THE HONG KONG POLYTECHNIC UNIVERSITY
SCHOOL OF HOTEL AND TOURISM MANAGEMENT

MAPPING TOURIST MOVEMENT PATTERNS: A GIS APPROACH

Submitted by
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A thesis submitted in partial fulfillment of the requirements for the Degree of
MASTER OF PHILOSOPHY

MAY 2007

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledge has been made in the text.

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LAU WAI CHI GIGI

ABSTRACT

Abstract of thesis entitled "Mapping Tourist Movement Patterns: A GIS Approach" submitted by LAU Wai Chi Gigi for the degree of Master of Philosophy at The Hong Kong Polytechnic University in September, 2007.

Intradestination movements are characterized by the directions and places where tourists visit within a local destination. They can be illustrated by the activities participated in or attractions visited by tourists. Limited prior research has been conducted on this subject. The main focus of this research is, therefore, to explore the movement patterns within a local destination and to examine them in relation to personal motives, destination characteristics and time.

The research studied Fully Independent Tourists (FIT) for they demonstrate greater flexibility in their movements than those on package tours. They have better control over their own time and neither follow pre-set tour itineraries nor are directed by guides. Studying the movement patterns of FIT has pragmatic applications to Hong Kong, enabling tourism marketers and destination management organizations, such as Hong Kong Tourism Board, to better plan and to manage tourism products and attractions. Through identifying tourist movement patterns and the variables affecting them, destination management organizations can better understand the interests and expectations of the FIT. It also helps to evaluate and to estimate the activities and attractions that should be provided in the destination.

Data were collected through a three stage process, involving: arrival interviews, self-completed trip diaries and departure survey. Trip profile, motivations and demographic information were collected from the arrival interview. Data regarding

tourist day-to-day travel itinerary were collected by trip diaries. The data collection process has been completed yielding a viable database of 250 participants from 4 different hotels neighboring to each other. Tourists were asked to record their journey on a daily basis yielding a viable data base of 930 daily itinerary routes for analysis.

Survey data were analyzed by using SPSS, while trip diary data were analyzed by using GIS software. The analysis aims to identify movement patterns and to identify underlying variables affecting tourists' decisions on visitation itineraries. A total of 78 movement patterns emerged from the analysis. Further analysis has been done to eliminate the great diversity and complexity of the movement patterns identified. Examination between variables affecting tourist movements and patterns could facilitate the understanding of tourist behavior within local destination. The 78 patterns were further collapsed into 10 styles in which variables affecting movement patterns were taken into account, including trip profile, motivations, planned activities and demographic characteristics. This study serves as a pioneer exploratory research in the topic and filling the gap in the literature.

Keywords: intradestination, spatial movement, patterns, GIS, Hong Kong

LIST OF PUBLICATIONS ARAISING FROM THE THESIS

The following articles can be found in Appendix A.

Journal Paper

1. **Lau, G.** and McKercher, B. (2006a). Understanding tourist movement patterns in a destination: A GIS approach. *Tourism and Hospitality Research, 7*(1), 39-49. [Appendix A1]

2. McKercher, B., Wong, C. and **Lau, G.** (2006). How tourists consume a destination. *Journal of Business Research, 59*(2006), 647-652. [Appendix A2]

Conference Paper

1. McKercher, B. and **Lau, G.** (2007). Methodological issues involved in mapping the movements of tourists within a destination. In Frédéric Dimanche (Ed.), *Proceedings of TTRA Europe Conference – Tourism, Mobility and Technology*. (386-403). Nice, France: Center for Tourism Management, CERAM Business School. [Appendix A3]

2. **Lau, G.** and McKercher, B. (2007) Exploring movement patterns in a local destination. In Cathy Hsu and Henry Tsai (Ed.), *Proceedings of 12th Annual Graduate Education and Graduate Student Research Conference in Hospitality and Tourism.* (1014-1023). Houston, USA: University of Houston. [Appendix A4]

3. McKercher, B. and **Lau, G.** (2005). Understanding the movements of tourists in a destination: Testing the importance of markers in the tourist attraction system. In *Proceedings of International Conference on Destination Branding and Marketing for Regional Tourism Development*. (226-244). Macau, China: Institute For Tourism Studies & Purdue University. [Appendix A5]

Manuscript

1. McKercher, B. and **Lau, G.** (forthcoming). Movement Patterns of Tourists within a Destination: An empirical study. [Appendix A6]

ACKNOWLEDGEMENTS

It has been a pleasure to study at the School of Hotel and Tourism Management, The Hong Kong Polytechnic University of Hong Kong. I am extremely grateful to the School and the many people who have helped me in the study for and preparation of this thesis. This thesis would never have been written without the help from them.

First and foremost I offer my sincerest gratitude to my supervisor, Professor Bob McKercher, for his insistent enthusiasms and valuable contributions to this work. He started the research project in tourist movements and stimulated me in writing part of it down in the form of an MPhil thesis. He is always supportive with patience and knowledge whilst allowing me the room to work in my own way. One simply could not wish for a better or friendlier supervisor.

For many valuable suggestions on my analysis, I am indebted to Professor Alan A. Lew of the Department of Geography, Planning and Recreation at Northern Arizona University. He has been a helpful advisor and his conceptual insights into my thesis work have been invaluable.

I am especially grateful to Dr. Lawal M. Marafa of the Department of Geography and Resource Management at The Chinese University of Hong Kong, who encouraged and recommended me to this study.

I would also like to thank all other people whom I had the pleasure of working with on parts of this thesis. I was fortunate to have the chance to work with Celia Wong. Without her efforts my job would have undoubtedly been more difficult and less enjoyable. A special thanks to Lily Lau and Alvin Ho for editing and proofreading my thesis.

In my daily work I have been blessed with a friendly and cheerful group of fellow research students, especially Alexander Grunewald, Dan Wang, Eliver Lin, Jennifer Lo, Robert van der Veen, Samuel Lam, Sarah Wang, Silvia Liang and Yoo Young Jun. They are cordially thanked for their friendship and happy moments we shared.

Continuing the fine tradition, I would like to thank my mother and my sisters, Lily and Betty, for their infinite support which enabled me to complete this work. Also, thanks to my friends who ever listening to me moan and helping me to gain perspectives when my energy was low. ***Thanks to all of you!***

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CHAPTER 1 INTRODUCTION

This research studies tourist spatial movements between attractions and examines tourist activities within a local destination. It is part of a larger research project on tourist tracking which was funded by the Central Earmarked Research Grant of the Hong Kong University Grants Committee. The project was funded because of its unique nature. No similar project has been conducted before. This research serves as an empirical study which further elaborates the conceptual models developed by Lew and McKercher (2006) in understanding tourist intradestination movements. It supplements tourist destination research conducted by the Hong Kong Tourism Board (HKTB) which mainly focuses on tourists' profiles and motivations.

This chapter breaks into several sections. Section 1.1 explains why this research is needed. Section 1.2 presents the objectives of this research. Section 1.3 delimits Hong Kong as the study area of this research. Section 1.4 summarizes the significance of this research. Section 1.5 clarifies some technical terms used in the study.

1.1 Research Background

There are a number of reasons which support the establishment of this research. A research gap was identified through literature review on the topic. Research on the topic is always inhibited by the complexities and overloading information associated with tourists visitation behavior (Lew & McKercher, 2002). Nonetheless, the study of intradestination movements is valuable because tourism organizations can better understand tourist behaviour and develop products which fulfil their demands.

The topic, intradestination movements, is always overlooked. Tourism research

mostly focuses on development and impacts. No similar research studied tourist movements in a local destination context and the only conceptual model developed by Lew and McKercher (2006) has not been tested empirically. Tourist movements within local destination are under-explored with little research focuses solely on them (Cooper *et al*., 1993; Pearce, 1995; McKercher & Lew, 2004). As Pearce (1988:106) mentioned:

> "Research on tourist destinations has focused primarily on issues of development and impact. Save for basic surveys aimed at establishing visitor profiles, there has been comparatively little research on the tourists themselves. What tourists actually do and how they spend their time within destinations are questions which have largely been taken for grated or ignored; they have rarely been addressed explicitly, nor examined in any detail"

The argument is further elaborated by Haldrup (2004:434) 16 years later who noted:

> "Tourist mobility has often been transformed into a black box explaining the character of specific forms of tourism and tourist behavior, rather than a phenomenon in its own right that has to be explored and explained."

Systematic research regarding tourist movements or time budgets within local destination is still limited in tourism studies. This study is, therefore, a pioneer research on the topic.

While the study of tourist movements has been taken for granted, examining how tourists move through time and space is important for local destination development. Understanding tourist movements within a local destination has implications for planning and management of tourism products. As suggested by Lew and McKercher (2006:404):

> "understanding how tourists move through time and space, and the factors that influence their movements, has important implications for infrastructure and transport development, product development, destination planning, and the planning of new attractions, as well as management of the social, environmental, and cultural impacts of tourism."

Studying tourist activities and movement patterns are essential for local destination management. Understanding influential factors which affect tourist movements has implications for tourism products development.

1.2 Research Objectives

The preceding section raises some possible implications on movement patterns. The study of intradestination movements therefore is the key issue in this research. This raises some questions in relation to tourist movements within local destination: how do tourists negotiate a destination? What are their movement patterns? What influences movement patterns? Why do tourists make the choice of itinerary? How important is time in affecting the spatial movement of tourists? The research aims to provide answers to the above questions by examining tourists movements based on activities participation and attractions visitation.

The focus of this research is to explore daily movement patterns of tourists within local destination and to examine how movement patterns are affected in relation to personal motives, destination characteristics and time through mapping in geographic information system (GIS). GIS, which is used extensively in geographical studies, will be used as an analyzing tool. The use of GIS is significant in integrating and analysing various kinds of geographically referenced data.

Three major objectives identified in the CERG funded project will guide this research. They are to:

1. Identify, describe and evaluate existing tourist movement patterns model
2. Identify and examine the variables affecting tourist movement patterns within destination

3. Test and review the use of GIS in documenting spatial-temporal pattern of tourist movements within destination

Based on the research objectives identified, three research questions are specified:

Q1. What are the intradestination movement patterns demonstrated by FIT within a local destination?

Q2. What are the influential variables of tourist movement patterns and in what ways the movement patterns are being influenced?

Q3. How GIS is applied in the study of tourist movement patterns?

The three research questions will be answered throughout the data analysis sections (Chapter 5 & 6) and in the last chapter (Chapter 7) as conclusion to this research.

1.3 Research Issues

This section delimits the scope of this research. Hong Kong, as a local destination, is selected as the study area of this research. The increasing proportion of independent pleasure tourists shows their importance to local destination development. Background information, such as time-budgets, was addressed here.

1.3.1 Delimit a Local Destination

"Scales plays an important role in modeling spatio-temporal movement of tourists (Xia & Arrowsmith, 2005)." Modeling tourist movements requires a clear definition of the scale of interest. Tourist movements can be divided into macro and micro, based on level of scale. At a macro scale, movements between home and a destination or destinations are known as interdestination movements. At micro scale movements are confined within local destination, which can be described as intradestination movements. The World Tourism Organization (2002) defines a local

destination as the:

> "physical space that includes tourism products such as support services and attractions and tourism resources. It has physical and administrative boundaries defining its management, and images and perceptions defining its market competitiveness. Local destinations incorporate various stakeholders, often including a host community, and can nest and network to form larger destinations. They are the focal point in the delivery of tourism products and the implementation of tourism policy."

The definition delimits the boundary for this research. Hong Kong, with its own physical and administrative boundary for tourism management, is regarded as a local destination which provides distinctive tourism products. Tourist movements within Hong Kong are studied in this research.

1.3.2 Increasing Proportion of FIT

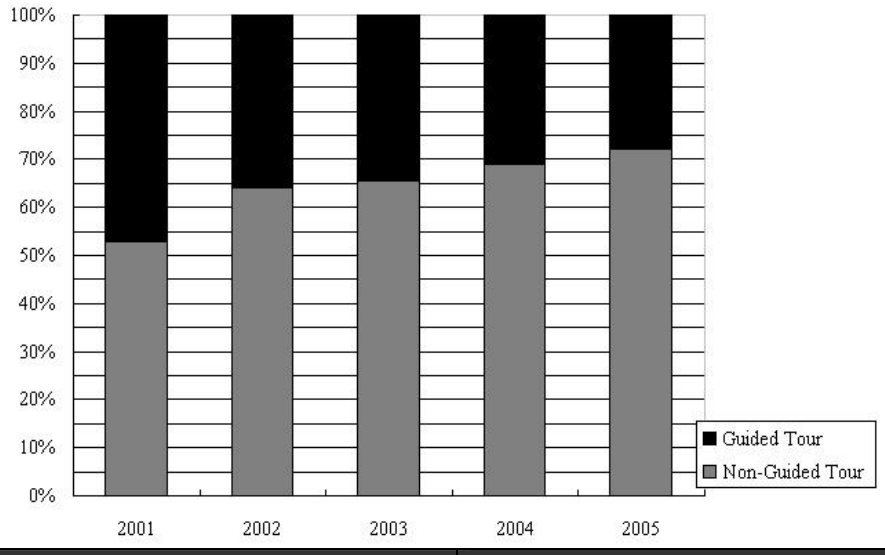
Fully Independent Tourists (FIT) visiting Hong Kong are the focus of this research. They have become increasingly important in the development of Hong Kong tourism over the past few years. At present, they represent 72% of all overnight vacation visitors and up to 90% for long haul tourists (Table 1.1) (HKTB, 2006). FIT show greater flexibility and wider range of activities since they have full control of their time when travelling.

Table 1.1 Travel Arrangements of Overnight Vacation Tourists from Major Market Areas in 2005 (HKTB, 2006)

	Travel Arrangement	
County of Origin	**Guided Tour**	**Non-Guided Tour**
All Countries	28%	72%
Australia, New Zealand & South Pacific	4%	96%
Taiwan	8%	92%
Europe, Africa and Middle East	10%	90%
The Americas	10%	90%
South & Southeast Asia	25%	75%
Mainland	35%	65%
North Asia	34%	64%

The non-guided pleasure tourists are the major market segment of Hong Kong. In the past few years, the steady increase and consistently high percentage (Figure 1.1) of

them marks its importance to tourism of Hong Kong. Yet, much research focuses on the package tourists but not independent tourists. This study addresses that research gap. Studying FIT travel patterns should become an essential element of understanding pleasure tourism in Hong Kong.



Travel Arrangements	Year				
	2001	2002	2003	2004	2005
Guided Tour (All Inclusive)	47%	36%	34%	31%	28%
Non-Guided Tour	53%	64%	65%	69%	72%

Source: HKTB (2006)

Figure 1.1 Travel Arrangements of Vacation Overnight Visitors 2001-2005

1.3.3 Importance of Tourist Time Budgets

Tourists, who usually plan their trip based on time budget and time availability, have shown different movement patterns in their itineraries (Miller, 2004). Pleasure travellers usually plan their trip based on availability of time, personal motives and preferences as suggested by Chapin in the choice-oriented approach (Chapin, 1974). Time availability within local destination is virtually fixed once the tourist purchases tickets (air, sea, train, etc.) from home to destination. While independent travel allows FIT to manage their own time within the destination with greater flexibility, time availability imposes constraints on either route planning or destination choice. It also likely affects movement patterns within a destination.

Table 1.2 Average Length of Stay of Overnight Vacation Visitors Visiting Hong Kong 2001-2005 (HKTB, 2006)

	Year				
Length of Stay	**2001**	**2002**	**2003**	**2004**	**2005**
Average Length of Stay (nights)	2.68	3.01	3.28	3.01	2.99

The average length of stay for a overnight vacation tourist spending in Hong Kong was 3.0 nights in the year 2004, and it dropped below 3 nights in 2005 (Table 1.2) (HKTB, 2006). Limited time-budgets, therefore impose heavy pressures on the number of activities an individual can participate in. It also affects the time they spend in any one activity. Time, therefore, becomes an essential component which affects tourist decisions on activity participations and individual spatial movements. The effects of time on tourist movements should be studied thoroughly. This, in turn, will ultimately affect the planning and development of a destination.

1.4 Outcomes and Significance

This research contributes to tourism research theoretically and practically, especially to the tourism organizations in Hong Kong. Although the process and the study of intradestination movements are complicated by information overload, this research contributes theoretically to the literature by the generation of new patterns and the innovative method used. To date a number of papers have been published from this study (Lau & McKercher, 2006a; McKercher *et al*., 2006; McKercher & Lau, 2007; Lau & McKercher, 2007; Lau & McKercher, 2006b; McKercher & Lau, 2005; McKercher & Lau, forthcoming). They are included in Appendix A.

A number of issues were studied in this research. Intradestination movement patterns are established based on itineraries collected from traditional paper diaries. Influential variables, such as trip and personal profile of individual tourist were

incorporated in the study of tourist movements. Time, as an important variable in affecting tourist movement patterns, was also studied.

This research is a pioneer study using geographic information system (GIS) as spatial analyzing tool in studying intradestination movements. As suggested by McAdam (1999), “the significant value of GIS technology therefore, is in its ability to provide desk-top mapping through the graphical display and manipulation of data in order to identify patterns or relationships based on particular criteria”. Application of GIS is valuable in understanding spatial and temporal movement patterns within local destination, since it is known as information technology which stores, analyses, and displays both spatial and non-spatial data (Parker, 1988; van der Knaap, 1997). It was used in this research for integrating both spatially referenced and non-spatial data in a problem-solving environment, and transforming data into meaningful information available for analysis. This research becomes the leading edge in tourism research of intradestination movement.

Studying intradestination movements has pragmatic applications to tourism planning and development in local destination. Suggestions and guidelines will be provided to tourism marketers and destination management organizations, namely Hong Kong Tourism Board, for better planning and management of tourism products and attractions in Hong Kong.

1.5 Clarification of Terms

The clarification of terms defines or explains some of the abbreviations used.

Fully Independent Tourists (FIT)

FIT refers to tourists who are not in package tour organized from their home destination. They purchase their transportation and accommodation separately. They neither join the all inclusive guided tour nor have a set itinerary. Instead they have greater control on where to go, attractions to visit as well as activities to participate. Their activities show “a discretionary use of time and monetary resources” (Leiper, 1979).

Pleasure Tourists

Pleasure tourists refer to tourists who go on a vacation with enjoyment to satisfy a variety of different motives. They are not traveling for business or primarily to visit friends and relatives. Some of the motivations include escaping from a perceived mundane environment, exploration and evaluation of self, relaxation, prestige, regression, enhancement of kinship relationships, facilitation of social interaction, novelty and education (Crompton, 1979). They plan their itinerary based on personal motives. Unlike business travelers, pleasure tourists do not show routine visitations to office and are expected to demonstrate a more dynamic spatial and temporal pattern of movements.

Local Destination

According to the definition of local destination proposed by WTO (2002), Hong Kong, with its tourism organization and as a special administrative region, provides tourism products and services to tourism activities. It is a destination at the city level and contains a mixed of attractions, facilities and activities which cater the needs of the tourists.

Attractions

Tourist attractions, as suggested by Lew (1987), consist of all those elements of a "nonhome" place that draw discretionary travelers away from their homes. They usually include landscapes to observe, activities to participate in, and experiences to remember. Lew's definition of tourist attractions is comprehensive in the sense that it contains different forms of attractions, including both tangible and intangible attractions. They can be points of interests or places where tourists stop to observe. Attractions are not necessarily to be built or managed specifically for visitors. They can be activities which cater both local residents and visitors, e.g. shopping in malls or traveling on ferries.

Stops

When studying tourist movement patterns within local destination, tourist itineraries are recorded based on 'stops' made, or places they visit or activities they participate in. A stop can either be an attraction or an activity participated in. Stops emerged when tourist indicated that he/she spent time in that spatial location for sightseeing, shopping, religion, cultural or any other activities.

1.6 Thesis Structure

This chapter presented the background and objectives of this research. It explained why Hong Kong was chosen as the study area and pointed out the expected contributions of this research. Chapter 2 presents a review of literature on previous studies about tourist movement patterns, variables influencing tourist decisions on travel itineraries within local destination and the applications of GIS in time-space analysis. Chapter 3 describes the methodological framework and the methods used for data collection and analysis. Chapter 4 reports the profile of the respondents, who

they are and what they did within the local destination. The next chapter, Chapter 5, illustrates the result intradestination movement patterns. The patterns are further developed into styles and their relationships with influential variables are studied in Chapter 6. The thesis concludes in Chapter 7 with comments and suggestions for future research.

CHAPTER 2 LITERATURE REVIEW

This chapter summarizes and examines previous research findings reported in the literature related to tourist movement patterns. Intradestination movement models are discussed in this chapter. As a supplement to the limited research on intradestination movements, interdestination movement models, which share the basic concept of linearity of movements, will also be discussed in Section 2.3. Underlying variables which affect tourist movements, their choice of itineraries and the decision-making process will be presented in Section 2.4. An extensive search of literature related to the application of geographic information system (GIS) as analyzing tool in the study of spatial-temporal data is also carried out in Section 2.5. This chapter gives a systematic review of the published work related to the research topic.

2.1 The Importance of Spatial Movements in Tourism Geography

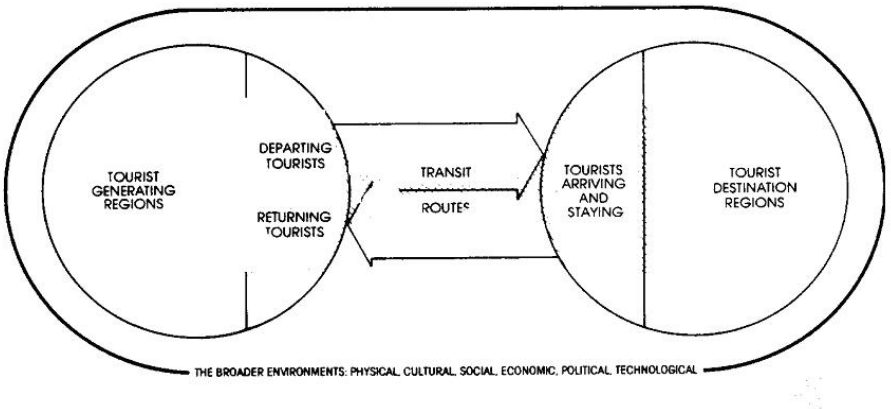
> Geography is a wide-ranging discipline, so it is natural that geographers should become interested in tourism and its spatial aspects. The geographer specializes in the study of location, environment, climate, landscape, and economic aspects. The geographer's approach to tourism sheds light on the location of tourist areas, the movements of people created by tourism places, the changes that tourism brings to the landscape in the form of tourism facilities, dispersion of tourism development, physical planning, and economic, social, and cultural problems. Since tourism touches geography at so many points, geographers have investigated the area more thoroughly than have scholars in many other disciplines.
>
> (McIntosh *et al*., 1995)

Human Geography is the study of human activities and spatial patterns in relation to the physical and the built environment. It emphasizes the "interactions between people and the places where they live". Tourism Geography, as a branch of Human Geography, seeks to explain tourist's spatial pattern of activities at different scales, including global, national, regional and local. It focuses on the geographic settings of

the destination and attractions, and upon which the intimate connections of the tourist's "inner" experiences with the "external" contextual geography. Tourism Geography also studies the underlying processes and forces to understand why and where tourists travel, and their impacts on the places they visit (Davidoff *et al*., 1988; Lew, 2001; Pearce, 1979). Even though Tourism Geography has become relatively less important in the past 20 years, it still plays a crucial role in the understanding of tourism (McKercher & Lew, 2004).

Tourism Geographers are interested in tourist and traveler behaviors and experiences, as they will shape people, and who in turn shape the places. The spatial model of the tourist system (Figure 2.1) suggested by Leiper points out the three main spatial elements involved in tourism study. They are (Leper, 1979):

1. Tourist Generating Regions (the place of residences of the tourist)
2. Tourist Destination Regions (the places of visitation)
3. The transit or routes between tourist generating regions and destination regions



Source: Leiper (1979)

Figure 2.1 The Tourist System

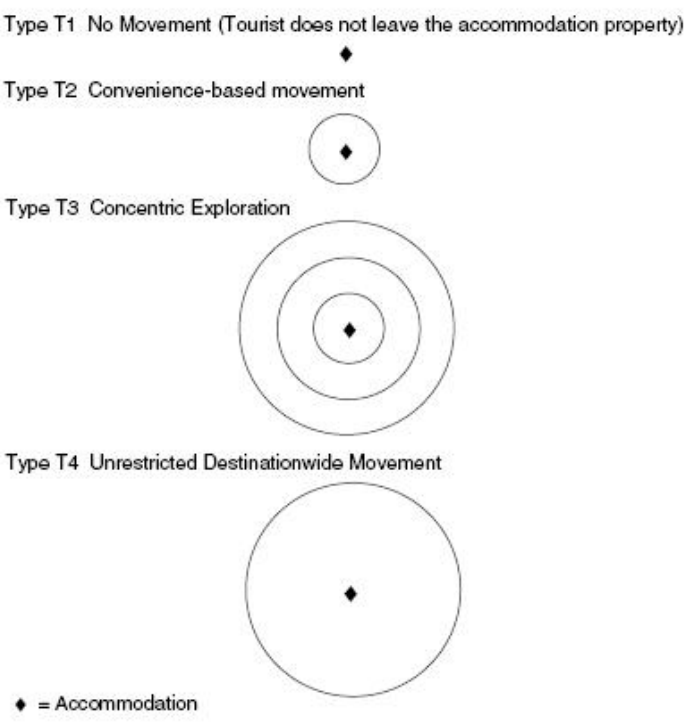
This model suggests a spatial relationship between the place of origin and the destination. Places are linked by tourist movements or routing at a global scale, or

within destination at a local scale. Tourism Geography takes account of tourist movement patterns and the factors motivating their choices of itinerary (Leiper, 1981; Burton, 1995).

2.2 Intradestination Movement Patterns

Tourist movements within local destinations is the main study issue of this research, however literature on intradestination movement patterns is rare and narrow. As suggested by Wall (1978), single and multi-destinations trips should be studied based on different models. Intradestination movement has not been widely explored because it is inhibited by the difficulties of gathering useful data and itinerary information from tourists (Lew & McKercher, 2002). Questions have been raised in the methods of collecting tourist itinerary data without influencing their travel itinerary and visitation decisions. Movements between attractions or points of interest within destinations are, therefore, under-explored for it is "so fundamentally obvious that its form and practice are taken for granted and often overlooked" (Lew & McKercher, 2006).

Lew and McKercher (2006) highlighted the importance of studying tourist itinerary patterns within a destination for it is essential to the development, management and planning of destinations and attractions. Two related models, the Territorial Model and Linear Path Model, were first proposed deductively based on intervening variables which affect tourist movements in a local destination. Every tourist trip can be modeled based on territoriality and linearity. Territoriality reflects the perceived distance of visitation while linearity depicts the geographical location of the visited attractions. The models propose patterns designated for the study of intradestination movements.

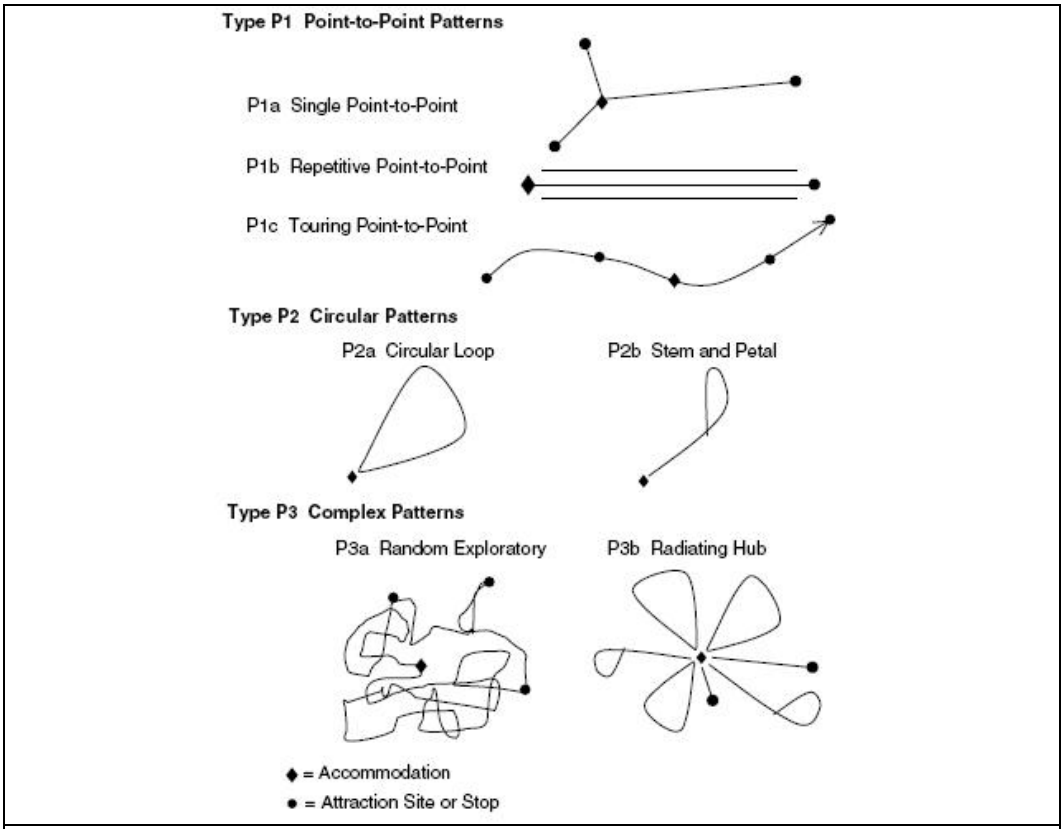


Source: Lew & McKercher (2006)

Figure 2.2 Territorial Models proposed by Lew & McKercher

Patterns are radial in shape based on perceived distance towards the accommodation point in the Territorial Models (Figure 2.2). Tourist movements within a local destination are hypothesized to range from no movement (Type T1) to unrestricted movement (Type T4). Type T1 (No Movement) signifies tourists who never leave the accommodation property. They do not venture outside the hotel and display psychocentric character of movements. Type T2 (Convenience-based Movement) restricts tourist movements to the immediate area of the accommodation site. Tourists do not go far because of limited time budget, the effect of distance decay or the other factors. Tourists demonstrate concentric exploration behavior in Type T3 (Concentric Exploration). They are initially confined within the accommodation site and explore area further away once they familiarized themselves with the destination. Type T4 (Unrestricted Destination-wide Movement) displays free movements within the destination. These tourists usually have prior experiences in the destination and

show allocentric characteristics of exploration. The Territorial Models emphasize the extent tourists explore the local destination. They highlight the importance of exploration distance from accommodation property and the personal constraints of traveling around.



Source: Lew & McKercher (2006)

Figure 2.3 Linear Path Models proposed by Lew & McKercher

Linear Path Models (Figure 2.3), on the other hand, reflect the geometry of tourist movements. They were constructed based on linear characteristics of interdestination movement models. Tourist movements within a destination are dependent on the location of attractions and connections between attractions. Three types of patterns were identified, they are point-to-point pattern (Type P1) circular pattern (Type P2) and complex pattern (Type P3). The differences between the three patterns are the transit routes between attraction and the accommodation property. Type P1 indicates that tourist repeat the same route to and from the accommodation property whereas Type P2 displays a circular path with no repetition of transit routes. Type P3 is a

combination of the previous two patterns. Linear Path Models provide more detail on documenting exact routing of tourist movements within destination. The models emphasize on transportation, time budgets and familiarity of local destination.

While Lew and McKercher (2006) provide insights and directions for documenting intradestination movements, they did not test their ideas empirically. This study tests some of their ideas and provides empirical support to their models.

2.3 Interdestination Movement Patterns

Inter- and intradestination movement patterns can be viewed as movements of tourists at different levels of scale. They show similarity in terms of feature. Yattaw (1999:89) suggested that "spatially, all geographic data can be described with points, lines, areas, and volumes". Tourist movements are classified as intermittent geographic phenomena. They are the point-to-point movements that "move infrequently across space without regular intervals" (Yattaw, 1999:94). Movements of tourists can be represented on maps at different scales with discrete points and lines which emphasis on the spatial linkages between two or more locations.

Interdestination movements are normally a national or international scale. In this macro scale, tourists go from one destination to another based on their own choices. They start from their own home, taking any means of transportation to the destination and return as suggested in Leiper's Tourists System Model (Leiper, 1979). Both inter- and intradestination movements contain starting and ending points, mid-point(s) of visitation and transit routes between these points. They hold the same movement geometries and are comparable in the sense that they share common linearity characteristics (Lew & McKercher, 2006).

A number of interdestination movement models are examined to determine commonalities of territoriality of movements: spatial configuration of trips by Mings & McHugh (1992), spatial patterns of pleasure vacation trips by Lue, Crompton and Fesenmaier (1993), model of travel itineraries by Oppermann (1995) and Flognfeldt (1999) modes of recreational or vocational travel. For ease of understanding, simplified sketches will be drawn based on the patterns proposed by the scholars. In each of these sketches, simple point and line features will be used to represent attraction visitation and travel routes between attractions (van der Knaap, 1999). This unifies the representation of tourist movements from different studies and provides geometric illustrations for further review of the linear movement patterns within local destination.

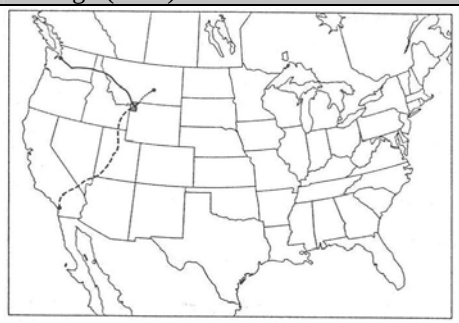
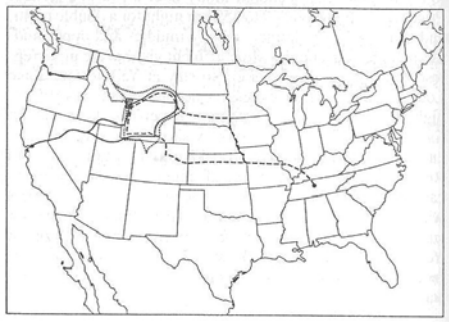
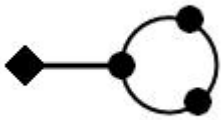
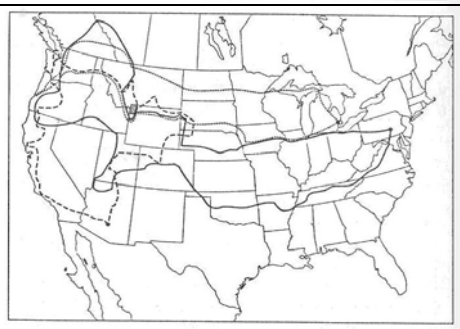
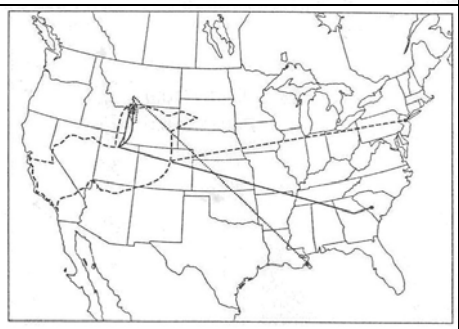
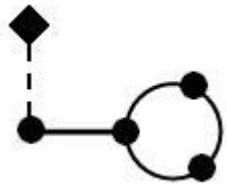
2.3.1 Spatial Configuration of Trips by Mings & McHugh

Four types of trip configurations have been identified by Mings and McHugh (1992) in their study of travel to Yellowstone National Park in the United States. Domestic tourists were invited to participate in the data collection process of the research, giving rise to the four outstanding patterns of movements (Table 2.1). The four patterns are: “Direct Route”, “Partial Orbit”, “Full Orbit” and “Fly-Drive” Pattern.

