

PEOPLE'S PERCEPTION OF RIVERSCAPE AS LANDMARK ATTACHMENT
ON PRO-ENVIRONMENTAL BEHAVIOUR IN MELAKA CITY

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Dedicated to my beloved family especially my parents, my wife, my Childs and my supportive supervisors – Assoc.Prof.Dr.Hasanuddin bin Lamit. Thank you very much for being supportive, helpful and understanding.

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ABSTRACT

Landmark is one of the key elements that shapes the image and identity of cities. A river is a natural landscape element that can play a significant role in giving identity, legibility and individual meaning to a city. People's perception and attachment to river landscape, and their lack of pro-environmental behaviours have made this issue more critical and crucial. The aim of this study is to identify the significant landmark characteristics of the riverscape in terms people's perception, environmental protection and landmark attachment in a natural riverscape in the city of Melaka. The main research objectives are to identify influences of significant landmark's quality, value and characteristics of the riverscape on people's perception and identifying contribution of people's perception of the riverscape on pro-environmental behaviour. Melaka riverscape was chosen as a study area through the assessment of various experts' point of view on the subject. A research model was constructed comprising of four main constructs which are visual, cognitive, affective and practical. To answer the research questions and due to the nature of research which is multi-disciplinary, a mixed-method approach was structured including survey questionnaires and semi-structured interviews. Probability random sampling was also employed to collect data based on questionnaires developed from a pilot study from a sample of 450 individuals along the Melaka riverscape and Kampung Morten. Five hypotheses and research questions were formulated, tested and validated via Structural Equation Modelling (SEM) through the Smart PLS software. Results showed that the four aforementioned dimensions are significant and they represent the main constructs of landmark qualities of the historical riverscape. Findings revealed that landmark characteristics of the riverscape such as visual, cognitive, affective and functional aspects have significant effects on social perception and feeling of attachment. Notably, pro-environmental behaviour was found to be significantly influenced by peoples' perception towards riverscape. Therefore, landmark dimensions and characteristics of the riverscape and their impact on social perception, pro-environmental behaviour and in developing landmark attachment were established. It is recommended that sustainability and all aspects related to this area which may affect pro-environmental behaviour in historical riverscape be considered in further studies and can encourage awareness among the urban planners, architects and developers of the pivotal role of the landmark characteristics of the riverscape in promoting pro-environmental behaviour.

ABSTRAK

Mercu tanda adalah salah satu elemen penting yang membentuk imej dan identiti sebuah bandar. Sungai adalah suatu elemen landskap semulajadi yang memainkan peranan dalam memberi identiti, pemandangan dan pengertian tersendiri kepada sebuah bandar. Persepsi dan keterikatan manusia terhadap landskap sungai dan kurangnya sikap pro-persekitaran mereka menjadikan isu ini kritikal dan penting. Tujuan kajian ini adalah untuk mengenal pasti ciri-ciri mercu tanda bagi landskap sungai yang penting dalam bentuk persepsi manusia, pemeliharaan persekitaran dan pautan mercu tanda dalam landskap semulajadi sungai bagi bandaraya Melaka. Objektif utama kajian adalah mengenal pasti pengaruh kualiti mercu tanda yang penting, nilai dan ciri-ciri landskap sungai ke atas persepsi manusia dan mengenal pasti sumbangan persepsi manusia kepada landskap sungai terhadap sikap pro-persekitaran. Landskap Sungai Melaka telah dipilih sebagai tapak kajian melalui kaedah penilaian pendapat pakar terhadap kajian. Satu model telah diolah merangkumi empat konstruk iaitu, visual, kognitif, afektif dan praktikal. Untuk menjawab persoalan kajian serta kerana sifat kepelbagaian disiplinnya, kaedah campuran telah diolah yang merangkumi soalan kaji selidik berstruktur dan temu bual separa berstruktur. Pensampelan keberangkatan rawak telah juga digunakan untuk mengumpul data berdasarkan borang soalselidik daripada 450 sampel individu sepanjang sungai Melaka serta Kampong Morten. Lima hipotesis dan persoalan kajian telah dibentuk, diuji dan disahkan menerusi Model Persamaan Berstruktur (SEM) menggunakan perisian Smart PLS. Dapatan kajian mendapati 4 dimensi yang disebut sebelum ini adalah signifikan dan memaparkan konstruk utama kualiti mercu tanda landskap sungai bersejarah itu. Hasil kajian menunjukkan ciri-ciri mercu tanda landskap sungai seperti visual, kognitif, afektif dan praktikal memberi kesan yang penting terhadap persepsi sosial dan rasa keterikatan. Sama penting, sikap pro-persekitaran didapati dipengaruhi secara signifikan oleh persepsi manusia terhadap landskap sungai. Oleh itu, dimensi mercu tanda, ciri sesuatu wajah sungai memainkan peranan dalam membentuk persepsi sosial, sikap pro-persekitaran dan rasa keterikatan terhadap suatu mercu tanda telah dikenal pasti. Kemampanan dan segala aspek berkaitan kajian ini yang mungkin akan memberi kesan terhadap sikap pro-persekitaran bagi landskap sungai bersejarah diberi pertimbangan pada kajian-kajian masa hadapan serta dapat menggalakkan kesedaran dikalangan perancang bandar, arkitek dan pemaju mengenai peranan penting ciri mercu tanda pada landskap sungai bagi menggalakkan sikap pro-persekitaran.

