UNIVERSITI PUTRA MALAYSIA

PEDESTRIAN WALKABILITY AND SATISFACTION IN KUALA LUMPUR CITY CENTER, MALAYSIA

MAHSA MANSOURI

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By

MAHSA MANSOURI

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Master of Science

May 2014

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DEDICATION

In the Name of Allah, I dedicate this thesis to my family who have special place in my heart.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirements for the Degree of Master of Science

PEDESTRIAN WALKABILITY AND SATISFACTION IN KUALA LUMPUR CITY CENTER, MALAYSIA

By

MAHSA MANSOURI

May 2014

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According to Kuala Lumpur Structure Plan 2020, one of the goals of the Ninth Malaysian Plan (RMK9) is to increase the economy through sustainable tourism. One of the characteristics of sustainable tourism is the ability to provide an interesting walking experience and efficient networks for pedestrians to move from one place to another. So, considering tourists' satisfaction and expectation while walking could assist in making the city of Kuala Lumpur into an attractive international tourist destination. The aim of this study is to examine the accessibility, connectivity and continuity of pedestrian networks that are affecting tourists' satisfaction while walking in the historic district of the city centre of Kuala Lumpur. Since, pedestrians in the city are facing with difficulty in getting to their destinations due to poor walkways accessibility, linkage, continuity and exiting obstructions along paths, encouraging walking through better pedestrian environment can optimize the quality of sidewalks and help building active communities.

This study adopted a quantitative approach in the data collection and data analysis. Gate observation and Space Syntax analysis were conducted to evaluate features of existing walkways in terms of connectivity and accessibility. Gate observation and Space Syntax were used to examine pedestrian movement rate by identifying pedestrian intensity and integration value of networks to determine the degree of connectivity. Moreover, questionnaire survey was used to examine the tourists' expectation and satisfaction of walkways in the city center of Kuala Lumpur to support tourists' walking experience. The study focuses on two areas with different historical attractions and shopping centres. For questionnaire survey, 330 tourists randomly selected to answer the questions on

pedestrian accessibility, connectivity and continuity. These multiple data sources are gathered and analyzed to form the findings.

This study has revealed that the pedestrians observed in the study area do not orient their movement according to the spatial characteristics of the surrounding street, as it is more related to land uses and other attractors than connectivity level of walkways. In other words, urban activities and land uses do obviously increase places of attraction and generate traffic congestion. Moreover, the results of the questionnaire survey have showed that tourists' satisfaction is related to walkways characteristics considerably. Among all parameters, the availability of attractive places to visit, interesting activities to get involved while walking and walkways' availability on most of the streets are the most important factors for tourists, although gained the least level of satisfaction. Therefore, this necessitates the importance of land use in enhancing tourists' walking experience in the historical district of Kuala Lumpur. Therefore, level of pedestrian accessibility, connectivity and continuity improvement in the historical district of Kuala Lumpur should be implemented by integrating them with the land uses through promotion of mixed-use development especially along the river front area and also where the office uses are dominant needs to be reconsidered. The findings of the study are valuable for planners and architects to provide good quality pedestrian network for Kuala Lumpur and other cities in Malaysia. They support the need for a walkable city that can attract more tourists and visitors.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

Pejalan Kaki Walkability Dan Kepuasan Di Kuala Lumpur City Center, Malaysia

Oleh

MAHSA MANSOURI

May 2014

Pengerusi: Norsidah Ujang, PhD
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Merujuk kepada Pelan Struktur Kuala Lumpur 2020; salah satu matlamat Rancangan Malaysia Ke Sembilan (RMK9) adalah untuk meningkatkan ekonomi negara melalui pelancongan mapan. Salah satu ciri pelancongan mapan ialah kemampuan untuk menyediakan pengalaman berjalan kaki yang menarik dan rangkaian pejalan kaki yang efisen bagi pejalankaki untuk berjalan dari satu tempat ke satu tempat yang lain.Matlamat kajian ini adalah untuk meneliti kebolehsampaian, hubungan dan kesinambungan rangkaian pejalan kaki yang mempengaruhi kepuasan pelancong yang berjalan kaki di kawasan bersejarah di pusat bandar Kuala Lumpur.

