

**ENHANCING THE WALKING EXPERIENCE OF SKYWALK SYSTEM
AS
A PUBLIC SPACE IN HIGH DENSITY CITY OF HONG KONG**

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To my lovely father and mother, who has actively supported me in myriad of ways,
throughout my life, to find and realize my potentials.

And

To my supportive friends –Liule, Wu Hanqin, Kuang Yunzhu, Li Haixia etc,

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ABSTRACT

In modern cities, transportation interventions are primarily geared towards getting people to work efficiently, and finer aspects with regards to walkability had not received enough attention. Especially, walking in work-related trips is the inadequacy of walkability in downtown CBD where there is a high concentration of office workers who demand short walking trips. But in the small but highly developed city-state of Hong Kong, an enhanced pedestrianization scheme with shelter and cooling is proposed to address the walkability needs with respect to Hong Kong's hot, humid and rainy tropical weather. The pedestrianization scheme segregating pedestrians from traffic combines with building and footbridge called Skywalk System. Compare to other Skywalk System cities, Hong Kong was done well in this system. This study attempts to meet the factors for comprehensive skywalk research by examining skywalk systems. With the discussion of CBD in Hong Kong and the summary of Hong Kong urban economic background, this study makes an objective analysis on the formation and feasibility of skywalk system in Kong Hong CBD. Through getting the walking experience in Hong Kong to find out the walking space in the Hong Kong Skywalk System is both leisure walking and walking as a means of traveling. The study states that the skywalk system is effective in the land of high-intensity development and heavy traffic but it is not a solution to all the circumstance, and it is only used under some special conditions.

ABSTRAK

Di dalam bandar-bandar moden, kemudahan pengangkutan adalah keutamaan dalam menggalakkan orang ramai untuk bekerja secara lebih efisien tetapi secara halusny, aspek perjalanan pejalan kaki tidak diberi perhatian sewajarnya. Terutamanya, ketidaksempurnaan perjalanan pejalan kaki yang berkaitan dengan pekerjaan di pusat bandar CBD di mana terdapat konsentrasi yang tinggi daripada pekerja-pekerja yang menginginkan perjalanan yang lebih singkat. Di dalam Bandar yang kecil tetapi mempunyai pembangunan yang pesat seperti Hong Kong, terdapat cadangan dalam meningkatkan skim pejalan kaki yang teduh dan dingin untuk memenuhi keperluan pejalan kaki berdasarkan cuaca di Hong Kong yang panas, lembab dan hujan tropika. Skim ini dapat memisahkan pejalan kaki daripada trafik jalan raya di mana ia adalah gabungan antara bangunan dan jejambat yang dipanggil Sistem Skywalk. Jika dibandingkan Sistem Skywalk ini di negara lain, ia dilakukan dengan lebih baik di Hong Kong. Di dalam usaha penelitian ini, penyemakan ke atas Sistem Skywalk dapat membantu secara keseluruhan untuk memenuhi kesemua factor-faktor dalam kajian tentang Skywalk ini. Kajian ini dibuat bertujuan untuk menganalisa pembentukan dan kelayakan Sistem Skywalk melalui perbincangan tentang CBD dan kesimpulan latar belakang ekonomi bandar di Hong Kong. Melalui pengalaman perjalanan di Hong Kong, untuk mengetahui tentang ruang pejalan kakinya, Sistem Skywalk adalah saranan terbaik bagi mendapatkan keselesaan dalam sesuatu perjalanan.

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LIST OF ABBREVIATION

MTR	Mass Transit Railway (Hong Kong's Metro System)
POB	Pedestrian Overhead Bridge
WEXiHK	Walking Experience in Hong Kong (Survey)

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CHAPTER 1

INTRODUCTION

1.1. Background

Traffic congestion and air pollution are becoming growing problems in many developed cities worldwide. Government agencies at all levels show increased interest toward promoting non-motorized travel modes. Many communities across the nation have started seeking ways to increase pedestrian activities and discourage automobile dependency, particularly for short trips in residential districts. This trend of “new urbanism,” for example, encourages the development of pedestrian friendly neighborhoods, which would offer proximity for pedestrians to shared neighborhood amenities.