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LIST OF ABBREVIATIONS

| | | |
|------|---|---|
| PA | - | Place attachment |
| LA | - | Landmark attachment |
| LAA | - | Landmark attachment- affective |
| LAB | - | Landmark attachment- behavior |
| LAC | - | Landmark attachment- cognitive |
| LAF | - | Landmark attachment- functional |
| PP | - | People perception |
| PPC | - | People perception- cognitive |
| PPV | - | People perception- visual |
| PPF | - | People perception- functional |
| PEB | - | Pro-environmental behavior |
| PEBA | - | Pro-environmental behavior- altruistic value |
| PEBE | - | Pro-environmental behavior- environmental concern |
| PEBP | - | Pro-environmental behavior- perceived consumer efficiency |
| RLQ | - | Riverscape's landmark quality |
| RLQA | - | Riverscape's landmark quality- affective |
| RLQC | - | Riverscape's landmark quality- cognitive |
| RLQF | - | Riverscape's landmark quality- functional |
| RLQV | - | Riverscape's landmark quality- visual |

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CHAPTER 1

INTRODUCTION

1.1 Overview

Recent rapid globalization has produced excessive effect on physical elements and urban landmarks and caused the loss of their identities, characteristics, significance, and emotional associations (Altman & Low, 1992, 2012; Lewicka, 2011b). In particular, individuals have tendency to make an emotional bond between themselves and specific locations with unique characteristics (Cheng, 2015). In this regard, minimizing the ecological harm, supporting and conserving the natural resource and identifying factors that may influence human's perception and interactions with environment is important to be studied (Ardoin et al., 2013; Gardner & Stern, 2002; Casey, 1997; Herzog, 2000; Larson et al., 2015).

There has been a continuous effort by authorities to improve and highlight characteristics of the urban landmarks in order to improve the image of cities to become popular destinations for visitors. In addition, rivers and wetlands have been acknowledged as one of the most crucial natural resources to human. Riverscapes are one of the most magnificent components of urban green area in terms of natural resources and necessary for human health and society. In this work, riverscapes are specifically utilized as an example of a natural urban landmark which can improve the imaginability, popularity and identity of the city. However, popularity does not ensure that the attachment among visitors towards landmarks is strong enough to encourage repeated visits or not (Hussain, 2014).

Landmark characteristics of the nature-based urban elements such as riverscapes and also landmark attachment are recognized as an important priority in order to identify the value and importance of protecting natural resources, and pro-environmental behaviors in natural settings (Scannell & Gifford, 2010b; Lee, 2011; Raymond et al., 2011). It has been observed that developing these characteristics, values and feeling of the attachment may improve sustainability practices in urban natural areas (Halpenny, 2010).

Whilst, the landmark quality of riverscapes influence people's perception and their preference strongly, personality and characteristics of the individuals as receivers are important as well. Such related characteristics could be their experience, familiarity and previous knowledge, with respect to the particular setting (Kearney et al., 2008). Consistent interaction between individuals and their environment, may create their perception and interpretation (Terkenli, 2001; Nassauer et al., 2001; Stephenson, 2008). Following by the above discussion it is possible to show the interrelation between the keywords of this research i.e. landmark attachment, landmark quality of the riverscape, people perception and pro-environmental behavior as shown in Figure 1.1.

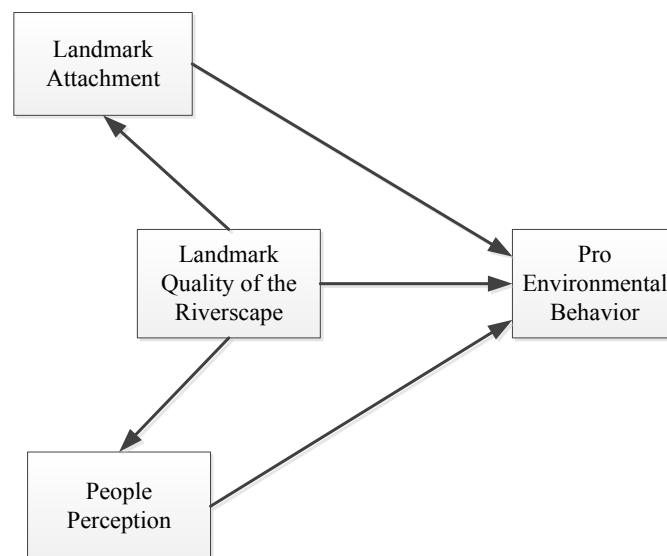


Figure 1.1 Interrelation between the keywords of the research

As shown in Figure 1.1, considering landmark characteristics of the riverscape, landmark attachment and people perception as a second-order factor model is likely to enable a better theoretical and statistical understanding of its relationship with pro-environmental behavior. The premise of this research is to make some significant theoretical contributions to the literature and provide better understanding of the relationships between people, places, natural urban setting and their potential influences on pro-environmental behavior. The study seeks to address these gaps and deliver significant practical implications to managers of natural settings.

1.2 Background of the Study

Landscape is all about culture that may illustrate environmental components and texture such as woods, mountains, water, and lands that we have deep association with. In fact, architectural landscape has some significant aspects in terms of practical, horticultural, aesthetic, environmental sustainability and design to make contributions with cultural points more meaningful (Conan, 2003). The major part of landscape around the world has been designed by human. Indeed the concept and properties of “nature” depends on the variety of activities that human has done on landscape (Eaton, 1997; Forman, 1995; Crow, 2006).

Basically, there is direct relationship between how people understand and feel the nature, how nature affect them and how they change the environment, with concept of landscape design and environmental psychology (McHarg, 1969; Nassauer, 1995, 1997; Kaplan et al., 1998). In cognitive studies, researchers most of the time use other aspects such as people perception in terms of environment to clarify the human ability, to understand, interpret, and evaluate the environment (Larsen, 2007). In accordance with Bell, Greene, Fisher, and Baum (2001), people perception consists of experience, memory and impact of them on cognitive processes. Thus, people perception of any landscape is one of the components of landscape assessment research and practice.

Indeed, cognitive psychology is one of the most important aspects of psychology that shows inner psychological processes and studies the human perception, memory, idea, point of view and problem solving (Feist & Rosenberg, 2009). In terms of studies in urban cognition aspects, the “Image of the City” is one of the most significant one. City images or environment image is a concept proposed by psychologists where they evaluated the assessment of spatial knowledge at first. This procedure is elaborated as a structure of communication between internal spaces with the external world that has been called “cognitive map” (Fattahi & Kobayashi, 2009; Tolman, 1948). In the study conducted by Lynch, he evaluated the connection between people and the visual qualities and elements in urban landscape. Moreover, the images of the cities by laypublic, residents and visitors mentally and psychologically was investigated. Lynch’s most important target was to find out every single elements or parts of a city that may create distinctiveness in urban landscape (Lynch, 1960).