Tourists who are in the “direct route” category demonstrate a short distance path from origin to the destination without diversions. They travel from the place of origin, directly to the destination by car. Tourists in this group return home using the same route. The second group of tourists, “partial orbit” pattern, travels part of their trip over a direct route to the primary destination, and from there begins a circuitous route visiting the Yellowstone National Park and the spectacular scenery around, e.g. Rocky Mountain Region, national monuments and state parks. They return home

through the most direct route.

Table 2.1 Spatial Configurations of Trips and Simplified Sketches

Trip Configurations	**Actual Route Mapping**	**Simplified Pattern**
	Map sketches extracted from Mings & McHugh (1992)	Simplified pattern based on map sketches of the patterns
Direct Route		
Partial Orbit		
Full Orbit		
Fly-Drive		
Keys	◆	Place of Origin
	●	Destination
	——	Tourist traveling route (by automobile or public transport)
	- - -	Tourist traveling route (by air flight)

"Full orbit" pattern exhibits a very different style. Tourists in this group travel in a loop through destinations and attractions without route repetition. It is not obligatory

to going through the direct route from places to places, instead it goes from one direction and return home via another route. Tourists visit a number of destinations and attractions through a circular route without repeating the route. The last pattern suggested is the “fly-drive” pattern. It is similar to “partial orbit” and “full-orbit” only which the direct leg of this kind of trip is by plane instead of driving over a highway. Tourists travel by plane to a place, e.g. the closest airport, where a vehicle can be rented and they drive around through a loop like tourists in the “partial orbit” or “full-orbit” mode. At the end of the trip, they drive back to the airport where they can take the flight home. This model emphasizes the transport taken by the tourists. Three of the patterns involve automobile travel only, where the last one involves a combination of air and car.

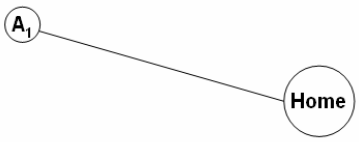
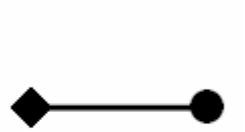
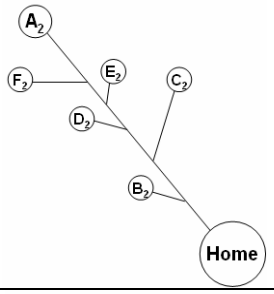
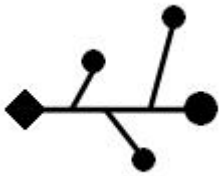
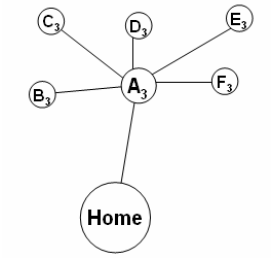
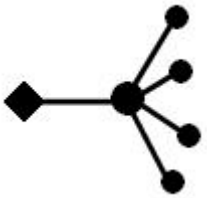
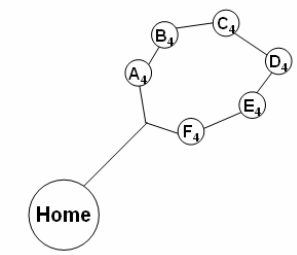
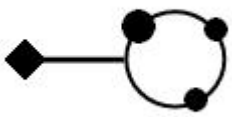
2.3.2 Spatial Patterns of Pleasure Trips by Lue, Crompton and Fesenmaier

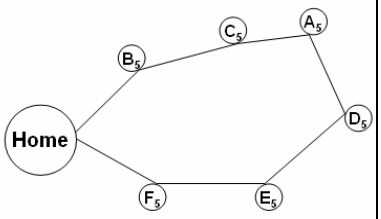
Lue, Crompton and Fesenmaier (1993) conceptualized five different patterns in describing multi-destination travel. According to the foundation typology of the patterns, tourists visit a number of destinations to fulfill purposes and seek benefits. Motives vary from a single benefit to be fulfilled from a single destination (specialization) to the multiple benefits to be fulfilled from multiple destinations (mixed strategies). In between the two extremes, two different typologies of traveling motivations are recorded: multiple benefits from a single destination (benefit diversification) and a single benefit to be sought from multiple destinations (destination diversification). This model outlines the reasons which support the choice of itinerary of tourists based on personal benefit fulfillment (Lue *et al*., 1993).

Five potential patterns of pleasure trips are shown in Table 2.2. They are single destination pattern, en route pattern, base camp pattern, regional tour pattern and trip

changing pattern. The first pattern to be recognized is the “single destination pattern”. It is the simplest pattern representing the visitation of a single destination (A_1) from home. Few attractions are available nearby which create an outstanding distinct destination. No alternative route is available in the circumstances. The second pattern is the “en route pattern”. Though there is still a single destination (A_2) as the main focus of the trip, tourists visit attractions or destinations (B_2, C_2, D_2, E_2 and F_2) along the route. Time and cost budget will be allocated to these secondary destinations as part of their total trip budgets.

Table 2.2 Spatial Patterns of Pleasure Vacation Trips and Simplified Sketches

Spatial Patterns	**Spatial Patterns**	**Simplified Pattern**
	Patterns constructed by Lue, *et al.* (1993)	Simplified pattern sketch
Single Destination		
En Route		
Base Camp		
Regional Tour		

Spatial Patterns	Spatial Patterns	Simplified Pattern
	Patterns constructed by Lue, *et al.* (1993)	Simplified pattern sketch
Trip-Chaining		
Keys	Home	
	Primary Destination	
	Secondary Destination	
	Tourist traveling route	

In the "Base camp pattern", tourists travel from their home to a primary destination (A_3), and make it their "base camp" for further visits to places within that particular area (B_3, C_3, D_3, E_3 and F_3). The primary destination serves as the support site for the satellite destinations by providing accommodations and facilities which are lacking in the satellite destinations. The fourth spatial pattern is the "regional tour pattern". It is a touring loop visiting a number of destinations (B_4, C_4, D_4, E_4 and F_4), including the primary destination (A_4). The primary destination serves as a base site to the whole trip. Tourists loop through destinations in a sequence without repetition in the traveling route. The destinations in this pattern usually show similarities in their nature in order to form a circuitous loop, but contain variances for "pulling" tourists from one destination to another. The last pattern identified in this study is the "trip-chaining pattern". Tourists loop through all destinations (A_5, B_5, C_5, D_5, E_5 and F5) from home without any repetition in the touring route.

2.3.3 Model of Travel Itineraries by Oppermann

Oppermann did a thorough study of tourist movement patterns building on earlier works by Mings and McHugh (1992) and Lue et al (1993). His study focused largely on air travel. Oppermann grouped the nine different patterns suggested by Mings and

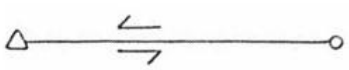
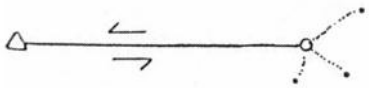
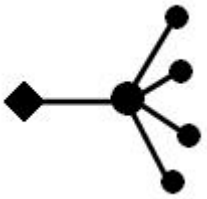
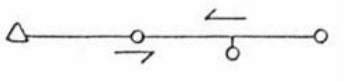
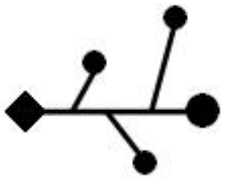
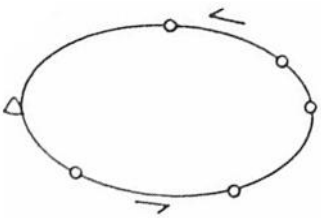
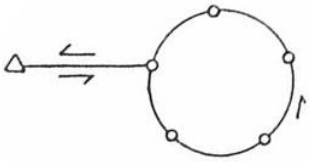
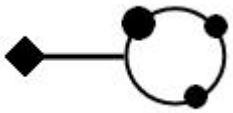
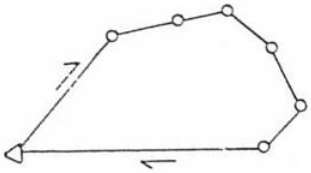
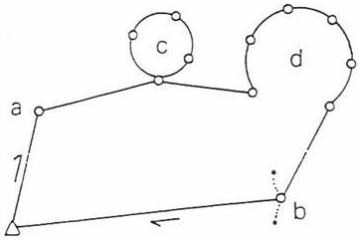
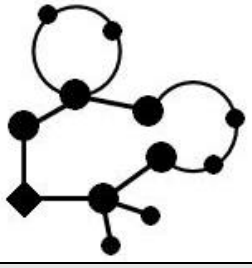
McHugn (1992) and Lue *et al.* (1993) into 5 basic groups based on the number of destinations visited (Table 2.3).

Table 2.3 Categorization of previous studies by Oppermann

Oppermann's Model	Mings & MuHugh Model	Lue et al Model
Single Destination Pattern		
S1 – Single Destination	Direct Route	Single Destination
S2 – Base Camp	–	Base Camp Pattern
Multiple Destination Pattern		
M1 – Stopover Pattern	–	En Route
M2 – Full Loop	Full Orbit	Trip-Chaining
M3 – Destination area loop	Partial Orbit & Fly-Drive	Regional Tour
M4 – Open Jaw Loop	–	–
M5 – Multiple Destination Area Loop	–	–

All the groupings are obvious except the "base camp" pattern which is put under the "single destination patterns". As suggested in the articles, this is because "it is closer to an extended single-destination pattern" (Oppermann 1995). It is assumed that tourists performing this kind of traveling pattern will only take excursions from the base site. Apart from the five major patterns, Oppermann added two more patterns to his model. They are the "open jaw loop" (M4) and "multiple destination area loop" (M5) (**Table 2.4**). The open jaw loop describes long-haul travel patterns in which tourists visit several destinations without repetition. This is similar to the Full loop pattern however the stops in between the loop may not necessarily related or connected to each other. Also, open jaw patterns contain air connections between two destinations.

Table 2.4 Model of Travel Itineraries and Simplified Sketches

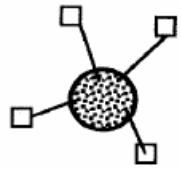
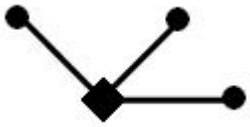
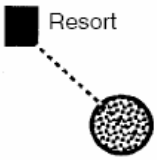
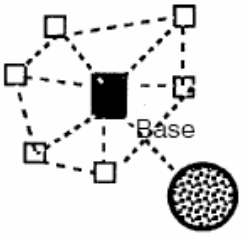
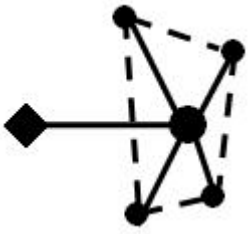
Spatial Patterns		Spatial Patterns	Simplified Pattern
		Patterns constructed by Opperamann (1995)	Simplified pattern sketch
Single Destination Pattern			
S1	Single Destination		
S2	Base Camp		
Multiple Destination Pattern			
M1	Stopover pattern		
M2	Full loop		
M3	Destination Area Loop		
M4	Open Jaw Loop		
M5	Multiple Destination Area Loop		
Keys		Place of Origin	
		Primary Destination	
		Secondary Destination	
		Tourist traveling route	

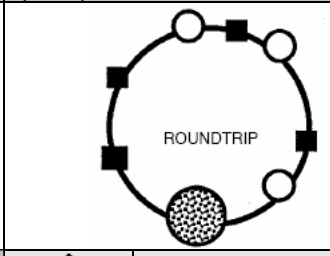
The last pattern identified by Oppermann is an extension of the M3 and M4 movement pattern, it is named as “multiple destination area loop” (M5). The round-the-world tour is the most typical example of this type of pattern. Tourists travel from one destination to the other without repeating the traveling leg, and visit a number of attractions or places within that region. It is a more comprehensive and integrated pattern. This is a pattern which is more suitable for describing complex movements of tourist, allowing variations and blending of different patterns.

2.3.4 Modes of Recreational or Vacational Travel by Flognfeldt

Flognfeldt (1999) focused on recreational trips taken by Norwegians. He suggested four different patterns, “day-trip”, “resort trip”, “base-holiday-trip” and “roundtrip”, as shown in Table 2.5.

Table 2.5 Modes of Recreational or Vacational Travel and Simplified Sketches

Spatial Patterns	**Spatial Patterns**	**Simplified Pattern**
	Patterns constructed by Flognfeldt (1999)	Simplified pattern sketch
Day-Trip		
Resort Trip		
Base-Holiday-Trip		

Spatial Patterns	Spatial Patterns	Simplified Pattern
	Patterns constructed by Flognfeldt (1999)	Simplified pattern sketch
Roundtrip		
Keys	Place of Origin	
	Recreation Centre / Main Attractions	
	Recreational Places / Other Secondary Attractions	
	Tourist traveling route	
	Tourist traveling route (by automobile)	

Day trips are taken from home to a destination and return within one single day. A number of short trips can be made within the same day. Resort trips represent tourist who spend most of the time within the single resort property. Base holiday trip displays multiple trips patterns of tourist who spend more than three nights in the area. Tourist performs day trips to-and-from the accommodation property. Roundtrips can be divided into two patterns based on the transportation means of the trip, including “tour operated roundtrip” and “roundtrip by cars or camper vans”. Both are visiting new places every day with no repetition in the sites. The major difference between the two is “tour operated roundtrip” is mainly by coaches whereas “roundtrip by cars or camper vans” is dominated by driving private cars. The “roundtrip by cars or camper vans” group shows a more flexible tourist visitation pattern.

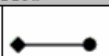
2.3.5 Summary of Patterns

Pattern geometries are evaluated through the study of interdestination movement patterns. A total of 20 patterns can be grouped into six categories: “linear”, “radial”, “stopover”, “circular”, “stem-and-petal” and “complex”. Each of the categories

displays a distinctive characteristic of movements. Table 2.6 summarizes the geometries associated with tourist movements between destinations. For instance, the linear pattern displays repeat movement from one point to another, showing elongated movement without deviation from the main route. The circular pattern shows a round shape movement which shaped like a ring linking two or more stops. No repeat routes are recorded.

These can be applied to a more local scale study of intradestination movements since they are perceived as the basic level of structure which constitute to the formation of movement patterns. Although the study of inter- and intradestination movements should use different models, the investigation of interdestination movement patterns provides the basic concept of linearity for tourist movement studies.

Table 2.6 Summary Table of Interdestination Movement Patterns based on Geometric Characteristics

Summary			Mings & MuHugh (1992)		Lue, Crompton & Fesenmaier (1993)		Oppermann (1995)		Flognfeldt (1999)	
Pattern Geometry & Description			Spatial Configuration of Trips		Spatial Patterns of Pleasure Vacation Trips		Model of Travel Itineraries		Modes of Recreational or Vacational Travel	
Linear		To-and-from a single point of visitation. Without diversions in the visitation process.	Direct Route		Single Destination		Single Destination		Resort Trip	
Radial		Movements are arranged like rays around a central point or a base site.	–	–	Base Camp Pattern		Base Camp		Base Holiday Trip	
									Day-Trip	
Stopover		To-and-from a single point of visitation. With diversions in the visitation process.	–	–	En Route		Stopover Pattern		–	–
Circular		A round shape movement which shaped like a ring linking two or more stops. No repeat routes are recorded.	Full Orbit		Trip-Chaining		Full Loop		Roundtrip	
							Open Jaw Loop			
Stem-and-Petal		Linkage of two or more stops which shaped like stem and leaf. A circular loop connects two or more points and attached to the stroke which connects two separate points.	Partial Orbit		Regional Tour		Destination Area Loop		–	–
			Fly-Drive							
Complex		Combines 2 or more of the above patterns. Shows complexity nature in documenting the movements.	–	–	–	–	Multiple Destination Area Loop		–	–
Keys			–	No corresponding pattern						

2.4 Influential Variables of Tourist Movement Patterns

No tourist displays the exact same pattern of movements for each tourist movements may be influenced by a virtually unlimited combinations of variables. As such, the heterogeneous nature of tourist movements, both inter- and intradestination, is the result of a variety of influential variables (McKercher & Lew, 2004). To better understand the grounds for grouping different movement patterns within local destination, a study of the underlying variables is essential. As suggested by Debbage (1991) in the study of spatial behavior of international tourists visiting a resort destination, “if more detailed information were available about the factors affecting tourist activity patterns, it might be possible to better anticipate development trends and to minimize the many negative impacts commonly associated with the international tourist industry”. This section aims to identify variables contributing to the fundamental differences and how they affect spatial behavior within local destination. Understanding moderating effect of each helps to explain tourist movement patterns. Three broad categories will be discussed, they are human factors (Section 2.4.1), physical factors (Section 2.4.2) and time (Section 2.4.3).

2.4.1 Human Factors

“Tourists are not homogeneous.” (Mo *et al*., 1993) Individual difference reinforces diverse variations in the formation of tourist itineraries and movement patterns. However, Keul & Küheberger (1997:1011) argued that “individual preferences, goals, and plans, influential in determining the places to visit, are of little importance for the behavior at the site.” Studying the sociodemographic background of tourists, e.g. travel experience, tourist types, demographic background such as age,

nationality, verifies the importance of individualism in affecting spatial behavior of tourists.

Travel Experience

Destination familiarity is defined as "a combination of previous travel experience and the level of information obtained about a destination" (Tideswell & Faulkner, 1999). Activity participation varies between first time visitors and repeaters. Prior visits, no doubt, impose influences on tourist visitation of places (Gitelson & Crompton, 1984). Oppermann (1997a) studied the travel behavior of both first-time and repeat visitors and found that:

> "Repeat visitors are much more concentrated in fewer locations and exhibit a different spending pattern; first-timers were visiting many more attractions within the destination area and not only the best-known sites. In general, first-time visitors seemed to be much more active during their stay in New Zealand, exploring many more places and sites."

Oppermann noted further that first-timers were much more active than repeaters in New Zealand, visiting an average of 6.4 activities or attractions compared to 3.6 activities or attractions. Repeaters tend to seek relaxation and therefore choose a place that they are familiar with. Also according to Lehto, O'Leary and Morrison (2004), tourists tend to specialize and narrow down their places and activities of choices when they gain more experience. Specialization theory suggests repeaters will be more focused on in their activity choice set. Movement patterns of repeaters should be narrower.

Wang (2004) studied visitation behavior of vacation visitors from Mainland China to Hong Kong. He argues that "repeat visitors may adopt itineraries different from that of first-time visitors……because of their different levels of awareness and

familiarity about the destination" (Wang 2004:104). First-timers, with lower familiarity, generally stay shorter (1-2 days), whereas repeaters usually have a longer stay. Short stay creates time constraints on tourist itineraries resulting in different activity patterns. Wang also pointed out that first-timers spent less on shopping, hotel and especially meals outside of hotel and local transportation. In contrast, repeaters spent more on meals outside of hotel and local transportation. It is argued that first time visitors are unfamiliar with the environment, and therefore spend less outside hotel and for public transport. Repeaters, with more knowledge established based on prior visits, show more exploratory behavior and are more willing to spend on local activities. Kemperman, Joh and Timmermans (2004) studied activity patterns of first-time and repeat visitors in a theme park context. The major finding suggested that first-time visitors strictly follow the proposed route of the park while repeat visitors show a more diverse activity pattern based on personal knowledge.

Previous studies regarding tourist familiarity with destination show contradictory idea about movements of repeaters. Some say (Oppermann, 1997a; Lehto, *et al*., 2001) repeaters are more spatially confined while others (Wang, 2004; Kemperman *et al*., 2004) say they are more exploratory in visitation behavior.

Level of Familiarity

Cohen (1972) believes that every tourist will have their own "environmental bubble" of their native culture. The expression is further elaborated as "tourist bubble" by Smith (1977) and "enclave of familiarity" by Farrell (1979). Tourists maintain an ego boundary which is seen as "a small organized territory around a person extending outward" (Pearce, 1980). It is a surrounding which is relatively familiar to them, or contain elements to remind them about home. The concept deals with strangeness

versus familiarity of which tourists perceived themselves against the destination. It emphasizes on the idea of psychological boundary of familiarity instead of spatial periphery. However, tourist who feels strange in the destination would normally have a more confined activity pattern while the opposite type will explore the site widely. Again, familiarity and sense of security with the destination promotes extensive spatial movements of tourists.

Information Availability

Information obtained from guide books is different for different market segment (Lew, 1991) which may result in different visitation pattern. “Information acquisition is necessary for selecting a destination and for onsite decisions such as selecting accommodations, transportation, activities, and tours” (Gursoy & McCleary, 2003). Tourist generally start by retrieving from internal knowledge base of destination information, which is highly related to prior experiences of travel. When the internal search is insufficient to accommodate the demands of tourists, they would seek external sources, such as guide books, travel agents or internet (Schul & Crompton, 1983; Vogt & Fesenmaier, 1998; Gursoy & McCleary, 2003). The availability of destination information and the way tourists perceive and rely on this information would eventually affect their choice of itineraries. Subjective destination knowledge is gained from information searches which increase familiarity. Tourists are more confident in planning their own traveling route when they are more familiar with the destination, as a result a more extensive movement pattern.

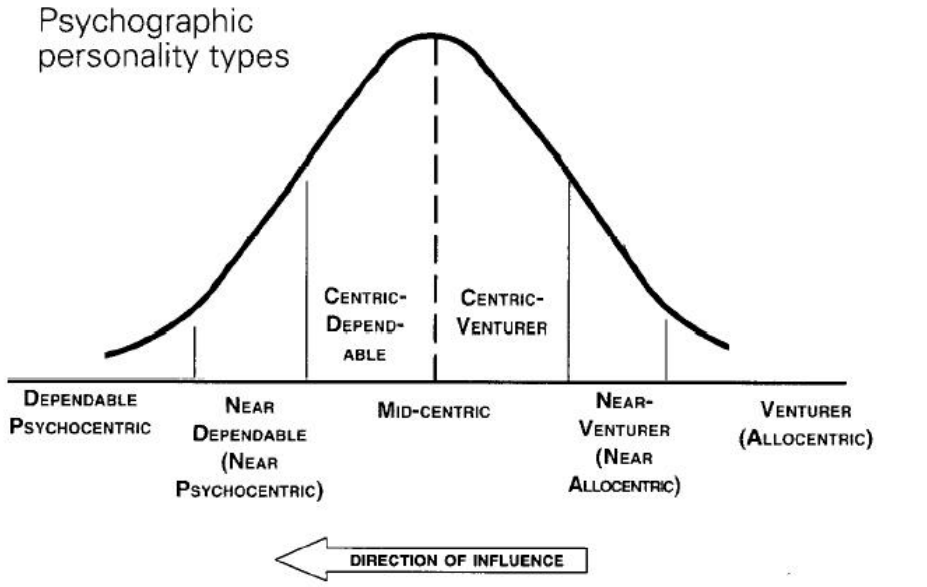
Demographic Background

Dietvorst (1995) proved that demographic background is one of the influential

variables of tourist movement patterns. Dietvorst studied a holiday centre in southern Limburg located in the Netherlands and found out the three discrete types of tourists: “nature-oriented tourist”, “variety-loving tourist” and “convivial tourist”. Age, as stated by Dietvorst, plays an important role in affecting travel behavior. The nature-oriented tourist, with an average age over 36, spent more time shopping during the mornings. They participated in wide varieties of sports and activities in the afternoon and stayed close to the camp site in the evening. The variety-loving tourists, average age 26-35, showed active participation in the afternoon and usually prefer driving to walking. They spent more time in restaurants at night time than the nature-oriented tourist. The last group, the convivial tourist, represents the younger generation who spent less time shopping in the morning. They preferred hanging around or visiting attractions in the afternoon and spent relatively more time in wide variety of facilities at night than the other two groups of tourists.

Tourist Types

Plog (1974, updated in 2001) studied the popularity of destinations based on the psychological scale of tourists as presented in Figure 2.4. Although it is a destination lifecycle model, it focuses on the tourists’ psychological considerations in relation to their general anxiety, sense of powerless and territory of boundary for travel.



Source: Plog (2001)

Figure 2.4 Psychographic Personality Types

Psychocentric tourists are inactive. They are restricted to a circle of familiarity. They tend to visit primary attractions or prefer popular, well-known brands of consumer products. They enjoy surrounded by friends and family, demonstrating a passive and less-demanding trip itinerary. They will likely be culturally similar tourists from nearby who are not adventurous. By contrast, allocentric tourists are more active independent participants with a higher sense of discovering novelty. They might be culturally distant tourists who move widely through the destination. The mid-centrics are tourists in between the psychocentrics and the allocentrics. They demonstrate characteristics from both psychological types of tourists.

Debbage (1991) tested the model by studying of spatial behavior in Bahamian resort. Allocentric tourists are more adventurous. They enjoyed a wider range of activities and were more likely to venture beyond the resort area. Psychocentric tourists usually confined their activities area to their own territory of boundary. They participated in fewer activities and were more inactive in their visitation. They

showed reluctance to leave the resort property. The study explains how different types of tourists explore differently in a resort context and highlights the contradictory behavior of allocentric and psychocentric tourists.

Contrasting ideas have been raised in the role of individual differences affecting travel patterns and the spatial behavior of tourists. Tourist types, travel experience, psychological considerations and demographic background are identified variables which may affect tourist visitation decisions and activities participation. Therefore a closer look at these aspects of tourists will be undertaken in this research in order to understanding their relationships with tourist movement patterns within local destination.

2.4.2 The Physical Variables

The physical variables are those that emerged from the external physical environment or aroused by the destination instead of those motivated within the tourists themselves. Tourists are motivated by the attractions and activities available at the destination, and are attracted to them. Their choices of on site visitation are influenced by the physical variables of the destination (Burton, 1995; Crompton, 1979). Several issues will be discussed below, including role of destination, attractions availability and transportation network within destinations.

Destination Characteristics

A destination is a unique combination of various elements, e.g. nature, weather and climate, infrastructure, constructions, services provided and the cultural attributes. It maintains a different status when comparing with other destinations in a same journey. A destination contains a mix of physical attributes, attractions,

accommodations, access, activities and amenities which draws visitors from their home town to the destination region (Kim, 1998).

Gómez Martín (2005:581) highlighted that “climate has a strong influence on the seasonality of tourism activities” and “weather influences tourists and what and when (especially outdoor) activities can be carried out”. For example a tourist would cancel a trip to the beach if there is a thunderstorm or heavy rainfall.

Tourists, when planning their own trip, may choose to visit one single destination or multiple destinations in order to have their benefit/benefits sought (Lue *et al*., 1993). Destination status in the whole journey, i.e. whether the destination is perceived as a main or stopover destination, affects tourist activity within the destination. Tourists participate more actively in a primary destination and less active in secondary destination(s). McKercher and Wong (2004) studied the combined effects of prior visitation and destination status in understanding tourism behavior in Hong Kong. Different visitation behaviors are exhibited by main- and secondary visitors. Main-destination visitors display more active visitation to cultural and heritage attractions and shopping regardless of previous visitation history. Secondary-destination visitors are more attracted to named attractions, such as buildings and landscape.

Attractions

“Without tourist attractions there would be no tourist. Without tourism there would be no tourist attractions.” (Lew, 1987:554) The tautology points out the very essential idea of the importance of attractions in tourism studies. A destination is formed by the combination of all tangible and intangible elements within the place, including the attractions and activities that can be found within the destination area.

Tourist attractions “draw discretionary travelers away from their homes” (Gunn, 1972; Lew, 1987). Different attractions create variations in the demand of tourists. The uniqueness, variety and the number of attractions within destination either promote or inhibit visitations within destination.

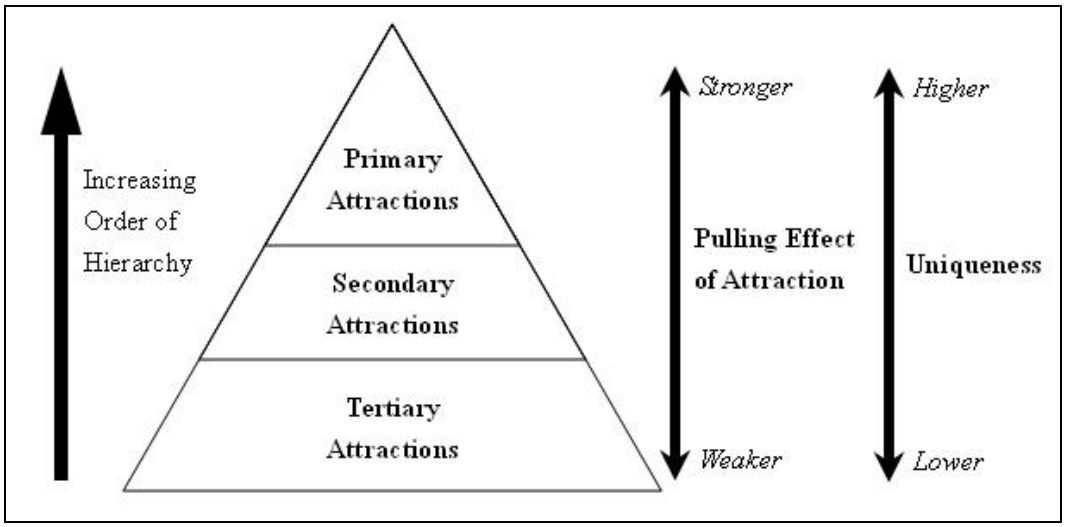


Figure 2.5 Attractions Hierarchy

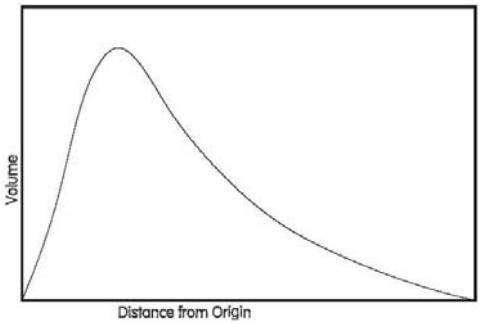
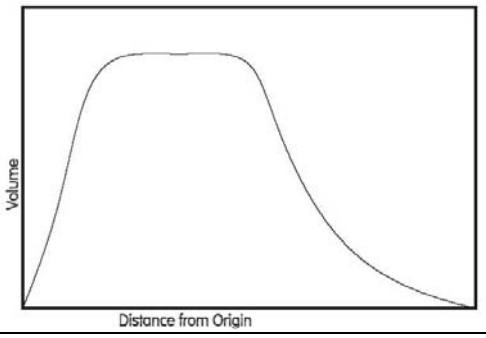
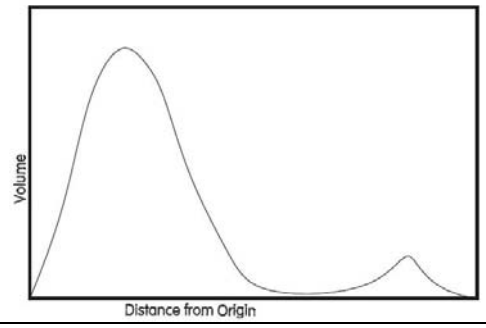
Attractions include natural assets, tangible heritage, intangible heritage, purpose built attractions and shopping area, etc. They can be divided into a hierarchy, based on the power of individual attraction to draw tourists from distance (Figure 2.5). Primary attractions represent places or sites which have the greatest ability to pull tourists, whereas tertiary attractions have the least drawing power. Tourists are more willing to travel long distances for the uniqueness and distinctive experiences of primary attractions.

Two geographic theories may further explain the effects of distance on attraction visitation, they are distance decay theory and market access theory. Although fewer studies have been published for local destination visitation behavior, both affects decision making on site visitation and are essential in determining tourist movements and flows (McKercher & Lew, 2004), either on macro or micro scale.

1. Distance Decay Theory

Distance decay is one of geography core concepts with the emphasis on the spatial correlation of places to the demand of visitation (Eldridge & Jones, 1991). Tourists demonstrate a greater demand for locations with greater spatial proximity and lower demand for locations further away from the place of origin.

Table 2.7 Theoretical Distance Decay Curves

	**Theoretical Distance Decay Curve** The peak for the tourism distance decay curve occurs at some relatively short distance from home. This pattern recognizes that people must travel a minimum distance before they feel sufficiently removed from their home environment to make an overnight holiday journey worthwhile.
	**Plateauing Distance Decay Curve** Demand plateaued over a distance before declining rapidly. There are other intervening factors are also likely to distort the theoretical distance decay curve, e.g. travel behavior has been shown to differ between single and multiple destination visitors.
	**Distance Decay Curve with Secondary Peak** Demand peaks relatively close to the origin and declines rapidly with distance, however secondary peaks are likely to occur at great distances from the origin, where a compelling pull of exceptional attractions overcomes the friction of travel.

Source: McKercher & Lew (2003)

Research about the effect of distant decay on interdestination travel suggested that tourists are more likely to travel a shorter distance with less traveling time if they have limited time budgets (McKercher, 1998; McKercher & Lew, 2003). Table 2.7 shows the theoretical distance decay curves, plateauing distance decay curve and the

distance decay curve with secondary peak. Absolute distance from the place of origin is the key factor for the shaping of the distance decay curve. Based on this theory, tourism demand declines with increasing actual distance, traveling time and cost of travel from the origin. The curve is different from distance decay curve with secondary peak due to the presence of "a compelling pull of exceptional attractions overcomes the friction of travel" (McKercher & Lew, 2003).

The ideas may hold true on the spatial perspective of attraction visitation at local destination scale. Attractions scatter within local destination with variations in distance from the accommodation property, origin of movement for intradestination movements. With limited time budget, visitations to remote attractions are inhibited. The exception is expected for primary attractions which have a greater pulling power. Demand for attractions close to the accommodation property should be higher than those further away.

2. Market Access Theory

Relative distance is the prime study issue in the market access theory. At macro-scale, it refers to "the competitive advantage or disadvantage that competing destinations may have in relation to target markets" (McKercher, 1998). Proximity of destination is to be evaluated by tourists based on time, cost and perceived distance (Pearce, 1989; Parkes & Thrift, 1978; van der Knaap, 1997). McKercher (1998) pointed out that market access has been an important intervening factor which affects destination choice. Yoo, McKercher and Mena (2004) noted that "market access theory suggests that those destinations or attractions with greater market access should have a competitive advantage over less accessible ones". It draws attention to the application of market access theory in intradestination study.

At micro-scale, it is perceived as the competitive advantage or disadvantage that competing attractions may have in relation to tourist decision of visitation. Given that the same purpose can be achieved in two different attractions, the attraction with stronger market access will be chosen for visitation. The key element is, therefore, to compare attractions which offer similar experiences and the presence of substitutes within destination. The strength of market access for attractions may affect tourist decisions of visitation.