Memandangkan pejalankaki di bandar ini mengalami kesukaran untuk sampai ke destinasi tujuan disebabkan kurangnya kemudahsampaian, hubungan dan kesinambungan laluan pejalankaki dan halangan sediada di sepanjang laluan pejalankaki, menggalakkan berjalankaki melalaui persekitaran yang lebih baik akan meningkatkan kualiti laluan pejalankaki dan membantu membina komuniti yang aktif. rangkaian Kajian ini menggunakan pendekatan kuantitatif dalam pengumpulan data dan analisis. *Gate Observation* dan analisis *Space Syntax* dijalankan untuk menilai elemen laluan pejalan kaki sedia ada bagi menyokong data berkaitan dengan pengalaman pelancong berjalan kaki dari segi hubungan, kesinambungan dan kemudahsampaian. *Gate Observation dan Space Syntax* digunakan untuk meneliti kadar pergerakan pejalan kaki dengan mengenal pasti kepadatan pejalan kaki dan nilai integrasi rangkaian laluan untuk menentukan tahap hubungan di antara laluan tersebut. Selain itu, tinjauan soal selidik juga digunakan untuk mengkaji kepuasan dan ekspektasi pelancong terhadap laluan pejalan kaki di pusat bandaraya Kuala Lumpur.

Kajian ini memfokuskan kepada dua kawasan pelancongan yang mempunyai tarikan sejarah dan pusat membeli-belah. Seramai, 330 pelancong dipilih secara rawak untuk menjawab soal selidik mengenai kebolehsampaian, perhubungan dan kesinambungan laluan pejalan kaki. Data ini dikumpulkan dan dianalisis untuk menghasilan penemuan kajian.

Kajian ini menunjukkan bahawa pejalan kaki di kawasan kajian tidak dapat mengarahkan pergerakan mereka mengikut ciri spatial jalan sekitarnya, kerana pergerakkannya lebih berkait dengan kegunaan tanah dan daya tarikan lain berbanding tahap perhubungan laluan pejalan kaki. Dalam erti kata lain, aktiviti bandar dan kegunaan tanah menambah kawasan tarikan pelancong dan menambah kesesakan trafik. Selain itu, keputusan kajian soal selidik telah menunjukkan bahawa kepuasan pelancong yang berkaitan ciri laluan pejalan kaki adalah ditahap memuaskan. Walaupun tahap kepuasan adalah rendah di antara semua faktor, tempat menarik untuk dilawati, aktiviti menarik yang boleh dilakukan ketika berjalan dan laluan pejalan kaki sedia ada di sepanjang jalan adalah faktor yang paling dirasakan penting oleh pelancong, Oleh yang demikian, bagi meningkatkan pengalaman pelancong berjalan kaki di kawasan bersejarah di Kuala Lumpur aspek guna tanah adalah perlu diberi penekanan. Selain dari itu, peningkatan tahap kebolehsampaian laluan pejalan kaki, perhubungan serta kesinambungan di kawasan bersejarah sekitar Kuala Lumpur perlu dilaksanakan untuk meningkatkan kualiti laluan pejalan kaki secara menyeluruh. Integrasi kegunaan tanah melalui promosi pembangunan bercampur terutamanya di sepanjang kawasan tepian sungai dan kawasan yang didominasi bangunan pejabat dan persamaan guna tanah perlu dipertimbangkan semula. Hasil kajian ini boleh menjadi rujukan bernilai kepada perancang bandar dan arkitek untuk menyediakan hubungan rangkaian pejalan kaki yang lebih berkualiti bagi bandar Kuala Lumpur dan bandar- bandar lain di Malaysia. Ini menyokong keperluan kepada *walkable city* yang akan lebih menarik minat para pelancong dan pelawat.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABREVIATIONS

RMK9	Rancangan Malaysia Ke 9
DBKL	Dewan Bandaraya Kuala Lumpur
MRT	Mass Rapid Transport
PERS	Pedestrian Environment Review System
LOS	Level of Service
KLSP	Kuala Lumpur Structure Plan
PRD	Pedestrian Route Directness
IRTS	International Recommendation for Tourism Statistics
AHP	Analytical Hierarchy Process
CHKL	City Hall Kuala Lumpur

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In recent years, discussion on liveability of the built environment is increased considerably. The major challenge for city centres is to improve the residents' quality of life through safety, economic stability and excellent transportation system and network (Shamsuddin, Abu Hassan, & Bilyamin, 2012).

Liveability refers to ease of movement for people and goods by walkable proximity to transport, amenities and access to green space (Frank, et al., 2003; Vine and Buys, 2012). Thus, walkability is an essential attribute of a liveable city (Peirce, 2007).

Economic Intelligence Units has acknowledged Kuala Lumpur as 78th liveable city in the world in 2011 (EIU, 2011; Shamsuddin, et al., 2012). A higher position in the ranking as a liveable city through walkability granted leverages namely prominence and greater economic enterprises (Shamsuddin, et al., 2012). A walkable environment helps the local people and tourists to experience a better sense of place in the city.

According to Kuala Lumpur Structure Plan 2020, one of the goals of the Ninth Malaysian Plan (RMK9) is to increase the economy through sustainable tourism. Sustainable tourism cannot be successfully achieved without the involvement of those affected by tourists' experiences. Therefore, evaluating tourists' feedback on their experience and quality of the environment are important in ensuring tourism sustainability. Since every trip begins and ends with some sort of pedestrian activity, walking can be considered as the basic form of transportation and an important experience for tourists through their trip. So, appropriately discriminating measure of physical and spatial characteristics of streets is essential to better design for walkability (Ozbil, 2010), which influence tourism walking experience.

Walkability refers to those criteria which make walking a pleasant mode of transport by connected, accessible routes (Abbey, 2005; Shamsuddin, et al., 2012). Accessibility has been defined as the people's capability to achieve their necessities or demanding commodities, services, constant activities and designated places in order to preserve their quality of living (Wong, 2011). In the context of the study, accessibility refers to

any location, service or facility that is able to be reached conveniently by people, goods and services (Cowan, 2005; Lotfi & Koohsari, 2009). Connectivity refers to the ability of pedestrians to move freely along demand lines within and between areas (Sundquist et al., 2011) with continuation of the walkways adjacent to the road space without modifying the ideal environment (Sharkar, 1993; Rahaman, et al., 2005). These qualities are the main features of a walkable city. Measure of these walkways' features is usually needed in studies on relation between urban form and walking habit (Leslie et al., 2005; Chin, et al., 2008). Since, pedestrians in Kuala Lumpur face difficulty in getting to their destinations due to poor walkways accessibility, linkage, continuity and exiting obstructions along paths, promoting and encouraging walking through better pedestrian environment can optimize the performance of sidewalks and help building active communities.

Therefore, the aim of this study is to examine the functions of spatial characteristics in enhancing tourism walking experience in the historical city center of Kuala Lumpur. This study focuses on the features of existing walkways in supporting pedestrian accessibility, connectivity and continuity. The tourists' expectation and satisfaction of the accessibility, connectivity and continuity of the walkways are used to distinguish those characteristics of walkways that require improvement.

1.2 Problem Statement

While the worldwide interest in improving the pedestrian environment as a mean of encouraging non-motorized travel is growing (Parks and Schofer, 2006), Kuala Lumpur today is not a pedestrian friendly city and walking as a pedestrian in this city is very difficult (Prime Minister Department, 2010).