Moreover, green urban areas could be important places to spend free time, enrich feelings with nature and other people in urban society (Snepenger, 2007; Negra & Manning, 1997). Urban green area also has high healing and relaxing effects to reduce stress and tension (Hipp & Ogunseitán, 2011; Davis, 2009) and also developing psychological health among people (Korpela et al., 2009; Maller, 2009). Green urban area and totally natural environment have significant contribution to determine the urban environment, in terms of aesthetic aspects and profound meaning in urban cities (Henwood and Pidgeon, 2001; Crow, 2006). As a result, urban green areas have mostly become such favorite and interesting places and have strong and exclusive meanings for most individuals (Ferreira, 2011).

On the other hand, some people can become dependent on such green environments or landmarks which can address their preferred activities and demands (Scannell & Gifford, 2010a). Consequently, it would increase visitations by public that may put stress on ecological resources, requiring scholars to study and research, and others to find the proper method to save and preserve particularly green environments and natural resources.

People usually develop a relationship with places they have interaction with. Recently, scholars interest for deeper evaluation of people's feeling and emotion about places have been increasing. This relationship and the association that people build up with a particular place has been identified as place attachment (PA). Indeed, PA represents the connection between individuals and the places that they feel safe and comfortable in (Scannell, 2010). PA has been described in a variety of sectors such as urban design, psychology and geography, but it has not been explored in terms of urban landmarks appropriately (Sofianian, 2013). It has been recognized as a variety of PA models and variables and they consist of the first two fundamental dimensions related to emotional and functional issues (Hammit et al., 2009).

Landmarks are one of the important physical elements of the city that influence imageability and sense of orientation in users (Fattahi, Kobayashi, 2009; Lamit, 2004). The most effective and powerful study in terms of spatial orientation and psychological issues has been done by Lynch (1960) in the framework of urban design (Fattahi, Kobayashi, 2009). He focused on the elements that affected how people structure a city in their mental image. In his study, five necessary elements i.e. districts, paths, nodes, edges and landmarks were identified to create the cognitive map of the urban environment. Lynch (1960) argued that these elements can influence a sense of place. This cognitive map was built up through the people that described their home and cities. Moreover, Lynch in his book, "Image of the city" has identified the role of landmarks in boosting the legibility and imageability of the cities and specified the landmarks in architecture and urban design. Lynch theory in terms of landmarks is based on Shannon's information theory and has been used as the source of studies in urban design, landscape and in many different fields and sciences recently (Fattahi, Kobayashi, 2009; Sorrows, Hirtle, 1999). It is important to mention that other researchers followed Lynch by similar specification with some modifications (Sorrows, 2005).

In addition, previous researches mentioned that sense of place may be influenced and affected by the quality and characteristics of physical elements (Inglis et al., 2008; Low, Altman, 1992; Williams, Roggenbuck, 1989). In fact, whatever individuals judge, perceive and interpret, would be influenced by meaning of the

physical qualities, characteristics, and attributes of urban elements (Najafi, 2011). Furthermore, Najafi (2011) concluded, that the physical characteristics and attributes of urban elements may create feelings of attachment to the particular place by influencing people's perception. In addition, deep contribution to create and buildup the sense of place and PA by exclusive properties and qualities of physical environment have been discussed by Shamsuddin (2008).

Many of previous studies have concentrated on landmark as the most important elements based on way finding, PA and relationship between them (Ujang et al., 2012). Winter (2008), used landmarks to improve the city's identity and PA. Furthermore, the study based on developmental plan of the city by Hasting in the United States, evaluated the lack of sense of place by people in this city in 1990 (Lewicka, 2008; Hasting, 1997). In this regard, he proposed the plan for some long term goals and placing some new essential local landmarks to address this problem. Likewise, in some recent studies parks and squares have been mentioned as landmarks in the city and they have tried to evaluate existing the sense of place in these kind of local areas (Scannell, Gifford, 2010).

1.2.1 Rivers as Natural Landmarks

According to Kalithasan (2007), most rivers in the world creates 97% of the fresh water resource and it plays the most significant role in terms of being biggest source of drinkable water, supply and irrigation purpose. Rivers are also the most important habitats for riverine itself, vegetation, creatures and the river surroundings, cover a wealthy biodiversity of life (Weng, 2003). Indeed, water is crucial to human life and also to develop industrial aspects and it is the softest element of the nature (Moorthy et al., 2012; Suwandana et al., 2011). Mentioned facts are plenty enough to warn us on the significance of the rivers in terms of sustainability, keeping clean and crucial for human. In one hand, having a healthy and sustainable water resources needs high contribution from the different levels of society to approach the goal. On the other hand, studies show that there is a lack of sufficient enough contribution to

protect rivers in terms of pollution, design riverscape and even rehabilitation (Moorthy, 2012).

Rivers do not have the vertical accentuation of towers or the mass of buildings, or the ornamentation of a carved obelisk, but their landmark qualities cannot be ignored nor can their influence on a city's design be underestimated (Lamit, 2004). The most important and attractive visual elements of a natural or built landscape that has been consistently reported is presence of water (Wright, 1975; Hubbard and Hubbard, 1917; Kaplan and Kaplan, 1989; Nasar, 2000; Ulrich, 1983; Kaltenborn and Bjerke, 2002; Bachelard, 1983; Faggi, 2013). It is believed that since ancient times, there was deep and close association between people and water and also significant preference for staying near rivers in order to provide sources of life, agriculture and settlements. In this relation, "Hydrophilia" is the "preference for water as a visible feature" (Herzog, 1985). In fact, since the creation of Mesopotamian and Egyptian gardens, the aesthetic importance of water in the landscape has been identified and it is carried on till now by contemporary landscape architects and designers (Burmil et al., 1999). Previous studies discussed the significant qualities and characteristics of water in order to combine with landscape known as aesthetic value, refreshing and presence of life (Wright, 1975; Hubbard and Hubbard, 1917). In this regard, Bachelard (1983) hypothesized that there is an overlap between the natural aesthetic value of water and psychological theory. It means that, presence of water may increase well-being and social activities among people significantly (Nasar, 2000; Kaplan and Kaplan, 1989; White et al., 2010).

1.2.2 Background of River and Policy in Malaysia

Many urban areas in Malaysia are located close to the riverscapes due to the deep and close association between cities and water over the history of civilization (Yassin, 2010; Macionis & Parrillo, 1998).