A study of consumer attitude survey of Floridians, USA, found that some groups would gladly trade-off the lot size found in ordinary suburbia for pedestrian proximity to community amenities (Audirac, 1999). Initiatives that promote

pedestrian travel must provide potential users an assured level of convenience, efficiency, comfort, and security for successful applications. City planners and traffic engineers take the pedestrian preferences and perceptions under consideration when designing efficient and pedestrian friendly facilities.

The quality of pedestrian environment is a key to encouraging people to choose walking instead of driving(Michael, 2005).Governmental as well as societal pressures of developing safer environments for pedestrians are strongly encouraging traffic engineers and planners to do more research regarding the issues for non-motorized transportation.

Walkability is being recognized and given attention for a variety of reasons. Not only will pedestrian transportation reduce congestion and have low environmental impact, it also has social and recreational value. Recent research suggests that walking also promotes mental and physical health (Michael, 2005). Therefore, designing the walkable city is receiving more and more attention from the Government and public in recent time.

1.2. Problem Statement

1.2.1. The Priority of Road and Pedestrian

In high-density city, vehicle traffic plays a very important role in this area. City has to consider the traffic capacity of the road, otherwise it will disturb economic development. As a result, when the traffic flow has grown, the traffic designers have to widen the road in order to enhance traffic capacity. On the other hand, the pedestrian path along the roadside becomes more and more narrow and unsafe.

1.2.2. Traffic safety

Pedestrian safety is considered as a serious traffic safety problem in the nationwide and is not confined to urban areas only. Every year many pedestrians are injured or killed in traffic accidents in rural parts of the country. As an example, Ivan, Garder, and Zajac (2001) studied pedestrian related accidents in rural areas of New England, USA. The authors researched the safety of pedestrian crossings in rural areas to discover and confirm factors that help explain high rates of motor vehicle–pedestrian collisions at pedestrian crossings. The following environmental and exposure factors are considered for the traffic safety: population density, type of pedestrian crossing, traffic control used at the crossing, surrounding land use type, highway facility type, vehicle travel speed, vehicle volume and pedestrian volume.

A study by Tanaboriboon and Jing (1994) reported the attitudes of pedestrians in Beijing, China, towards the sufficiency of crossing facilities and the willingness of pedestrians to use them. The study compared signalized intersection pedestrian crossings to overpass and underpass counterparts and concluded that users preferred the signalized crossings to the overpass or underpass crossings. The

authors also reported that the pedestrian crossing compliances with pedestrian signal at two study locations were 70% and 57%.

1.2.3. A separate pedestrian bridge or subway will not be accepted

In order to achieve the purpose of the safety of pedestrians crossing the road, pedestrian bridges and pedestrian subway has become the solution. People know that using the pedestrian bridges or pedestrian subway are safer, but waste a lot of time and physical strength. Gao Jie (2006) studied pedestrian related to the urban pedestrian bridge in China Wuhan states that , In the walking zebra crossing, pedestrian bridge and the pedestrian subway choice, most people choose to go zebra crossing (61% of the respondents chose the zebra crossing, 37% of the respondents selected pedestrian bridge or pedestrian subway), Even if there is no zebra crossing, people also take the risk of crossing the road instead of walking the bridge. When people choose the pedestrian bridge to cross the road, 51% of the pedestrian considered security issues, 34% of the pedestrians were because there was no choice, viewing or other reasons due to the pedestrian, only 15%.

From the data above, we can know that the design of pedestrian bridges lack the consideration for the diversity of pedestrians. Pedestrian bridge is only as an independent entity but do not consider it as a part of urban public space for human leisure activities, which imply that the bridge design combined with the surrounding environment is not effective. Traffic designers, bridge designers have good intention proposing by the solution from their own knowledge structure and then designed a series of bridge forms. However, the fact is that good intentions alone will bring out a better result.

“In urban construction and urban design, the city is a huge laboratory, where there are mistakes and there are failures there have been success stories. In this laboratory, this is the study of urban planning, the formation and the process of testing theory.” (Jane Jacobs, 1961) . As a designer, we must research, evaluate the value of bridges in order to make better use of bridges, or else it will lose its value.