In 1957, Kuala Lumpur was known as the capital of the Federation of Malaya, and Malaysia in 1963 until present. In the first 60 years after its founding, its development was in an 'organic' way and in the early 20th century, it was very small, walkable and its facilities were within walking distances (Wong, 2011) (see Figure 1.1). Because, there were not many vehicles, the commercial area was concentrated near the Klang river; residential houses were close to the shops or just top of the shops of which we call them shop houses (Wong, 2011). Considering the results of previous studies, at present, the walkability of the city centre is decreased due to more road constructions, less space for pedestrians and poor pedestrian infrastructure (Wong, 2011) which affects the tourists' walking experience. This is evident in the way visitors use the paths and walkways to move from one point to another.

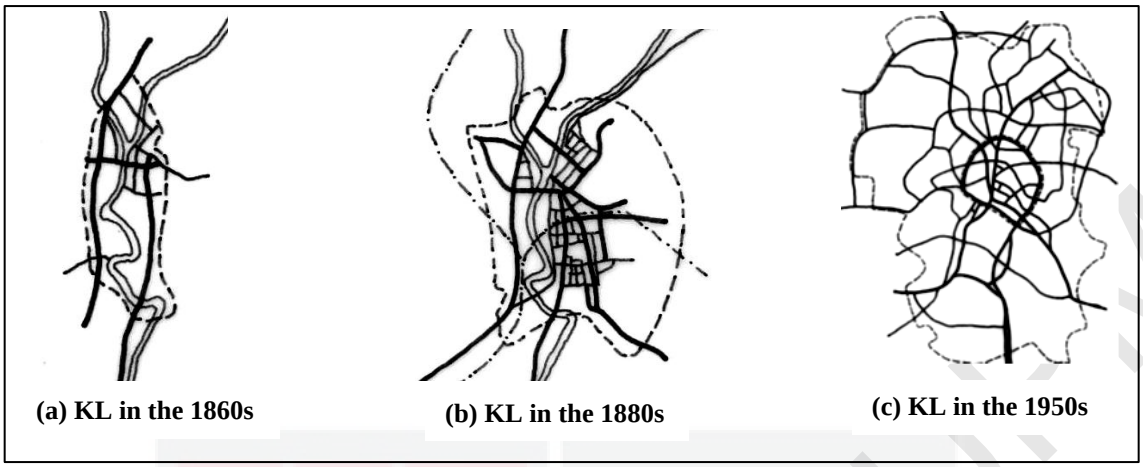

Figure 1.1. Physical Evolution of Kuala Lumpur City
(Source: Wong, 2011)

A survey by Seranta Awam shows that, currently, Greater Klang Valley is not a pedestrian-friendly city, as it has poor accessibility, walkways continuity, maintenance and inefficient design. It is difficult for locals and visitors to find easy linkages between their destinations and there is a lack of access for the disabled and elderly people (Prime Minister Department, 2010; Ujang and Muslim, 2013). Furthermore, footpaths in city center are generally obstructed by street furniture, business activities, motorcycle or even vehicle parking. Steps instead of ramps to cater for level changes and deep uncovered drains, are significant reasons which cause pedestrians find it more difficult to walk along the roadway (Bachok, et al., 2004) (see Figure 1.2). Moreover, there are accessibility problems to some of Kuala Lumpur tourists' destinations. According to Kuala Lumpur Structure Plan 2020, tourist resources are not consistent, connected and accessible for pedestrian movement (DBKL, 2004). Although, there are many potential places of interest for pedestrians around and within the city centre of Kuala Lumpur, there is no intention to better link them as an urban tourism precinct. Attractions are isolated from each other and their functions only invite specific groups of people (Wong, 2011) and there are few tourists in some parts of city center. Although, generous public spaces with reasonably good quality walkways are provided, especially in the areas surrounding public buildings, those places clearly interest few of KL's pedestrians (Wong, 2011).

