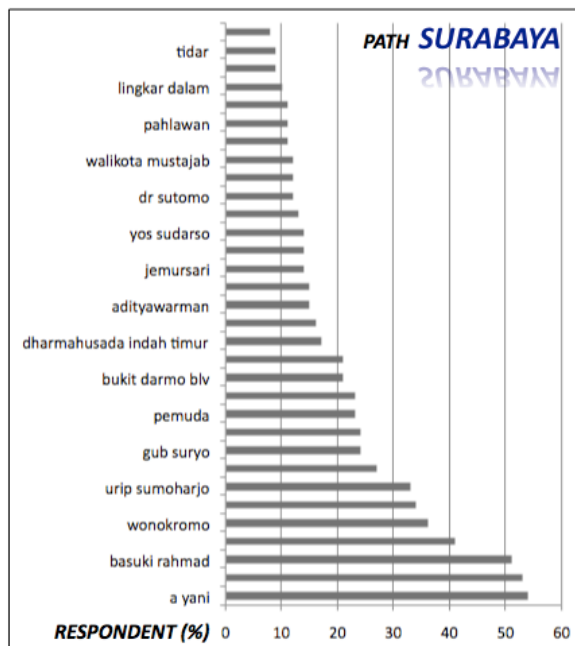
Respondents of this research are students of Architecture Department in Petra Christian University, Surabaya-Indonesia. The respondents came form relatively wealthy families. They use private cars to mobile daily, from home to school and others, while several respondents use motorbikes, and none use public transportation. Besides cars mobility, the dependency to IT technology especially to communicate is also significant affluent to mention. Most students come from Chinese background born in Indonesia, and live in the West of Surabaya.

#### Findings: **Image and Perception of Surabaya City**

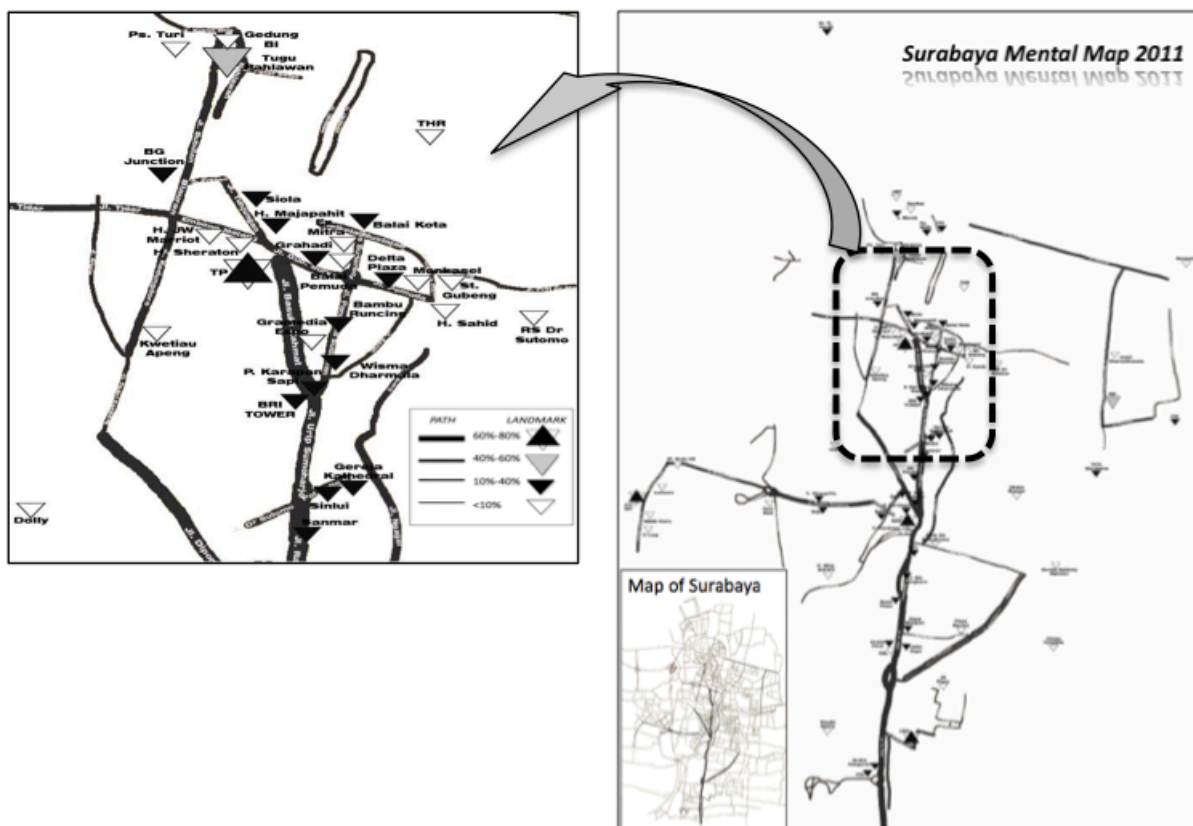
The research had two components of gaining data from the respondent: mental map drawing followed by interview, and group discussion. Based on identification of the mental maps, 231 landmarks and 152 paths could be identified by the respondent, as seen on the table below. Almost none of the respondent identified nodes, edges and district. Nodes are only represented through intersection of major streets, and district represented through division between West and East Surabaya. None mentioned edges on the mental maps.