In fact, many cities in Malaysia i.e. Kuala Lumpur, Melaka, Terengganu, Kuching, Kuantan and Kota Bharu have located and developed along the rivers

(Andaya, B. W & Andaya, L. Y, 2001). For this reason, some of the villages are named by the rivers that run through them, i.e. “Sungai mati, Sungai Rengit and Sungai Kapal in Johor” (Yassin, 2010). Indeed, Kampung Mortem in Melaka is one of the great examples of urban settlement and development along the Melaka riverscape that has still remained intact.

Nowadays, river conservation is one of the main issues in the world and also in Malaysia in this 21st Century. In one hand, government has responsibility of river protection but on the other hand, the laypublic, NGOs, industries and other group of society are having an important character to preserve rivers. In fact, sustainability of rivers need assistance between all level of society and collaboration among government, people and all stakeholders. Nevertheless, government must give some responsibility in terms of protecting rivers to all such as industrial sectors, entrepreneurs, NGOs, educational sectors, communities, conservationists, researchers, and laypublic to preserve and save rivers. In this relation, all group of society need to cooperate in terms of protecting quality, values and characteristics of the rivers in order to be sustained for next generation (Weng, 2005).

Department of Irrigation and Drainage Malaysia (DID) has approved that most of the riverscapes in the country suffer water limitation and lack of proper protection. Furthermore rapid development especially in developing countries may cause a huge level of water consumption activities by human such as farming, transportation, marketing and industrial wastes. As a result, rivers faced large number of pollution and most of them need to be rehabilitated (Abdullah, 2002). The fact is that the local government is spending millions of Ringgit to clean the rivers every year but still the main issue is “Riverscape” and “River restoration”. In addition, restoration takes time, money and effort to implement (Tamai, 2005; Weng, 2000). Consequently, the government would rather invite NGOs and local groups to propose their efforts to manage rivers in recent years. Therefore, as long as people are not involved or properly educated in terms of river conservation and behave pro-environmentally, they will invariably identify laypublic as the contributor to the river deterioration. For that reason, it seems that people have an essential character to conserve, protect and save the rivers (Low, 2003). In addition, Ministry of Natural

Resources and Environment Malaysia (Jabatan Alam Sekitar) has published the campaign known as 'Cintailah Sungai Kita' (Love Our Rivers) which was started on the 2nd of February, 1993. Many of the activities include river adoptions, river inspection, river beautifications, rubbish traps installation, domestic and industrial waste treatment, awareness and education will be implemented by this organization (Gani, 2008). Highlighting and improving the quality and characteristics of the riverscape as a landmark, may lead to increasing the level of feeling of the attachment to that particular setting (Hussain, 2014). But in fact, the role and function of rivers in modern cities have become less significant and it has been limited to transportation purposes only (Yassin, 2010).

Extending the aspects explored by Lynch (1960), this research aims to investigate the influence of the characteristics and quality of landmarks on people perception toward riverscape as a landmark attachment in order to promote pro-environmental behavior in cities in Malaysia. This study further extends the role of landmarks in influencing the psychological pro-environmental behavior in terms of riverscape which is reflected in landmark attachment.

1.3 Problem Statement and Research Gap

All development aspects such as urban and industrial/agricultural land development, construction and transportation development lead to change in landscapes and causing land fragmentation and loss of diversity in urban green areas. Increase in air pollution and energy consumption, decreasing aesthetic and attraction aspect of urban green area, increasing water overflow and consequently increased risks of flood and change in ecosystem life cycle are the main harmful impacts of human urbanization on landscapes (Johnson, 2001; Galster et al., 2001; Yeh and Huang, 2009; Sansa et al., 2010; Rosa, 2013). All these urban development processes have potential destructive impact and improper consequences on sustainability of human life, tough pressures on cities and green area (Whitford et al., 2001; Beynon, 2010). Indeed, during the urban development process, most of the cities have lost their urban characteristics, qualities and meanings i.e. aesthetics, familiarity and

harmony. These characteristics are what the people perceived in their environment and are vanishing very fast due to rush development (Krupat, 1985; Lamit, 2003). In developing cities, imposing several physical tensions and high stress on urban green areas would cause deterioration in urban natural settings (Loeb, 1992; Herz et al., 2002; Jim, 2004,2006; Miller, 2002).

1.3.1 Gap in Research

According to Wheeler (2004) and Ujang (2008), poor association between rush development, urban regeneration, economic globalization and urban areas have caused the loss of imageability in urban environment. On the other hand, lack of proper association between people and their expectation of landscape, local history and culture have created the loss of urban identity and place meaning (Ujang, 2008). Furthermore, neglect in urban design by urban designers and decision makers in terms of people's perception, needs and desires has led the rivers to be more inappropriate for the users (Ismail et al., 2008; Lamit, 2003; Lang, 2005). In addition, previous studies concentrated on properties of the physical elements but few on understanding the values, meanings, characteristics and psychological aspects of sense of place (Ujang, 2012, 2015).

1.3.2 Consequences on People's Perception

In fact, human and urban green area have long term mutual live and consequently it is integrated by cultural aspect, people perception, attitude and treated as members of the human society. Thus, the concept of urban green area elaborates a cultural construction, some significance points in terms of rarity, age, uniqueness and special beautifulness that leads to social responses such as appreciation, respect and regularly emotional and physical attachment. Furthermore, urban green elements propose special calmness, ecological, naturalness, cultural and social values and consequently existing as living landmarks that give exclusive sense

of place attachment (PA) and historical uniqueness (Nowak and Dwyer, 2000; Kuo and Sullivan, 2001; Jim, 2004).

1.3.3 Pro-Environmental Behaviour and Feeling Attachment

In terms of environmental protection, some researchers have illustrated relationship between PA and pro-environmental behaviors among people (Raymond et al., 2011; Gosling & Williams, 2010; Halpenny, 2010; Hernández et al., 2010; Wright & Howes, 2010; Zhang, 2014; Ramkissoon, 2013). Pro-environmental behavior is defined as doing act by person or group of individuals that will effect on sustainable use of green area and natural resources (Sivek & Hungerford, 1989/1990). In one hand, some studies suggest PA is a proper and useful concept to support pro-environmental behaviors. On the other hand, there is lack of findings to show the proper relationship between the two aspects that have conflict (Scannell & Gifford, 2010) which could be due to the different scope of PA and connection with pro-environmental behaviors in a variety of aspects (Vaske & Kobrin, 2001; Halpenny, 2010; Kyle et al., 2005). Also, few studies (Ramkissoon et al., 2012) evaluated PA as multifunctional elements that contain “place dependence, place identity, place affect”, and correlation with landmark attachment in a single study (Ramkissoon, 2013).