(a) **(b)** **(c)**

Figure1.2. Obstructions and Poor Walkways Condition along (a) Jalan Dang Wangi and (b, c) Jalan Tuanku Abdul Rahman.
(Source : Author, 2013)

Nevertheless, DBKL and the private sector have started to construct 4.5 kilometers of elevated and covered pedestrian routes in the Kuala Lumpur city centre and link the design with other points like MRT, river, and retail outlets (http://app.kwpkb.gov.my/greaterklkv/entrypoint-project-pedestrian/) (refer to Appendix A1). However, unlike the programmes and studies focus on the new city center (golden triangle area), few studies have been done in historical district of Kuala Lumpur. So, this study considers the historical Kuala Lumpur city center as an urban destination for most of touristic pedestrians.

Tourism plays a substantial role in the economy of Kuala Lumpur by furnishing employment across all sectors of the population, income and business expansion opportunities and assists in providing endless benefits for the residents through beautification, pedestrianisation projects, conservation and holding of magnificent events (DBKL, 2004). So, considering tourists' walking experience as one of the major experiences during their trip can be helpful to make Kuala Lumpur into an attractive international tourist destination. Tourists mostly are inclined to choose their destinations to be accessed according to local facilities and attractions. In other words, tourists differentiate destinations on the ground of their accessibility (To´th & Da´vid, 2010) specially when they intend to visit them by travelling on foot. So, accessibility has a primary role in choosing the destinations by tourists while walking. While, some tourists' resources are historical and located well in the city center of Kuala Lumpur, others have been recently built or are not yet introduced to tourism well. So, some are more attractive or more accessible than others (DBKL, 2004). Moreover, the number of experiences that tourists can gain from visiting Kuala Lumpur is perpetual, as there are

numerous selections for them to choose from. However, these diverse experiences are scattered in different places in Kuala Lumpur, hence the continuity of activities and experiences is very crucial which based on their planned travel routes (Zakariya, 2006).

All of these problems have caused in the physical pattern changes of Kuala Lumpur, from 'a pedestrian town' in the past to 'an automobile city' today. It is in contrast with the objectives of Kuala Lumpur Structure Plan 2020 to give priority to pedestrian movement over private vehicular traffic and create comprehensive pedestrian networks through convenient access to transportation nodes and activity centres. This issue considers the problem statement of this study. In this regard, it is vital to examine the spatial characteristics of the pedestrian networks in the city center of Kuala Lumpur to enhance tourists' walking experience.

1.3 Research Questions

From the problems stated above, the following research questions are developed:
i. How can pedestrian accessibility, connectivity and continuity be improved to support tourists' walking experience in the historical district of KL city center?
ii. What features should be improved to provide effective pedestrian connectivity in the historical district of KL city center?
iii. Are the tourists satisfied with the existing pedestrian environment in the historical district of KL city center?

1.4 Research Goal and Objectives

The goal of the study is to examine the spatial characteristics of the pedestrian networks in the city center of Kuala Lumpur to enhance tourists' walking experience. Thus, the main objectives of the study are:
1. To evaluate the accessibility and connectivity of the existing pedestrian networks in the historical district of KL city center; and
2. To examine the tourists' expectation and satisfaction of pedestrian walkways in the historical district of KL city center to support tourists' walking experience

1.5 Hypothesis

Based on the problem mentioned, as well as research goal and objectives, the two following hypothesis emerged in this study:

H1: Accessiblity and connectivity of walkways determine the quality of the pedestrians' (tourists) experience.
H2:Quality of pedestrian networks influences tourists' satisfaction while walking.

1.6 Methodology

The study has adopted quantitative methodology and information was collected using three methods a) gate observation; b) Space Syntax assessment; and c) questionnaire survey.