No.	Percentage	Numbers of landmark identified	Numbers of path identified
1	60% - 80%	4 elements	3 elements
2	40% - 60%	2 elements	4 elements
3	10% - 40%	35 elements	24 elements
4	< 10%	195 elements	121 elements

Names and numbers of the landmarks and paths mentioned and noted by the respondent in the mental map could be seen on the two figures below.



Based on the above tables, I have developed a mental map of Surabaya city; the clearer the path on the map, the greater respondent mention the path; the bigger and the darker the landmark icon, the greater respondent mention the landmark on their mental map; see the figure below.



We can conclude from the diagram and Surabaya's mental map that the three most landmarks mentioned are *Tunjungan Plaza (TP)*, *Supermall (SPI)*, and *Galaxy Mall (GM)*, and some office buildings, such as *Kantor Walikota* and *Wisma Dharmala*; rather than city reference of city monument/ statue, such as *Karapan Sapi Statue*, *Bambu Runcing Statue*, and *Suroboyo Statue*. Paths noted focused on the main street of the city, just right in the middle and divides the city; Western and Eastern part of Surabaya. The respondent clearly imagined the main street of the city, located just in the middle of the city, connecting north to south.

As second component of the research methods, which is group discussion, the respondents were asked to describe the most important condition of Surabaya city to be remembered by the inhabitants in terms of daily navigation. Eight conditions are identified:

1. Historical-abandoned buildings: are historical buildings in Surabaya that previously famous but currently empty and becoming abandon, until today the existence give significant reference in navigation.
2. Informal business districts: are locations of informal business activities in particular areas provided by Surabaya's government.
3. Building-brand as landmark: brand or name of the facility/ building is more familiar rather than its physical appearances.
4. Characterized neighbourhood gates: since closed cluster for residential estates became familiar in Surabaya, and recognition of the estates is through its gate, most people recognized gate's specific design as element of navigation.
5. Traffic-jam location: heavy traffic jam is occurred on some streets in Surabaya, the condition is recognized as one of important condition to navigate.
6. Formal business districts (specific goods): particular areas are given by the government to small businesses retail to open their shops with similar goods of selling.
7. Temporary informal business activity: location of informal business activity along particular road, which is open in particular time and day (for street vendor and hawkers).
8. Street-crime location: street crimes mostly occurred in some major paths in Surabaya, and becomes important condition mentioned in daily navigation.

### **Surabaya's Perception and Attachment**

According to the research findings above, I summarize combining the two components; mental map and discussion, four important phenomena related to the city's perception to environmental quality:

1. Respondents when navigating or orienting in city setting refer to public buildings; mostly malls, business centres, and some historical buildings.



2. Respondents familiar with the main street of the city (*A.Yani* street), and its branches to the West and East, very little know the city's structure to the North.
3. Most respondent gives generally positive image related to the city's condition as main indicator to navigate in the city.
4. Daily route, social life and ethnic background give significant rule in representing the place of the city based on spatial knowledge, rather than physical appearance of places.