PA as a variable affecting on landmark and historical urban elements to motivate people was suggested by Fredman and Heberlein (2005) ; Kyle, Mowen, et al.(2004); Gani, 2015 , but it has not yet examined on single theoretical model (Budruk, 2013). Significantly, some studies have emphasized on necessary need for more exact research on connection between PA and pro-environmental behaviors because there are still some conflict and vagueness in previous findings by previous researchers (Ramkissoon, 2013; Wright & Clayton, 2010; Scannell & Gifford, 2010).

1.3.4 Consequences on Urban Nature Landmarks

Furthermore, lack of constructing the meaningful and valuable landscapes meaning in terms of people perception and landmarks has been one of the great concerns in high quality landscape design (Kara, 2013). Rivers as the example of these landmarks face and suffer in terms of changes due to rapid urban development and these changes have an inappropriate effect on value, quality, characteristics and individuals association with riverscapes (Ruskule, 2013). In Australia, historic assessments of urban green area, consisting of rivers, is determined as most importance activity to protect natural resources to boost production and social beneficial (Brown et al., 2008). In terms of urban green area and riverscape, there are lack of proper attention to rivers and freshwater ecosystems especially in terms of general identification, people perception and designing to protect urban green areas (Nel et al., 2009; Herbert et al., 2010; Eros, 2011). Lack of proper methods, which is about relationship between public perception and urban green area to evaluate the importance of ecosystem to public and effective riverine conservation, is still evident (Moilanen et al., 2008; Nel et al., 2009). In the past decade, some studies in the application of landscape and public connection to river has been done but the landscape and attachment to the riverscape is still incomplete. Indeed, much more research are needed to explore and evaluate in terms of improving our understanding about meaning of rivers and our ability to restore and manage these crucial element (Segurado et al., 2013; Zhou, 2014).

1.3.5 Need in Practice

In the context of Malaysia, the government's vision is to develop the entire country into a fully industrialized nation by 2020 and placing 70% of the population in urban areas has transformed the capital city of Malaysia and other states due to fast urbanization and development (Balaguru, 2003). Besides, Jabatan Perancangan Bandar and Desa (JPBD, 2005, 2006) and also the 9th Malaysian Plans have reported that rapid urban developments have caused inappropriate physical changes which led to changes in the meaning of local places, and even more disconnections with the people's perception, local culture and their life style (Ismail et al., 2008). In fact,

disorganizing in urban areas, lacking in visual and physical coherence are the exact consequences of these rapid transformations (Balaguru, 2003). As a result, reduction in urban legibility, urban identity and consequently lack of attachment to a place has been observed in the new condition (Ujang, 2008). In fact, one of the main problem is differences between Asian people's perception and Westerns point of view in terms of development and changes in urban characteristics which is already based on the Western standards. This was revealed through face to face in depth interviews with the officials and urban specialists in Dewan Bandaraya Kuala Lumpur (DBKL, 2012). Furthermore, it has been stated that there is no deep association between the new condition with the Malaysian's cultural orientation and people's behavior. As a consequence, it will impact on public preference towards individual's activities, communications and social interaction in the urban areas (DBKL, 2012).

Moreover, it can be concluded that the loss of sense of place and identity in cities in Malaysia will effect on people's lack of interest to be in public places regularly and as a result landmark places becomes less and less meaningful to the people specifically among the young generations. This fragmentation in terms of attachment to place and landmarks in urban area has already been observed in Kuala Lumpur (Harun, 2009). Despite the increase in governmental and public concern in terms of natural urban conservation, there is still lack of effective legal protection. Public awareness related to urban green protection and preservation is still such new event in Malaysia. For example, in Kuala Lumpur public concern has increased due to the destruction of the urban green area and the biggest threat is about historical cities and historical landmarks with the consequences of changing characteristics and quality of urban are.

1.3.6 Government's Vision

As a result, the government has started to implement the archeological finding act to prevent the destruction and to preserve urban landmarks. Nevertheless, the policies and setting of conservation and planning movement in Malaysia even after more than 30 years, has not made any notable impacts. In fact, the plan for

preservation and maintenance in most of the historical cities i.e. Melaka is still concentrating on the protection of monuments and buildings. According to Museum and Antiquity Department (2008), there are 181 buildings and urban elements that have been recorded by the Malaysian Heritage Department since 1977 to 2004 that need to be protected, however there are no historical and natural urban elements there are yet to be listed. The reality is that there is deep lack of identifying less tangible and intangible properties and quality of the historic urban areas, urban natural environment and people's activities. Consequently, most of the urban nature elements that give a city its unique characteristics, quality and provide the sense of attachment and meaning to the urban area are disappearing gradually (Shuhana, 1999; Idid, 2004). Besides, having impact on characteristics and identity of place, these severe changes also has impact on individual's activity and experiences, perception and feelings about places toward urban green areas (Ujang, 2007).

In 2003, the "President of the Heritage of Malaysian Trust" (Badan Warisan Malaysia) had declared that the oldest buildings and landmarks in Melaka are under risk and threat of damage (Ismail, 2005). Even though this historical city has been listed by "UNESCO" as a "World Heritage Site", this damage and destruction made by human and urban development is affecting to other towns throughout the country very fast (Heritage of Malaysia Trust, 2004; Hashimah and Shuhana, 2005). Melaka is located and developed generally close to the Melaka riverscape. Due to the rush development strategies especially in the last two decades, these changes in the city have clearly show changing in Melaka river quality and functions, city development and the environmental conditions widely. Indeed, function and role of this river have become less significant for human life (Eves, 2010; Yassin, 2009).