1.2.4. Skywalk is difficult to be widely used

Skywalk helps pedestrians to cross the road in modern city. The construction of the skywalk makes the pedestrians and vehicles on the road to achieve complete separation, and ensure the traffic and pedestrian safety.

In cities like Minneapolis, the popularity of skywalks removed substantial pedestrian traffic from the streets affecting the real estate prices on the street-level and perpetuating the street-level abandonment. However, Calgary seemed to have balanced the vitality of retaining street life through its efforts of encouraging street activity and its seamless vertical integration between the streets and the skywalks, Although a former Calgary planning commissioner, James McKellar remarked that, “the skywalk system kills and sterilizes ground-level activity”. In addition, a Notable urban designer Jan Gehl stated, “He knows of no city in the world (outside of ultra-crowded Japan) that succeeds on two levels” and he denounced the skywalk system in Minneapolis.

Many architects believe that the skywalk system will reduce the value of the ground floor. The establishment of skywalk system makes all of the activities happen on the second floor corridors, but the highest value of the ground floor shops in the past have been made into a parking lot now. So that the utilization of ground floor as commercial area have been reduced. They believe that the pedestrian bridge is to lure away the activities from the ground, lured from the streets and the system of giving up the city bridges, rather than the restoration of urban life. Secondly, the skywalk system has a strong orientation, limiting people's freedom of movement routes, where the people have no other way to choose. Pedestrian activities in the system tend to connected with the integration of buildings, but it decrease the human flow outside the system, resulting in the value of these buildings been reduced. In addition, the skywalk system has an impact on the landscape of the street. The skywalk system are linked across multiple buildings in a block system, where pedestrian bridges play the role of a link, but cut off the continuity of the street as well as destroyed the original scale and proportion of the street.

1.3. Research Gap

Traditional literatures in walking enhancements, especially those investigated by transportation planners tend to focus largely on quantifying the characteristics of walkability in order to understand their influences. Most of the literature and research are only focus on the shape or colors but seldom touch the complex function. Nowadays, pedestrian overhead bridges cannot only play the transport function, but also provide people with outdoor recreation, sports, entertainment, sightseeing and interaction space. Systemize the pedestrian bridges and the

buildings as a Skywalk system became a new solution to urban pedestrian and vehicular traffic approach. But, some new urbanisms have different opinions and ask to stop development of this system. This thesis seeks to concentrate to some cases. This study will focus on a successful case and find the reasons why the skywalk system became a good public space to prove that the system is feasible and conducive for a regional business development and people's communication in specify conditions.

1.4. Aim and Objectives

The aim of the research is to prove that the skywalk system can be a good solution to traffic conflicts in specific cities. To achieve this aim, I formulated the following research objectives:

- i. To prove the Skywalk System as a good public space existing in the Hong Kong walking experience
- ii. To identify the factors affecting the quality of public space and walking environment

1.5. Research Questions

This study seeks to answer the following questions:

- i. What are the characteristics of skywalk system in Kong Hong compose a good environment as a good public space for the citizens?
- ii. How do people in Hong Kong CBD transform the negative factors of walking environment to make it livable and more comfortable?

1.6. Scope of Study

This study will focus on all buildings within the system and human activities in CBD of Hong Kong, China. The study includes the walking space (People's use of space), architectural space (Bridges and buildings in architectural space) and urban space (Pedestrian Bridge in the urban environmental space). Other buildings and human activities away from CBD were not investigated. The differences of human activities between different building use (public, commercial, residence etc.) were considered in this study. The possible differences in perception of friendly places between different genders (girls and boys) were also considered in this study. The sample size was limited due to the limitation of time and observation was done in one-month duration.

1.7. Research Significance

Hong Kong, as one of the most economically developed region, has a significant influence all over the world. Because of the shortage of land as well as rapid economic growth, leading to a very high urban density in Hong Kong, traffic problem is especially complicated. Hong Kong has very limited land resources, but relying on building up a walkway system to solve the conflict between traffic and safety, ultimately Skywalk system has been proved feasible in practice. Understanding which places are friendly and why (according to citizens themselves) can guide the planners as well as designers in creating a good walkable city in the future. Therefore, this study has great significance for the future on how to better utilize and enhance the pedestrian walkway system.