From the Surabaya mental map, we can see that accumulation of landmarks mentioned is clustered in the city center, and further down to the south is the location of the University. Young people in Surabaya are more familiar with malls, especially *Tunjungan Plaza* (TP), *Supermall* (SPI), and *Galaxy Mall* (GM), and some office buildings, such as *Kantor Walikota* and *Wisma Dharmala*, rather than reference of city monument/ statue, such as *Karapan Sapi* Statue, *Bambu Runcing* Statue, and *Suroboyo* Statue. These landmarks are mostly located along the main street of the city, *A.Yani* Street. The respondent use these landmark to orient themselves in city's setting, mostly because they have more meaning and connection with these malls and offices, related to their activity. The statues those are known and mentioned, are because of the location of the statue: on the junction of main-streets and inside strong nodes of the city center. Because of young people's lifestyle in Surabaya, they currently choose malls as places for their social activity. This will gradually shift the conventional city's identity of its monumental, historical building and important element of urban landscape. In other words, the respondent has attachment to the city mostly because of its malls.



A.Yani Street is the main street of Surabaya city, which is the most imagined path by the respondent.

Referring to the Surabaya mental map, respondents clearly imagined the main street of the city, located just in the middle of the city, connecting the north to the south. Some streets on the east to west, and in the northeast of the city, also got the most representation on the map. Streets that are the most legible on the map are the streets where the most landmarks are mentioned. But in the north and northeast, respondents could identify the landmarks, but not clearly imagine the paths. Urban element of path is very much related to daily route of the respondents, and to their knowledge of particular landmark in the city. For example, they know that *Tanjung Perak* is on the north (it is the only port in the city, and major port in East Java Province with strong history during colonization era), but they cannot represent the route, and also *Kenpark* (the famous seashore theme park) which they could not identify the route. These two types of identification (landmark with and without connected path/route) show that the way of respondent understand path is based on their activity (meaning), and also their knowledge (identity and structure).

Both perceptions of landmark and path (city structure), which are explained above and represented in the Surabaya mental map, reflect a mental representation of the respondent's spatial knowledge<sup>25</sup>. The knowledge is built when the respondent connects with the place, interacts in the place for doing their social activity<sup>26 27</sup>. The perception that is developed based on the sense of attachment, is when the respondent feels attached more to the central city rather than other part of the city, the city's perception also stronger.

Three groups (out of eight groups) of the respondents, mention negative words while asking to describe the most important condition of Surabaya city to be remembered by the inhabitant in navigation: historical-abandoned buildings, street crime, and traffic jam location. The respondent said that knowing the location of street crime (mostly occurred), location of temporary informal business activity (mostly creates traffic jam) and location of path that affected by business hour; are very important information to navigate them in Surabaya city. They said, before they start their activity by driving their car, they have to note the location of street crime, temporary market, and traffic jam, in order to avoid the location. Scannel<sup>28</sup> believe that it is part of individual cognition leads to behavior: the observer indicates a negative cognition of the area leads to factor to navigation decision, whereas cognition is part of place attachment dimensions.

Interviews with the respondent indicate that the choice of malls in doing their social activities, mainly based on their reference from friends and relatives. Every ethnic group has

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<sup>25</sup> Lynch, *The Image Of The City*.

<sup>26</sup> Tuan.

<sup>27</sup> David Canter, *The Psychology of Place* (London: The Architectural Press Ltd, 1977).

<sup>28</sup> Scannell and Gifford, 1–10.

their own enclave in the city, as well as choice of malls <sup>29</sup>. For most Chinese family in Surabaya, they like to do their activity in TP, GM and SPI (the three most mentioned landmarks), rather than in other malls. The choice of place is related to group activities as one of dimension of place attachment <sup>30</sup>. Experience in place, in this case is malls; regards to individual and group activity related to their history (enclave tendency), which later mall could be describe as social symbol of the group.

### **Indicator of Surabaya's Environmental Quality**

Some conclusion draw from the above discussion relates to the environmental quality:

1. The group of young people has attachment in the city mostly because of its malls, hence the quality of the malls is very important for the group to define the quality of the city, when quality of the conventional city's identity is become less important.
2. The city's quality also determined through the city main street, as a major route of daily activity of the group of young people.
3. Overall quality of the city mainly determined by the quality of the central city, where the young people experience urban space.
4. In terms of navigation decision, respondents recognize fairly positive and negative image of the city environmental condition.
5. Malls as social environmental symbol of the group of young people based on their ethnic enclave tendency and group activity.