The lack of adaptation based on ecological principles and also lack of people participations in landscape design of Melaka riverscape have impact on urban environment, ecological system, historical and cultural issues towards landscape characteristics. For that reason, a comprehensive goal in terms of improving process of designing the Melaka riverscape is tremendously essential to protect environmental, cultural aspects and historical characteristics and value of Melaka city. Indeed, researches that have been done to overcome this situation in Melaka

riverscape are limited. This has created a vital need to search and discover the most appropriate way to improve the architectural landscape in riverscapes of other cities in Malaysia without having any severe changes to the landscape characteristics and quality of the rivers (Zainal Abidin, 2011).

1.3.7 Underpinning Theories

This part is all about significant theories which are proposed in order to support construct of study as a research's foundation. The philosophy behind landmark perception which critically examined the perception of humans and the distinction of urban elements in terms of quality, meaning and attitude is the underpinning premise for this study. According to Gestalt theory, which is about visual perception, "landmarks are elements with defining characteristics that are different from their surroundings and easily recognized or discernible from a particular station". Landmarks could be buildings that are different from their environment or may be special urban element i.e. open spaces or interesting things such as an old statue or a special place where has exclusive meanings or event that has happened there before (Moughtin et al., 1999 and Lamit, 2004).

In terms of association between natural elements and human, Wilson (1984) defined "Biophilia" as the "innate tendency to focus on life and life like processes". The "Biophilia hypothesis" declares about inherent human dependency on nature. In addition, people's tendency to be close to the rivers as shown in the early Mesopotamian and Egyptian gardens, elaborates and emphasize high preference for water as a visible feature and also aesthetics importance of water in the landscape that was proposed known as "Hydrophilia theory" (Herzog, 1985).

Moreover, Gullone (2000) believed that there is inherent willingness in mankind to appreciate natural features and aesthetics aspects of nature. Thus, the significant evidence that elaborates fundamental aspects of the connection between human and nature interaction is "Biophilia theory" (Maier, 2012). In addition, it has been mentioned in some studies that, human tends to show a positive or negative

response to the natural setting based on their perception and preference (Gullone, 2000).

1.4 Research Question

Based on the research background of the study, the research questions are addressed through the following questions:

- What type of significant landmark's quality, value and characteristics of riverscape, effect on people's perception?
- Does people perception of landmark characteristics of the riverscape effect on pro-environmental behavior?
- How does the landmark's qualities, value and characteristics of riverscape associate with feeling of attachment?
- What is the relationship between landmark's qualities of the riverscape and pro-environmental behavior?
- Does feeling attachment to the riverscape as a landmark lead to pro-environmental behavior?

1.5 Research Aim and Objectives

The aim of this study is to identify the significant landmark's characteristics, quality and value of the riverscape in terms of the link between human perception, environment protection and landmark attachment in a natural riverscape in landscape environment in the city of Melaka in Malaysia. Therefore, it investigates the landmark's quality of the riverscape, in relation with other dimensions, i.e. landmark attachment, people perception and pro-environmental behavior. This would reveal the influence of people's perception of riverscape as a landmark attachment on pro-environmental behavior. The research objectives of this research are as follows:

- To identify influences of significant landmark's quality, value and characteristics of the riverscape on people's perception.
- To identify contribution of people's perception of the riverscape on pro-environmental behavior.
- To determine influences of landmark quality of the riverscape on feeling of the attachment.
- To evaluate contribution of landmark characteristics of the riverscape on pro-environmental behavior.
- To investigate contribution of attachment qualities of the landmark on pro-environmental behavior.

1.6 Research Hypothesis

This research has employed the quantitative research method to statistically analyze data collected via structured survey questionnaires. It tested the following hypotheses generated in accordance with the review of related literatures. Therefore, to achieve an explicit understanding of this research goal, the research had five main hypotheses. The five hypotheses are presented as follows:

- Hypothesis 1 H1- Landmark value and characteristics of the riverscape as second-order factor influences people's perception positively.
- Hypothesis 2 H2- People's perception of the riverscape as second-order factor has positive influences on pro-environmental behavior.
- Hypothesis 3 H3- Landmark characteristics of the riverscape as second-order factor influences feeling of the attachment positively.
- Hypothesis 4 H4- Landmark characteristics of the riverscape as second-order factor influences pro-environmental behavior positively.
- Hypothesis 5 H5- Attachment qualities of the landmark as second-order factor influences pro-environmental behavior positively.

1.7 Significance of the Study

In order to save and protect sense of identity and legibility in urban areas, urban heritages should be valued, understood and preserved in good condition (Lowenthal, 1999; Steinberg, 1996; Tweed, 2007). In fact, the most important characteristics, values and qualities of the historical urban elements and urban heritage is all about meanings, historical and cultural values, which can represent the public's memory. The heritage in this context is defined as natural or man-made urban areas, monuments, buildings, urban green environments that may represent the aforementioned values (International Charter for the Conservation and Restoration of Monuments and Sites, 1987). Nowadays, most of these qualities have been threatened, specifically in terms of historical urban elements, open spaces and urban natural areas and the inappropriate consequences have been observed on less tangible elements i.e. people's perception, their preferences and activities (ICOMOS, 1987; Steinberg, 1996). Furthermore, less tangible or intangible characteristics and values of urban heritage are normally neglected in order to conserve urban environments and it has led to loss of place identity in cities (Tweed, 2007).

Most of the public places in historical cities like parks, streets, squares, and old trees have suffered in terms of rapid urban development (Bowen, 2002; Tweed, 2007). As consequences of urban changes and rush development, urban areas face losing physical and natural attributes, traditional urban forms and localized identity, unrecognizable public place and historical urban elements (Saleh, 1998). It is unfortunate to mention that people have worried so much in recent years about the distinctiveness of the nation landscapes and old buildings but in terms of public places that are culturally and historically significant of urban landscape have been given very little attention (Thompson, 2002). Moreover, this kind of changes in urban landscape is affected negatively due to the loss of diversity, coherence and identity. In fact, these changes would be harmful to other independent practices such as individual's activities in urban public area specifically in multicultural countries (Antrop, 2005).

Inherently and historically, association between cities, human and water is close. In fact, all urban cities in Malaysia are located and developed based and

closeness to the river areas. Due to the rapid development strategy especially in the last two decades in Malaysia, the agricultural activities has been transformed to manufacturing and industrialization which lead to wide change in river characteristics and functions. Indeed, in Malaysia role and function of rivers have decreased and became less significant for human life and furthermore the functions have been limited mostly to transportation purpose (Yassin, 2009; Abidin, 2011).