Transportation

Transport plays an important role in tourist movement patterns. It controls tourist mobility between destinations at a macro-scale, and between attractions within micro destination scale (Hall, 1999). Transportation can be the very essential "tourist experience" (Pearce, 1982) since:

> Transportation is one of the three fundamental components of tourism. The other two are the tourism product (or supply) and the tourism market (or demand). Without transportation, most forms of tourism could not exit. In some cases, the transportation experience is the tourism experience (e.g. cruises, scenic and heritage tail trips, and motorcoach, automobiles and bicycle tour).
>
> (Lamb & Davidson, 1996:264)

Therefore the choice of transport mode and route can be integrated as part of the trip experience (Page, 1999). The four basic elements of tourism transport system are "the modes", "the way", "terminals" and "technology" (Benson & Whitehead, 1985; Prideaux, 2000). Modes, according to Benson and Whitehead, refer to the classes of transport means including road, air, sea and rail. Under each of the classes, a range of modal components can be identified. Buses, private rental car, taxi, bicycle and foot are under the category of road transport. Combinations of the classes are common.

The way refers to the tracks where the modes operate, such roads, railways and seaways. Terminals refer to nodal points where tourists take the transport. The technology ensures the safety of tourists and for the improvements in speed, comfort and costs.

Transport can either be a barrier or promoter of tourist activities. Tourists who take different modes of transport are accessible to different sites. Self-drive tourists can access remote attractions which are not connected by public transport. Lew and McKercher (2006:408) suggested that some forms of transport are more "tourist-friendly" which are "physically and psychologically easier to use", such as subways and public ferries. These modes of transport usually have fixed routes and provide detail directional information to major attractions. Therefore, ease of public transportation could expand tourists' participation within destination but, at the same time, may confine their activities to the limited accessible sites.

2.4.3 Time

> A time-budget is a systematic record of a person's use of time over a given period. It describes the sequence, timing, and duration of the person's activities, typically for a short period ranging from a single day to a week. As a logical extension of this type of record, a space-time budget includes the spatial coordinates of activity locations
>
> (Anderson, 1971:353)

Apart from human and physical factors, time, as a limited resource in the course of a trip, either encourage or discourage spatial movements. The study of time-space relationships has a rather long tradition, however the topic has been under-explored in the study intradestination movements. Some of the key assumptions in developing time-space analysis of tourist behavior have been pointed out by Thrift as below (quoted Thrift 1977; Dietvorst, 1995):

1. The indivisibility of a human being. Time spent at a specific

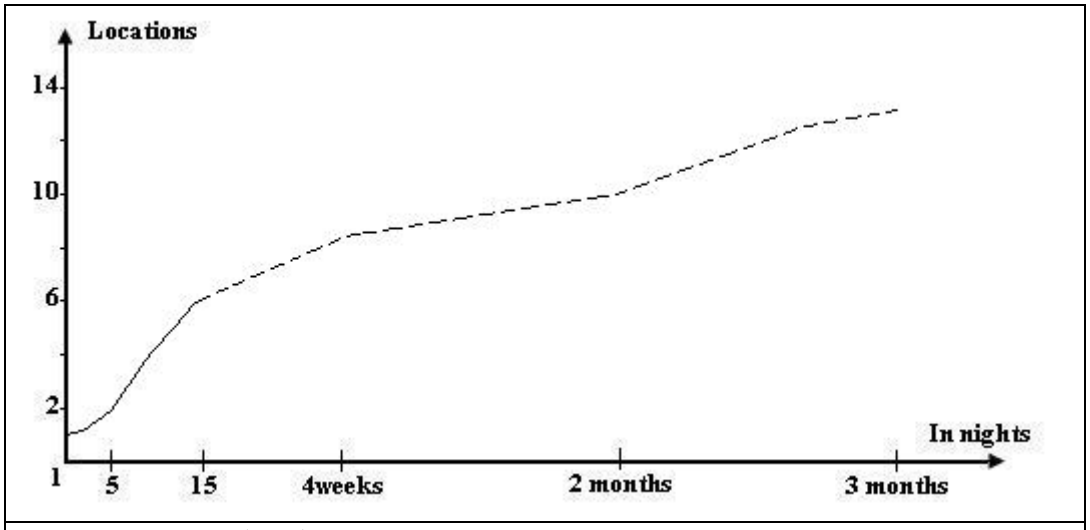
location cannot be spent elsewhere at the same time.

2. The limited availability of time to spend on a specific day.
3. The fact that every activity has a duration and that movement between points in space consumes time.
4. The limited packing capacity of space. Individual are forced to pack their activities into specific time-space stacks.

The assumptions highlight the indivisibility and impact of time in tourist spatial behavior. Tourist time budget within destination is fixed once the flight ticket is confirmed and they are normally very conscious to the schedule. Tourists have to bundle activities or places by considering the time they could spend in each site, the transit time between sites and the overall time budget they have. Two aspects of time will be discussed: length of stay and time scheduling.

Length of Stay

Pearce (1990), Oppermann (1994) and Tideswell & Faulkner (1999) argued that a longer stay would encourage multi-destination visits. As a local scale, a direct relationship is noted between the length of stay and the number of places visited (Figure 2.6). Short stay tourists visit more primary attractions while long stay tourists visit a greater number of smaller attractions (Oppermann, 1997b; Pearce, 1990). Longer length of stay encourages participation in more activities and attractions.



Source: Oppermann (1997)

Figure 2.6 Number of Location Visits by Length of Stay

Using Auckland of New Zealand as an example, Oppermann (1997a) studied the relationship between length of stay and spatial visitation pattern of international tourists within destination countries. Long stay tourists show a wider and more disperse visitation pattern. Although long stay tourists have more time to spend, they do more instead of putting more time in each site. Short stay tourists concentrate their activities among primary attractions and places. They do less when comparing with long stay tourists. Length of stay imposes time constraints on visitation behavior, such as number of activities and depth of experience, within local destination (Lew & McKercher, 2006; Pearce, 1988).

Time Scheduling

Time is always a fixed variable for site visitation selection. Time scheduling also plays an important role in tourist trip itinerary. Pearce (1981) and Cooper (1981) studied diurnal and day-to-day variations of movement patterns. Pearce (1981) noticed that tourists display a regular diurnal activity rhythm in the diary-based study of tourists visiting tropical islands in North Queensland. They tend to visit the

market in the morning, relaxing at late afternoon and time allocated for dinner in the early evening. In Pearce's study, tourists demonstrated a peak of activities on Day 2 with a dip in mood and lowering of activities participation on the following day. Tourists usually took rests on Day 3 or displayed a more confined movement pattern. However, self-initiated and more exploring activities were found from Day 4 onwards. Cooper (1981) studied day-to-day variations of visits to Jersey and obtained similar results with Pearce's study. Tourists tend to participate in more activities and visit more places in the beginning of the trip with a touring peak on Day 2. Tourists are more willing to explore attractions at a lower hierarchy when they come to the fourth or fifth day of their trip. Both studies suggested a more active pattern in the first two days of visits, a dip in the middle of the trip and expand again towards the end.

2.4.4 Conclusion

Three broad categories of influential variables are discussed: human factors, physical factors and time. Human factors include travel experience, level of familiarity, information availability, demographic background and tourist trips. Physical variables include destination characteristics, attractions distribution and transport provision while length of stay and time scheduling are considered as time variables. This section identified how each variable contributed to different spatial behavior within local destination. These variables will be tested for the effect on tourist intradestination movement patterns. Although some of the factors are identified based on multi-destinations trip, their applicability in local destination will be explored.

2.5 Geographic Information System (GIS)

Time, space and context are three major components in tourist time-space analysis. Combination of the three creates a meaningful and valuable tourism research on tourist time-space behavior. Mings and McHugh (1992) used GIS to map tourist movement patterns between destinations. Potential opportunities for the use of GIS in tourism research are obvious and it is applicable to spatial and temporal analysis in the study of tourist movement patterns (Shaw & Wang 2000). GIS can perform a three-dimensional (x, y and time) analysis which shows its value in analyzing vast amount of both spatial and non-spatial data. Increasing number of GIS applications in tourism and recreation management (Bertazzon *et al*., 1997) is recorded, for example, the map-based information about accommodation, tours and attractions disseminated through internet (Farsari & Prastacos, 2004). As conventional time-budget studies have been criticized for excessive reliance on time and human resources, the use of GIS is recommended to reduce the dependency of the two variables (Fennell, 1996). This section explains the components, functions and applications of GIS on time-space analysis.

2.5.1 Definition of GIS

So, what is GIS? GIS stands for Geographic Information System, it is:

> a computer system for capturing, storing, checking, integrating, manipulating, analyzing and displaying data related to positions on the earth's surface. Typically, a Geographical Information System (or Spatial Information System) is used for handling maps of one kind or another. These might be represented as several different layers where each layer holds data about a particular kind of feature. Each feature is linked to a position on the graphical image of a map. Layers of data are organized to be studied and to perform statistical analysis.
>
> (Mine Action Information Center, 2004)

Three basic functions of GIS are identified in the definition (Burrough & McDonnell, 2000). First, GIS serves as a toolbox which promotes the process of data collection, storing, retrieving and data visualization. Second, GIS serves as a database system storing data which are spatially indexed and provide answers for spatial enquiries. Third, the organizational structure of GIS helps to integrate spatially referenced data in a problem solving environment for data analysis.

2.5.2 Components of GIS

Generally, GIS consists of 5 major components: hardware, software, personnel, technique and the most important, the data. They are not standalone separate components, but they interact with each other to form the whole system for data analysis and presentation (Queen & Blinn, 1993; Burrough & McDonnell, 2000).

1. Hardware

Computer hardware is the basic component of GIS, the hard disk drive serves as the storage device for data. It supports data input, output, storage, retrieval, display and analysis. It is also the platform for the GIS software to be installed.

2. Software

Dozen of GIS software packages now exist. They are built on different types of hardware platforms and with a wide range of capabilities functions. GIS software split into five functional groups:

- Data input and verification
- Data storage and database management
- Data output and presentation

- Data transformation
- Interaction with the user

3. Data

Data may be shared among users for different GIS environments, add-on data collections are collected and compiled by the personnel to support the goal of the user. Data are either spatial or aspatial attribute data. Spatial data which are geographically indexed and aspatial data are those attributes related to the spatial data.

4. Personnel

Personnel are individuals who use GIS to support project or program goals. They have the actual hands-on use of the GIS hardware and software, for system maintenance and upkeep and for manual data input. The personnel should be able to make requests for information products, and must also understand the limitations and requirements of GIS-based processing. Data collection, processing, digitizing works should be taken up by the person also.

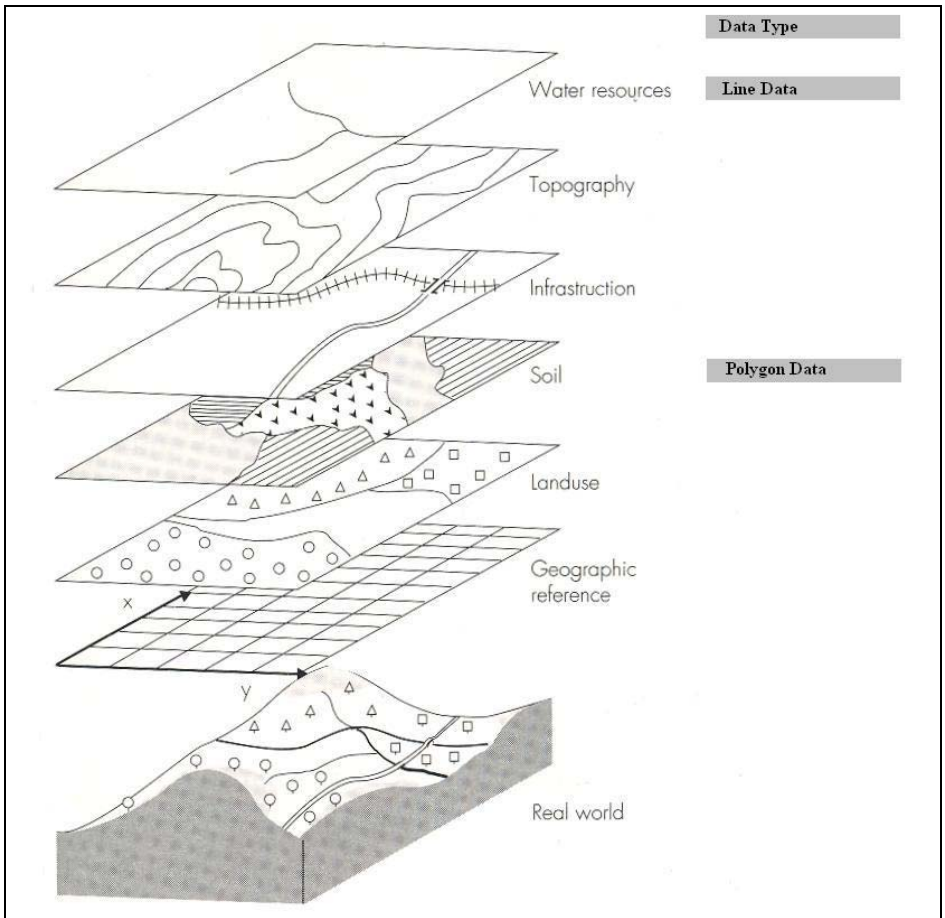
5. Technique

It is the skills that the personnel possess which allow the personnel to be able to manipulate all the other GIS components. It also includes the project management skills which are essential to all GIS projects and system implementation.

2.5.3 Functions of GIS

GIS performs six basic functions: input, storage, manipulation, query, analysis and

visualization. Data input consists of all kinds of data capturing. Both spatial and aspatial data can be obtained from existing maps, field observations, photos, satellite images and any other sources of aspatial data. Data are stored in different types based on the scale and their spatial attributes. They are spatially indexed and even aspatial data are to be linked to geographical locations. Data manipulation, which is the process of data handling; data cleansing and elimination are all included to obtain suitable data for analysis. Queries based on one or more criteria which consist of attributes, operators, and calculations can be made.



Source: Bernhardsen (1992)

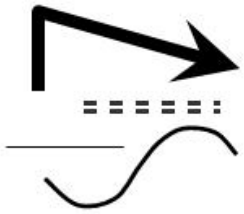
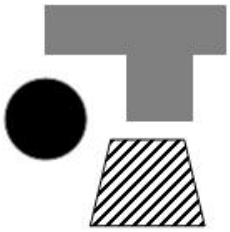
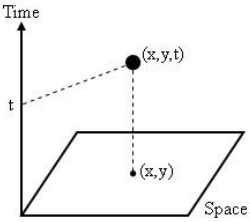
Figure 2.7 Layering and Representation of GIS

Visualization is one of the major functions of GIS. Geographic data are represented on map as layers. Figure 2.7 shows how the reality is transformed into thematic layers of different cartographic types for analysis (Bernhardsen, 1992). For instance,

spatial analysis can be preformed through overlaying of these layers.

Table 2.8 Cartographic Symbol Types of Data

Source: Burrough & McDonnell, 2000 and Yu, 2004

	Symbol Type	Cartographic Symbol	Coordinates	Examples
2 Dimensional	**Point**		Single XY coordinate pair	*Attractions* Cities Parks
	Line		Two or more XY coordinate pairs	*Tourists' Route* Transportation routes Roads Railways River
	Polygon		Three or more XY coordinate pairs enclosing an area	Buildings Parks Crop fields Country
3 Dimensional	**Volume**		Any coordinate triplets (XYZ), where Z represents a value such as elevation	Mountain Buildings
	Time		(Point/Line/Polygon) + Time	Time

Different geographic data can be represented in different ways. Three generally recognized cartographic symbol types are point, line, and area. Three-dimensional data are to be represented in volumetric distributions (Dent, 1999; Chang, 1976). Table 2.8 shows the cartographic symbol types of data with examples provided. A very important issue to note is that scale matters in the choice of symbol. For example, cities can be represented as points in the world map (a smaller scale map),

but can be represented as polygon in a country map (a larger scale map). As in this research, attractions visited by tourists were represented as points in a local destination map.

Apart from visualization, there are a number of more advanced functions of GIS which can be applied in tourism studies. Burrough and McDonnell (2000:162) suggested that “the aim of GIS is not just to create a database of digital representations of geographical phenomena, but to provide means of selecting, retrieving, and analyzing them”. Bertazzon *et al*. (1997) also pointed out that “GIS include capabilities for carrying out spatial retrievals such as point-in-polygon analysis, spatial manipulations such as polygon overlay operations and spatial analysis such as shortest path and related network operations”. Function of GIS is not limited to graphical representations of spatial referenced data, but also includes topographic functions, network analysis, overlay operations, interpolation and spatial-temporal analysis.

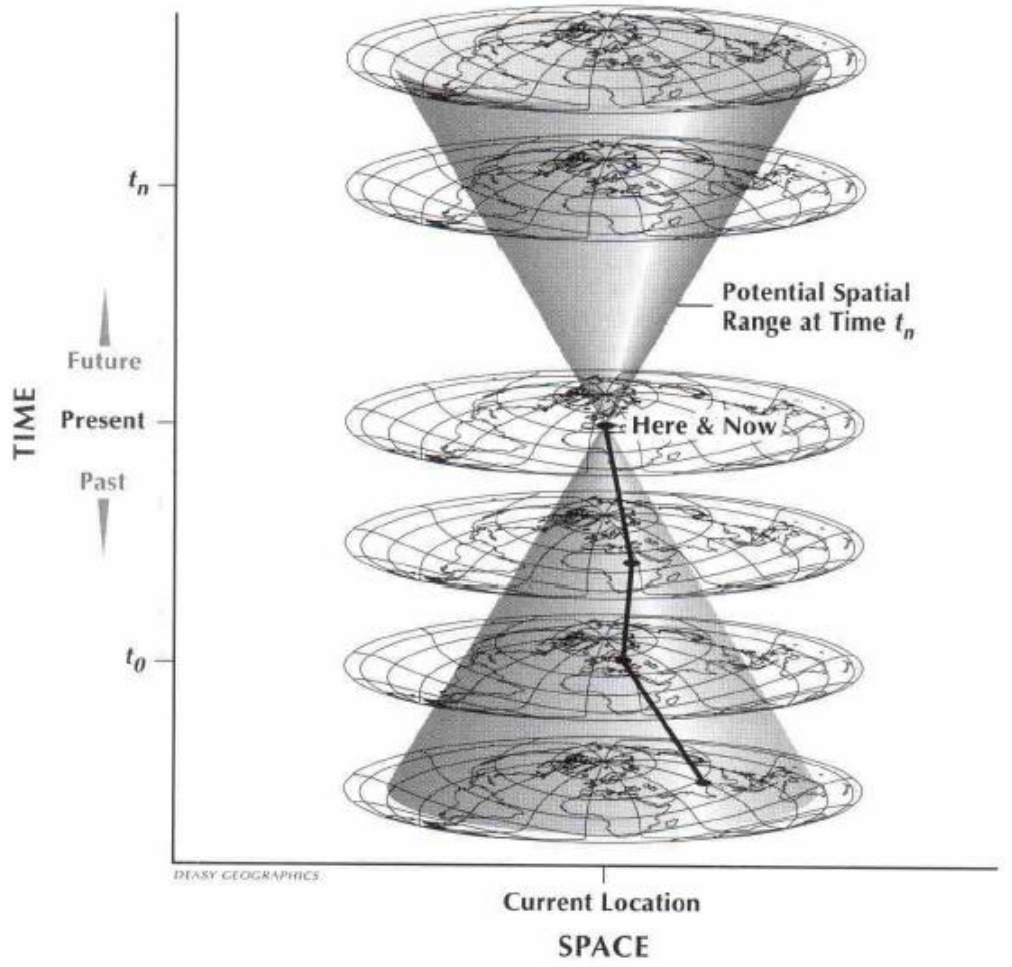
Network analysis is a kind of spatial interaction modeling. It is used to study geographic locations which are interconnected by topologically structured lines. The study of network patterns in tourism provides insights for the understanding of place and person accessibility (van der Knaap, 1997). Topological nature of networks can be used to determine optimal routing by travel times and attractiveness of route, and as a result to find out the indices of interaction between geographic locations (Burrough & McDonnell, 2000). For instance, it was used to estimate travel times and traffic densities for the location of emergency services. In tourism studies, it can be applied in the study of attraction accessibilities, estimation of traveling time and analysis of destination connectivity.

2.5.4 Spatial-Temporal GIS

"Maps are changing from being final products presenting spatial information to interim products that facilitate visual thinking" (White, 1997). The map reader's role changes from passive information in-taker to active analyst. The application of spatial-temporal GIS combines the three special kinds of information, including geographic or location information (spatial data), temporal details and other attribute data (aspatial data) (Openshaw, 1994).

The Space Time Prism

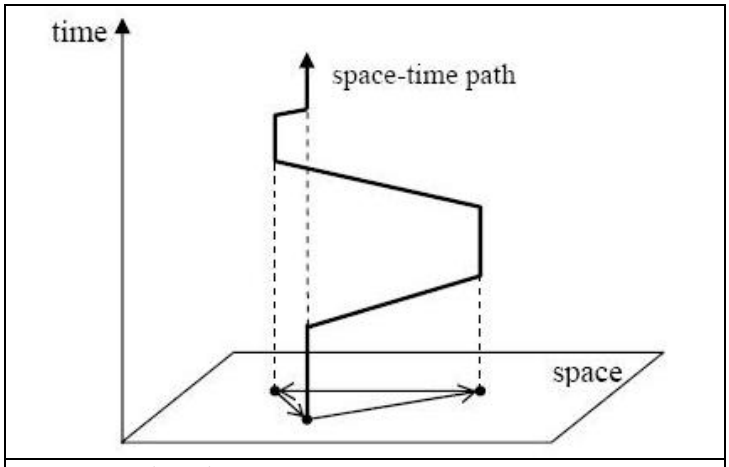
The concept of space-time prisms was first raised and developed by Hägerstrand (Hägerstrand, 1970). This is widely used in the study of transportation and spatial movement of people across space and time. A key issue is noted in the space time prism theoretical framework: activities usually occur simultaneously and exclude each other. People could only participate in one single activity within a given period of time and at particular places. Spatial movements are noted during activities and between activities creating transformation in both time and space. The indivisibility of individual imposes location and time limit on individual for physically participating in events elsewhere. The idea of space-time prisms creates a very clear picture of the movement of space and time and their relationship of an individual in three dimensions (Mings & McNally, 1998; Ott & Swiaczny, 2001; Yu, 2004). Figure 2.8 shows the space-time prism showing the relationship between movement through space and movement in time (Peuquet, 1994).



Source: Peuquet, 1994 (Adopted from Rucker, 1984)

Figure 2.8 The Space Time Prism by Rucker

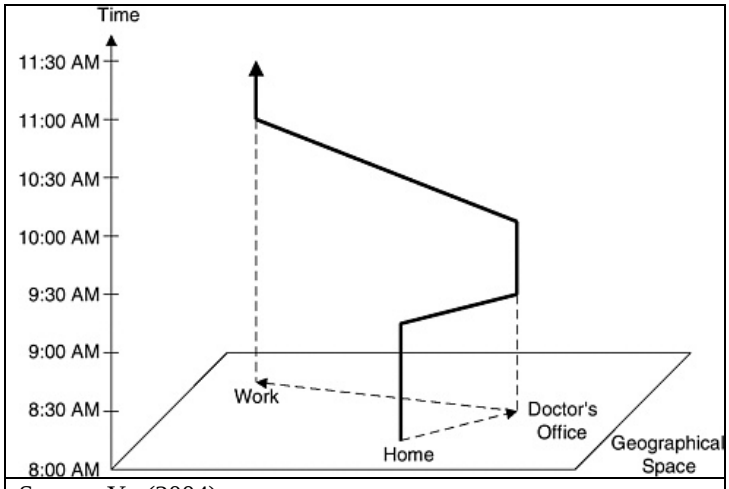
Time, uncommon to the two-dimensional space, is treated as the third dimension for investigation. The time element is added to the surface plane, representing elements in space, as the altitudinal value for projection. This helps to portray the spatio-temporal aspects of individual activities by displaying all the attributes in one single map. The distortions on the surface plane symbolize the changes in location of the individual, whereas the passage of time is represented with deviations in altitude. This is best described by the space-time path as shown in Figure 2.9 (Miller, 1991).



Source: Yu (2004)

Figure 2.9 Space-Time Path

The continuous nature of the space-time path highlights the continuous movement pattern of individuals. Every point where an individual stops along the space-time path possesses a unique coordinates of (x,y,t), signifying that the individual can only physically present at a specific location and in any specific time. Figure 2.10 represents an example of the space-time path of an individual movement pattern of the day. The individual started the day from his home, then went straight to the doctor's office from 9:00 am. He stayed in the office until 10:00 am and then to work. The spatial change in the geographic space id projected on the surface plane, telling the reader the exact location of every single stop. Both the time staying in a specific location and the traveling time are demonstrated through the space-time path.



Source: Yu (2004)

Figure 2.10 Example of Space-Time Path

Though the study of space-time prism has been extensively studied in human geography, no previous research analysis has been done using the space-time prism in tourism studies. The space-time prism concept and the use of GIS have been complementary with the advancement of GIS level. The space-time path concept is suitable for describing movement patterns of tourists over time and space. Tourists start their daily itineraries from their accommodation, travelling through space and time to attractions and staying in particular places. These patterns can be recorded in the form of space-time prism for better analysis, examining whether there are special patterns demonstrated. Trip pattern can also be examined by extending the time axis from one to multiple days based on the length of stay within a destination.

2.6 Chapter Summary

In this chapter, previous research findings reported in the literature about tourist movement patterns, underlying variables affecting movements and the application of GIS have been discussed thoroughly. Tourist movement patterns, both intra- and interdestination, have been summarized for further exploratory study. Linear characteristics of movement patterns are highlighted. They can be summarized as “linear”, “radial”, “circular”, “stopover”, “stem-and-petal” and “complex”. Underlying variables which may affect tourist movement patterns have been addressed. Variations are noticed based on different human, physical and time characteristics. Tourist activity patterns are either inhibited or promoted based on the different choices of itinerary. Applications of GIS are studied and will be used as the analyzing tool for this research. After identifying all the important issues related to the topic, detail research process will be explained in the Chapter 3.

CHAPTER 3 RESEARCH METHOD

Research involves the identification of prominent issues from the topic of interest, comparing and contrasting them in different situations. Vogt (1999) defined 'research' as a "systematic investigation of a subject, aimed at uncovering new information (discovering data) and/or interpreting relations among the subject's parts (theorizing)." Various kinds of statistical methods can be used according to different research purposes and objectives. The researcher has to choose the most suitable one, under the consideration that the related attributes of the topic can be converted into quantitative variables, or they are descriptive and interpretive (Mahmood, 1998; Rea, 1997; Marshall & Rossman, 1999).

This chapter discusses the research process undertaken and explains the method used for data collection, processing and analysis. Five methodological issues are studied thoroughly, including research framework (Section 3.1), data collection (Section 3.2), data cleansing (Section 3.3), data entry (Section 3.4), flow of analysis (Section 3.5) and limitations of this research (Section 3.6).

3.1 Research Framework

A research framework explains the concept contributing to the research systematically. It is a conceptual plan which guides the development of the study. By formulating a framework, connections between different issues and components can be identified. This section presents the framework of this research, which explains the connection between different studied components. This study is descriptive and exploratory in nature. It aims to look for new patterns and ideas rather than to verify hypothesis.

This research begins with no present concept. It borrows basic concepts from grounded theory approach. Glaser and Strauss (1967) first coined the term grounded theory which suggests the “discovery of theory from data”. It is viewed as a theory generating process, and is usually employed by researchers whose goal is to construct new patterns, rather than to prove existing theory (Steinberg & Steinberg, 2006). Bernard (2000) identified six steps which accomplished the grounded theory, they are:

1. Begin with a set of information
2. Identify potential themes in the data
3. Pull data together as categories emerge
4. Think about links between categories
5. Construct theoretical models based on the links
6. Present the results using exemplars

The approach is characterized by its sequencing of data collection followed by pattern generation.

Two major mechanisms of the grounded theory approach showed significance in the formulation of this research. They are the generation of new patterns from data, and the identification of potential themes through examining the collected data. The grounded theory approach starts from the basic data element. Through categorization and grouping, patterns will emerge from the commonness of data. The approach highlights the importance of data to guide the development of new models. Generation of new patterns in this research is based on movements data documented in trip diaries.

The research framework is presented graphically in Figure 3.1. It shows the process

of pattern formation and conceptualizes linkages between steps. First tourist movement data were obtained through interviews and surveys. These data were studied on an individual daily basis. Visitations performed by an individual FIT within a single day were considered as a single entity. Each entity was then visualized on maps for pattern identification. Patterns were illustrated based on produced maps.

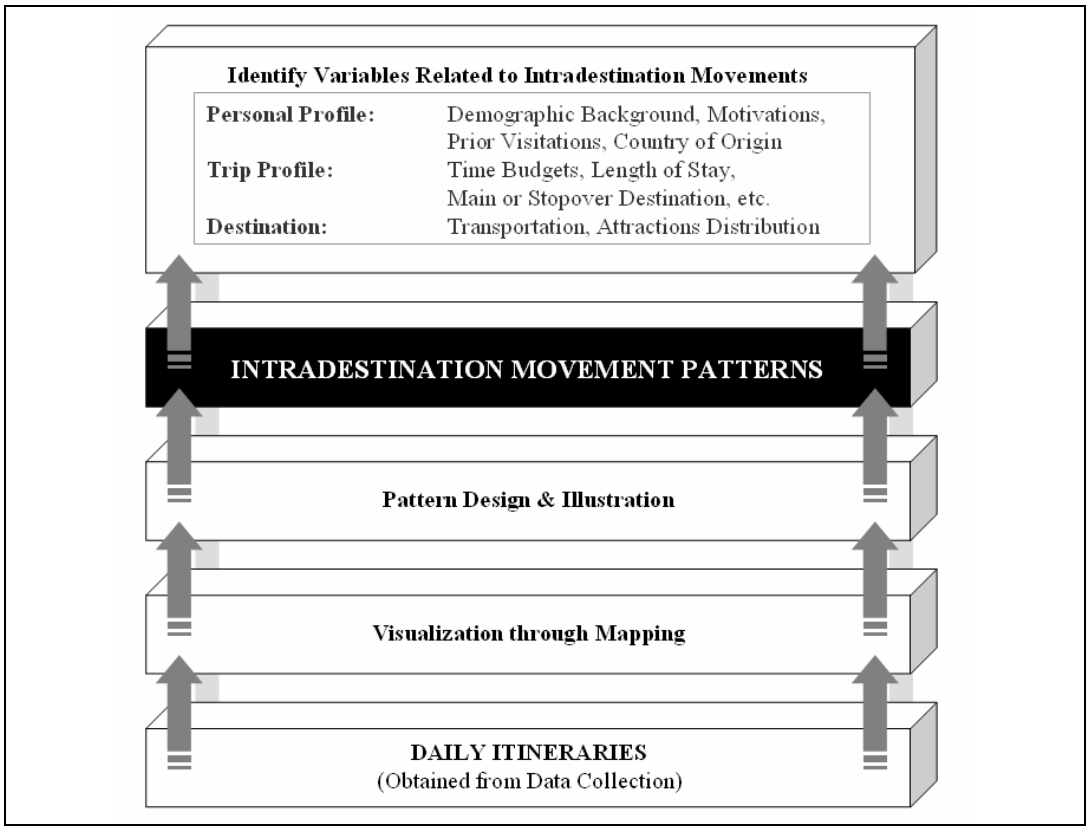


Figure 3.1 Research Framework

Although each individual's itinerary showed unique characteristics, some of them shared common qualities. For instances, when two itineraries share the same form of movements, they are grouped into the same pattern. As a result, a set of intradestination movement patterns emerged. Besides the generation of new patterns which explain physical movements of tourists, underlying variables contributing to the formation of different patterns are also studied. Three broad categories of themes were selected for further analysis, including personal profile, destination profile and

trip profile.

3.2 Data Collection

The research framework suggests the conceptual flow of this research, but the most important thing is to obtain data for analysis. Specified method of data collection has to take into considerations of morality, efficiency and suitability (Lohr, 1999; Robinson, 1998; Som, 1995). Data collection by means of sampling is carried out to avoid overloading of information in this research. It is “the process by which inference is made to the whole by examining only a part” (Som, 1995). Sampling is characterized by its advantages of greater economy which reduces the size and time needed for obtaining useful data. Judgment sampling, which is a non-random sampling method, was chosen as the vehicle for data collection. It helps to make sure that data were collected from target respondents. This section explains the sampling process and the instruments used for data collection.

3.2.1 Sampling

In this research, the target respondents are fully independent tourists (FIT) who visited Hong Kong for pleasure purposes and who stayed at participating hotels. Screening questions were asked to identify target respondents. Business travelers and tourists who joined all-inclusive tours were excluded. Respondents are allowed to withdraw from the study at anytime. In view of this, nonresponses and under coverage were expected. A large sample size is required to ensure the acquisition of sufficient information. Limitations of the sampling process were unavoidable and will be addressed in Section 3.6.

Name	Address
Marco Polo Gateway Hotel	13 Canton Road, Harbour City, Kowloon, HK
Marco Polo Hong Kong Hotel	3 Canton Road, Harbour City, Kowloon, HK
Marco Polo Prince Hotel	23 Canton Road, Harbour City, Kowloon, HK
The Kowloon Hotel	19-21 Nathan Road, Tsimshatsui, Kowloon, HK

Figure 3.2 Locations of Collaborating Hotels in Hong Kong

The data collection process took place in four collaborating hotels located in Tsim Sha Tsui area, they are the Marco Polo Prince Hotel, Marco Polo Gateway Hotel, Marco Polo Hong Kong Hotel and The Kowloon Hotel. They are located close to each other (within 300m) and are situated in the city center of Tsim Sha Tsui as shown in Figure 3.2. Unlike attraction-based samples, a 'hotel-based' sample is independent from activities, time schedule and itinerary of the respondent. This minimizes the interferences imposed on the itinerary of the respondents, which is the primary study issue of this research.

3.2.2 Instruments

Data were collected through a three-staged process: the face-to-face interview, a self-

completion trip diary and a post trip questionnaire. Two kinds of data were collected including aspatial trip profile data and spatial movement data. The data collection process lasted for a year starting from November 2004 to December 2005.

Firstly, a face-to-face interview was conducted. Target respondents were invited to participate in the research at hotel lobby on check-in. Those who agreed were administered an arrival face-to-face interview. Appendix B1 shows the sample questionnaire used in the arrival interview. Questions about trip profile like length of stay, number of visitations, motivations, intended activities and travel companions were asked here. The interview lasted for about five minutes. A total number of 1273 respondents participated at this stage of data collection. The arrival interview sought information on basic trip profile and motivation data and to obtain prior approval of further participation in the research.

The second instrument used is trip diary (Appendix B2). Daily movements of respondents were collected through the trip diaries. Trip diary together with the departure survey (Appendix B3), were distributed to each participant at the time when the arrival survey was done. The trip diary is a self completion survey on which participants are asked to record the places they visited or activities they participated in each day. Detailed information about time spent in each attraction and transportation means taken were gathered. Maps were provided in the diaries for respondents to draw their own itineraries. Participants were asked to return the diaries and maps in person or by post. A total of 340 diaries were returned, representing a response rate of 26.7%. The diaries provided information for spatial-temporal movement analysis. Participants who completed the trip diary are the focus of this study.