1.8. Research Methodology

The following chart (Fig 1.1) manifests the overall research methodology, which was understand the walking experience of Skywalk System in case of Kong Hong. A detail discussion about the research methodology will be explained in character 3.

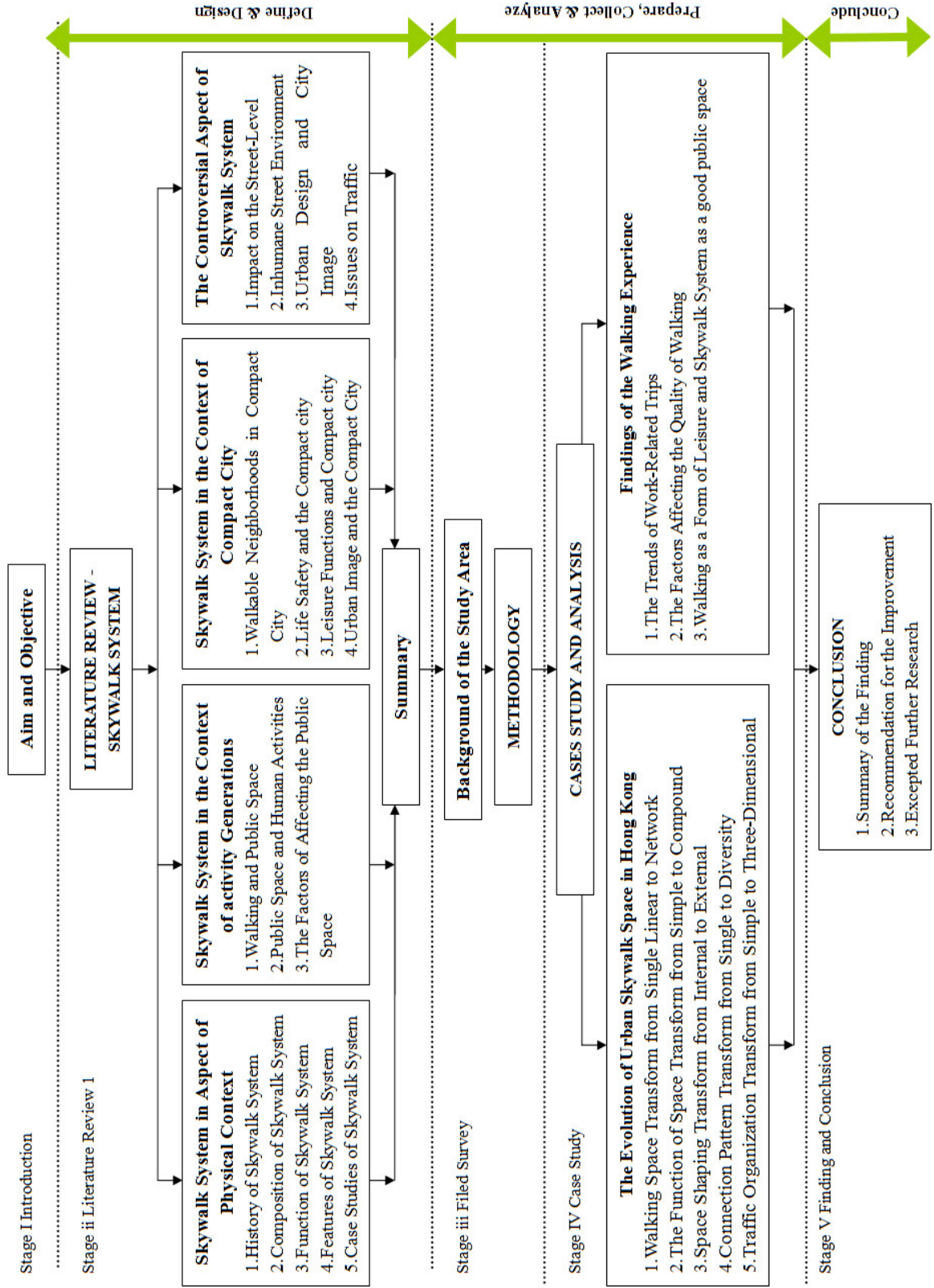


Fig 1.1 Overall Research Method Flow Chart

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