The significance of this study can be elaborated as follows:

- Exploring the various qualities, value and characteristics of landmarks, people perception or interpretation of the urban landmarks and discovering the potential qualities in terms of interactions between people or users with urban landmarks.
- Discovering less tangible or intangible features of landmarks to develop possible ideological presuppositions about the reality of urban landmarks and riverscape, especially in the context of the Malaysian cities (Lamit, 2004).
- Highlighting the significance or influence of notable riverscape as a landmark in Melaka town which can emphasize the cultural responsiveness of landmarks needed in order to reflect the Malaysian urban environment.
- Preservation of urban landmarks particularly riverscape related to the urban conservation and pro-environmental behavior.
- Amplifying landmark characteristics of the historical riverscape in order to save river sustainability and to promote pro-environmental behavior among laypublic.

1.8 Definitions of Terms as related to the Study

Landmark: “Landmarks are one of the components that contribute to imagability of cities and elements with defining characteristics that are different from their

surroundings and easily recognized from the particular station. In fact, landmarks may be any urban landscape feature with inherent and unique characteristics and generally in contrast with its contextual characteristics (Lynch, 1960; Lamit, 2004)”.

People’s Perception: “Perception is the psychological process that individuals can make sense in terms of environment. Therefore, determination of environmental characteristics that may influence people’s perception also means to build qualities of places, which are successful in terms of behaviors and activities (Bourassa, 1991)”.

Pro-environmental behavior: “Pro-environmental behavior is the behavior that has a positive impact on the availability of materials, energy and natural resources. So, it’s all about behavior that intentionally seeks to reduce the negative impact on the natural and built environment (Stern, 2000)”.

Riverscape: “The riverscape and the river share the sheet of water which covers the land. The riverscape is that part of landscape which has a watercourse. It has three characters known as structure, function and change (Haslam, 2008)”.

Landmark Attachment: “Kind of sense of place in various places in terms of sense of attachment to the landmarks as important elements of a cities characteristics, uniqueness and singularity in meaning and appearance. Indeed, characteristics and qualities of landmarks may influence attachment towards a city (Najafi, 2011; Hussain, 2013)”.

Place: “Places are created by some physical form and elements, activity and meaning naturally or by people. Furthermore, places as physical, social, and cultural contexts may influence people’s perception by the characteristics that people bring to the places and the qualities of their experiences with places. As a result, place is a particular space which is covered with meanings and values by the users. (Montgomery, 1998; Najafi, 2011)”.

Sense of Place: “This sense has correlation between attributes that make a place such a specific to users and bring up sense of attachment to that particular place. In

addition, Sense of place is referred to the particular experience of a person in a particular setting. So, sense of place is an important factor in order to maintain the quality of the environment (Tuan, 1977)".

Place Meaning: "personal definitions of the characteristics that include a place would be source of place meanings by many researchers. In fact, the historical and cultural significance of the place may share meanings to the place (Milligan, 1998)".

Place Attachment: "Emotional and affective link between people and particular place that creates special bond based on emotion, knowledge, behavior, activities, background and belief is defined as PA (Hidalgo and Hernandez, 2001; Proshansky *et al.*, 1983)".

1.9 Scope and Limitations of the Study

This study makes an extensive use of relevant literature on landmark characteristics of the riverscape, people perception and utilization. Factors that are associated with landmark characteristics were identified, discussed and categorized to a build better understanding of its links. The study reviews landmark quality of the riverscape in order to link between people perception, attachment and pro-environmental behavior, particularly in Melaka city in Malaysia. The research scope will focus on the Melaka City which is the capital city of the Malaysian state of Melaka. It was recorded as a UNESCO on 7 July 2008 as historical city in Malaysia. The city of Melaka is located on both sides of the Melaka River . The modern city also is being developed around this historic core. In summary, this research premise are as follows:

This research involves historical Melaka riverscape and the Kampung Morten Village which is a historical traditional Malay village, in the heritage Melaka city in Malaysia. The Melaka river has been selected due to the significant historical and cultural backgrounds as well as the environmental values and characteristics that is having the most significant roles in influencing the economic, social, cultural and

religious life of people since early of the centuries. Melaka River has contributed significantly in shaping the modern and improvement of Melaka city (Jabatan Warisan Negara, 2012).

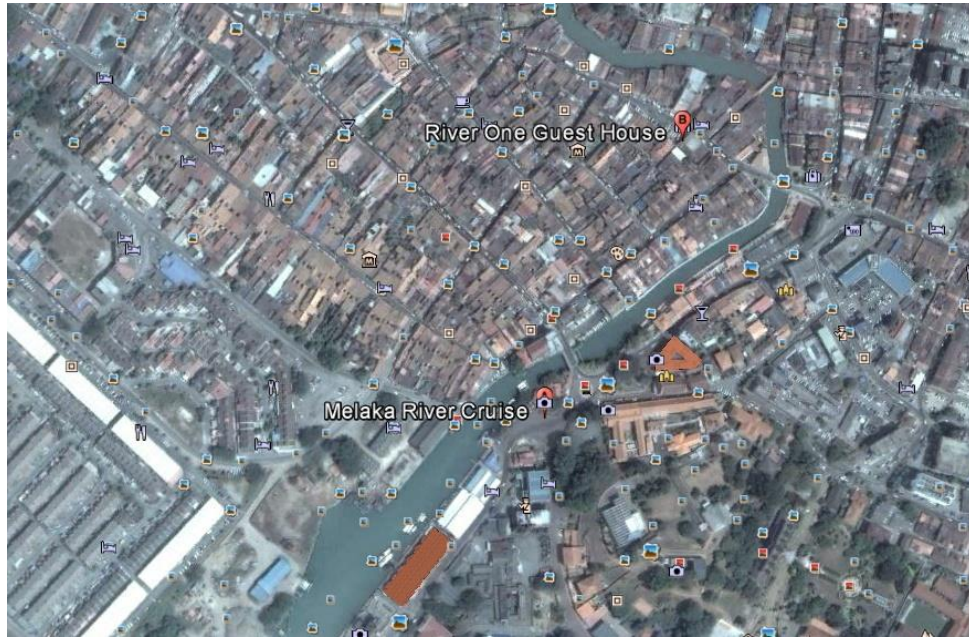


Figure 1.2 Melaka River Map (Google Maps, 2016)

The research scope is focused on the Melaka riverscape and specifically Kampung Morten village. Indeed, this area has chosen due to close relationship and association between riverscape and people in order to evaluate people's perception, dimension and quality of Melaka riverscape as a landmark. Furthermore, study concentrated on pro-environmental behavior in order to examine the impact of factors on people's perception toward river as attachment to the landmark and consequently on pro-environmental behavior intentions.