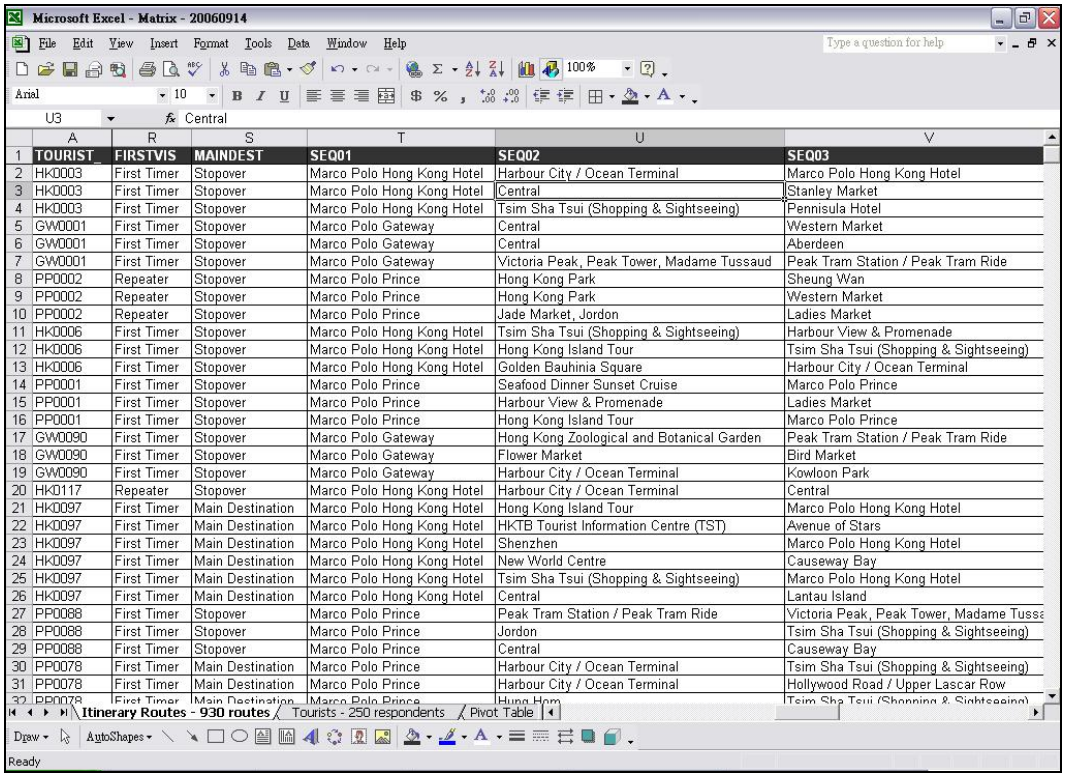
The departure survey acts as a complementary part to the arrival survey and trip diary. The departure questionnaire asked for additional information on the trip to Hong Kong. Data were used to compare with those obtained from the arrival survey.

3.3 Data Cleansing

Data cleansing was performed to eliminate inconsistent or incomplete data to improve the quality of final data set. One reason was that quality of the self-completed trip diaries varies significantly. Some documented detail itineraries whereas others were incomplete or recoded insufficient information for further analysis. A total of 69 returned diaries (20.3%) were culled from the final sample to ensure the completeness of data set. In addition, cases of extreme length of stay were eliminated because diaries received from them were often incomplete. They showed a very different pattern of movement and should be examined separately from cases of shorter length of stay. An arbitrary decision was to cap length of stay at 8 nights. Twenty-one (21) tourists who spent 9 nights or more were excluded. The elimination of incomplete and extreme long stay cases reduced the viable data set to 250 diaries.

3.4 Data Entry

The final viable data set includes 250 trip diaries which documented 930 daily itineraries. Aspatial data were inputted into the computer system in SPSS format, whereas spatial data were inputted into excel spreadsheet (Figure 3.3) for further analysis using GIS software. The data were input and processed by using the following techniques:



Microsoft Excel - Matrix - 20060914

	A	R	S	T	U	V
1	TOURIST	FIRSTVIS	MAINDEST	SEQ01	SEQ02	SEQ03
2	HK0003	First Timer	Stopover	Marco Polo Hong Kong Hotel	Harbour City / Ocean Terminal	Marco Polo Hong Kong Hotel
3	HK0003	First Timer	Stopover	Marco Polo Hong Kong Hotel	Central	Stanley Market
4	HK0003	First Timer	Stopover	Marco Polo Hong Kong Hotel	Tsim Sha Tsui (Shopping & Sightseeing)	Pennisula Hotel
5	GW0001	First Timer	Stopover	Marco Polo Gateway	Central	Western Market
6	GW0001	First Timer	Stopover	Marco Polo Gateway	Central	Aberdeen
7	GW0001	First Timer	Stopover	Marco Polo Gateway	Victoria Peak, Peak Tower, Madame Tussaud	Peak Tram Station / Peak Tram Ride
8	PP0002	Repeater	Stopover	Marco Polo Prince	Hong Kong Park	Sheung Wan
9	PP0002	Repeater	Stopover	Marco Polo Prince	Hong Kong Park	Western Market
10	PP0002	Repeater	Stopover	Marco Polo Prince	Jade Market, Jordon	Ladies Market
11	HK0006	First Timer	Stopover	Marco Polo Hong Kong Hotel	Tsim Sha Tsui (Shopping & Sightseeing)	Harbour View & Promenade
12	HK0006	First Timer	Stopover	Marco Polo Hong Kong Hotel	Hong Kong Island Tour	Tsim Sha Tsui (Shopping & Sightseeing)
13	HK0006	First Timer	Stopover	Marco Polo Hong Kong Hotel	Golden Bauhinia Square	Harbour City / Ocean Terminal
14	PP0001	First Timer	Stopover	Marco Polo Prince	Seafood Dinner Sunset Cruise	Marco Polo Prince
15	PP0001	First Timer	Stopover	Marco Polo Prince	Harbour View & Promenade	Ladies Market
16	PP0001	First Timer	Stopover	Marco Polo Prince	Hong Kong Island Tour	Marco Polo Prince
17	GW0090	First Timer	Stopover	Marco Polo Gateway	Hong Kong Zoological and Botanical Garden	Peak Tram Station / Peak Tram Ride
18	GW0090	First Timer	Stopover	Marco Polo Gateway	Flower Market	Bird Market
19	GW0090	First Timer	Stopover	Marco Polo Gateway	Harbour City / Ocean Terminal	Kowloon Park
20	HK0117	Repeater	Stopover	Marco Polo Hong Kong Hotel	Harbour City / Ocean Terminal	Central
21	HK0097	First Timer	Main Destination	Marco Polo Hong Kong Hotel	Hong Kong Island Tour	Marco Polo Hong Kong Hotel
22	HK0097	First Timer	Main Destination	Marco Polo Hong Kong Hotel	HKTB Tourist Information Centre (TST)	Avenue of Stars
23	HK0097	First Timer	Main Destination	Marco Polo Hong Kong Hotel	Shenzhen	Marco Polo Hong Kong Hotel
24	HK0097	First Timer	Main Destination	Marco Polo Hong Kong Hotel	New World Centre	Causeway Bay
25	HK0097	First Timer	Main Destination	Marco Polo Hong Kong Hotel	Tsim Sha Tsui (Shopping & Sightseeing)	Marco Polo Hong Kong Hotel
26	HK0097	First Timer	Main Destination	Marco Polo Hong Kong Hotel	Central	Lantau Island
27	PP0088	First Timer	Stopover	Marco Polo Prince	Peak Tram Station / Peak Tram Ride	Victoria Peak, Peak Tower, Madame Tussa
28	PP0088	First Timer	Stopover	Marco Polo Prince	Jordon	Tsim Sha Tsui (Shopping & Sightseeing)
29	PP0088	First Timer	Stopover	Marco Polo Prince	Central	Causeway Bay
30	PP0078	First Timer	Main Destination	Marco Polo Prince	Harbour City / Ocean Terminal	Tsim Sha Tsui (Shopping & Sightseeing)
31	PP0078	First Timer	Main Destination	Marco Polo Prince	Harbour City / Ocean Terminal	Hollywood Road / Upper Lascar Row

Itinerary Routes - 930 routes | Tourists - 250 respondents | Pivot Table

Ready

Figure 3.3 Data in Excel spreadsheet

1. SPSS

Aspatial data namely trip motivations, trip profile, intention for activity participation and demographic information are considered as influential variables affecting tourist movement patterns. Aspatial data obtained through the arrival interview were analyzed using SPSS (Statistical Package for the Social Sciences). The software supports a broad range of capabilities for statistical and quantitative analysis. It is widely adopted by research in humanities and social sciences. The use of statistical software as a database management tool helps to organize the data systematically.

2. Geographic Information System (GIS)

Van der Knaap (1999) suggested the use of GIS to study spatial relationships of tourist space-time behavior. Itinerary routes, recorded on a daily basis in the trip diaries, are the most valuable spatial data of this research. Spatial information or

pattern can readily be seen on maps through visualization in GIS. As suggested by Farsari and Prastacos (2004):

> GIS is an Information System which has the capability to handle spatial distributed data, relate them to other numerical or descriptive data and present the data visually on a map.

GIS is important in the data analysis stage because it acts as the visualizing tool for tourist movements. Daily itinerary data were first input into an excel spreadsheet and then transformed into GIS format for producing daily itinerary maps.

Spatial data were analyzed using ArcView 9.0, desktop GIS software for data storage, compilation, modelling and presentation. Tourist movements were projected on maps instead of just being presented in table forms as in previous studies. X- and y-coordinates of attractions were digitized as points, whereas transit routes between attractions were represented by lines directly connecting attractions visited by the respondents.

All 195 attractions identified by respondents were plotted as black dots overlaying on the basemap of Hong Kong (Figure 3.4). These attractions include recognized attractions, points of interests, local day tours and cross border sites such as China and Macau. Transport nodes such as the airport and train station were excluded from analysis, as was the journey from them. The reason for excluding these connections is to reduce interferences on the movements of tourist visitation. They are generic transit routes which only provide spatial transition from one site to the other. However peak tram was considered as an attraction since tourists can enjoy sceneries during the ride.

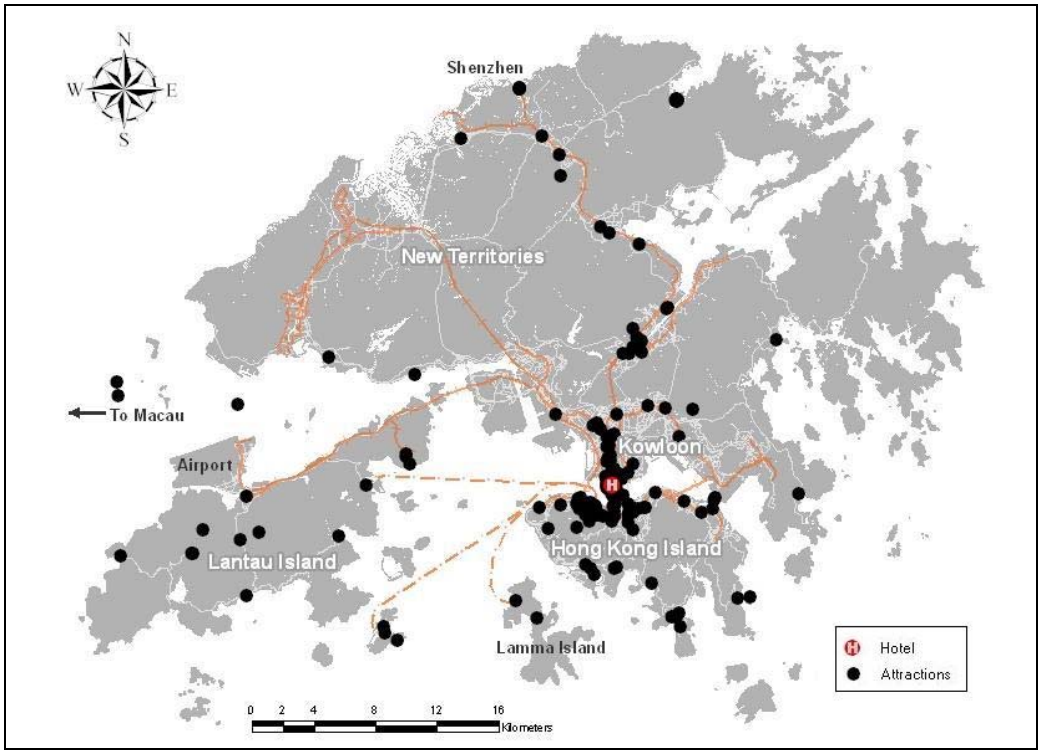


Figure 3.4 Attractions Map of Hong Kong (derived from data set)

Local day tours, which involve visits to a number of attractions, were encoded as one single point on the map. The tour itself is considered as a single tourism product purchased by the tourist. This minimizes the effects of the set itineraries and differentiates the compulsory visits to visits based on personal motivations. Likewise, cross border visitations to Macau and China were encoded as a single point. Movements within these places were outside the boundary of the local destination and were also outside the boundary of investigation for this research.

Figure 3.5 shows an example of how a daily route was mapped. Using lines to connect the attraction points visited by tourists in each day, the daily movement pattern can be visualized. The documented visits were divided into two separate trips. The tourist started the day by visiting Stanley Market in the first trip. Then, he returned to the hotel in the middle of the day. In the second trip the tourist visited Ladies Market. The lines show the shortest virtual link connecting the two sites with the hotel. The actual routes taken were not mapped to avoid the immense variety of

routing and to minimize the problem of data overload. The map provides the basis for drawing simplified movement sketch. Detail interpretation of the patterns will be given in next chapter.

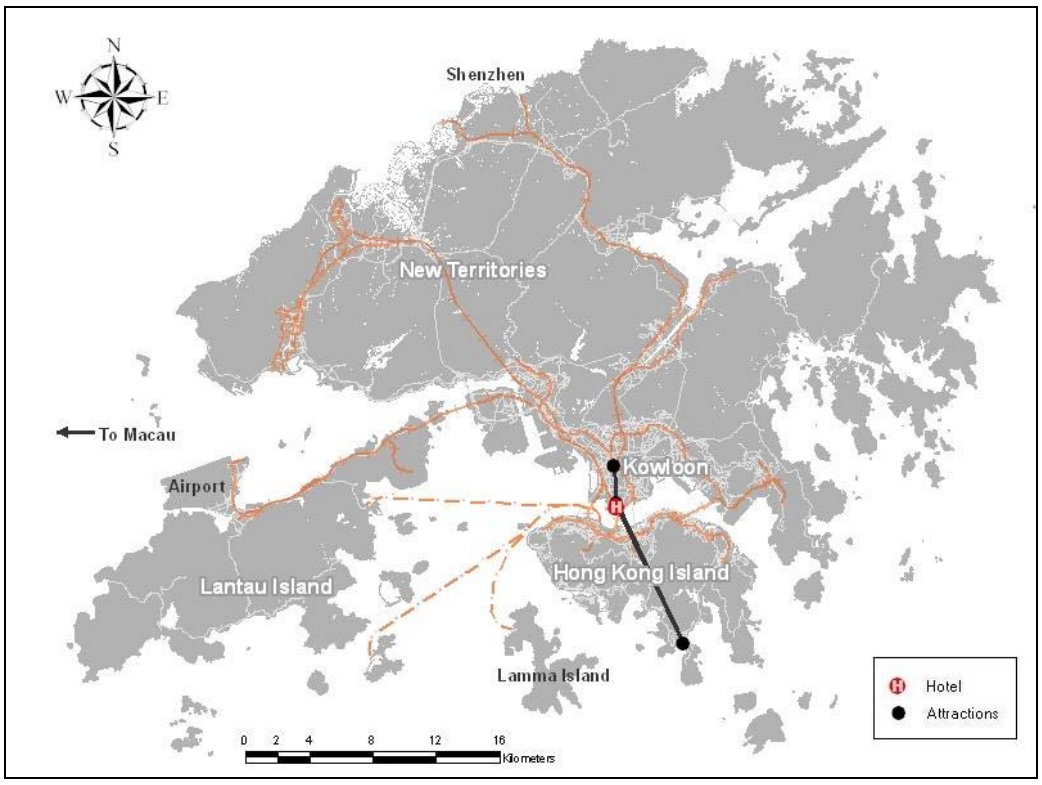


Figure 3.5 Map Showing Multiple Trip Movements of a Daily Itinerary

3.5 Data Analysis

Analyzing movement patterns is the main objective of this research. The research focuses on examining individual itineraries on a daily basis, instead of the journey as a whole. A three day journey would therefore provide 3 daily itineraries for analysis. A total of 930 daily itineraries were studied for the identification of patterns. The research also aims to find out variables which affect tourist movements in a local destination. This section summarizes the flow of analysis. More details are provided at the start of the subsequent chapters.

The flow of analysis from raw data to the final stage of analysis is summarized in

Figure 3.6. The analysis starts with the viable data set of 250 respondents who documented 930 daily itineraries. These daily routes consist of 3184 points including attractions, activities and points of interests, but hotels were excluded. These spatial data are mapped for systematic analysis and then categorize into 78 movement patterns. The small cell size inhibits detail examination. So, further grouping and aggregation is undertaken which result in 10 movement styles. The process is discussed in detail in subsequent chapters. Chapter 5 explains how itineraries are transformed into patterns. Chapter 6 presents the aggregation from patterns to styles and the variables affecting tourist movements are identified.

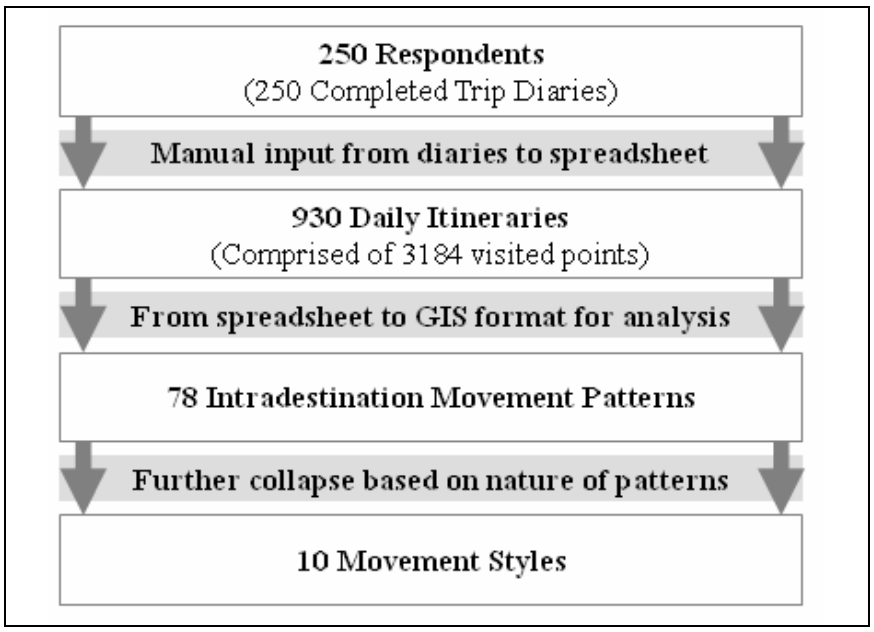


Figure 3.6 Flow of Analysis

Chi-square tests help to decide "whether two variables are related" (Norušis, 1991). The Pearson chi-square test (X^2) was used to test for statistically significant differences between styles of movements in relation to trip characteristics. The standardized residual is the difference between an observed value and its expected value divided by the estimated standard deviation of the residuals (Norušis, 1998; Reynolds, 1984). When the chi-square result is statistically significant, the standardized residual of each cell will be taken into consideration for the

contribution to the significance. The critical value of the standardized residual is 1.96 correspond to the confidence level of 95% (p=0.05). Cell values greater than 1.96 or less than -1.96 suggest that they were the significant contributors to the chi-square relationship between variables (Haberman, 1973). Positive value suggests that the cell was over-presented in the actual sample while negative value was under-represented in the sample. Chi-square tests are used to study relationships between movement styles and potential variables, such as country of origin, prior visits and trip profile. Frequency counts, percentage of counts within set and the standardized residual for each variable will be presented in the analysis chapters.

3.6 Limitations

Limitations are inevitable in any kinds of research and must be acknowledged. Some inadequacies were identified in the data collection and input process.

Firstly, generalization may not be possible for this research. Judgement sampling, which is a non-random sampling, was employed in the four to five star hotels limit the variety of respondents based on trip profile, demographic and social profile. Sample bias was noticed. Respondents were mainly from Australia, Europe and America (86.8%) and very few Chinese tourists (2.8%) participated in the research. Although the major inbound market of Hong Kong is China, Chinese respondents were under-represented. The sample is not representative for predicting general visitation behaviour of visitors to Hong Kong, of which Chinese visitors dominate. Actual tourist visitation behaviour may or may not be the same as the result of this research. The generalizing ability of this research is limited and therefore the research focuses on the method of data documentation and movement patterns exploration.

Secondly, the completion rate of the trip diary was rather low. Self complete trip diary was employed to reduce the disturbances on tourist itineraries. Although prior consent and agreements were obtained from the participants, the response rate is only about 22.8%. Respondents showed little obligations to complete the diaries and return them through mail. The response rate also affected by the quality of the completed trip diaries. The qualities of data are inconsistent. Some of the diaries were blank and some of them were incomplete which provide little and insufficient information for analysis. Although the low response rate was expected for self completion trip diaries, this is still the most suitable method for obtaining daily itinerary date, with less interruption to the trip schedule. A larger sample size was therefore targeted to acquire sufficient data for analysis.

The third limitation encountered was the loss of data detail. Some of the trip diaries were very detailed while some others provide inadequate information. In order to reduce the discrepancies between the levels of comprehensiveness of data, some data were dropped or generalized. This gave a more consistent data set for further analysis. The process of data cleansing is inevitable and unavoidable for the use of trip diary as a data collection instrument.

Last, but not least, is the massive data set that the researcher has to deal with. The researcher has to go through the massive number of tourist attractions and daily itineraries in order to obtain patterns from the data. Enormous amount of spatial-temporal data inhibited systematic and analytical analysis of tourist time-space patterns. The process was time consuming and required repeat checking to ensure accurate coding of data. Researcher's ability to interpret the data also affected the result of the research. Different researchers may come up with different set of

patterns. The exploratory nature of the research allows the researcher to determine the best research approach only to provide insights in the topic.

3.7 Chapter Summary

This chapter summarized the method used for data collection, data processing and analysis. The methodological framework was introduced. Detail data collection process was documented with the specific instruments used to collect useful data for analysis. It provided an overview of the research and explained the flow of analysis. The combination use of traditional paper trip diary and application of GIS is expected to be a pioneer study which provided empirical evidence that support intradestination models developed by Lew and McKercher (2006). Incorporation of innovative analytical method, GIS, in tourism field can bridge the gap between tourism study and the use of technologies. Detail analysis, research findings of intradestination movement patterns and the discussion with influential variables will be presented in the coming chapters.

CHAPTER 4 PROFILE OF RESPONDENTS

After discussing the research background, objectives, literature review of the topic and the methodological issues of this research, the following three chapters focus on the results of analysis. This chapter summarizes the profile of respondents who participated in this research, identifying who they are and what they do within the local destination. Intradestination movement patterns are developed based on the analysis of their activities and spatial movements. Chapter 5 explains the method of pattern generation and provides illustrations of the result patterns. Chapter 6 discusses the aggregation of movement patterns into smaller groups of styles. A detail statistical analysis on the influential variables which affect tourist movements within local destination will be presented.

4.1 Who are the respondents?

The visitor profile of the 250 respondents is shown in Table 4.1. Respondents were mainly westerners (86.8%) who came primarily from Australia, New Zealand, and the United Kingdom. The average length of stay was 3.8 nights and ranged from a minimum stay of one night to a maximum of eight nights. Over half of the respondents spent two to three nights in the destination. The figures are consistent with HKTB statistics (HKB, 2006). Slightly over one-third of the tourists identified Hong Kong as their main destination. Other main destinations included Australia for British travellers, Asia for Europeans and Europe for Australian visitors.

Table 4.1 Visitor Profile

Category	Item	Number	Percentage
Hotel	Marco Polo Gateway Hotel	59	23.6%
	Marco Polo Hong Kong Hotel	86	34.4%
	Marco Polo Prince Hotel	53	21.2%
	The Kowloon Hotel	52	20.8%
Country of Origin	Australia or NZ	99	39.6%
	UK, Scotland and Ireland	80	32.0%
	Asia	24	9.6%
	USA or Canada	21	8.4%
	Europe	17	6.8%
	Greater China	7	2.8%
	Others	2	0.8%
Length of Stay	1 night	11	4.4%
	2 nights	58	23.2%
	3 nights	63	25.2%
	4 nights	38	15.2%
	5 nights	33	13.2%
	6 nights	23	9.2%
	7 nights	18	7.2%
	8 nights	6	2.4%
Main Destination	Hong Kong	90	36.0%
	Oceania	54	21.6%
	Europe (including UK & Middle East)	37	14.8%
	Asia (excluding China & Taiwan)	33	13.2%
	China, Taiwan & Macau	21	8.4%
	America	10	4.0%
	Others, Multiple or Missing Data	5	2.0%
First Timer/ Repeater	First Time Visitor	138	55.2%
	Repeat Visitor	112	44.8%
Travel Companion	Travelling Alone	9	3.6%
	Spouse	142	56.8%
	Family/Relatives	70	28.0%
	Friends/Partners	29	11.6%
Self-perceived Level of Experience as an International Tourist	Very experienced	84	33.6%
	Experienced	81	32.4%
	Average experienced	70	28.0%
	Not very experienced	8	3.2%
	Inexperienced – first international trip	7	2.8%
Gender	Male	86	34.4%
	Female	164	65.6%
Age Group	18-25	17	6.8%
	26-35	43	17.2%
	36-45	32	12.8%
	46-55	63	25.2%
	56-65	68	27.2%
	66 or above	26	10.4%
	Not mentioned	1	0.4%
	Total Number of Respondents:	**n=250**	**100.0%**

First time visitors account for 55% of the sample; 45% are repeat visitors. Over half

of the repeat visitors visited Hong Kong once in the past 5 years, while about 10% visited Hong Kong more than 10 times in the last 5 years. Over 56% of the respondents came to Hong Kong with their spouse and 28% came with their family. Very few tourists visited on their own. The decision about the daily itinerary, therefore, involves some compromise between travel partners. The typical age of respondents was about 46-65 years old. Over 60% of respondents regard themselves as experienced or very experienced international travellers.

Respondents were asked to identify up to the five most important reasons that affected their decision to visit. The results are presented in Table 4.2. The top five answers are: “discover new places and/or things”, “go to a place with different culture/language”, “shopping”, “some place I have always wanted to see” and “Hong Kong as a stopover to other destinations”. The least popular reasons to visit Hong Kong are for food & cuisine, to brag about to friends and coming to Hong Kong because of its similar culture/language used.

Table 4.2 Motivations of the 250 Respondents

Motivations	Number	Percentage
Discover new places and/or things	132	52.8%
Go to a place with different culture/language	130	52.0%
Shopping	127	50.8%
Some place I have always wanted to see	102	40.8%
HK as a stopover to other destinations	96	38.4%
As a short break	89	35.6%
A taste of China	84	33.6%
To have fun	76	30.4%
Learn about culture and heritage	73	29.2%
Rest and Relax	71	28.4%
Get away from daily routine/role obligations/stress/troubles	46	18.4%
Recommended by friends/relatives	46	18.4%
Going back to a familiar place	35	14.0%
HK as a new part of China after reunification in1997	23	9.2%
Visiting friends/relatives	19	7.6%
Learn about cuisine	16	6.4%
To brag about to my friends when return to home town	10	4.0%
Go to a place with similar culture/language	6	2.4%
Others – Disneyland (prompted)	5	2.0%
Total Number of Respondents:	**n=250**	**100.0%**

4.2 What Did They Do?

The arrival survey also asked the respondents what they intended to do. Nearly 90% mentioned that they intended to go sightseeing (Table 4.3) and over 70% indicated that they will shop, either in the shopping malls or at open-air markets. Museums, galleries and historical sites and natural areas were identified by between one-third and half the respondents as second tier attractions. Theme parks, cross border tourism and visiting friends/relatives ranked after the most popular set of activities (10-20%). Very few people (<10%) wanted to go to a beach, visit a festival or play/watch sports.

Table 4.3 Intended Activities of the 250 Respondents

Intended Activities	Number	Percentage
Sightseeing	222	88.8%
Shopping in malls	199	79.6%
Shopping in markets	185	74.0%
Visiting historical sites	114	45.6%
Visiting natural areas, country parks or outlying areas/islands	90	36.0%
Visiting museums/art galleries/exhibitions	76	30.4%
Visiting theme park	42	16.8%
Cross border tourism (to Macau/China)	39	15.6%
Visiting friends / relatives	26	10.4%
Going to beaches	13	5.2%
Visiting festivals or events	13	5.2%
Playing/watching sports	6	2.4%
Others – Food & cuisine	6	2.4%
Total Number of Respondents:	**n=250**	**100.0%**

The trip diaries documented what respondents actually did. They visited a total of 195 attractions or points of interests. Hotel points, which are starting points and ending points of the daily routes, were excluded. Table 4.4 shows the frequency counts for the number of visits to each of the attractions. The figures indicate that tourist visitation patterns conform to intentions. Most tourists planned to go shopping and sightseeing and they actually did during their visits.

The most popular place is Tsim Sha Tsui as a general sightseeing and shopping stop. Over 80% of the respondents indicated visits to this area for general shopping and

sightseeing purposes. The attraction was visited a total of 519 times by 202 tourists, or an average of 2.6 times per tourist. This is understandable because the research took place in hotels located in the same area. In contrast, a total of 48 attractions were only visited once. They include remote sites which are not well connected by public transport such as beaches, parks and churches.

The second most visited stop is Central, again, as a general sightseeing stop. Tourists prefer to take the Star Ferry from the hotel area to Central, which provides an opportunity to view the harbour. Central, where the ferry piers and transportation nodes are located, is also the gateway to out-lying islands and other remote attractions on Hong Kong Island. The third most popular point of interest identified is Harbour City & Ocean Terminal, which is a shopping site connected to 3 of the 4 hotels. The fourth to seventh most popular places are well known built attractions.

Table 4.4 Visited attractions/points of interest identified by the respondents

No.	Attraction/ Point of Interest	Nature	Freq.	Cum. %	Tourist No.	& %
1	Tsim Sha Tsui (Shopping & Sightseeing)	General	519	16.3%	202	80.8%
2	Central	General	354	27.4%	151	60.4%
3	Harbour City / Ocean Terminal	Shopping	261	35.6%	137	54.8%
4	Peak Tram Station / Peak Tram Ride	Sightseeing	133	39.8%	85	34.0%
5	Temple Street	Market	110	43.2%	99	39.6%
6	Victoria Peak, Peak Tower	Sightseeing	108	46.6%	105	42.0%
7	Ladies Market	Market	104	49.9%	83	33.2%
8	Hong Kong Island Tour	Local Tour	87	52.6%	85	34.0%
9	Stanley Market	Market	73	54.9%	68	27.2%
10	Avenue of Stars	Sightseeing	66	57.0%	54	21.6%
11	Mong Kok	General	58	58.8%	49	19.6%
12	Harbour View & Promenade	Sightseeing	53	60.5%	48	19.2%
13	Kowloon Park	Park	49	62.0%	40	16.0%
14	Causeway Bay	General	40	63.3%	32	12.8%
15	Big Buddha	Religious	31	64.3%	31	12.4%
16	Harbour Cruise	Local Tour	31	65.2%	30	12.0%
17	Light Show at Harbour	Sightseeing	31	66.2%	26	10.4%
18	Aberdeen	General	30	67.1%	26	10.4%
19	Hong Kong Park	Park	29	68.1%	27	10.8%
20	Peninsula Hotel	Hotel	26	68.9%	24	9.6%
21	Stanley	General	23	69.6%	21	8.4%
22	Hong Kong Museum of Art	Museum	21	70.3%	21	8.4%
23	Ocean Park	Theme Park	21	70.9%	21	8.4%
24	Po Lin Monastery	Religious	20	71.5%	20	8.0%
25	Mid-Levels Escalator	Sightseeing	20	72.2%	20	8.0%
26	New World Centre	Shopping	20	72.8%	14	5.6%

No.	Attraction/ Point of Interest	Nature	Freq.	Cum. %	Tourist No.	& %
27	Star House	Shopping	20	73.4%	14	5.6%
28	Bird Market	Market	19	74.0%	19	7.6%
29	HK Zoological and Botanical Garden	Park	19	74.6%	19	7.6%
30	Flower Market	Market	19	75.2%	18	7.2%
31	Shenzhen	China	19	75.8%	17	6.8%
32	Jade Market, Jordon	Market	19	76.4%	17	6.8%
33	Lantau Island	General	18	77.0%	18	7.2%
34	Hollywood Road / Upper Lascar Row	Sightseeing	18	77.5%	15	6.0%
35	Western Market	Shopping	17	78.1%	16	6.4%
36	Macau	Macau	16	78.6%	16	6.4%
37	Lamma Island	General	16	79.1%	15	6.0%
38	Wan Chai	General	16	79.6%	15	6.0%
39	Hong Kong Museum of History	Museum	16	80.1%	15	6.0%
40	YMCA	Hotel	16	80.6%	8	3.2%
41	Clock Tower	Sightseeing	15	81.1%	15	6.0%
42	Soho	Dinning	15	81.5%	13	5.2%
43	Tung Chung	General	15	82.0%	12	4.8%
44	Land Between Tour	Local Tour	14	82.4%	14	5.6%
45	Space Museum	Museum	14	82.9%	13	5.2%
46	Lanes Market	Market	13	83.3%	12	4.8%
47	Time Square	Shopping	13	83.7%	11	4.4%
48	Cheung Chau	General	12	84.1%	12	4.8%
49	IFC	Shopping	12	84.5%	12	4.8%
50	Hong Kong Cultural Centre	Museum	12	84.8%	11	4.4%
51	Pacific Place	Shopping	11	85.2%	11	4.4%
52	Sogo	Shopping	11	85.5%	11	4.4%
53	Admiralty	General	11	85.9%	9	3.6%
54	Mui Wo / Silver Mine Bay	General	11	86.2%	8	3.2%
55	Flagstaff House Museum Of Tea Ware	Museum	10	86.5%	10	4.0%
56	Man Mo Temple	Religious	10	86.8%	10	4.0%
57	Sheung Wan	General	10	87.2%	8	3.2%
58	China Hong Kong City	Transport	10	87.5%	6	2.4%
59	Exchange Square	Transport	10	87.8%	4	1.6%
60	Repulse Bay	General	9	88.1%	8	3.2%
61	Fish Market	Market	8	88.3%	8	3.2%
62	Wong Tai Sin Temple	Religious	8	88.6%	8	3.2%
63	Sampan Ride (Aberdeen)	Sightseeing	8	88.8%	8	3.2%
64	Hong Kong Disneyland	Theme Park	8	89.1%	8	3.2%
65	Lan Kwai Fong	Dinning	8	89.3%	7	2.8%
66	Jumbo Floating Restaurant	Dinning	7	89.5%	7	2.8%
67	HKTB Tourist Information Centre (TST)	Information	7	89.8%	7	2.8%
68	Hong Kong Victoria Park	Park	7	90.0%	7	2.8%
69	Langham Place	Shopping	7	90.2%	7	2.8%
70	Statue Square	Sightseeing	7	90.4%	7	2.8%
71	St. John's Cathedral	Religious	7	90.6%	6	2.4%
72	Park Lane Shopper's Boulevard	Shopping	7	90.9%	5	2.0%
73	HK Convention and Exhibition Center	Exhibition	6	91.0%	6	2.4%
74	Heritage Tour	Local Tour	6	91.2%	6	2.4%
75	Festival Walk	Shopping	6	91.4%	6	2.4%
76	Land Mark	Shopping	6	91.6%	6	2.4%
77	City Hall	Sightseeing	6	91.8%	6	2.4%
78	Jordon	General	6	92.0%	5	2.0%
79	Guangzhou	China	5	92.1%	5	2.0%
80	Tai O	General	5	92.3%	5	2.0%
81	Hong Kong Science Museum	Museum	5	92.5%	5	2.0%
82	The Amazon / Teddy Bear Kingdom	Theme Park	5	92.6%	5	2.0%
83	Prince Edward	General	5	92.8%	4	1.6%