The above explanation that derived from mental map representation, city's condition and deep interview with the respondents; we can conclude here that: daily route, social life and ethnic background of the young people in Surabaya give significant rule in representing the place of the city on the mental map based on their personal/ group experience, rather than physical appearances of the place. Based on Lynch's identification of environmental quality; spatial knowledge, perception, and place attachment together will develop the vitality, senses, fit, access, and control; through pattern of sensory stimulation, area of vital and behavioral activity, and area of interpersonal relation.

In the case study, spatial knowledge of the respondents mostly focuses along the main street of the city and the city center; therefore they have a strong perception of these areas. The group of young people feels more familiar with this area related to their social activity and daily route, the stimuli through social activity and physical appearance mostly occur in malls, and

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<sup>29</sup> Stephen Cairns, 'Drifting: Architecture/ Migrancy', in *Drifting: Architecture and Migrancy*, ed. by Stephen Cairns (New York: Routledge, 2004).

<sup>30</sup> Scannell and Gifford, 1-10.

public building along the main street. The respondents feel attached to Surabaya city only in this part of the city, while they understand the importance to know some historical icon of the city without their personal experience. Because of respondent's dependency to private cars, main references to understand the city very much depend on the main street location, and very less of detail of buildings if they have no experience. Landmarks are merely understood because of its power of respondent's social activity and (cars) navigating. Ethics background also gives contribution in choosing location of activity, including schools, malls, and markets.

In the respondent's description of city's condition in navigation, half of them show negative image of the city. The respondent put emphasis in historical buildings but abandoned (for many reasons) rather than that beautiful and sparkling buildings. Traffic-jam and street crime locations are also important, rather than remembering the good quality of the street, nodes or its meaning; and also temporary traditional market is also seen as a cause of traffic jam. The observers through their positive or negative, strong or weak perception of the city define the degree of attachment; while the perception is build from observer's experience in the social interaction in the physical container of the city.

### **Rethinking of Lynch's Theory**

The 'Image of The City' has its strength in its legibility theory, which most people agree that the easiest tools to understand or read city is by referring to its visual/ physical quality. Behind everything that is visible or legible lies a rich meaning that could unveil the identity of the city as a whole. The research findings show that social, cultural and historical background gives significant modification of the five elements. Since the Surabaya city experienced urban agglomeration and high dependency of private cars, the element of district and edges are almost unrepresented in the mental map. Nodes only understood in central city as intersection of major streets. Path and landmarks are strongly recognized because of the meaning driven by their social activity, and culturally has relation to their ethnic enclave tendency.

Several writings referring to Lynch's urban elements pointed to the less consideration of social background of respondents could be seen on the table below. Marling <sup>31</sup> tried to reformulate Lynch' idea since she believed that it lacked a social and cultural dimension; hence she created a more sociological and anthropological approach to understanding a city setting. The social-cultural dimension was an important indicator of a city since it has been created by a heterogeneous culture of its inhabitants.

YEAR	WRITER	TITLE	TOPIC OF CRITICS
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<sup>31</sup> Lynch, *What Time Is This Place?*.

1980	Christian Norberg-Schulz	Genius Loci	Lynch made a fragmentary understanding of dwelling <sup>32</sup> .
1990	Fredric Jameson	Cognitive Mapping	In Lynch's mapping, there is a gap between phenomenological perception and a reality of individual thinking or experiences. The gap should be filled by analysis of social structure and political experience.
2003	Kitchin in B.A. Chokor	Pattern of representation of countries in cognitive maps of the world	Cognitive map (by Lynch etc): explaining spatial behavior from cognitive map and spatial element is in doubt, because capacity to act and move could occur in absence of capacity to represent the space.
2008	Gitte Marling	Understanding and Mapping Large City Scapes	Cullen (1961) and Lynch (1960) work to understand the city with an inside out approach but missed a social and cultural dimension, which should be completed with sociology and anthropology approach.
2010	Maria Lewicka	What makes neighborhood different from home and city?	Factors that Lynch etc explored have not been acknowledge of place attachment as indicator of people's emotional bonds with their cities.

Lynch himself in the last chapter of 'The Image of The City' highlighted several ideas as directions for future research, such as: more adequate sample of the population, more variety in sample, and consideration of observer's background to the city image. At this point, Lynch was sure that with adding more information and expanding the approach, the richness of his research findings would give broader understanding to read and understand the city. Therefore, a sociological approach is needed to understand and read the meaning of urban elements/ settings that have a very strong relation to community and its place, including social background, ethnics, and culture.

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