Furthermore, this study chooses Gestalt's theory known as landmark perception theory (McArthur et al., 1983) and visual perception theory (Kaplan and Kaplan, 1983) for assessing perception of people regarding landmark qualities, river and landmark attachment. According to these two theories, there are some major constructs that influence perception towards landmarks and consequently to be landmark attachment and positive behavior in terms of environment protection.

Moreover, current research has concentrated on theories and studies on landmark characteristics, landmark attachment and its indicators and also, people's perception, interactions and behavior toward environment. Likewise, attachment characteristics to the riverscape and its indicators, people's perception and pro-environmental behavior are determined.

In addition, the importance of landmark characteristics based on the relationship with feeling of attachment, people's perception and pro-environmental behavior are evaluated. In fact, current research concentrates on new and profound characteristics, quality and value of landmark in terms of the link between human perception, environmental protection and landmark attachment in a natural riverscape in landscape environment. Besides, the study has limitation to investigate the intangible characteristics, quality and value of landmark in terms of the link between human perception, pro-environmental behavior and landmark attachment in historic city of the straits of Melaka riverscape (Malaysia).

1.10 Thesis Outline

This research is consisted of five chapters which is organized as shown in Figure 1.3.

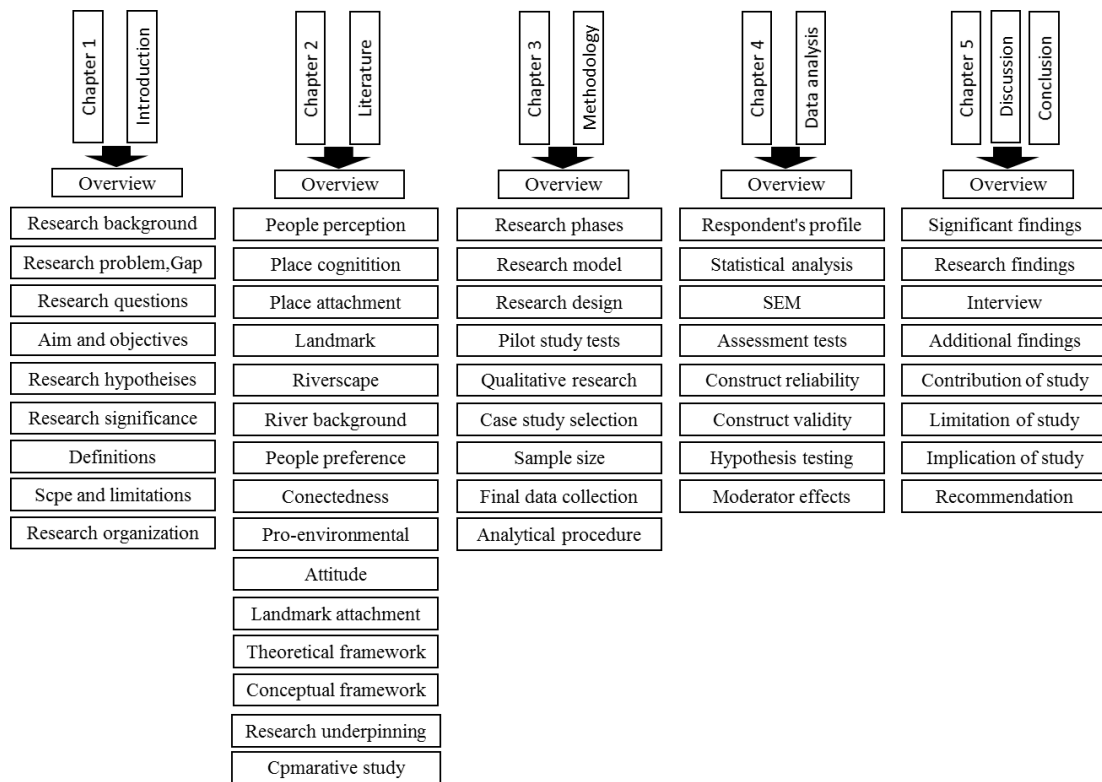


Figure 1.3 Thesis organization framework

Chapter 1: This chapter discusses the research background and problem statement in terms of association between people and urban nature area in order to link between social perception, feeling of the attachment to the urban landmarks and pro environmental behavior. It details the research gap, research questions, aim and Objectives of the study, research hypotheses, significance of the study, terms and definitions, scope of the study, limitations of the study and finally the research organization.

Chapter 2: It reviews the relevant literature of the study and framing the concepts for the study theoretical framework. This chapter develops a systematic research concept framework towards reliable research result in order to justify the

necessity for this research and gives a explicit focus for the proposed methodology to be carried on in the research.

Chapter 3: It details the methodology to be adopted and established method in steps to attain the study goal. It defines the research measurements, study area population, sampling and justify the methodology in relation to the literature and research analysis framework and the technique used in the study to analyze and process the data in order to ensure reliability and validity of the tools and tests.

Chapter 4: It encompasses the details of the research data administration and collection both in quantitative and qualitative forms. It involves critical analysis of the research data and present sequential analysis report. The findings on the categories of landmark's dimensions of the riverscape and relationships toward landmark attachment, people perception and pro-environmental behavior in terms of Melaka riverscape also reviewed.

Chapter 5: It presents the discussion and conclusion of the study. It possesses research findings, evidences in the reviewed relevant literature, precise and strong conclusions that is justified the study goal profoundly. The discussion on the overall findings, conclusion, limitation, recommendation and contribution of the research are discussed in this chapter as well.

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