No.	Attraction/ Point of Interest	Nature	Freq.	Cum. %	Tourist No.	& %
84	Sai Kung	General	5	92.9%	4	1.6%
85	Hong Kong Bank HQ Building	Sightseeing	5	93.1%	4	1.6%
86	Shatin	General	5	93.2%	3	1.2%
87	Holiday Inn Golden Mile Hong Kong	Hotel	5	93.4%	2	0.8%
88	Hopewell Centre	Dinning	4	93.5%	4	1.6%
89	North Point	General	4	93.7%	4	1.6%
90	Kowloon Hotel	Hotel	4	93.8%	4	1.6%
91	Lantau Island Tour	Local Tour	4	93.9%	4	1.6%
92	Cat Street	Market	4	94.0%	4	1.6%
93	Fa Yuen Street	Market	4	94.2%	4	1.6%
94	Ten Thousand Buddhas Monastery	Religious	4	94.3%	4	1.6%
95	Golden Bauhinia Square	Sightseeing	4	94.4%	4	1.6%
96	Mid-Levels	Sightseeing	4	94.5%	4	1.6%
97	Hung Hom Train Station	Transport	4	94.7%	4	1.6%
98	Shau Kei Wan	General	4	94.8%	2	0.8%
99	Marco Polo Gateway Hotel	Hotel	4	94.9%	2	0.8%
100	Marco Polo Prince Hotel	Hotel	4	95.0%	1	0.4%
101	China - All Others	China	3	95.1%	3	1.2%
102	Discovery Bay	General	3	95.2%	3	1.2%
103	Happy Valley	General	3	95.3%	3	1.2%
104	Hung Hom	General	3	95.4%	3	1.2%
105	Tai Koo Shing	General	3	95.5%	3	1.2%
106	HK Jockey Club Happy Valley Race Course	Horserace	3	95.6%	3	1.2%
107	InterContinental Hotel	Hotel	3	95.7%	3	1.2%
108	New Territories Tour	Local Tour	3	95.8%	3	1.2%
109	Hong Kong Heritage Museum	Museum	3	95.9%	3	1.2%
110	Tin Hau Temple (Jordon)	Religious	3	96.0%	3	1.2%
111	Cheung Sha Wan Road/ Ap Liu Street	Shopping	3	96.1%	3	1.2%
112	Bank of China Tower	Sightseeing	3	96.2%	3	1.2%
113	Hong Kong Government House	Sightseeing	3	96.3%	3	1.2%
114	Noon Day Gun	Sightseeing	3	96.4%	3	1.2%
115	Shum Shui Po	General	3	96.5%	2	0.8%
116	Kowloon Cricket Club	Sports	3	96.5%	2	0.8%
117	Knutsford Terrace	Dinning	2	96.6%	2	0.8%
118	Lei Yue Mun	Dinning	2	96.7%	2	0.8%
119	Murray House	Dinning	2	96.7%	2	0.8%
120	Clear Water Bay	General	2	96.8%	2	0.8%
121	Kennedy Town	General	2	96.9%	2	0.8%
122	Mei Foo	General	2	96.9%	2	0.8%
123	Shek O	General	2	97.0%	2	0.8%
124	Sheung Shui	General	2	97.0%	2	0.8%
125	VFR/Business (with unknown address)	General	2	97.1%	2	0.8%
126	Yau Ma Tei	General	2	97.2%	2	0.8%
127	Come Horseracing Tour	Horserace	2	97.2%	2	0.8%
128	Sheraton Hong Kong Hotel	Hotel	2	97.3%	2	0.8%
129	Helicopter Ride	Local Tour	2	97.4%	2	0.8%
130	Hong Kong Disneyland Tour	Local Tour	2	97.4%	2	0.8%
131	Ocean Park Tour	Local Tour	2	97.5%	2	0.8%
132	Pink Dolphin Cruise	Local Tour	2	97.6%	2	0.8%
133	Seafood Dinner Sunset Cruise	Local Tour	2	97.6%	2	0.8%
134	Central Market	Market	2	97.7%	2	0.8%
135	Hong Kong Museum of Coastal Defense	Museum	2	97.7%	2	0.8%
136	New Town Plaza	Shopping	2	97.8%	2	0.8%
137	Sogo (TST)	Shopping	2	97.9%	2	0.8%
138	Central promenade	Sightseeing	2	97.9%	2	0.8%
139	Des Voeux Road	Sightseeing	2	98.0%	2	0.8%
140	Ngong Ping	Sightseeing	2	98.1%	2	0.8%

No.	Attraction/ Point of Interest	Nature	Freq.	Cum. %	Tourist No. & %	
141	Pedder Street	Sightseeing	2	98.1%	2	0.8%
142	Winter Fest	Theme Park	2	98.2%	2	0.8%
143	St. Stephen's Beach	Beach	2	98.2%	1	0.4%
144	HKTB Tourist Information Centre (Central)	Information	2	98.3%	1	0.4%
145	University Museum and Art Gallery, HKU	Museum	2	98.4%	1	0.4%
146	Golden Computer Centre	Shopping	2	98.4%	1	0.4%
147	Chater Garden	Sightseeing	2	98.5%	1	0.4%
148	Cheung Sha Beach	Beach	1	98.5%	1	0.4%
149	Hong Kong Gold Coast	Beach	1	98.6%	1	0.4%
150	Stanley Main Beach	Beach	1	98.6%	1	0.4%
151	Guangzhou Tour	China	1	98.6%	1	0.4%
152	Shenzhen Tour	China	1	98.6%	1	0.4%
153	Peking Road 1	Dinning	1	98.7%	1	0.4%
154	Kowloon Bay	General	1	98.7%	1	0.4%
155	New Territories	General	1	98.7%	1	0.4%
156	Tai Po	General	1	98.8%	1	0.4%
157	Tai Wai	General	1	98.8%	1	0.4%
158	Tin Hau	General	1	98.8%	1	0.4%
159	HK Jockey Club Shatin Race Course	Horserace	1	98.9%	1	0.4%
160	JW Marriot Hotel	Hotel	1	98.9%	1	0.4%
161	Mandarin Oriental Hotel	Hotel	1	98.9%	1	0.4%
162	Regal Kowloon Hotel	Hotel	1	99.0%	1	0.4%
163	The Excelsior	Hotel	1	99.0%	1	0.4%
164	Lamma Island Tour	Local Tour	1	99.0%	1	0.4%
165	Macau Tour	Macau	1	99.1%	1	0.4%
166	Jardine's Bazaar	Market	1	99.1%	1	0.4%
167	Hong Kong Railway Museum	Museum	1	99.1%	1	0.4%
168	Shatin Central Park	Park	1	99.2%	1	0.4%
169	Che Kung Miu	Religious	1	99.2%	1	0.4%
170	Chi Lin Nunnery	Religious	1	99.2%	1	0.4%
171	Fung Ying Seen Koon	Religious	1	99.2%	1	0.4%
172	Pak Tai Temple	Religious	1	99.3%	1	0.4%
173	Rosary Church	Religious	1	99.3%	1	0.4%
174	St. Andrew's Church	Religious	1	99.3%	1	0.4%
175	Tin Hau Temple	Religious	1	99.4%	1	0.4%
176	Dragon Centre	Shopping	1	99.4%	1	0.4%
177	Miramar Shopping Centre	Shopping	1	99.4%	1	0.4%
178	Wan Chai Computer Zone	Shopping	1	99.5%	1	0.4%
179	World Trade Centre	Shopping	1	99.5%	1	0.4%
180	Bowen Road	Sightseeing	1	99.5%	1	0.4%
181	Caine Road	Sightseeing	1	99.6%	1	0.4%
182	Central Plaza	Sightseeing	1	99.6%	1	0.4%
183	Cheung Chau Peak	Sightseeing	1	99.6%	1	0.4%
184	Chungking Mansion	Sightseeing	1	99.7%	1	0.4%
185	Kowloon Peak	Sightseeing	1	99.7%	1	0.4%
186	Legco Building	Sightseeing	1	99.7%	1	0.4%
187	Step Street	Sightseeing	1	99.7%	1	0.4%
188	Stone Steps & Gas Light	Sightseeing	1	99.8%	1	0.4%
189	Tai Tau Chau	Sightseeing	1	99.8%	1	0.4%
190	Tsang Tai Uk	Sightseeing	1	99.8%	1	0.4%
191	Tsing Lung Tau	Sightseeing	1	99.9%	1	0.4%
192	Hong Kong Yacht Club	Sports	1	99.9%	1	0.4%
193	Snoopy World	Theme Park	1	99.9%	1	0.4%
194	MTR Ride	Transport	1	100.0%	1	0.4%
195	Shun Tak Centre	Transport	1	100.0%	1	0.4%
		Total:	**3184**	**100%**	**(n=250)**	

Tourists normally do not repeat visits to the same attraction but they did go to the same district for shopping. The following sites had the highest share of multiple visits: Tsim Sha Tsui for shopping & sightseeing (2.6 times), Central (2.3 times), Harbour City/Ocean Terminal (1.9times) and Peak Tram ride (1.6 times). The repeat visits to these attractions show the importance of local exploration and transportation in tourist movements within the local destination. In contrast, the majority attractions (133 or 68.2%) had no repeat visitations or tourists, in general, visit an attraction only once during their trip.

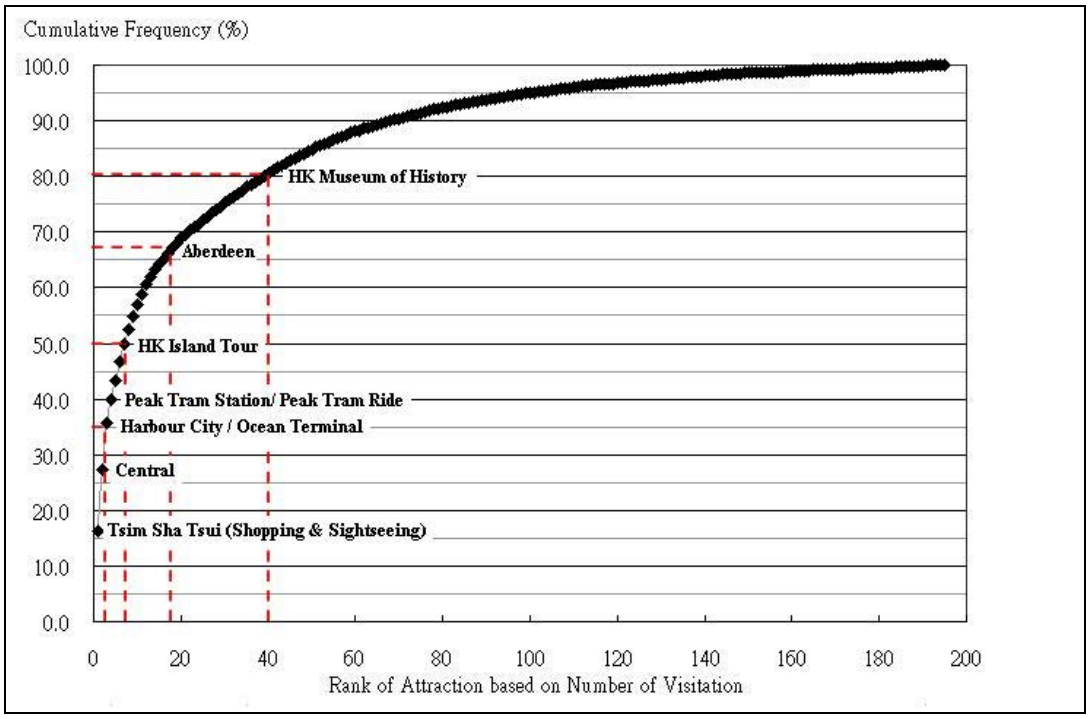


Figure 4.1 Cumulative Percentage of Frequency of Visitation to Attractions

Visitations were also highly concentrated spatially. The "Cum. %" column in Table 4.4 shows the cumulative percentage of visits to all places. A drastic increase in the cumulative participation rate is noticed when presented as a line graph in Figure 4.1. The three most popular places accounted for over one-third (35.6%) of all recorded visits, half (52.6%) occurred in eight places and over two-third (67.1%) were associated with only 18 attractions. The vast majority of places (155 or 79.4%)

account merely for one-fifth of all visits. The disparity shows that tourist visitation behavior are confined and limit to a small number of places. The high level of concentration in visitations shows that tourists are not exploratory in nature.

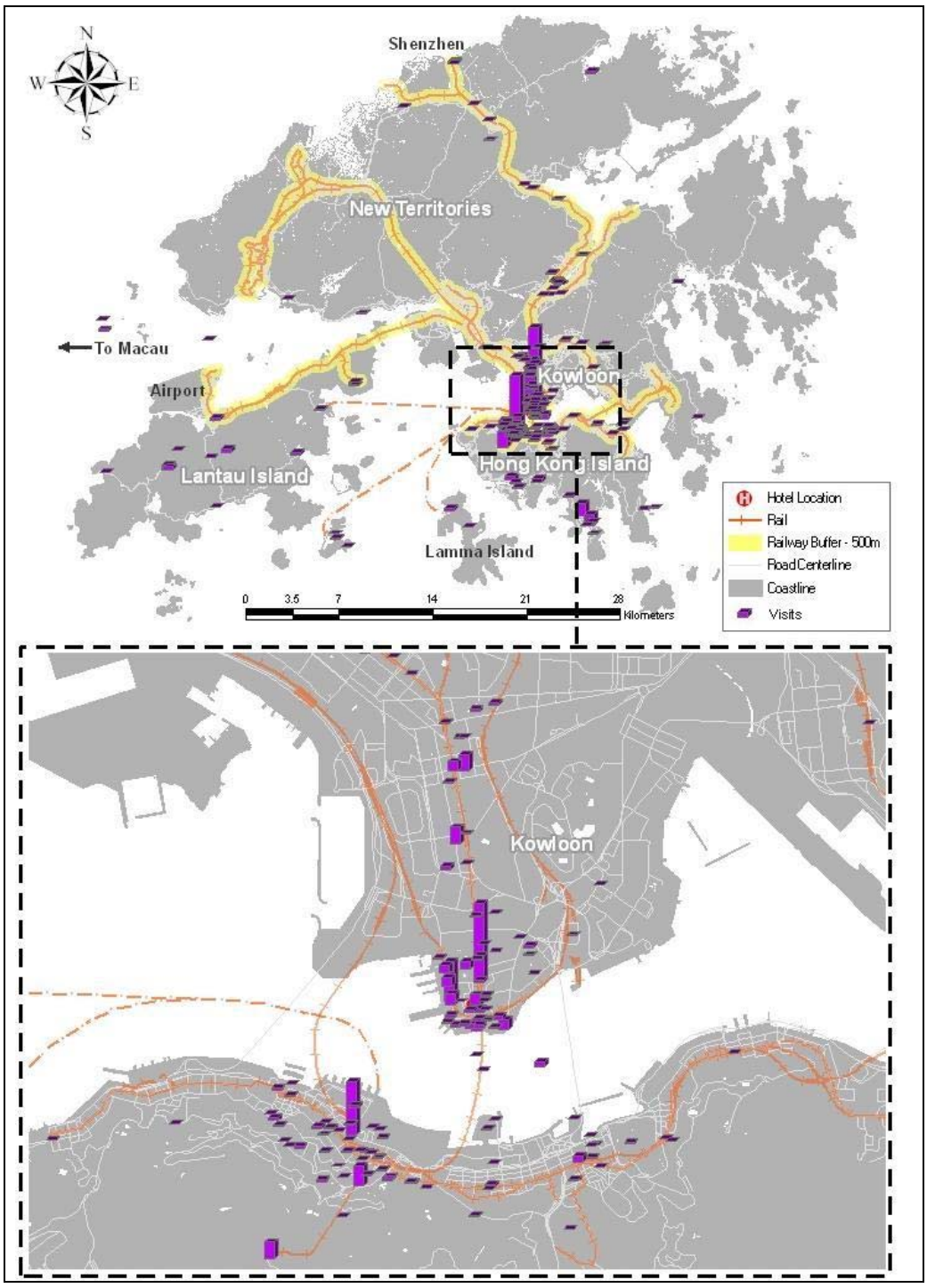


Figure 4.2 Overlay Map of Attractions on Transport Routes of HK

Figure 4.2 maps the 195 attractions against the transport network. Each feature was

drawn, using a quantitative measure, based on the frequency counts of visitation. The longer the bar, the greater number of visits is recorded for the particular place. The orange lines show the railway lines while light grey lines in the map are the major roads with public buses passing through. Major attractions are located close to each other within walking distance in downtown area and visits are mostly concentrated in the same area. They are well connected by public transport, such as buses and railway. Since self-drive tourism is not common here, tourists rely more on public transport, such as rail, buses and ferries, or point-to-point taxi ride. Places with fewer visits are dispersed throughout remote areas or cannot be reached by public transport.

4.3 Chapter Summary

Respondents recorded visits to a variety of places. They normally do not pay repeat visits to the same site. However, some attractions showed a relatively higher level of repetition. Most of these attractions are spatially close to the accommodation property. Although tourists travel widely in the local destination, their visitations are spatially concentrated within the city center area or along major routes of public transport. Tourists seldom discover areas further away from the public transport nodes. They depend on the transportation network for destination exploration. Analysis of site visitation also showed the importance of localization effect of tourist movements. Tourist movements are confined and exploration of immediate area of the accommodation property is essential for familiarizing themselves with the destination.

This chapter summarized the respondent profile of the viable data set. Trip profile, motivations, intended activities and demographic profile were presented. It provided a general idea of who are the respondents and what they did in the local destination.

These variables will be used for analysis and configuration of movement patterns in the coming chapters. The next chapter will focus on the formation and illustration of intradestination movement patterns.

CHAPTER 5 INTRADESTINATION MOVEMENT PATTERNS

The primary goal of this research is to understand intradestination movement patterns. While Chapter 4 explained in general what respondents did within the local destination, this chapter studies individual daily movements and transform them into intradestination movement patterns. This chapter also serves as a prerequisite for Chapter 6 to identify influential variables of intradestination movements. A total of 78 patterns were derived. A number of issues will be discussed in this chapter concerning the formation of these patterns. First, the elements being considered during the pattern formation process will be explained. Second, examples will be illustrated to explain how the daily itinerary maps were transformed into the 78 intradestination movement patterns. Third, all the patterns will be presented with detail descriptions and frequency counts.

5.1 Elements Considered for Pattern Categorization

Intradestination movement analysis is based on daily itineraries recorded in the completed trip diaries. Individual daily movements within the same day were considered as a single entity for analysis. Each of the 930 daily itineraries was mapped individually using GIS software. While each of them is unique in some aspects, many show common characteristics allowing them to be grouped. Six elements were taken into considerations when grouping the itineraries into patterns: number of trips taken each day, number of stops per trip, connections between stops, territoriality, joining of local sightseeing tour and cross border tourism to China or Macau.

1. Single Trip or Multiple Trips

Tourist movements are divided into categories based on the number of trips that tourist took during a particular day. Some tourists spend the whole day away from the hotel while others “touched base” and then go out again. If a tourist returns to the hotel and then goes out again afterwards, this itinerary pattern is considered as a multiple trip. Daily itineraries are grouped into two categories: either single or multiple trips.

2. Single Stop or Multiple Stops

The number of stops visited in a single trip is also considered, except for tourists who spend the whole day in the hotel without going anywhere else. Again, some visit only one attraction while others visit many. If tourist visits only one attraction in a single trip, he/she has more time to spend in the site and is expected to explore the site more deeply. On the other hand, if tourist visits a number of sites during a single trip, he/she has less time in each place. In single stop pattern, tourist exhibit more direct and simple route between hotel and the site visited. In multiple stops pattern, tourist has to consider the transport means and has to take the time required for transportation into account. A good knowledge of transport linkages between attractions, therefore, is required.

3. Connections between Stops

Transit routes between attraction and hotel or attractions are considered. As summarized in linearity models of interdestination movements (Section 2.3), a number of geometry characteristics were highlighted. Tourists demonstrate visitation patterns in linear, circular, radial, stopover, stem-and-petal or complex form. These patterns show different connection features. Some tourists repeat the same transit

route but others do not. For example in a single trip multiple stops pattern, tourist can choose to visit a number of attractions in a circular form without repeating the transit route, or he/she can select a nodal point as base site and visit attractions to-and-from this point.

4. Territoriality of Local Exploration

Territoriality models were identified in previous research (Lew & McKercher, 2006) in the study of intradestination movements. Local exploration is a key factor for understanding the perceived distance of tourist movements within local destination. Tourist movements within 500m of the hotel property are considered as local exploration activities. The localization effect is prominent for the fact that general sightseeing and shopping in Tsim Sha Tsui are the most popular activities in this research. Tourists wander around the hotel before they start their daily activities or on the way back to the hotel. The movements are sometimes not purposeful and no specific attractions are visited in the area. They try to familiarize themselves with the immediate area before they go further away to the out-lying attractions. Local exploration is differentiated from other attractions or points of interest because of their generic and spatial proximity nature to the hotel. Taking local exploration into consideration incorporates both territoriality and linearity characteristics of movements.

5. Participation in Local Sightseeing Tour

Joining local commercial day tour is another factor which may affect tourist movement patterns. Independent pleasure travelers joined day tours which combine a number of attractions. The tour itself is a single tourism product that tourists

purchased. Joining these tours does not show discretionary movements of tourists, instead they have to follow set itineraries and travel from places to places by coach or transfer services provided. In these tours, tourists sometimes visit places which are not common tourist attractions. For instance tourists are taken to less accessible remote attractions like Luk Keng and Tai Mo Shan in the Land Between Tour. Movements recorded in the local tour do not reflect the actual behavior of FIT, which are important to this research. Therefore a local tour is regarded as a single point which directly reflects tourist's intension of activity participation and their purchasing behavior of tourism product.

Tourists who joined the Hong Kong Island Tour take it as a chance to explore the city. The tour combines visitation to six attractions within four hours. Attractions include: Man Mo Temple, Peak Tram Ride, Victoria Peak, Aberdeen (sampan ride), Repulse Bay and Stanley Market, marked with sequence of visitation on the map (Figure 5.1a). Based on the investigator experience of joining the tour, tourists have 15 to 30 minutes in each of these attractions. Time available for deeper exploration in each attraction is limited. Time budget is strictly controlled by the tour guide and tourist discretionary behavior can not be reflected. Therefore local tour is documented as a single point Figure 5.1b. It shows the movements of a tourist who only joint a single tour without any other activities participated.

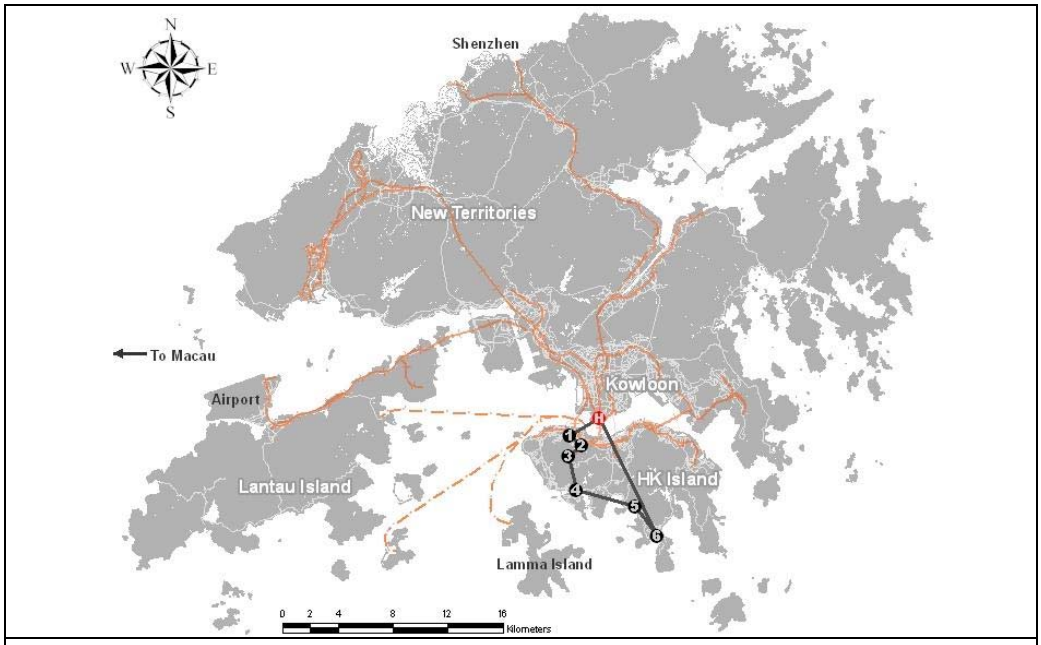


Figure 5.1a Tour itinerary of Hong Kong Island Tour

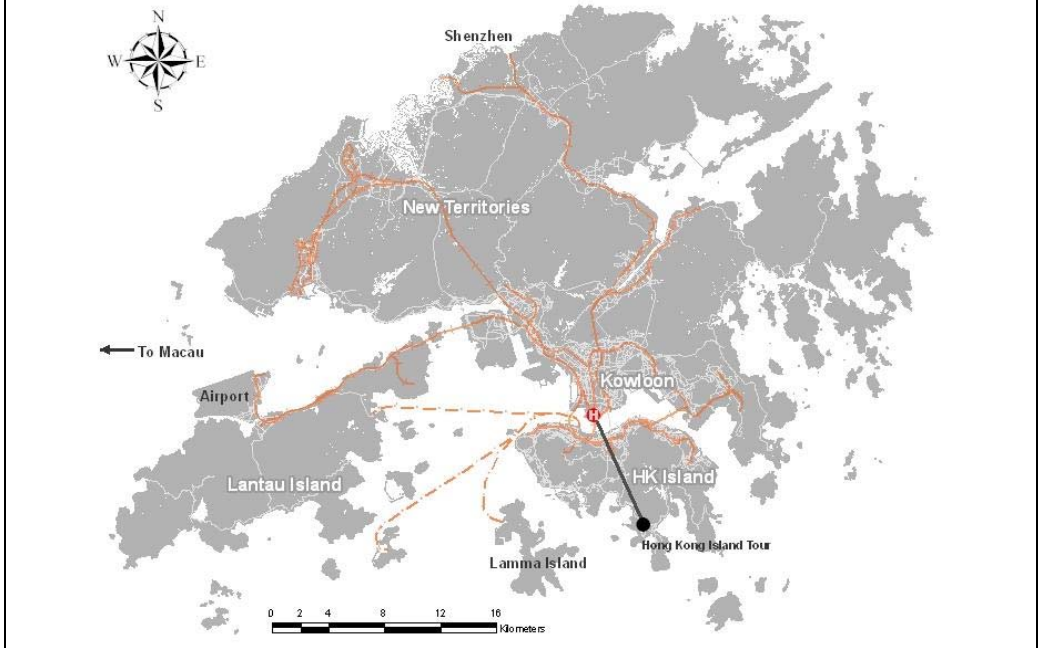


Figure 5.1b Simplified route of Hong Kong Island Tour

Figure 5.1 Map Sketch of Hong Kong Island Tour

6. Cross Border Visit to China or Macau

The final element to consider is whether the tourist paid a visit to Macau or China as part of their daily itinerary. Tourist visitation to these cities reduces the time that they spend in other local attractions. These visits would result in a different time management for other attractions. Hong Kong, locates at the entrance of the Pearl

River Delta, acts as a gateway stop to other China destinations including Macau, Shenzhen and Guangzhou. All the three Chinese cities can be reached, either by ferry or rail network, in a one-hour journey. Tourists travel around within these cities and visit a number of attractions. As a study of intradestination movement patterns, movements in other Chinese cities are out of the territorial boundary of local destination in this research. Again, like the local tour, visits to other cities are considered as a single tourism products which indicate tourist intention and actual behavior of visitation. These points of visitation are differentiated from attractions locate in Hong Kong.

5.2 Formation of Patterns

Patterns are generated based on the six elements of considerations mentioned above and maps produced using GIS software. Each map contains individual daily itineraries recorded on the trip diaries. They were evaluated and examined separately. The detailed maps were then transformed into simplified patterns depicting movements in a more systematic way. Patterns were derived from the maps with specific symbols showing different components. Hotels, attractions, local day tours and nearby Chinese cities visited by tourists were digitized as different style of points. Transit routes were presented as lines both on the maps and in the illustrated patterns. Local exploration within the immediate area of the hotel was represented by a circle surrounding the point. Graphical representations of each pattern were based on symbols presented in Table 5.1.

Table 5.1 Symbol used for Pattern Design

Symbol	Item	Description
	**Hotel**	The hotel where the tourists stayed and where the daily itinerary starts and ends.
	**Attraction / Point of Interest / Activity Participated**	Each black dot represents an attraction or a point of interest that the tourist visited and a single activity that the tourists participated.
	**Local Sightseeing Tour**	Each dot with "T" represents a local sightseeing tour that the tourist joined. These tour can be either half-day or full day tour.
	**Cross Border Trip**	Each dot with "C" represents that the tourist visited a Chinese city in the day. These Chinese cities include Shenzhen, Guangzhou or Macau.
	Transit Route	The solid black line shows the transit route between the points visited by tourist.
	**Local Exploration as Part of the Trip**	The dotted circle indicates tourist visited places within the 500m of the hotel area and traveled beyond it in a single trip.
	**Local Exploration as a Standalone Trip**	The solid circle indicates tourist visited places within the 500m of the hotel area without going further beyond the hotel region.

Three examples explain how the patterns are derived from daily itinerary maps. The associate patterns were also illustrated. They represented a variety of patterns: pure local exploration pattern, single trip multiple stops pattern and multiple trips tour-taking pattern.

Example 1 Pure Local Exploration Pattern (Figure 5.2)

The tourist stayed in the Marco Polo Gateway hotel and this is the first day of visitation. The tourist started from the hotel and visited two major attractions within the local area including the Harbour Promenade and Avenue of Stars. In between these two major attractions, the tourist explored the local area and wandered around shopping malls and other general sightseeing spots. The tourist then returned to the hotel at the end of the day without going for another trip. This pattern is defined as a single trip pattern within the local Tsim Sha Tsui area. The tourist did not go out of the boundary of the Tsim Sha Tsui area and movements were within the neighboring

area and were rather confined and restricted. Figure 5.2 shows the actual mapping of tourist movements and the simplified illustration of the movement.

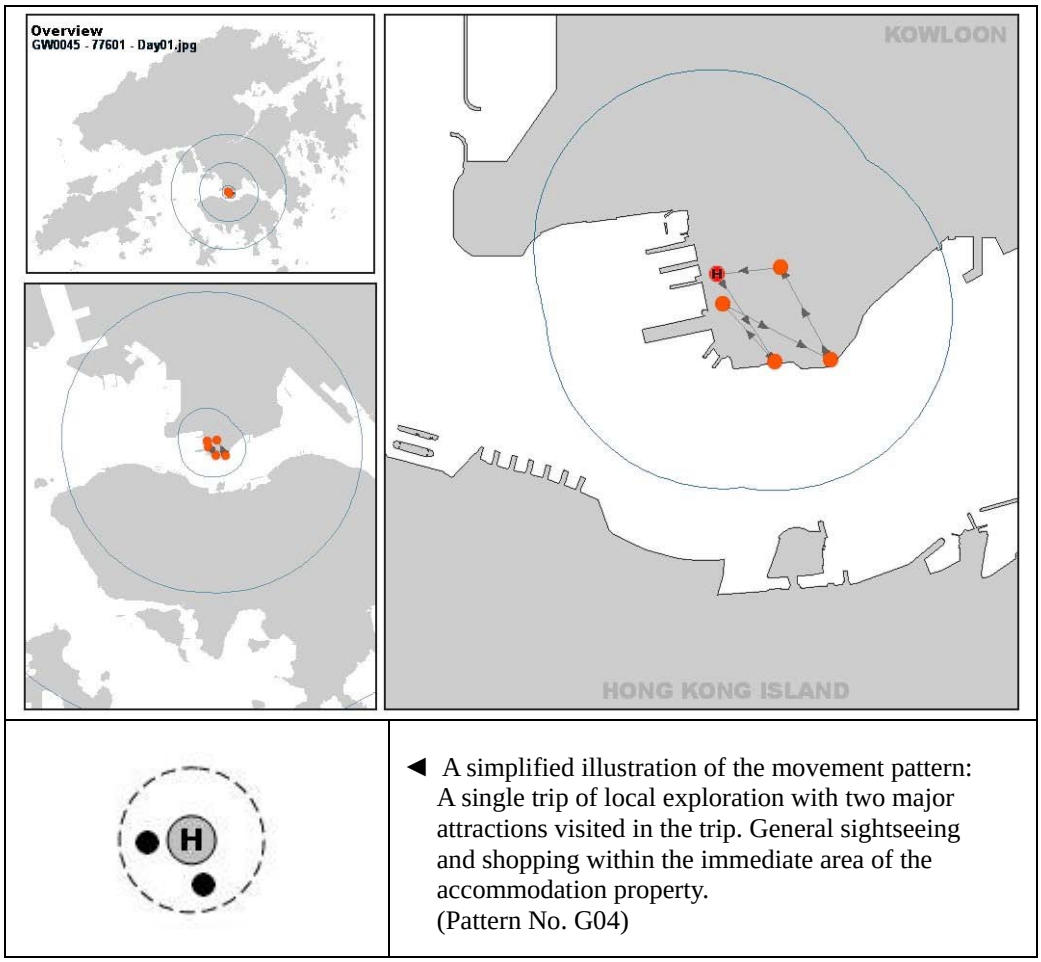


Figure 5.2 Local Exploration, actually mapping and simplified sketch

Example 2 Single Trip Multiple Stops with Local Exploration Pattern (Figure 5.3)

The tourists stayed in The Kowloon Hotel, starting the first day journey by general exploration of the immediate hotel area. The tourist then visited Tung Chung as a stop to the Big Buddha and visited Ladies Market before returning to the hotel. This showed a circular loop pattern in which local exploration was involved. Figure 5.3 shows the map of the circular loop with local exploration and a simplified illustration is also shown. This was a single trip pattern which tourist touring around without going back to the hotel in the middle of the day and no repeat routes was demonstrated.