In order to examine the features to support pedestrian connectivity and continuity in the historical district of KL city center, gate observation needs to be conducted. The data from field observation will provide the research with pedestrian intensity to record tourists and local pedestrian's movement rate on major points of study area. This is to examine the difference between locals and tourists' movement rate which demonstrates the need for analysis of the spatial characteristics of pedestrian network. So, the second step requires the analysis on spatial characteristics of pedestrian networks (walkways connectivity and accessibility) by using Space Syntax assessment technique through Depthmap software to determine features that must be improved in order to increase pedestrian connectivity. The final process of data collection involves questionnaire survey to examine tourists' expectation and satisfaction of the existing walkways accessibility, connectivity and continuity of walkways in the historical city center of Kuala Lumpur.

1.7 Scope and Limitation of the Study

Although many factors and objectives are important to enhance the quality of the pedestrian environment, the scope of this thesis covers spatial features of pedestrian networks to enhance tourists' walking experience in the city center of Kuala Lumpur. The accessibility, connectivity and continuity of pedestrian networks of two historical areas in Kuala Lumpur city center with different number of tourists as pedestrian are analyzed to understand why some parts of city center have less tourists as pedestrian. The study areas are chosen in the historical part of city where have attractions such as historical heritage and buildings, shopping malls and streets, religious places and so forth.

Pedestrian intensity data through gate observation is collected in a period of months (November-December) which have unpredictable weather conditions as an important

factor in non-motorized behavior studies. Changes in the weather conditions can influence the number of bicyclists and pedestrians, in destination choice, the length or distance of travel (Iacono, et al., 2010). It is better travel survey would be done all over the year (Ortuzar and Willumsen, 2001; Iacono, et al., 2010). So, it must be considered that the gate observation reported in this study may differ from those on other months of the year when the temperature drops. Another limitation in conducting this research, is that the questionnaire survey is constrained to be conducted among 330 international tourists with various cultural backgrounds. However, the respondents' country of origin and their ethnicity which can be related to their culture and expectations as pedestrian will not be the focus of this study.

1.8 Significance of the Study

Many places and facilities are designed to give tourists the experience that they seek. However, current study tends to focus on spatial characteristics of pedestrian network. There are a wide variety of parameters which make pedestrian environments effective which can influence tourist' experience as pedestrian. Among all, this research is embarked to form early ground works towards enhancing tourist's walking experience by enhancing accessibility, connectivity and continuity of existing walkways in the historical city center of Kuala Lumpur.

The findings of the study will be valuable for planners and architects in providing better pedestrian network connectivity towards walkable city. The relationship between the pedestrian connectivity and the distribution of pedestrian movement can be used for new planning and designing schemes. The findings can also be used by the urban designers, future urban morphology studies and projects on walkability and accessibility as well as for evaluating proposals to regenerate historical city centers that have lost their importance for tourists and help to avoid 'dead spaces' in a city. Better pedestrian walkways connection and accessibility will encourage tourists and locals to visit the historical district for commercial and leisure activities which will bring considerable benefits for both government and residents.

1.9 Research Organization

This study is divided to five chapters. The first chapter provides an introduction to the study includes a background of study, problem statement, research questions, objectives and hypothesis, a brief description of methodology as well as scopes and significance of the study. The second chapter presents an extensive review of literature on the crucial concepts related to liveability and walkability. It also addresses the

current body of knowledge on main attributes such as accessibility, connectivity, continuity and tourism walking experience. The third chapter deals with the methodology of the study emphasizing the methods and techniques of data collection and analysis. The study area is presented in details. Three different methods are discussed as well as the dependent and independent variables used in developing theoretical framework for the questionnaire. It also describes the appropriate procedure to select the sample size and methods of data analysis. Chapter four provides the results of the data analysis with a discussion the main findings. Chapter five, the final chapter, presents a summary of the main findings of the study, suggestions on refining tourists' walking experience through improvement of pedestrian spatial features, implications and recommendations for future studies and conclusion.

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