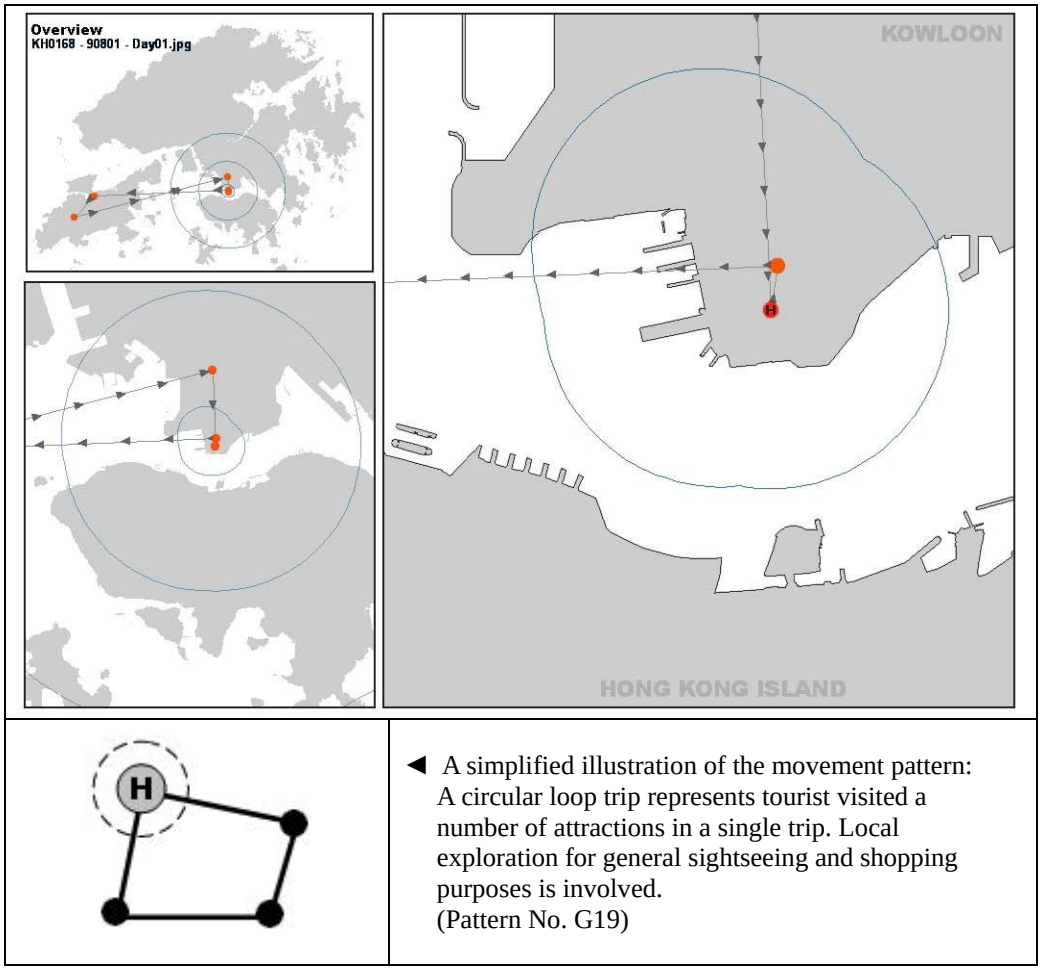


Figure 5.3 Circular Loop with Local Exploration

Example 3 Multiple Trips with Local Sightseeing Tour Joined (Figure 5.4)

The tourist stayed in the Marco Polo Hong Kong Hotel, starting his first day by joining a local sightseeing tour named as Hong Kong Island Tour. The tour includes visits to a number of attractions on the Hong Kong Island as shown in Figure 5.1a. After the tour, the tourist returned to the hotel and started another trip to Temple Street, an open air market. The trip ended after the visit to the Market. This is an example of multiple trips in which tourists return to the hotel in the middle of the day, take a rest and start another trip after that. It also signifies by the participation in a local commercial day tour in one of the trips. Figure 5.4 shows the mapping of the multiple trips pattern and a simplified illustration is also shown. This pattern

illustrates tourist movement of multiple trips in which one of the trips include a local sightseeing tour.

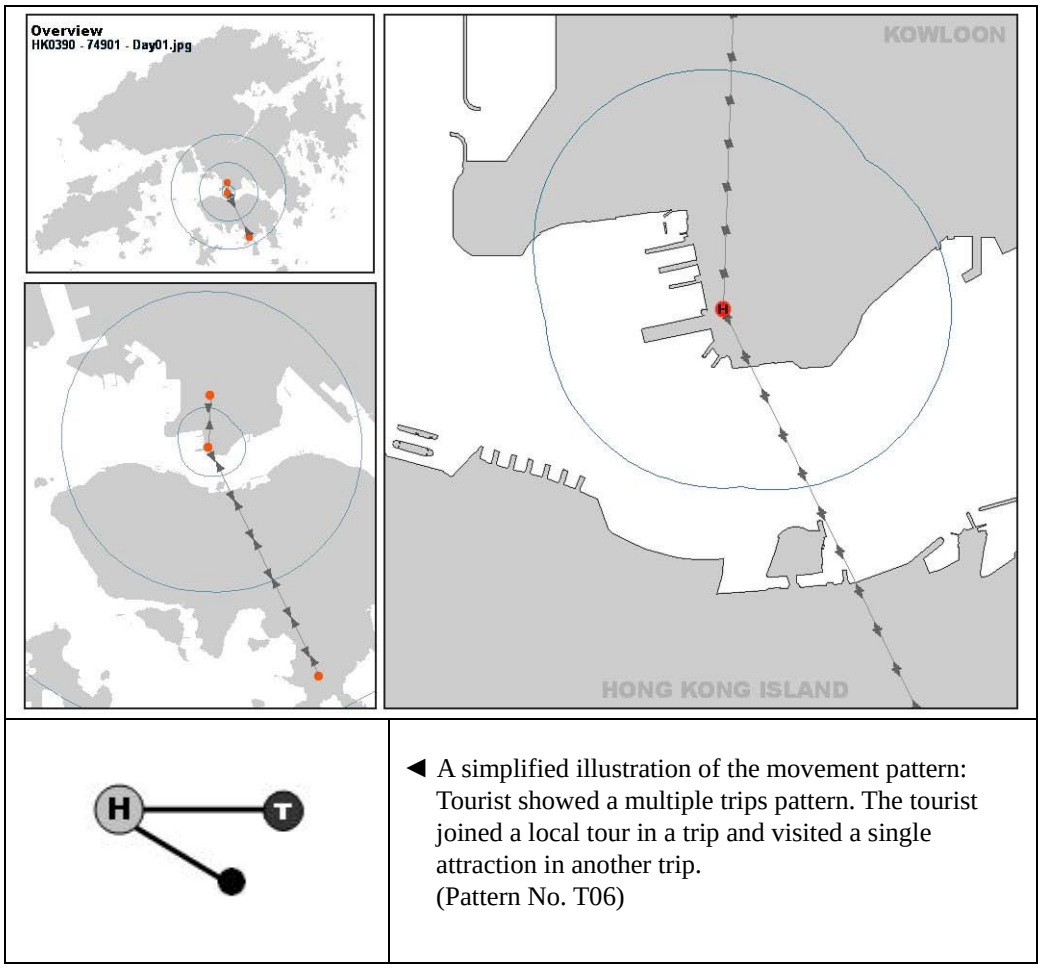


Figure 5.4 Multiple Trips including a Local Tour, actually mapping and simplified sketch

5.3 The 78 Patterns

Daily itinerary maps were evaluated separately. Applications of the six consideration elements resulted in the identification of 78 generic movement patterns. The frequency of each pattern ranged from 1 to 124. This section presents the result patterns and they are grouped for ease of interpretation into three major sets, general, tour-taker and cross border. Each pattern is assigned with a code number for ease of discussion according to the set they belonged to. Pattern code initiated with “G”

indicates that the pattern belongs to the general set; “T” represents the tour-taker set; and “C” symbolizes the cross-border set. The grouping of patterns and the frequency counts of each set of patterns are presented in Table 5.2.

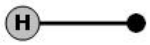
Table 5.2 Frequency Counts of Each Set of Patterns

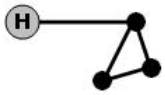
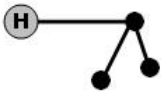
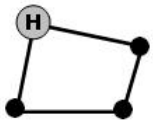
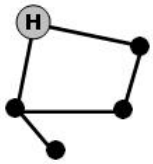
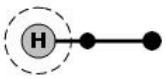
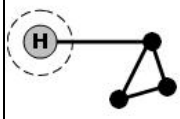
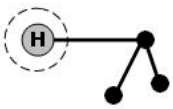
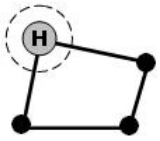
Pattern Set	Pattern Code	No. of Patterns	No. of Itineraries		No. of Tourists	
General Set	**G01-G54**	**54**	**733**	**78.8%**	**243**	**97.2%**
▪ Local Exploration	G01-G08	8	197	21.2%	140	56.0%
▪ Single Trip	G09-G21	13	410	44.1%	190	76.0%
▪ Multiple Trips	G22-G54	33	126	13.5%	84	33.6%
Tour Take Set	**T01-T15**	**15**	**155**	**16.7%**	**112**	**44.8%**
Cross Border Set	**C01-C09**	**9**	**42**	**4.5%**	**37**	**14.8%**
Total	**All**	**78**	**930**	**100.0%**	**250**	**100.0%**

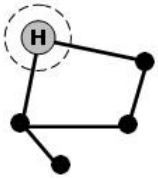
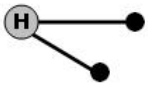
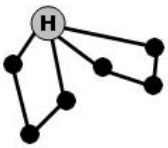
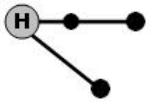
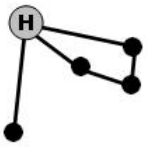
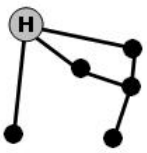
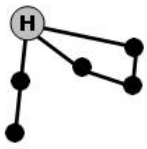
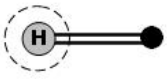
The general set includes patterns with all visited points located within the boundary of Hong Kong, and excludes all the local sightseeing tour points and Chinese cities such as Guangzhou, Shenzhen and Macau. It consists of patterns such as “No Movement”, “Local Exploration”, “Single Trip” and “Multiple Trips”. The set can be further sub-divided based on the number of trips and confined activities within the immediate local hotel area.

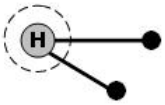
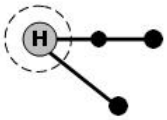
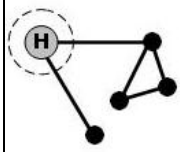
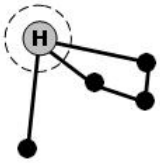
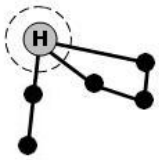
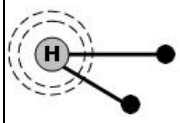
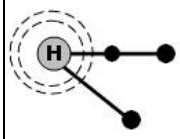
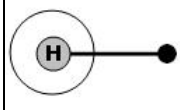
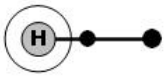
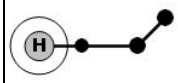
The tour-taker set contains patterns that include a local sightseeing tour whereas cross border set includes patterns of which respondents pay visits to China or Macau. Less than one-fifth of the respondents participated in cross-border tourism to Macau or China during their trip in Hong Kong. The detail of the result patterns are illustrated in Table 5.3. Descriptions, frequency counts and the associated number of tourists for each pattern are also presented.

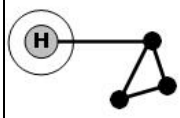
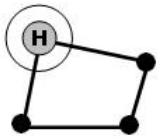
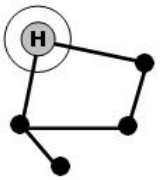
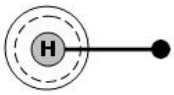
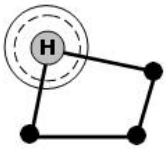
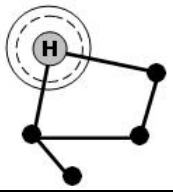
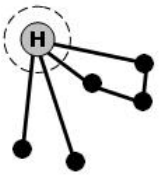
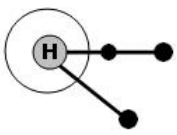
Table 5.3 Illustration and Description of the 78 Intradestination Movement Patterns

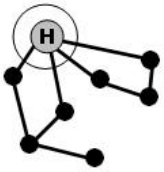
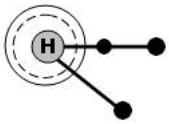
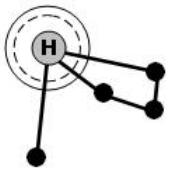
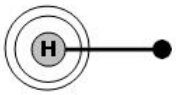
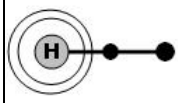
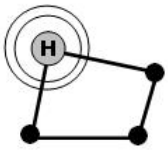
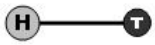
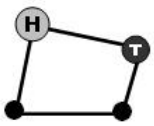
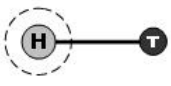
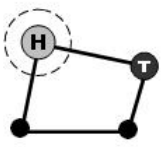
No	Illustration	Pattern Description	Freq.	Tourist #
GENERAL SET (G) (54 Patterns)				
No Movement				
G01		Stay in the hotel and do not leave the hotel. Visit none of the attractions/ points of interests.	**17** (1.8%)	**15** (6.0%)
Local Exploration – Single Trip				
G02		A single trip out within local hotel area. General exploration of local area, no specific attraction(s) visited.	**124** (13.3%)	**100** (40%)
G03		Visited a single attraction in a single trip within the local area.	**26** (2.8%)	**25** (10%)
G04		Visited 2 or more specific attractions within the local area in a single trip.	**13** (1.4%)	**13** (5.2%)
Local Exploration – Multiple Trips				
G05		Repeat visit of the same attraction within local area.	**1** (0.1%)	**1** (0.4%)
G06		Multiple trips within local area. General exploration of the local area without visiting any specific attraction.	**10** (1.1%)	**10** (4.0%)
G07		Multiple trips within local area. Trips include a general exploration trip and another trip visiting one attraction.	**5** (0.5%)	**5** (2.0%)
G08		Multiple trips within local area. Trips include 1 general exploration trip & another trip with 2 or more specific attractions visited.	**1** (0.1%)	**1** (0.4%)
Single Trip				
G09		Only visit a single attraction outside the local area in a single trip. Direct from & to trip to the single attraction. Repetition of the transit route between the hotel and the attraction visited.	**59** (6.3%)	**47** (18.8%)

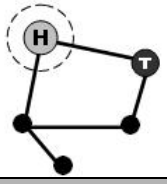
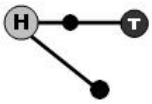
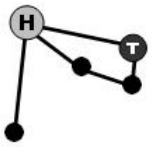
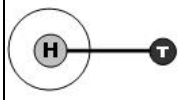
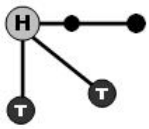
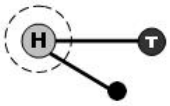
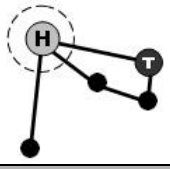
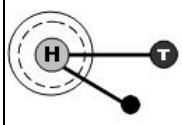
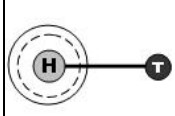
No	Illustration	Pattern Description	Freq.	Tourist #
G10		Visit a single attraction during the day, stop either on the way to the attraction or on the way back, or both.	**28** (3.0%)	**26** (10.4%)
G11		Start the trip going to a base site, and then loop through a number of attractions and going back to the base site. Go back to the hotel from the base site at the end of the day.	**1** (0.1%)	**1** (0.4%)
G12		Start the trip by going to a base site, then, visit a number of attractions from & to the base site. Go back to the hotel from the base site at the end of the day.	**2** (0.2%)	**2** (0.8%)
G13		Loop through two of more attractions in a single trip. No repeat route is recorded.	**55** (5.9%)	**43** (17.2%)
G14		Loop through a number of attractions in a single trip, and from one of the attractions visited, go further away to another attraction and back to continue with the loop. Side trip is made from an attraction in the loop.	**4** (0.4%)	**4** (1.6%)
Single Trip – with Local Exploration				
G15		Direct to and from trip with local exploration. Similar with G09 plus local exploration either on the way out or back to hotel.	**106** (11.4%)	**89** (35.6%)
G16		Direct to and from trip with stop in between and with local exploration. Similar with G10 plus local exploration.	**55** (5.9%)	**41** (16.4%)
G17		Start the trip going to a base site, and then loop through a number of attractions and going back to the base site. Go back to the hotel from the base site at the end of the day. Local exploration either on the way out or back to hotel.	**8** (0.9%)	**8** (3.2%)
G18		Start the trip by going to a base site, then, visit a number of attractions from & to the base site. Go back to the hotel from the base site at the end of the day. Local exploration either on the way out or back to hotel.	**3** (0.3%)	**3** (1.2%)
G19		Circular loop trip with local exploration.	**82** (8.8%)	**70** (28.0%)

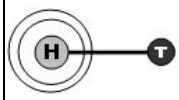
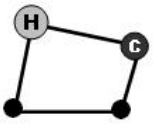
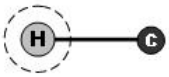
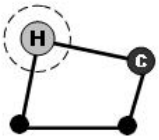
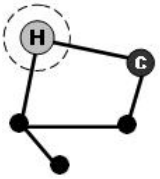
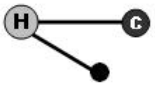
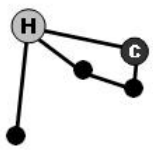
No	Illustration	Pattern Description	Freq.	Tourist #
G20		Loop through a number of attractions in a single trip, and from one of the attractions visited, go further away to another attraction and back to t continue the loop with local exploration.	**4** (0.4%)	**4** (1.6%)
G21		Complex pattern in a single trip. Visited a number of attractions in the trip. Multiple stops in a single trip.	**3** (0.3%)	**3** (1.2%)
Multiple Trips – 2 Trips				
G22		Repetitive route from hotel to a single attraction. The tourist visited the same attraction twice in that single day.	**1** (0.1%)	**1** (0.4%)
G23		Multiple trips of direct to and from a single point in a single trip.	**7** (0.8%)	**6** (2.4%)
G24		Multiple trips of circular loop. Tourist visit 2 or more points in each trip and going for 2 or more trips in the day.	**2** (0.2%)	**2** (0.8%)
G25		Multiple trips: a combination of 2 trips, one direct trip and one direct trip with stop in between the major attraction & hotel.	**3** (0.3%)	**3** (1.2%)
G26		Multiple trips: a combination of 2 trips, one direct trip and a circular loop trip.	**4** (0.4%)	**4** (1.6%)
G27		Multiple trips: a combination of 2 trips, one direct trip and a circular loop with side trip.	**1** (0.1%)	**1** (0.4%)
G28		Multiple trips: a combination of 2 trips, one direct trip with stop & one circular loop.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (2 trips) – with one of the trips involves Local Exploration				
G29		Repetitive route from hotel to a single attraction. The tourist visits the same attraction twice in that single day. Either of the trips includes local exploration.	**1** (0.1%)	**1** (0.4%)

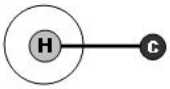
No	Illustration	Pattern Description	Freq.	Tourist #
G30		Multiple trips: 2 direct routes with either of the trips perform local exploration.	**6** (0.6%)	**6** (2.4%)
G31		Multiple trips: 1 direct trip and 1 direct trip with stop in between. Either of the trips performs local exploration.	**5** (0.5%)	**5** (2.0%)
G32		Multiple trips: one direct trip and one base site circular trip. Local exploration is expected in either of the trips.	**5** (0.5%)	**5** (2.0%)
G33		Multiple trips: a combination of 2 trips, one direct trip and a circular loop trip. Local exploration is expected in either of the trips.	**3** (0.3%)	**3** (1.2%)
G34		Multiple trips: one circular loop trip and the other direct trip with stop. Local exploration is expected in either of the trips.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (2 trips) – with both trips involve Local Exploration				
G35		Multiple trips: 2 direct trips & local exploration is expected in both trips.	**2** (0.2%)	**2** (0.8%)
G36		Multiple trips: 1 direct trip and 1 direct trip with stop in between. Local exploration is expected in both trips.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (2 trips) – with A Standalone Local Exploration Trip				
G37		Multiple trips: one direct trip and a standalone local exploration trip.	**21** (2.3%)	**20** (8.0%)
G38		Multiple trips: one direct trip with stop and a standalone local exploration trip.	**11** (1.2%)	**10** (4.0%)
G39		Multiple trips: one direct trip with stops in between the major attraction and a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)

No	Illustration	Pattern Description	Freq.	Tourist #
G40		Multiple trips: base site circular loop trip and a standalone local exploration trip.	**2** (0.2%)	**2** (0.8%)
G41		Multiple trips: 1 circular trip and a standalone local exploration trip.	**9** (1.0%)	**9** (3.6%)
G42		Multiple trips: circular loop with side trip and a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (2 trips) – with A Standalone Local Exploration Trip & a General Trip with Local Exploration				
G43		Multiple trips: one direct trip with local exploration and a standalone local exploration trip.	**16** (1.7%)	**14** (5.6%)
G44		Multiple trips: circular loop with local exploration and a standalone local exploration trip.	**7** (0.8%)	**7** (2.8%)
G45		Multiple trips: circular loop with side trip & local exploration and a standalone local exploration trip.	**3** (0.3%)	**3** (1.2%)
G46	COMPLEX - MULTIPLE -	Multiple trips: complex movements which involved multiple stops.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (3 Trips) – with one trip involve Local Exploration				
G47		Multiple trips: 2 direct routes and 1 circular loop. Local exploration is expected in one of the three trips.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (3 Trips) – one of the trips is a standalone Local Exploration Trip				
G48		Multiple trips: one direct route, one direct route with stop and a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)

No	Illustration	Pattern Description	Freq.	Tourist #
G49		Multiple trips: 1 circular loop and 1 circular loop with side trip and a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)
G50		Multiple trips: one direct route, one direct route with stop. Either of the routes includes local exploration. And a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)
G51		Multiple trips: a combination of 2 trips, one direct trip and a circular loop trip. Either of the trips includes local exploration. And a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)
Multiple Trips (3 Trips) – 2 standalone Local Exploration Trips				
G52		Multiple trips: one direct trip and 2 standalone local exploration trips.	**2** (0.2%)	**2** (0.8%)
G53		Multiple trips: one direct route with stop and 2 standalone local exploration trips.	**2** (0.2%)	**2** (0.8%)
G54		Multiple trips: one circular loop trip and 2 standalone local exploration trips.	**2** (0.2%)	**2** (0.8%)
TOUR-TAKER SET (T) (15 Patterns)				
Local Tour – Single Trip				
T01		One single tour joined in the day without going to any other attractions.	**34** (3.7%)	**27** (10.8%)
T02		Joined a tour in the day and visited a number of attractions without going back to the hotel in the middle of the day.	**2** (0.2%)	**2** (0.8%)
Local Tour – Single Trip with Local Exploration				
T03		One single tour joined in the day without going to any other attractions. Local exploration is expected in the trip.	**27** (2.9%)	**26** (10.4%)
T04		Joined a tour in the day and visited a number of attractions without going back to the hotel in the middle of the day. Local exploration is expected in the trip.	**11** (1.2%)	**11** (4.4%)

No	Illustration	Pattern Description	Freq.	Tourist #
T05		Circular loop with tour and side trip. Local exploration is expected in the trip.	**3** (0.3%)	**3** (1.2%)
Local Tour – Multiple Trips				
T06		Multiple trips: a single tour trip and visited another single attraction in another trip.	**14** (1.5%)	**14** (5.6%)
T07		Multiple trips: one direct trip and a direct tour with stop in between. A tour is joined in either of the trips.	**2** (0.2%)	**2** (0.8%)
T08		Multiple trips: 1 direct trip and a circular trip which includes a local tour.	**8** (0.9%)	**8** (3.2%)
T09		Multiple trips: one direct tour route and a standalone trip of local exploration.	**30** (3.2%)	**27** (10.8%)
Local Tour – Multiple Trips (2 Local Tour Trips)				
T10		Multiple trips: 2 direct trips of tour and another trip of direct route with stop.	**1** (0.1%)	**1** (0.4%)
Local Tour – Multiple Trips with Local Exploration included in one of the trips				
T11		Multiple trips: one direct trip of tour and the other direct trip to a single attraction. Either of the trips includes local exploration.	**10** (1.1%)	**10** (4.0%)
T12		Multiple trips: one circular loop includes the tour and 1 direct route. Either of the trips includes local exploration.	**4** (0.4%)	**4** (1.6%)
Local Tour – Multiple Trips with standalone Local Exploration trip(s)				
T13		Multiple trips: 1 direct route & 1 direct tour route. Either of the trips includes local exploration. Plus, a standalone local exploration trip.	**1** (0.1%)	**1** (0.4%)
T14		Multiple trips: one direct tour route with local exploration and a standalone local exploration trip.	**5** (0.5%)	**5** (2.0%)

No	Illustration	Pattern Description	Freq.	Tourist #
T15		Multiple trips: 1 direct tour route and 2 standalone local exploration trips.	**3** (0.3%)	**3** (1.2%)
CROSS-BORDER SET (C) (9 Patterns)				
Cross Border Tourism – Single Trip				
C01		Direct route for cross border tourism.	**23** (2.5%)	**19** (7.6%)
C02		Direct route for cross border tourism with stop in between.	**1** (0.1%)	**1** (0.4%)
C03		Circular loop which includes one cross border site.	**1** (0.1%)	**1** (0.4%)
Cross Border Tourism – Single Trip with Local Exploration				
C04		Direct route for cross border tourism with local exploration.	**7** (0.8%)	**6** (2.4%)
C05		Circular loop which includes one cross border site with local exploration.	**2** (0.2%)	**2** (0.8%)
C06		Circular loop which includes one cross border site, side trips with local exploration.	**1** (0.1%)	**1** (0.4%)
Cross Border Tourism – Multiple Trips				
C07		Multiple trips: 1 direct route & 1 direct cross border route.	**1** (0.1%)	**1** (0.4%)
C08		Multiple trips: 1 direct route & 1 circular loop which include a cross border site.	**1** (0.1%)	**1** (0.4%)
Cross Border Tourism – Multiple Trips with standalone Local Exploration Trip				

No	Illustration	Pattern Description	Freq.	Tourist #
C09		Multiple trips: 1 direct route for cross border tourism and a standalone local exploration trip.	**5** (0.5%)	**5** (2.0%)
Legend of Interpretation		Hotel Attraction / Point of Interest Local Sightseeing Tour Cross Border Tourism (to China/Macau) Transit Route between Attractions/Point of Interest Local Exploration as Part of the Trip Local Exploration as a Standalone Trip		

5.4 Summary of Patterns

Substantial differences are noted in the patterns. The patterns ranged from "no movement" (G01) to "multiple trips which involve multiple attractions visitation" (G51). Here is a summary and interpretation of the 78 patterns based on trip characteristics.

Pattern of No Movement

A very special pattern identified here is "no movement" (G01). It represents no spatial movement is documented by tourist in a particular day. The tourist does not leave the accommodation property and does not involve in any kind of activities. This is the utmost confined movement pattern demonstrated. This can be explained by the limited time budget of tourist on either first or last day of visitation. He/she may arrive at the destination very late at night which leaves no time for any visitation activity.

Pattern Popularity

The most common pattern is the "Single Trip Local Exploration" pattern (G02). Two

out of five tourists (40.0%) demonstrated this pattern during their stay and it was found 124 of the total 930 patterns. The second most common pattern is “Single Trip of Single Point of Visitation with Local Exploration” pattern (G15) which consisted of 106 (11.3%) itinerary routes. The third most common pattern is “Single Trip Multiple Stops with Local Exploration” pattern (G19) with 82 (8.8%) itinerary routes showed by 70 tourists. All the top three exhibited patterns are patterns from the general set and are associated with local territorial exploration. The importance of familiarization is noted from the involvement of local exploration in the three most popular patterns.

On the other hand, the least popular patterns should be addressed. Twenty-four (24) patterns were only demonstrated once and 10 patterns were exhibited twice. They are mainly multiple trips patterns which involve visits to a great number of attractions. Although the occurrence for these patterns was relatively small, higher number of frequency is expected if the sample size is larger.

Single Trip versus Multiple Trips Pattern

Time schedules are different between single and multiple trips patterns. In single trip patterns, tourists leave the hotel and visit a single attraction or combine visits to multiple attractions. Time is utilized fully in or between attractions. In multiple trip patterns, tourists return to the hotel from an attraction and go out again. Time is spent in transit between attractions and the hotel which reduce the time spent in other attractions.

Among the 78 patterns, 28 are single trips and 49 are multiple trips. Fewer single trip patterns are identified but more itinerary routes are associated with them. Three out

of four daily itineraries (73.8%) belong to the single trip and the associate patterns are: G02-G04, G09-G21, T01-T05 and C01-C06. Despite of the huge number of patterns (G22-G54, C07-C09 and T06-T15), multiple trip daily itineraries only account for one-quarter (24.4%) of the total itineraries.

Single trip patterns are, therefore, more common in this study. Tourists tend to bundle attractions and visit them in the same trip. Once finished, they return to the hotel to end the day. They are less likely to break their daily journey into multiple trips with frequent returns to the hotel.

Single Stop versus Multiple Stops Pattern

Similar to bundling destinations in multi-destination trips, tourists sometimes bundle attractions within a local destination. Single stop patterns represent visitation to a single site while multiple stop patterns involve visits to a number of attractions. Multiple stops patterns are more common.

The majority are multiple stops patterns (63 patterns and 578 associated routes), while only 14 single stop patterns were noted (G09, G15, G22, G29, G37, G43, G52, T01, T03, T09, T15, C01, C04 and C09) with 335 (36.0%) associated itineraries. Apart from the single out-lying attraction visited, most multiple stops patterns involve some as part of exploration in the hotel region. Only 2 patterns (G09 and G22) demonstrate visits to single isolated sites, with G22 shows repeat visits within the same day. The two patterns account only for 6% of the total itinerary, suggests that single stop pattern is not favourable for intradestination movements. Tourists bundle attractions. They spend more time in different attractions rather than spending the whole day in one site.

Importance of Territorial Exploration

Territorial exploration is common, either incorporated in trips or acting as a standalone activity. It is defined by confined movements within a 500m radius circle of the hotel property. Patterns identified in this research conform to the suggested Territorial Models of Lew & McKercher (2006).

Eight patterns (G02-G08) show daily movements exclusively within this boundary. They account for one-fifth (19.3%) of all itineraries. Twenty-five (25) patterns (G09-G14, G22-G28, C01-C03, C07-C08, T01-T02 and T06-T10) do not contain any form of local exploration. They are spatially extensive which are similar to "Unrestricted Destination-wide Movements" (Type T4) suggested in the Territorial Models.

Forty-six (46) patterns combined local exploration with visits to outlying attractions. They are the dominant group of patterns which contain over half (51.3%) of all itineraries. They share the same characteristics of "Concentric Exploration" Patterns (Type T3) in the Territorial Models. Tourist combines confined movements within the accommodation region and explores further after he/she familiarized with the destination.

Pattern Repetition

Respondents normally do not replicate the same pattern during their stay, however, eighteen (18) patterns are repeated. Table 5.4 shows the repeated patterns and the frequency of repetition. The most recurring pattern is "Single Trip Local Exploration" pattern (G02). Nineteen (19) tourists repeated this pattern, 14 repeated it twice and 5 tourists repeated it 3 times. The second most repeated pattern is "Stopover with Local Exploration" pattern (G16), which involves local exploration

and intermediate stop to another distant attraction. Thirteen respondents repeated this pattern. The third is “Single Stop Local Exploration” pattern (G15). Tourist visits only one attraction and explore locally in a single trip. Twelve (12) respondents repeated this pattern and five of them exhibited the pattern three times.

Pattern T01, tourist only join a local tour, is repeated four times. That tourist stayed in the local destination for 6 nights and only two different patterns were shown, i.e. T01 & G09, a single trip with one single attraction visited. The tourist showed himself to be less exploratory as this was his first time visit to Hong Kong. Tourists sometimes repeat the same pattern during their stay in a local destination, but in most of the time they show different patterns on different days. Intradestination movement patterns are diverse and vary on different days in the same tourist journey.

Table 5.4 Pattern Repetition

Pattern	Total No. of Tourists who Showed the Pattern	Tourists who Repeat the Pattern		No. of Repetitions				Itineraries Associated with Repetition	
		Count	%	Once	Twice	3 Times	4 Times	Count	%
G02	**100**	**19**	19.0%	**81**	**14**	**5**	0	**43**	34.7%
G16	41	**13**	31.7%	28	**12**	1	0	**27**	49.1%
G15	**89**	**12**	13.5%	**77**	7	**5**	0	**29**	27.4%
G19	**70**	11	15.7%	**59**	**10**	1	0	23	28.0%
G09	47	10	21.3%	37	8	2	0	22	37.3%
G13	43	9	20.9%	34	6	**3**	0	21	38.2%
T01	27	5	18.5%	22	4	0	**1**	12	35.3%
T09	27	3	11.1%	24	3	0	0	6	20.0%
C01	19	3	15.8%	16	2	1	0	7	30.4%
G01	15	2	13.3%	13	2	0	0	4	23.5%
G10	26	2	7.7%	24	2	0	0	4	14.3%
G03	25	1	4.0%	24	1	0	0	2	7.7%
G23	6	1	16.7%	5	1	0	0	2	28.6%
G37	20	1	5.0%	19	1	0	0	2	9.5%
G38	10	1	10.0%	9	1	0	0	2	18.2%
T03	26	1	3.8%	25	1	0	0	2	7.4%
C04	6	1	16.7%	5	1	0	0	2	28.6%
G43	14	1	7.1%	13	0	1	0	3	18.8%

5.5 Identifying Influential Variables

The summary of patterns in Section 5.4 leads to the study of factors that may affect their intention. The identified importance of number of trips and local exploration in intradestination movements trigger the understanding of underlying factors. Analysis between trip variables and the pattern sets acts as a preliminary investigation to the detailed study in Chapter 6. The analysis also offers insight on the effect of local tour and cross-border tourism on movements. The 5 sets identified in Table 5.2 form the unit of analysis: local exploration, single trip, multiple trips, tour-taker and cross border tourism. Variables include the day of visitation, previous visitation and length of stay are studied and proved to be statistical significance. Some other variables are proved to be insignificant including the hotel and destination status.

1. Day of Visitation

Day of visitation proved to be statistically significant (X^2=144.857, df=8, p=0.000). Itineraries are divided into three different groups under day of visitation: they are “first day”, “intermediate day” and “last day” of visitation. This grouping means intermediate days include day 2 to 6 in three to eight night stays. Given a typical length of stay of 3.8 nights, about one-quarter of all itineraries should be found in the first and last day respectively, while about half should fall in to the “intermediate” category. In fact 47.8% of the itineraries are in the intermediate day group. About one quarter (26.9%) are first day itineraries and the rest (25.3%) are last day itineraries.

Table 5.5 Cross Tabulation between Day of Visitation and Pattern Sets

Pattern Set		Day of Visitation			Total
		First	Intermediate	Last	
General – Local Exploration	Count	75	31	91	197
	% within Set	*38.1%*	*15.7%*	*46.2%*	*100.0%*
	Std. Residual	3.0	-6.5	5.8	
General – Single Trip	Count	93	210	107	410
	% within Set	*22.7%*	*51.2%*	*26.1%*	*100.0%*
	Std. Residual	-1.6	1.0	0.3	
General – Multiple Trips	Count	34	78	14	126
	% within Set	*27.0%*	*61.9%*	*11.1%*	*100.0%*
	Std. Residual	.0	2.3	-3.2	
Tour Taker Set	Count	46	89	20	155
	% within Set	*29.7%*	*57.4%*	*12.9%*	*100.0%*
	Std. Residual	0.7	1.7	-3.1	
Cross Border Set	Count	2	37	3	42
	% within Set	*4.8%*	*88.1%*	*7.1%*	*100.0%*
	Std. Residual	-2.8	3.8	-2.3	
Total	Count	250	445	235	930
	% within Set	*26.9%*	*47.8%*	*25.3%*	*100.0%*

Chi-square results are shown in Table 5.5. “Local Exploration” in General Set is much more likely to be shown on first (std. residual=3.0) and last days (std. residual=5.8) whereas it is significantly less common in intermediate days (std. residual=-6.5). Multiple Trip patterns and Cross Border Patterns are more likely to be associated with intermediate days. Finding suggests that tourists are more likely to stay close to the hotel on the first and last day of their visit. More varied patterns and more extensive movements occur during the middle of the trip.

Tourists tend to explore the local destination on the first day and go into the deeper exploration patterns, such as visiting China and Macau or visiting more attractions, in the middle of their trip. Towards the end of the trip, tourist stayed close to the hotel again by showing less extensive patterns.

2. Visitation History

The chi-square test results reveal that movement patterns of first time visitors and

repeat visitors are statistically different (X^2=11.558, df=4, p=0.021). According to the results shown in Table 5.6, Tour-Taker Set patterns (std. residual=1.6) are more likely to be found among first time visitors to Hong Kong.

Table 5.6 Cross Tabulation between Visitation History and Pattern Sets

Pattern Set		Visitation History		Total
		First Time	Repeat	
General – Local Exploration	Count	105	92	197
	% within Set	*53.3%*	*46.7%*	*100.0%*
	Std. Residual	-0.2	0.2	
General – Single Trip	Count	222	188	410
	% within Set	*54.1%*	*45.9%*	*100.0%*
	Std. Residual	0.0	0.0	
General – Multiple Trips	Count	55	71	126
	% within Set	*43.7%*	*56.3%*	*100.0%*
	Std. Residual	-1.6	1.7	
Tour Taker Set	Count	99	56	155
	% within Set	*63.9%*	*36.1%*	*100.0%*
	Std. Residual	1.6	-1.8	
Cross Border Set	Count	23	19	42
	% within Set	*54.8%*	*45.2%*	*100.0%*
	Std. Residual	0.1	-0.1	
Total	Count	504	426	930
	% within Set	*54.2%*	*45.8%*	*100.0%*

The local sightseeing tours are expected to give a brief introduction of the local destination to the tourists. However, Multiple Trip patterns (std. residual=-1.6) are less common among first time visitors. In contrast, more multiple trips patterns (std. residual=1.7) and fewer local tours patterns (std. residual=-1.8) are associated with repeat visitors. Repeat visitors show greater attachment to the hotel and are more likely to go back to the hotel in the middle of the day. Less local tour patterns are demonstrated because repeat visitors are expected to be more have familiarized themselves with the local destination in previous visit.

3. Length of Stay

Length of stay is another variable which proved to be statistically significant (X^2=24.346, df=8, p=0.002). General local exploration patterns are more frequently

associated with respondents who spent the least amount of time (1-3 nights) in the local destination (Table 5.7).

Table 5.7 Cross Tabulation between Length of Stay and Pattern Sets

Pattern Set		Length of Stay			Total
		1-3 nights	4-6 nights	7-8 nights	
General – Local Exploration	Count	92	83	22	197
	% within Set	*46.7%*	*42.1%*	*11.2%*	*100.0%*
	Std. Residual	2.3	-0.9	-1.9	
General – Single Trip	Count	145	198	67	410
	% within Set	*35.4%*	*48.3%*	*16.3%*	*100.0%*
	Std. Residual	-.05	0.5	-0.1	
General – Multiple Trips	Count	39	59	28	126
	% within Set	*31.0%*	*46.8%*	*22.2%*	*100.0%*
	Std. Residual	-1.1	0.0	1.6	
Tour Taker Set	Count	60	70	25	155
	% within Set	*38.7%*	*45.2%*	*16.1%*	*100.0%*
	Std. Residual	0.4	-0.3	-0.1	
Cross Border Set	Count	6	24	12	42
	% within Set	*14.3%*	*57.1%*	*28.6%*	*100.0%*
	Std. Residual	-2.4	1.0	1.9	
Total	Count	342	434	154	930
	% within Set	*36.8%*	*46.7%*	*16.6%*	*100.0%*

The standardized residual of the cell (2.3) shows that tourists with shorter stay spent more days in local exploration. Movements are confined within the immediate area of the hotel. The Cross-border set of patterns are less common in this group (std. residual=-2.4) owing to the limited time that tourists can spend within the destination. Although the standardized residual did not reach the critical value, two cells of the longer stay showed relatively higher numbers, they are the general local exploration set (std. residual=-1.9) and the cross-border set (std. residual=1.9). Local exploration patterns are less likely to be demonstrated by longer stay respondents, in contrast with the cross border patterns which are more likely to be associated.

4. Hotel & Main or Stopover Destination

Some variables proved to be statistically insignificant in relation to the pattern sets, such as hotel and destination status. Respondents stayed in four different hotels did

not show significant differences in pattern demonstration (X^2=18.578, df=12, p=0.099). Likewise, main destination and stopover visitations showed no difference. Again, this variable proved to be insignificant in the chi-square test (X^2=3.079, df=4, p=0.545).

5.6 Discussion

This chapter presented the systematic documentation of movement itineraries into patterns based on the six elements of consideration: number of trips; number of stops; connections between stops, territoriality, participation in local sightseeing and cross border tourism. A total of 78 patterns emerged. They combine both territoriality and linearity characteristics suggested by Lew and McKercher (2006). Simple analysis based on frequency counts is presented, showing the most common patterns and the repeated patterns.

A preliminary analysis on the influential variables of movement patterns was then undertaken. Patterns were grouped generally based on number of trips taken, standalone local exploration activity and participation in local tour and cross-border tourism. Three variables were proved to be statistically significant, including length of stay, day of visitation and visitation history. Other variables were not statistically related to the movement patterns, i.e. the hotel in which the respondents stayed at and destination status of Hong Kong.

The result suggested that tourists tend to stay close to the hotel either on first or last days of visitation. In contrast tourists display more extensive patterns in the middle days of the whole trip, even going cross border to Macau and China. First time visitors are more likely to participate in local commercial day tours, whereas repeat

visitors are more attached to the hotel by exhibiting multiple trip patterns. The results partially concur with previous study (Oppermann, 1997a) that repeaters involve in fewer activities, however their movements are spatially extensive.

Short stay tourists normally stay close in the immediate area of the hotel and less likely to explore. They are less likely to go across border showing a confined pattern of movement. Movement patterns of long stay tourists are more extensive and are less restricted to the hotel region. The result is consistent with previous research (Pearce, 1981; Cooper, 1981) in tourist movements that tourists with a longer stay show a more extensive movement.

5.7 Conclusion

Owing to the small cell size of some patterns of frequency count of one, the 78 discrete patterns imply the great diversity and complexity of the patterns. Therefore by collapsing these patterns into the 10 styles, a more detailed investigation on the underlying variables affecting tourist movements was carried out. The result will be discussed in next chapter.

CHAPTER 6 STYLES & INFLUENTIAL VARIABLES

Small cell size precluded detailed statistical analysis of all 78 patterns. However, more detail analysis is desired to identify influential variables related to tourist movement patterns. The preliminary analysis in Chapter 5 was rather primitive and the categorization of patterns into sets was too general. Therefore the patterns were re-aggregated into 10 styles for further detail investigation. This chapter explains the method of aggregation (Section 6.1) and examines trip characteristics in relation to tourist movement styles (Section 6.4). Illustrations of the 10 styles are provided in Sections 6.2 and 6.3.

6.1 Pattern Aggregation

Patterns exhibiting similar characteristics were aggregated to produce greater cell size for more detailed analysis. The re-categorization was based on the original criteria used to outline the patterns in the first attempt. The six elements were considered again to generalize the grouping of patterns: single or multiple trips, single or multiple stops, connections between stops, territoriality, joining of local sightseeing tour and cross border visits to China or Macau. However unlike previous categorization, cross border trip were considered as a general point of interest and were incorporated into the general patterns.

Based on the study in Chapter 5, differences between groups of single trip and multiple trips are statistically significant in relation with some of the underlying trip variables. Therefore patterns were grouped based on the number of trips recorded in the daily itinerary. Patterns are divided into groups of single or multiple trips. Trips within local hotel area are differentiated from the rest of the trips owing to the

importance of local exploration proved in previous chapter. In each of the trips, tourists may visit single or multiple attractions which lead to the variations in time budget for visitation. The number of points visited is also taken into consideration in grouping the patterns into styles. Daily itineraries which include a local sightseeing tour, mostly demonstrated by first time visitors, are sorted out and are further categorized into two styles based on the number of trips taken in each route.

6.2 Styles Illustrations

Ten styles emerged after the aggregation. These styles range from no movement to multiple trips with multiple stops. The name and abbreviation of each style are listed below, they are:

1. Style NM **N**o **M**ovement
2. Style LE **L**ocal **E**xploration Trip
3. Style SS **S**ingle Trip of **S**ingle Stop
4. Style SM **S**ingle Trip of **M**ultiple Stops
5. Style SSLE **S**ingle Trip of **S**ingle Stop with **L**ocal **E**xploration
6. Style SMLE **S**ingle Trip of **M**ultiple Stops with **L**ocal **E**xploration
7. Style MLE **M**ultiple Trips with Standalone **L**ocal **E**xploration Trip
8. Style MT **M**ultiple **T**rips with/without Local Exploration
9. Style TTS **T**our **T**aker of **S**ingle Trip
10. Style TTM **T**our **T**aker of **M**ultiple Trips

Each of the styles shows special characteristics which differentiate themselves from other styles. Table 6.1 shows the grouping of patterns into style and the illustration of each style is presented.

Style NM – No Movement

Tourist does not leave the hotel on the day. He/she stays in the hotel and visits none of the attractions or points of interests. No movement is recorded for daily itinerary showing this style.

Style LE – Local Exploration Trip

Tourist explores the immediate area of the hotel on the day. He/she stays within the boundary of the immediate area of the hotel and visits none of the attractions outside 1km of the hotel area. He/she spends time on general sightseeing and other activities, and sometimes visits one or two attractions within the local area. Some tourists may go back to the hotel at least once in the middle of the day, either for the reason of taking rests or for its proximity spatial location to the activity area.

Style SS – Single Trip of Single Stop

Tourist visits a single attraction outside the local hotel area in a single trip. He/she demonstrates a direct to-and-fro trip to a single attraction repeating the same route connecting the hotel with the site of interest. No side trips or stops are recorded in this style of movement.

Style SM – Single Trip of Multiple Stops

Tourist visits two or more attractions in a single trip. He/she does not go back to the hotel in the middle of the day. The stops are connected either in a circular manner or connected by the base site.

Style SSLE – Single Trip of Single Stop with Local Exploration

This is similar with Style SS in which tourist visits a single attraction outside the local area in a single trip. He/she goes directly to and from a single attraction without any side trips or stops. However, local exploration is added either on the way to the attractions or on the way back to the hotel.

Style SMLE – Single Trip of Multiple Stops with Local Exploration

This style is comparable with style SM with local exploration added to it. Tourist wanders around the local hotel area either on the way to the attractions or on the way back to the hotel. He/she visits a number of attractions or points of interest in a single trip and these visitation points are all outside the local hotel area.

Style MTLE – Multiple Trips with Standalone Local Exploration Trip

Itinerary classified as this style shows multiple trips visit in a day. The tourist goes back to the hotel in the middle of the day. Instead of incorporating local exploration into the trip, tourist goes back to the hotel and starts another trip just for wandering around the local area. Only one trip outside the hotel area is recorded, though with one or more standalone local exploration trips.

Style MT – Multiple Trips with/ without Local Exploration

The style includes all multiple trips patterns which include two or more trips outside the local hotel area. Tourist goes back to the hotel at least once in the day and visits attractions outside the hotel area. The time taken to-and-from the hotel is relatively longer. Local exploration can either be standalone, incorporated into the trip or even not exists. For each trip in the day, tourist may visit one or more attractions.

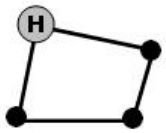
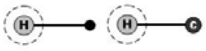
Style TTS – Tour Taker of Single Trip

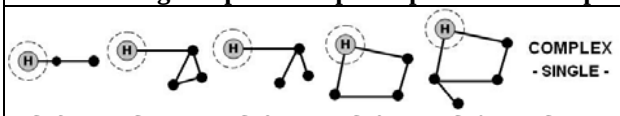
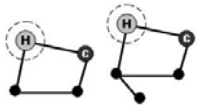
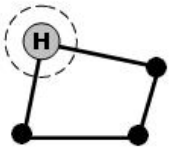
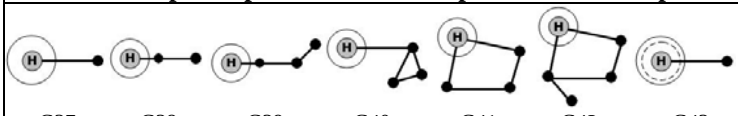
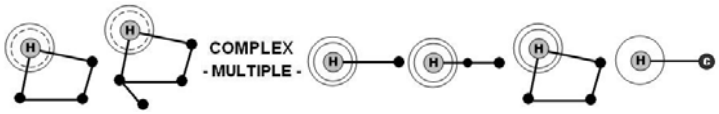
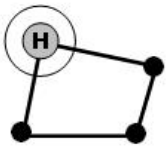
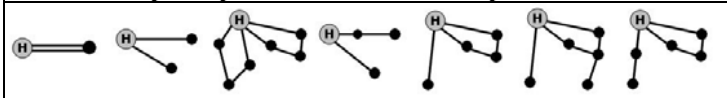
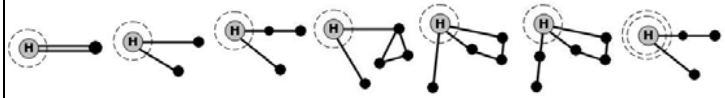
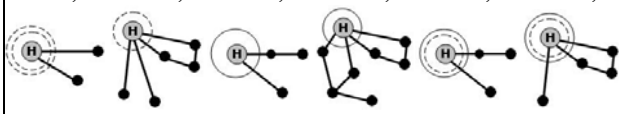
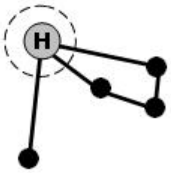
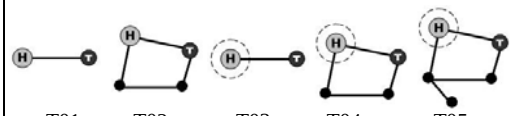
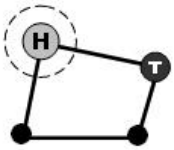
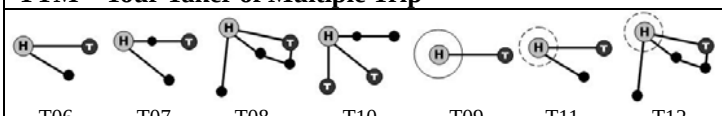
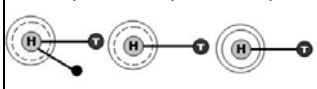
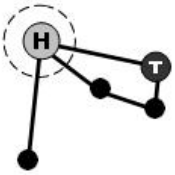
Tourist joins a local sightseeing day tour on the day or incorporates a tour in the single trip of visitation. Only one single trip is recorded in this style. Local exploration is recorded in some patterns classified as this style. He/she may visits some other attractions outside the hotel area in the single trip.

Style TTM – Tour Taker of Multiple Trips

Tourist performs multiple trips visitation. The tourist may join local sightseeing tour in one or more of the trips. Other attractions are also included in these trips. Tourist may join a tour in a trip and visit some other attractions in another trip, or even joining two local tours in two separate trips.

Table 6.1 Style Illustration and Grouping

Style Name & Pattern(s) Classified as this Style	Style	Routes
NM – No Movement		**17** (1.8%)
 G01		
Local Exploration		
LE – Local Exploration		**180** (19.4%)
 G02, G03, G04, G05, G06, G07, G08		
Single Trips		
SS – Single trip of single stop		**82** (8.8%)
 G09, C01		
SM – Single trip of multiple stops		**92** (9.9%)
 G10, G11, G12, G13, G14, C02, C03		
SSLE – Single trip of single stop with local exploration		**113** (12.2%)
 G15, C04		

Style Name & Pattern(s) Classified as this Style	Style	Routes
SMLE – Single trip of multiple stops with local exploration  G16, G17, G18, G19, G20, G21,  C05, C06		**158** (17.0%)
Multiple Trips		
MLE – Multiple Trips with 1 Local Trip and 1 Outer Trip  G37, G38, G39, G40, G41, G42, G43,  G44, G45, G46, G52, G53, G54, C09		**83** (8.9%)
MT – Multiple trips with/without local exploration  G22, G23, G24, G25, G26, G27, G28,  G29, G30, G31, G32, G33, G34, G35,  G36, G47, G48, G49, G50, G51,  C07, C08		**50** (5.4%)
Tour		
TTS – Tour Taker of Single Trip  T01, T02, T03, T04, T05		**77** (8.3%)
TTM – Tour Taker of Multiple Trip  T06, T07, T08, T10, T09, T11, T12,  T13, T14, T15		**78** (8.4%)

6.3 Styles Summary

Frequency counts of daily itinerary routes and tourists for each style are presented in Table 6.2. Frequency counts of daily itinerary routes which exhibit the particular style range from 17 to 180 routes. More than half of the tourists (52.4%) exhibited the local exploration style (style LE). This is the most popular pattern which suggests that exploration within local hotel area is an important part of tourist movements. Tourists familiarize themselves with the local destination through local exploration. The next most common pattern is "Single Trip of Multiple Stops with Local Exploration" (SMLE) style. Two out of five (42.4% or 106) respondents demonstrated this style. This is the most active style among all since tourists combined a number of stops in one single trip, including exploration of the local area.

Table 6.2 Frequency Counts of the 10 Styles

Style	Name	Routes	(%)	Tourist	(%)
NM	No movement *(will be excluded from further analysis)*	17	1.8%	15	6.0%
LE	Local Exploration	180	19.4%	131	52.4%
SS	Single trip of single stop	82	8.8%	64	25.6%
SM	Single trip of multiple stops	92	9.9%	67	26.8%
SSLE	Single trip of single stop with local exploration	113	12.2%	95	38.0%
SMLE	Single trip of multiple stops with local exploration	158	17.0%	106	42.4%
MLE	Multiple trips with standalone local exploration trip	83	8.9%	59	23.6%
MT	Multiple trips with/without local exploration	50	5.4%	40	16.0%
TTS	Tour Taker of Single Trip	77	8.3%	62	24.8%
TTM	Tour Taker of Multiple Trips	78	8.4%	63	25.2%
	Total:	**930**	**100%**	**(n=250)**	

The least demonstrated style is "no movement" (NM) style. Tourists stay in the accommodation property and do not visit any places within the local destination. With the small cell size and inactive nature presented in this style, it was dropped off from further analysis of identifying influential variables to styles. The NM style is mostly exhibited on either the first or last day of visitation. Tourists normally spend time for rests on their first days after the long flights, or are very conscious trying to

meet the schedule of the departure flight on the last day of visitation.

The remarkable variations between the frequency counts of styles lead to the concern for the underlying reasons for the deviations. Further analysis of the styles are based on time factor, trip profile and demographic profile.

6.4 Variables Related to Styles

Different variables may either promote or inhibit different styles of movement. To better understand the formation and shaping of tourist movement styles, factors identified in Chapter 2 are studied in relation with tourist movement styles, they are day of visitation, length of stay, prior visitation, climate, country of origin, hotel stayed and the role of Hong Kong. Preliminary analysis based on pattern sets also provides insights for more detailed study of variables. Some variables show statistical significance in relation to the styles but not in the pattern sets.

6.4.1 Day of Visitation

Day of visitation of tourists in the local destination is considered as one of the most important variables in affecting tourist movement styles. Day-to-day variations of tourist movements have been recognized (Pearce, 1981; Cooper 1981). Styles of movements were sub-divided based on the day of visitation, such as the first day, the last day and the middle days of the whole journey within the local destination.

The chi-square test result (Table 6.3) of day of visitation show a statistically significant relationships (X^2=131.297, n=913, df=16, p=0.000). Local exploration style is most likely to occur on the first or last day of the visit. All other patterns are more common on intermediate days. For the single trip single stop style, the

standardized residual value of -2.4 shows that itinerary routes in this style are less than expected. Multiple trip with standalone local exploration style (std. residual=-2.9) and Multiple tour taker style (std. residual=-3.7) are less than expected on last days suggesting that tourists reduce the number of activities participated on the last days. For intermediate days, tourists are more likely to perform multiple trips style (std. residual=2.0) and multiple tour taker style (std. residual=2.6) after familiarizing themselves with the local environment on first days.

Table 6.3 Chi-Square Test of Day of Visitation and Styles (n=913)

Style		Day of Visitation			Total
		First	Intermediate	Last	
LE	Count	72	30	78	180
	% within Style	*40.0%*	*16.7%*	*43.3%*	*100.0%*
	Std. Residual	3.3	-6.1	5.2	
SS	Count	11	52	19	82
	% within Set	*13.4%*	*63.4%*	*23.2%*	*100.0%*
	Std. Residual	-2.4	1.9	-0.2	
SM	Count	16	51	25	92
	% within Set	*17.4%*	*55.4%*	*27.2%*	*100.0%*
	Std. Residual	-1.8	0.9	0.6	
SSLE	Count	29	55	29	113
	% within Set	*25.7%*	*48.7%*	*25.7%*	*100.0%*
	Std. Residual	-0.3	0.0	0.3	
SMLE	Count	38	84	36	158
	% within Set	*24.1%*	*53.2%*	*22.8%*	*100.0%*
	Std. Residual	-0.7	0.8	-0.4	
MLE	Count	27	49	7	83
	% within Set	*32.5%*	*59.0%*	*8.4%*	*100.0%*
	Std. Residual	1.0	1.4	-2.9	
MT	Count	8	34	8	50
	% within Set	*16.0%*	*68.0%*	*16.0%*	*100.0%*
	Std. Residual	-1.5	2.0	-1.2	
TTS	Count	25	35	17	77
	% within Set	*32.5%*	*45.5%*	*22.1%*	*100.0%*
	Std. Residual	0.9	-0.4	-0.4	
TTM	Count	21	54	3	78
	% within Set	*26.9%*	*69.2%*	*3.8%*	*100.0%*
	Std. Residual	0.0	2.6	-3.7	
Total	Count	247	444	222	913
	% within Set	*27.1%*	*48.6%*	*24.3%*	*100.0%*

Tourists are more likely to confine their movements within the local destination either on the first or last day of visitation. Less extensive movements are shown on first and last days. Middle days of the journey, in contrast, normally show a more

diverse and active style of movements.

6.4.2 Length of Stay

Table 6.4 Chi-Square Test of Length of Stay and Styles (n=913)

Style		Length of Stay			Total
		Short 1-3 nights	Medium 4-6 nights	Long 7-8 nights	
LE	Count	83	76	21	180
	% within Style	*46.1%*	*42.2%*	*11.7%*	*100.0%*
	Std. Residual	2.1	-0.9	-1.7	
SS	Count	21	41	20	82
	% within Set	*25.6%*	*50.0%*	*24.4%*	*100.0%*
	Std. Residual	-1.6	0.4	1.7	
SM	Count	26	54	12	92
	% within Set	*28.3%*	*58.7%*	*13.0%*	*100.0%*
	Std. Residual	-1.3	1.7	-0.9	
SSLE	Count	38	55	20	113
	% within Set	*33.6%*	*48.7%*	*17.7%*	*100.0%*
	Std. Residual	-0.5	0.3	0.2	
SMLE	Count	65	67	26	158
	% within Set	*41.1%*	*42.4%*	*16.5%*	*100.0%*
	Std. Residual	1.0	-0.8	-0.1	
MLE	Count	25	42	16	83
	% within Set	*30.1%*	*50.6%*	*19.3%*	*100.0%*
	Std. Residual	-1.0	0.5	0.6	
MT	Count	15	22	13	50
	% within Set	*30.0%*	*44.0%*	*26.0%*	*100.0%*
	Std. Residual	-0.8	-0.3	1.6	
TTS	Count	34	31	12	77
	% within Set	*44.2%*	*40.3%*	*15.6%*	*100.0%*
	Std. Residual	1.1	-0.8	-0.3	
TTM	Count	26	39	13	78
	% within Set	*33.3%*	*50.0%*	*16.7%*	*100.0%*
	Std. Residual	-0.5	0.4	0.0	
Total	Count	333	427	153	913
	% within Set	*36.5%*	*46.8%*	*16.8%*	*100.0%*

Pearce (1990), Oppermann (1994) and Tideswell & Faulkner (1999) suggest a direct relationship between length of stay and number of destinations visited. Here, length of stay is tested with intradestination movement styles. Length of stay was categorized into three groups: 1-3 nights, 4-6 nights and 7-8 nights. The chi-square test result (Table 6.4) is significant (X^2=28.191, n=913, df=16, p=0.030). Short stay tourists normally confine their activities within the local area. Long stay tourists are more likely to perform multiple trips style while single trip style is more common for medium stay tourists.

The greatest magnitude of standardized residual (2.1) is shown by short stay tourists demonstrating local exploration style. It is the significant contributor to the chi-square relationship between length of stay and styles. The positive number indicates that itinerary routes in the sample is over presented and suggested that the relatively high number of local exploration by short stay respondents. Short stay tourists, who only spend one to three nights here, have limited time budgets and therefore confine their movements in the local area.

Relatively greater absolute values were observed for longer stay respondents in local exploration (LE) style and single trip of single stop (SS) style. Longer length of stay is under presented in LE style (std. residual=-1.7) and over presented in SS style (std. residual=1.7) and MT (std. residual=1.6). Respondents in this group are more likely to visit one single attraction during the day because of the more flexible time budget they have to explore the site more deeply. Long stay tourists also return to the hotel more frequently than the other groups, showing a higher percentage in MT style. Single trip multiple stops style (std. residual=1.7) are greatly associated with medium stay tourists. They are the most active group among the three and visit a greater number of attractions during the day.

The results suggested that tourist movements are highly related to length of stay. Short stay tourists venture the least and show a more confined movement styles. Single attraction visitation style dominates long stay tourist movements because they have abundant time for in-depth exploration of each site. Constant return to the hotel, which shows in multiple trips style, may due to physical fatigue of tourists with the relatively longer length of stay in the destination. The Medium stay tourists are more likely to demonstrate a more active style among the three groups by combining

several attractions in one single trip.

6.4.3 Country of Origin

Daily itinerary routes were grouped based on the country of origin of the respondents. They were tested to see if the movement styles are different for different nationalities of tourists. Four major groups were used, including Australia & New Zealand; Europe & UK; Asia (including China) and USA & Canada (Table 6.5).

Table 6.5 Chi-Square Test of Country of Origin and Styles (n=909)

Style		Country of Origin				Total
		Australia, New Zealand	Europe, UK	Asia	USA, Canada	
LE	Count	87	55	31	7	180
	% within Style	*48.3%*	*30.6%*	*17.2%*	*3.9%*	*100.0%*
	Std. Residual	0.6	-1.2	2.0	-1.6	
SS	Count	42	26	9	5	82
	% within Set	*51.2%*	*31.7%*	*11.0%*	*6.1%*	*100.0%*
	Std. Residual	0.8	-0.6	-0.3	-0.3	
SM	Count	23	47	17	5	92
	% within Set	*25.0%*	*51.1%*	*18.5%*	*5.4%*	*100.0%*
	Std. Residual	-2.9	2.4	1.8	-0.5	
SSLE	Count	54	32	19	6	111
	% within Set	*48.6%*	*28.8%*	*17.1%*	*5.4%*	*100.0%*
	Std. Residual	0.6	-1.3	1.6	-0.6	
SMLE	Count	63	65	18	12	158
	% within Set	*39.9%*	*41.1%*	*11.4%*	*7.6%*	*100.0%*
	Std. Residual	-1.0	1.1	-0.2	0.3	
MLE	Count	43	27	5	8	83
	% within Set	*51.8%*	*32.5%*	*6.0%*	*9.6%*	*100.0%*
	Std. Residual	0.9	-0.5	-1.6	0.9	
MT	Count	23	21	0	6	50
	% within Set	*46.0%*	*42.0%*	*0.0%*	*12.0%*	*100.0%*
	Std. Residual	0.1	0.7	-2.4	1.4	
TTS	Count	34	28	6	7	75
	% within Set	*45.3%*	*37.3%*	*8.0%*	*9.3%*	*100.0%*
	Std. Residual	0.0	0.2	-1.0	0.8	
TTM	Count	41	26	4	7	78
	% within Set	*52.6%*	*33.3%*	*5.1%*	*9.0%*	*100.0%*
	Std. Residual	1.0	-0.4	-1.8	0.7	
Total	Count	410	327	109	63	909
	% within Set	*45.1%*	*36.0%*	*12.0%*	*6.9%*	*100.0%*

***** Cell has expected count less than 5. The minimum expected count is 3.47.

The chi-square test results are statistically significant between country of origin and styles (X^2=53.336, n=909, df=24, p=0.001). The total number of routes considered in

this variable is 909 with the filtering of data to fit in the four groups. Routes with unidentified tourist nationality were excluded. The Australian and New Zealand respondents are significantly less likely to be related with the Single Trip Multiple Stops style (std. residual=-2.9), but this style is more related to Europeans including British (std. residual=2.4). This may due to the cultural differences and the information available to these two different groups. The Asians respondents show a more confined movement of Local Exploration (std. residual=2.0) and the Multiple Trips styles are under presented by this group of respondents (std. residual=-2.4). This is because most of the Asians spent less time in the destination with a shorter length of stay in general.

6.4.4 Season of Visitation

Itinerary routes were analyzed by season. They were divided into four quarters, Quarter 1 (January to March), Quarter 2 (April to June), Quarter 3 (July to September) and Quarter 4 (October to December). The average rainfall and temperature of each quarter are presented in Table 6.6. Only 898 itinerary routes can be categorized and those of missing data were eliminated. The chi-square test results are statistically significant in relation to the style (X^2=41.901, n=898, df=24, p=0.013).

Significant difference in Single Trip Multiple Stops style is noticed since it is under presented in Quarter 3 (std. residual=-2.3) but over presented in Quarter 4 (std. residual=2.0). This may due to the relatively mild weather found in Quarter 4 which increases the ease of exploring the outer region from the hotel. The relatively high temperature and rainfall recorded may inhibit tourist movements leading to a significantly low occurrence of Single Trip Multiple Stops style in Quarter 3. Also,

respondents are more likely to join local sightseeing tour in multiple trips style in Quarter 3 (std. residual=2.0) and single trip style in Quarter 2 (std. residual=2.0). Both quarters show higher temperature and rainfall than year average, creating conditions comparatively less desirable to explore the city. Thus, joining local tours provide a package of transportation and the chance to get around and less likely to be affected by extreme weather conditions.

Table 6.6 Chi-Square Test of Year Quarter and Styles (n=898)

Style		Year Quarter				Total
		Quarter 1 (Jan-Mar)	Quarter 2 (Apr-Jun)	Quarter 3 (Jul-Sep)	Quarter 4 (Oct-Dec)	
Average Rainfall in 2005:		25.9mm	478.3mm	561.4mm	5.9mm	267.9mm
Average Temperature in 2005:		16.6ºC	26.0ºC	28.4ºC	22.1ºC	23.3ºC
LE	Count	44	31	39	63	177
	% within Style	*24.9%*	*17.5%*	*22.0%*	*35.6%*	*100.0%*
	Std. Residual	0.2	0.4	0.4	-0.7	
SS	Count	19	18	15	30	82
	% within Set	*23.2%*	*22.0%*	*18.3%*	*36.6%*	*100.0%*
	Std. Residual	-0.1	1.3	-0.5	-0.4	
SM	Count	24	11	9	48	92
	% within Set	*26.1%*	*12.0%*	*9.8%*	*52.2%*	*100.0%*
	Std. Residual	0.4	-1.0	-2.3	2.0	
SSLE	Count	29	18	21	45	113
	% within Set	*25.7%*	*15.9%*	*18.6%*	*39.8%*	*100.0%*
	Std. Residual	0.4	-0.1	-0.5	0.1	
SMLE	Count	44	18	37	53	152
	% within Set	*28.9%*	*11.8%*	*24.3%*	*34.9%*	*100.0%*
	Std. Residual	1.3	-1.4	1.0	-0.8	
MLE	Count	15	13	24	30	82
	% within Set	*18.3%*	*15.9%*	*29.3%*	*36.6%*	*100.0%*
	Std. Residual	-1.0	-0.1	1.7	-0.4	
MT	Count	8	9	9	22	48
	% within Set	*16.7%*	*18.8%*	*18.8%*	*45.8%*	*100.0%*
	Std. Residual	-1.0	0.4	-0.3	0.7	
TTS	Count	21	19	8	26	74
	% within Set	*28.4%*	*25.7%*	*10.8%*	*35.1%*	*100.0%*
	Std. Residual	0.8	2.0	-1.9	-0.5	
TTM	Count	11	9	24	34	78
	% within Set	*14.1%*	*11.5%*	*30.8%*	*43.6%*	*100.0%*
	Std. Residual	-1.8	-1.0	2.0	0.6	
Total	Count	215	146	186	351	898
	% within Set	*23.9%*	*16.3%*	*20.7%*	*39.1%*	*100.0%*

6.4.5 Hotel

Respondents stayed in four hotels in close proximity to each other. The location and

the choice of hotel were discussed in Chapter 3. Chi-square test results (X^2=44.560, n=913, df=24, p=0.007) suggest that the demonstration of style is related to the hotel of which the tourist stayed in. Detail results between hotel and styles are presented in Table 6.7.

Table 6.7 Chi-Square Test of Hotel and Styles (n=913)

Style		Hotel				Total
		Gateway	Hong Kong	Prince	Kowloon	
LE	Count	35	75	33	37	180
	% within Style	*19.4%*	*41.7%*	*18.3%*	*20.6%*	*100.0%*
	Std. Residual	-0.8	1.2	-0.8	0.0	
SS	Count	20	25	24	13	82
	% within Set	*24.4%*	*30.5%*	*29.3%*	*15.9%*	*100.0%*
	Std. Residual	0.4	-0.9	1.7	-0.9	
SM	Count	27	42	13	10	92
	% within Set	*29.3%*	*45.7%*	*14.1%*	*10.9%*	*100.0%*
	Std. Residual	1.4	1.5	-1.4	-2.0	
SSLE	Count	23	38	22	30	113
	% within Set	*20.4%*	*33.6%*	*19.5%*	*26.5%*	*100.0%*
	Std. Residual	-0.4	-0.5	-0.3	1.4	
SMLE	Count	35	61	31	31	158
	% within Set	*22.2%*	*38.6%*	*19.6%*	*19.6%*	*100.0%*
	Std. Residual	-0.1	0.5	-0.4	-0.2	
MLE	Count	14	25	23	21	83
	% within Set	*16.9%*	*30.1%*	*27.7%*	*25.3%*	*100.0%*
	Std. Residual	-1.1	-0.9	1.4	1.0	
MT	Count	11	18	11	10	50
	% within Set	*22.0%*	*36.0%*	*22.0%*	*20.0%*	*100.0%*
	Std. Residual	-0.1	0.0	0.2	-0.1	
TTS	Count	18	31	20	8	77
	% within Set	*23.4%*	*40.3%*	*26.0%*	*10.4%*	*100.0%*
	Std. Residual	0.2	0.6	1.0	-2.0	
TTM	Count	21	16	14	27	78
	% within Set	*26.9%*	*20.5%*	*17.9%*	*34.6%*	*100.0%*
	Std. Residual	0.9	-2.3	-0.6	2.8	
Total	Count	204	331	191	187	913
	% within Set	*22.3%*	*36.3%*	*20.9%*	*20.5%*	*100.0%*

Absolute of standardized residual greater than the critical value were recorded in a number of cells: Multiple Tour Taker (MTT) style of Hong Kong Hotel (std. residual=-2.3); Single Trip Multiple Stops style (std. residual=-2.0), Single Tour Taker style (std. residual=-2.0) and MTT style (std. residual=2.8) with Kowloon Hotel. MTT style was significantly under presented in Hong Kong Hotel, but over presented in Kowloon Hotel. The Kowloon Hotel was also under presented In SS

and TTS style.

6.4.6 Variables of No Statistical Significance

Although some variables were identified as influential to tourist movements in previous studies, no statistical significance is noted when tested against style. First time and repeat visitors vary in activities participation (Gitelson & Crompton, 1984; Lehto *et al*., 2004; Oppermann, 1997a) as repeaters are more likely to demonstrate a narrower movement pattern and visit fewer places. Tourist movements in a local destination which is perceived as main destination are expected to be more extensive. However, chi-square test results suggest that the relation between these variables and styles are not statistically significant.

The Pearson chi-square result of first time and repeater is 11.444 with a degree of freedom of 8. The high significant value (p=0.178) indicates that no relation between history of visitation and movement styles. On the other hand, the Pearson chi-square value for respondent groups of perceiving Hong Kong as or not as main destination is 4.887, with a degree of freedom of 8. Again, the high significant value (p= 0.770) indicates that no relation between this variable and movement styles is observed.

6.5 Discussion

This chapter summarized the aggregation from patterns to styles and identified influential variables related to tourist movement styles. Ten styles were found with different characteristics and properties. The significant level and chi-square results of the tests are shown in Table 6.8. Influential variables are tested for the relationship with styles. Some variables proved to be statistical significantly related with styles, including day of visitation, length of stay, country of origin, season of visitation, and

the hotel. Two of the variables, seasonality and hotel, were not statistically significant in the pattern set analysis. Prior visitation history and the importance of the local destination in the trip are not significantly related with styles.

Table 6.8 Significant Level of Influential Variables with Style

Variable	Chi-Square Value (X^2)	No. of Cases (n)	Degree of Freedom (df)	Significance Level (p)	Significant
Day of Visitation	131.297	913	16	0.000	***
Length of Stay	28.191	913	16	0.030	***
Country of Origin	53.336	909	24	0.001	***
Season of Visitation	41.901	898	24	0.013	***
Hotel	44.560	913	24	0.007	***
First Time/Repeat Visit	11.444	913	8	0.178	*
Main Destination/Stopover	4.887	913	8	0.770	*
*** Statistically significant at confidence level of 95% ($p<0.05$)					
* Statistically Insignificant at confidence level of 95% ($p>0.05$)					

Table 6.9 Summary of Influential Variables in Relation with Movement Styles

Style	More Likely in:	Less Likely in:
NM	N/A*	N/A*
LE	First & Last Day Short Stay Tourists China & Asian Tourists	Intermediate Days Long Stay Tourists
SS	Intermediate Days Long Stay Tourists Stayed in Marco Polo Prince Hotel	First Day Short Stay Tourists
SM	Medium Stay Tourists China & Asian Tourists European & British Tourists October to December	First Day Australia & New Zealand Tourists July to September Stayed in The Kowloon Hotel
SSLE	-	China & Asian Tourists
SMLE	-	-
MLE	-	Last Day
MT	Intermediate Days Long Stay Tourists	China & Asian Tourists
TTS	April to June	Stayed in The Kowloon Hotel
TTM	Intermediate Days Stayed in The Kowloon Hotel	Last Day China & Asian Tourists January to March Stayed in Marco Polo Hong Kong Hotel
* Excluded for the tests with influential variables		
- No significant relation		

The relational study of trip profile and styles provides insights in understanding tourist movements within local destination. Table 6.9 summarizes the conditions in which each style is more or less likely to happen. Local exploration style is more common on first day and last day of visit. Short stay tourists are more likely to confine their movement within the local hotel area. More Chinese and Asian tourists

exhibit the local exploration style which suggests that their movements are less exploratory in a local destination like Hong Kong. In contrast, Single trip of single stop style is more frequently displayed on intermediate days. Tourists extend their movement outside the hotel area, or in another sense, their environmental bubble. Long stay (7-8 nights) tourists show a more flexible time budget which allow them to visit a single attraction during the day for a more in-depth experience.

6.6 Conclusion

Intradestination movement patterns were aggregated into ten styles. Nine of them were tested, by using chi-square test, for the relation with the underlying variables. “No Movement” style was dropped from the analysis because of the small cell size. Some variables came up to be significantly related to styles including day of visitation, length of stay, country of origin, season of visitation, motivations and hotel in which the respondents stayed. Time budget, especially the day of visitation and length of stay in the local destination, proved to be the most influential factors which affect the style of tourist movements. Significant differences between groups were observed in these variables. Some variables were not significantly related to styles including prior visitation history and destination status of Hong Kong. The thesis ends with Chapter 7 by summarizing the results, contributions and implications of this research. Recommendations for future research are to be discussed.

CHAPTER 7 CONCLUSION

Each chapter in this thesis presents a dominant theme of the research. Chapter 1 explained the background and objectives of this research. Chapter 2 summarized previous research findings related to the topic. Chapter 3 described the research framework and the methodology used for data collection and analysis. Chapter 4 discussed respondents' profile of the viable data set. Chapter 5 and 6 presented research findings which documented movement patterns and styles in a local destination context. This chapter reviews the findings of the research. Based on the research findings, contributions and directions of further research are also discussed.

7.1 Major Findings

Intradestination movement patterns of independent pleasure travellers have been discussed in previous chapters. The objectives of this research have been fulfilled in documenting tourist movements within local destination. Major findings in three aspects were identified. They are the method used, the resultant patterns and the identification of relational variables with tourist movement styles. These findings give answers to the earlier stated research questions:

Q1. What are the intradestination movement patterns demonstrated by FIT within a local destination?

Q2. What are the influential variables of tourist movement patterns and in what ways the movement patterns are being influenced?

Q3. How GIS is applied in the study of tourist movement patterns?

7.1.1 Intradestination Movement Patterns

With respect to the first research question, the major finding of this research is the

identification of movement patterns. Instead of aggregating all the data for analysis, individual daily itinerary routes were examined separately based on maps produced from the self-completed trip diaries. This research identified six major elements which should be taken into consideration when studying tourist movements within local destination. They are the number of trips, the number of stops, involvement of local exploration, cross border visit to Macau or China and the participation of local commercial day tour. These elements were used to categorized tourist itinerary and further applied in pattern design and portrayal. A total of 78 patterns were identified in this study. These patterns covered all the daily routes of tourists and putting them together in a systematic way for further analysis. The huge number of patterns shows the probable diversity of tourist movement patterns within destination. A table summarizing all the patterns is shown in Appendix C.

7.1.2 Influential Variables of Intradestination Movements

The second major finding of this research is the identification of significant variables that are related to intradestination movements. This gives answers to the second research question in stating the influential variables and their relationships with movement styles. Owing to the small cell size of each pattern which inhibited detail analysis of influential variables with movement patterns, the patterns were further collapsed into 10 styles. The styles are characterized by different number of trips, variation in the number of attractions visited and involvement of local exploration. Patterns which involve visitation across border to China or Macau were grouped with the general patterns. The “No Movement style” was dropped for further analysis because no movement is recorded in this style and the cell size of this style was too small to be representative enough.

Each style shows a distinctive occurrence pattern and associates with different trip profile. Some styles are more common on first day; some of them are more likely to be displayed on intermediate days. Some styles are more commonly demonstrated by a particular group of tourists while some are more popular in a particular season in the year. The results show that time is the main influential factor which affects tourist movements within local destination. Length of stay and day of visitation are proved be highly associated with most styles. Other variables such as hotel, seasonality and nationality are all statistical significant variables which affect tourist movements within destination. However, prior visits and destination status are not influential. The uniqueness of each style in relation to each variable highlight the complexity of studying tourist movements in a local destination.

7.1.3 Method of Analysis

Apart from the above major findings, the research also introduces two important components used. They are the use of trip diary in data collection and GIS for data analysis and management. This research tested the use of these two elements and gave answers to the third research question. The use of trip diary and GIS software proved to be useful for collecting and handling the massive data set involved in the study. This research used traditional method through trip diaries to collect tourist itinerary data. The use of self-completed trip diary is successful in obtaining tourists itinerary data on a day-to-day and hour-to-hour basis. Little interruption on time scheduling and travel itinerary is noticed. The diaries provided valuable information which are required for spatial movement analysis. They are effective data collection instruments which reduce the disturbances on tourist itineraries.

GIS, on the other hand, is the analyzing tool which was extensively used in

geographical studies. Its application in tourism studies was limited, especially on the topic of tourist movement patterns within local destination. An important aspect of GIS in this research is its ability to visualize spatial data. Tourist itineraries were presented on maps instead of presented on tables as in previous similar studies. The use of GIS in this study is essential in relieving the difficulties of handling the massive daily itinerary data of tourists. It is proved to be successful which simplified the process of data analysis through visualizing itineraries on maps.

7.2 Contributions and Implications

As an exploratory research, this study investigates an area on which little information exists. The research looks into the less properly defined topic, i.e. intradestination movements, and aims at looking for new patterns and ideas that explain the issue. Instead of generalizing the result to the population at large, this research provides noteworthy insights and contributes in both theoretical and practical aspects.

7.2.1 Theoretical Contributions

The theoretical contributions were under two major areas:

1. Pioneer Research in the Topic

Without any well established theory or patterns, tourist movements in local destinations are being under-studied. There is no single theory or model that explains the topic. The topic has been transformed into a “black box” with limited emphasis putting on it as a standalone issue for investigation. As a pioneer research in studying intradestination movement, this research takes the lead in the topic. It proved itself to

be successful in formulating new movement patterns and styles.

The introduction and establishment of new patterns is valuable to the field. It contributes to fill up the gap in literature. Related papers have been published or under review. Presentations have been given out in a number of academic conferences which raises the attentions on the issue. Positive feedbacks and comments are received for its importance in understanding tourist behavior in local destinations. This research serves as an initial attempt for investigating tourist movement within destinations. Although the newly established patterns are complex, they provide a building ground for further research. It opens up an area for exploration and prepared a way for further research. Revision of patterns is predictable with complementary study or more advanced technique for investigation.

2. Methodology

The second theoretical contribution of this research is that it provides methods and guidelines for studying intradestination movement patterns. Adoption of traditional data collection method, i.e. trip diary, reduces the disturbances and influences on tourist routing and time scheduling. Again, trip diary is proved to be a reliable source of collecting daily itinerary data, though the quality of data varies. Unlike other innovative tracking technologies, such as Global Positioning System (GPS) or Location-Based System (LBS), trip diary may be less accurate, but the cost of monitoring is relatively low. No extra devices are required in capturing data. This research reveals the importance of using traditional trip diary in recording tourist movements when innovative technologies are not applicable. As a conventional method of data collection, its value should not be overlooked. Besides, the use of GIS in studying the topic is recognized with its efficiency and ability of handling

spatial data. It also reduces the possible overflow of data. This research contributes to the subject by the method used in documenting tourist movements within local destinations.

3. Complexity of Tourist Movement

The study of tourist movement has been challenging in both data collection and data analysis processes. The perceived difficulties inhibit the study of tourist movements. Study of tourist spatial movements requires extensive monitoring of tourists activities and understanding tourist trip profile and other influential variables. Massive data is involved which makes the data management complicated. The complexity of data suggested the complicated nature of the topic. The huge number of patterns also implies the huge diversity of tourist movements within local destination. A number of influential variables were noted and no single variable dominates tourist decision on routing and schedule. The complex nature of intradestination movement is once again highlighted in this research.

7.2.2 Practical Contributions

In practical terms, this research contributed in providing reference information to tourism organizations and marketers for better understanding of tourist movements within local destinations. With a total of 78 patterns or 10 styles of movements, the complexity of tourist movements should not be underestimated. It is difficult to provide one single tourism product that meets the requirements of different tourists. Understanding the characteristics and uniqueness of movements, tourism product planners are able to tailor-make products that suit particular group of tourists.

1. Tourism Product Management

Local exploration is identified as an important component in tourist movements especially for visitors who have a shorter stay and relatively tight time budget in the local destination. This conformed to the distance decay theory that tourist movement is affected by absolute distance. Tourist movements in local destination are restricted to a limited area and going beyond their comfortable zone requires time and knowledge. More services in the local hotel area are needed to accommodate the needs of tourists, for example providing multi-language menu in restaurants or offering basic tourist infrastructure such as tourist information centre. More tourism resources should be allocated to the immediate areas of hotel regions. Newly built attractions should consider locations closed to hotel area which meet the demand of visitations.

2. Attractions Management

Tourist movements within destination are highly related to the availability of time and time scheduling of visitations. Short stay tourists show a confined pattern of movements while medium to long stay tourists are more active. Hong Kong, with an avenge length of stay less than 3 nights, entertains more short stay tourists. They have limited time budget and should stay close to the hotel based on the result of this research. Therefore the tourism organization should provide more attractions in major hotel areas in order to satisfy demand associated with the huge number of short stay tourists.

3. Transport Planning

Better transport planning can be performed based on the results of this research. Single trip with multiple stops patterns are the most popular among all the visitation

patterns. Asian and European tourists are more likely to visit multiple attractions in a single day while Australian tourists are less likely to perform. Information about connections and linkages between attractions within local destination are, therefore, essential for tourists to plan their visits. Provisions of better transport linkages and notice of information between attractions would be helpful. Tourism organizations or transport department could consider the operation of shuttle services between major attractions. This may reduce the transport barrier and relieving the stress on local transport network imposed by tourists.

7.3 Directions and Suggestions for Future Research

Research often indicates the need for more research. This research addresses the importance of intradestination movements in tourism studies. It acts as the foundation for future research and opens up a new area for investigations. Recommendations and suggestions for further research are as follows:

1. Verifying the Patterns at A Different Context

It would be of interest to test the same patterns in the context of other local destinations. This research took place in Hong Kong, a local destination with close proximity to other local destinations and tourist activities mainly depend on public transportation. The proposed patterns should be tested for movements in other local destinations, e.g. a tourist destination which depends on self-driving between attractions, in order to examine the generalizing ability of the patterns.

2. A Different Sample

This research serves as a first attempt in documenting intradestination movement

patterns. The patterns should be further verified. At a lower level of scale, hotel in which the tourist stays in is proved to be one of the influential variables to tourist movements. This research was based on tourist daily itineraries collected from four hotels which cluster in the city centre of Hong Kong. Further research base on data from different rating hotels and a different spatial location would be beneficial. This study also focuses only on daily itinerary routes of tourists who spent up to 8 nights in Hong Kong, tourists who have a longer length of stay were dropped from the study. Since day of visitation and the length of stay are proved to be variables related to tourist movements, data should be obtained from tourists who spend longer time in the local destination. A comparison between different data set could provide insights in the study of tourist movements within local destination.

3. Use of Automatic Tracking Devices

One of the challenges faced in this research was the method of gathering useful itinerary data for analysis. Hong Kong, where tourist activities are mainly concentrated in city centre area, with lots of high-rises makes the adoption of GPS, LBS or other tracking technologies for collecting data very difficult or even impossible. Using trip diary, though is more cost-effective, the level of detail and accuracy of data is less satisfactory. Although there are difficulties in obtaining consensus with the tourists, the use of technology, e.g. GPS or tracking devices, in collecting data would definitely increase the accuracy of data. Data obtain from automatic tracking devices are also compatible with computer storage which reduces the time for data entry and processing. This can be applied to other destinations where future research is going to take place.

4. In-depth Study of the Role of Local Exploration

Local exploration is identified as one of the key components in tourist movements within destination. It is either incorporated into part of a daily trip or act as a standalone trip in a daily journey. The importance of local exploration within local hotel area raises the concern about tourist attachment to the hotel. To what extent tourists stay within the comfortable zone? And, how far would they go from the hotel region?

5. Study of Time in a Different Perspective

The time element is investigated on a daily perspective in this research. Daily movements were examined as an entity for pattern formation. Little focus has been put on the diurnal change of spatial location, i.e. movements or activities participation within a day. Future research can focus on the time elements including time of the day for activity participation and length of time spent in each of the attractions. For instance, what tourists do in the mornings or in the afternoons? Space time prism mentioned in Section 2.6.4 can be used in future research in visualizing daily movements in relation to time and space.

6. Other Points to Note

Limitations have been addressed and difficulties have been faced in conducting this research. Future research should pay attentions in the following points. The low response rate is foreseeable but unavoidable, though greater incentives may solve the problem. Systematic management of data is needed for the massive data set involved. Interpretations can be subjective and different researcher may come up with different results. Therefore, comprehensive planning and considerations are necessary before any future research.

7.4 Conclusion

This research proposes new patterns to explain intradestination movements instead of proving any existing theory or patterns. It fulfilled the objectives of exploring movement patterns demonstrated by tourists visiting a local destination. By evaluating individual daily itinerary of tourists visiting Hong Kong, intradestination movement patterns were identified. This research serves to be the pioneer study of using GIS, as a spatial analysis tool, in studying intradestination movements of tourists. By incorporating the use of traditional trip diary for data collection and the use of innovative GIS technology for data analysis, the research bridged the gap between the traditional tourism research method and the use of advance technology. Analysis between variables affecting tourist movements with patterns and styles facilitated the understanding of tourist behavior within local destination. Destination management organizations could, therefore, better understand the interests and expectations of FIT. This helped to estimate and evaluate the activities and attractions that should be provided in the destination. The study of intradestination movement patterns has pragmatic implications for attractions planning and management within local destination. By understanding the emergence of different patterns, local destination marketers would be able to provide the most suitable tourism product for visitors.

REFERENCES

Anderson, J. (1971). Space-time budgets and activity studies in urban Geography and planning. *Environment and Planning, 3*(4), 353-368.

Bernhardsen, T. (1992). *Geographic information systems*. Arendal, Norway: Viak IT.

Benard, R.H. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage Publications.

Benson, D. and Whitehead, G. (1985). *Transport and Distribution*. Harlow: Longman.

Bertazzon, S., Crouch, G., Draper, D. and Water, N. (1997). GIS application in tourism marketing: current uses, an experimental application and future prospects. In M. Oppermann ed., *Geography and Tourism Marketing*, New York: Haworth Press.

Burrough, P.A. and McDonnell, R.A. (2000). *Principles of Geographical Information System*. New York: Oxford University Press.

Burton, R. (1995). *Travel Geography*. London: Pitman Publishing.

Chang, K.T. (1976). Data differentiation and cartographic symbolization. *Canadian Cartographer, 13*(1), 60-68.

Chapin, F.S. (1974). *Human and Environmental Systems: A Geographer's Appraisal*. London: Academic Press.

Cohen, E. (1972). Toward a Sociology of international tourism. *Social Research, 39*(1), 164-182.

Cooper, C., Fletcher, J., Gilbert, D. and Wanhill, S. (1993). *Tourism: Principles & Practice*. (1st ed.). Harlow, Essex: Longman Scientific & Technical.

Cooper, C.P. (1981). Spatial and temporal patterns of tourist behavior. *Regional Studies, 15*(3), 359-371.

Crompton, J. L. (1979). Motivations for pleasure vacation. *Annals of Tourism Research, 6*(1), 408-424.

Davidoff, P.G., Davidoff, D.S., Eyre, J.D. (1988). *Tourism Geography*. USA: Columbia University Press, pp.1-2.

Debbage, K. G. (1991). Spatial behavior in a bahamian resort. *Annals of Tourism Research, 18*(2), 251-268.

Dent, B.D. (1999). *Cartography: Thematic Map Design*, (5th ed.). Boston:McGraw-Hill.

Dietvorst, A.G.J. (1995). Tourist behavior and the importance of time-space analysis. In Ashworth, G.J & Dietvorst, A.G.J. (eds.). *Tourism and Spatial Transformation*. Oxon, UK:Cab International. Ch. 10, pp. 163-181.

Eldridge, J.D. and Jones, J.P. (1991) Warped space: A geography of distance decay. *Professional Geographer, 43*(4), 500-511.

Enright, M.J. and Newton, J. (2005) Determinants of tourism destination competitiveness in Asia Pacific: Comprehensiveness and universality. *Journal of Travel Research, 43*(4), 339-350.

ESRI (2005). PowerPoint on “What is GIS?” Redland: ESRI.

Farrell, B. H. (1979). Tourism's human conflicts: Cases from the pacific. *Annals of* Tourism Research, 6(2), 122-136.

Farsari, Y. and Prastacos, P. (2004). GIS applications in the planning and management of tourism. In A.A. Lew, M.W. Hall, A.M. Williams (eds.), *A Companion to tourism*, Oxford: Blackwell. Ch.47.

Fennell, D.A. (1996). A tourist space-time budget in the Shetland Islands. *Annals of Tourism Research, 23*(4), 811-829.

Flognfeldt, T. (1999). Traveler Geographic origin and market segmentation: the multi trips destination case. *Journal of Travel and Tourism Marketing, 8*(1), 111-124.

Gitelson, R.J. and Crompton, J. L. (1984). Insights into the repeat vacation phenomenon. *Annuals of Tourism Research*, 11:199-217.

Glaser, G. and Strauss, A.L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine Publishing Company.

Gómez Martín, M. B. (2005). Weather, climate and tourism a geographical perspective. *Annals of Tourism Research, 32*(3), 571-591.

Gunn, C.A. (1972) *Vacationscape: Designing Tourist Regions*. Austin, Texas: Bureau of Business Research, University of Texas.

Gursoy, D. and McCleary, K.W. (2003). An integrative model of tourists' information search behavior. *Annals of Tourism Research, 31*(2), 353-373.

Haberman, S.J. (1973). The analysis of residuals in cross-classified tables. *Biometrics,29*, 205-220.

Hägerstrand, T. (1970). What About People In Regional Science? *Papers of the Regional Science Association, 24*(1), 7-21.

Haldrup, M. (2004). Laid-back mobilities: second-home holidays in time and space.

Tourism Geographies, 6(4), 434-454.

Hall, D.R. (1999). Conceptualising tourism transport: inequality and externality issues. *Journal of Transport Geography, 7*(3), 181-188.

Hong Kong Tourism Board (HKTB) (2005). *2005 Hong Kong Tourism Statistics in Brief*. Hong Kong Tourism Board: Hong Kong.

Kemperman, A.D.A.M, Joh, C.H., Timmermans, H.J.P. (2004). Comparing first-time and repeat visitors activity patterns. *Tourism Analysis*, *8*(2):159-164.

Keul, A., & Kühberger, A. (1997). Tracking the Salzburg tourist. *Annals of Tourism Research, 24*(4), 1008-1012.

Kim, H.B. (1998). Perceived attractiveness of Korean destinations. *Annals of Tourism Research, 25*(2), 340-361.

Lamb, B. and Davidson, S. (1996). Tourism and Transportation in Ontario, Canada. In L. Harrison and W. Husbands (Eds). *Practising Responsible Tourism: International Case Studies in Tourism Planning, Policy and Development.* Chichester: Wiley, pp. 261-276.

Lau, G. and McKercher, B. (2006a). Understanding tourist movement patterns in a destination: A GIS approach. *Tourism and Hospitality Research, 7*(1), 39-49.

Lau, G. and McKercher, B. (2006b). Understanding tourist movement patterns in a destination: A GIS approach. *In Proceedings of Cutting Edge Research in Tourism – New Directions, Challenges and Applications.* Surrey, UK: University of Surrey.

Lau, G. and McKercher, B. (2007) Exploring movement patterns in a local destination. In *Proceedings of 12th Annual Graduate Education and Graduate Student Research Conference in Hospitality and Tourism.* (1014-1023). Houston, USA: University of Houston.

Lehto, X.Y., O'Leary J.T. and Morrison, A.M. (2004). The effect of prior experience on vocation behavior. *Annals of Tourism Research, 31*(4), 801-818.

Leiper, N. (1979). The framework of tourism - towards a definition of tourism, tourist, and the tourist industry. *Annuals of Tourism Research, 16*(4), 390-407.

Leiper, N. (1981). Towards a cohesive curriculum in tourism: the case for a distinct discipline. *Annals of Tourism Research, 8*(1), 69-84.

Leiper, N. (1989). Main destination ratios – analyses of tourism flows. *Annals of Tourism Research, 16*(4), 530-541.

Lew, A. & McKercher, B. (2006). Modeling Tourist Movements – A Local Destination Analysis. *Annals of Tourism Research, 33*(2), 403-423.

Lew, A. & McKercher, B. (2002). Trip destinations, gateways and itineraries: The example of Hong Kong. *Tourism Management, 23*(6), 609-621.

Lew, A. (1987). A Framework of Tourist Attraction Research. *Annals of Tourism Research, 14*(3), 553-575.

Lew, A. (1991). Place representation in tourist guidebooks: an example from Singapore. *Singapore Journal of Tropical Geography, 12*, 124-137.

Lew, A. (2001). Editorial: tourism and geography space. *Tourism Geographies, 3*(1), 1.

Lohr, S.L. (1999). *Sampling: Design and Analysis*. Pacific Grove, CA: Brooks/Cole Publishing.

Lue, C.C., Crompton, J.L., Fessenmaier, D.R. (1993). Conceptualization of multidestination pleasure trips. *Annals of Tourism Research, 20*(3)289-301.

Mahmood, A. (1998). Descriptive statistics. *Statistical Methods in Geographical Studies*. (4th ed.) Darya Ganj, New Delhi: Rajesh Publications, Ch.1, pp.1-26.

Marshall, C., Rossman, G.B. (1999). *Designing Qualitative Research*. (3rd ed.). Thousand Oaks, California: SAGE Publications, Inc..

McAdam, D. (1999). The value and scope of geographical information systems in tourism management. *Journal of Sustainable Tourism, 7*(1), 77-92.

McIntosh, R.W. Goeldner, C.R. and Ritchie, J.R.B. (1995). *Tourism: principles, practices, philosophies*. (7th ed.). New York: Wiley.

McKercher, B. (1998). The effect of market access on destination choice. *Journal of Travel Research, 37*(1), 39-47.

McKercher, B. and Lau, G. (2005). Understanding the movements of tourists in a destination: Testing the importance of markers in the tourist attraction system. In *Proceedings of International Conference on Destination Branding and Marketing for Regional Tourism Development.*(226-244). Macau, China: Institute For Tourism Studies & Purdue University.

McKercher, B. and Lau, G. (2007). Methodological issues involved in mapping the movements of tourists within a destination. In *Proceedings of TTRA Europe Conference – Tourism, Mobility and Technology*. Nice, France: European School of Business.

McKercher, B. and Lau, G. (forthcoming). Movement Patterns of Tourists within a Destination: An empirical study.

McKercher, B. and Lew, A. (2003) Distance decay and the impact of effective tourism Exclusion Zones on International Travel Flows. *Journal of Travel Research, 42*(2), 159-165.

McKercher, B. and Lew, A. (2004). Tourist flows and the spatial distribution of tourists. In A.A. Lew, M.W. Hall, A.M. Williams, eds., *A Companion to tourism*, Oxford: Blackwell. Ch. 3, pp.36-47.

McKercher, B., & Wong, D. Y. Y. (2004). Understanding tourism behavior: Examining the combined effects of prior visitation history and destination status. *Journal of Travel Research, 43*(2), 171-179.

McKercher, B., Wong, C. and Lau, G. (2006). How tourists consume a destination. *Journal of Business Research, 59*(2006), 647-652.

Miller, H. (1991). Modeling accessibility using space-time prism concepts within geographical information systems. *International Journal of Geographical Information Systems, 5*(3), 287-303.

Miller, H.J. (2004). Activities in space and time. In P. Stopher, K. Button, K. Haynes and D. Hensher (eds.) *Handbook of Transport 5: Transport Geography and Spatial Systems*, Ch. 36. Pergamon: Elsevier Science.

Mine Action Information Center. *Online resources: Spatial Information Clearinghouse*.
http://maic.jmu.edu/sic/glossary.htm
Last Update Date: 31-03-2004.

Ming S.L. and McNally, M.G. (1998). Application of Space-Time Prisms for the Measurement of Accessibility
http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1036&context=itsirvine/casa
Document Download Date: 22-9-2005.

Mings, R.C. and McHugh, K.E. (1992). The spatial configuration of travel to Yellowstone National Park. *Journal of Travel Research, 30*(4), 38-46.

Mo, C.M., Howard, D.R. and Havitx, M.E. (1993). Testing an international tourist role typology. *Annals of Tourism Research, 20*(2), 319-335.

Noruésis, M. J., & SPSS Inc. (1998). *SPSS 8.0 guide to data analysis*. Upper Saddle River, N.J.: Prentice Hall.

Noruésis, M. J., & SPSS Inc. (1991). *The SPSS guide to data analysis for SPSS/PC+* (2nd ed.). Chicago, Ill.: SPSS.

Openshaw, S. (1994). Two Exploratory space-time-attribute pattern analysers relevant to GIS. In S. Fotheringham and P. Rogerson (eds.) *Spatial Analysis and GIS*. London: Taylor & Francis, Ch.5, pp.83-104.

Oppermann, M. (1994). Length of Stay and Spatial Distribution. *Annals of Tourism Research, 21*(4), 834-836.

Oppermann, M. (1995). A model of travel itineraries. *Journal of Travel Research,33*(4),

57-61.

Oppermann, M. (1997a). First-time and repeat visitors to New Zealand. *Tourism Management, 18*(3), 177-181.

Oppermann, M. (1997b). Length of stay and travel patterns. Australian Tourism & Hospitality Research Conference, 1997, 471-480.

Ott, T. and Swiaczny, F. (2001) *Time-Integrative Geographic Information Systems*. Germany: Cataloging-in-Publication.

Page, S.J. (1999) *Transport and Tourism*. Harlow, Essex, UK. Wesley Longman.

Parker, H.D. (1988). The unique qualities of a geographic information system: a commentary. *Photogrammetric Engineering and Remote Sensing, 54*(11), 1547-1549.

Parkes, D. and Thrift, N. (1978). Putting time in its place. In T. Carlstein, D. Parkes and N. Thrift (eds.) *Timing Space and Spacing Time*, London: Edward Arnold, Ltd, pp. 119-129.

Pearce, D.G. (1979). Towards a Geography of Tourism. *Annuals of Tourism Research, 6*(4), 245-272.

Pearce, D.G. (1988). Tourists' time-budgets. *Annals of the Association of Tourism Research, 15*, 106–121.

Pearce, D.G. (1989). *Tourist Development.* (2nd ed.). Harlow, UK: Longman Scientific.

Pearce, D.G. (1990). Tourist, the regions and restructuring in New Zealand. *Journal of Tourism Studies, 1*(2), 33-42.

Pearce, D.G. (1995). *Tourism Today: A Geographic Analysis*. Longman Scientific & Technical, Harlow, Essex.

Pearce, J. A. (1980). Host community acceptance of foreign tourists: Strategic considerations. *Annals of Tourism Research, 7*(2), 224-233.

Pearce, P.L. (1981). "Environmental shock": A study of tourists' reactions to two tropical islands. *Journal of Applied Social Psychology, 11*(3), 268-280.

Pearce, P.L. (1982). *The Social Psychology of Tourist Behavior*. New York: Pergamon Press.

Peuquet, D.J. (1994). It's about time: A conceptual framework for the representation of temporal dynamics in Geographic Information Systems. *Annuals of the Association of American Geographers, 48*(3), 441-461.

Plog, S. C. (1974). Why destination areas rise and fall in popularity. *Cornell Hotel and Restaurant Administration Quarterly*, *14*(4), 55-58

Plog, S.C. (2001). Why destination areas rise and fall in popularity: An update of Cornell Quarterly Classic. *Cornell Hotel and Restaurant Administration Quarterly*, June edition: Cornell University.

Prideaux, B. (2000). The role of the transport system in destination development. *Tourism Management, 21*(1), 53-63.

Queen, L.P and Blinn, C.R. (1993). *The basics of geographic information systems. Univ. of Minnesota Extension Servic*e, FO-5926. 16pp.

Reynolds, H. T. (1984). *Analysis of nominal data* (2nd ed.). Beverly Hills: Sage Publications.

Rea, L.M., Parker, R.A. (1997). An overview of the sample survey process. *Designing and Conducting Survey Research, A Comprehensive Guide*. (2nd ed.) San Francisco, California: Jossey-Bass Inc., pp. 1-23.

Robinson, G.M. (1998). *Methods & Techniques in Human Geography*. New York: John Wiley & Sons Ltd.

Rucker, R. (1984). *The Forth Dimension: Toward a Geometry of Higher Reality*. Boston, Massachusetts: Houghton Mifflin Co.

Schul, P. and Crompton, J. (1983). Search behavior of international vacationers: travel-specific lifestyle and sociodemographic variables. *Journal of Travel Research, 22*(3), 25–31.

Shaw, S.L. and Wang, D. (2000). Handling disaggregate spatiotemporal travel data in GIS. *GeoInformatica*, 4(2),161-178.

Smith, V.L. (1977) Introduction. In V.L. Smith (ed.) Hosts and Guests: The Anthropology of Tourism (pp. 1–14). Philadelphia: University of Pennsylvania Press.

Som, R.K. (1995). Basic concepts of sampling. *Practical Sampling Techniques*. 2nd Ed. New York: Marcel Dekker, Inc. Ch.1, pp.1-28.

Steinberg, S.J. and Steinberg, S.L. (2006). *Geographic Information Systems for the Social Sciences: Investigating Space and Place*. USA: Sage Publications.

Thrift, N. (1977). *An Introduction to Time-Geography*. Concepts and Techniques in Modern Geography, UEA, Norwich: Geo Abstracts Ltd.

Tideswell, C. and Faulkner, B. (1999). Multidestination travel patterns of international visitors to Queensland. *Journal of Travel Research, 37*(4), 364-374.

van der Knaap, W.G.M. (1997) *The Tourist's drives: GIS oriented methods for analysing tourist recreation complexes*.

van der Knaap, W.G.M. (1999). Research report – GIS oriented analysis of tourist time-space patterns to support sustainable tourism development. *Tourism Geographies, 1*(1), 56-59.

Vogt, C. and Fesenmaier, D. (1998). Expanding the functional information search. *Annals of Tourism Research, 25*(3), 551–578.

Vogt, W. P. (1999). *Dictionary of Statistics and Methodology: A Nontechnical guide for the social sciences*. Thousand Oaks, California: SAGE Publications.

Wall, G. (1978) Competition and Complementarity: A Study in Park Visitation. *International Journal of Environmental Studies, 13*, 35-41.

Wang, D. (2004). Tourist Behavior and Repeat Visitation to Hong Kong. *Tourism Geographies, 6*(1), 99-118.

White, B. (1997) Electronic atlases: in theory and in practice. *Bulletin of the Society of Cartographers, 31*(2), 5-10.

World Tourism Organization. *WTO Think Tank enthusiastically reaches consensus on frameworks for tourism destination success*.
http://www.world-tourism.org/newsroom/Releases/more_releases/november2002/thinktank.htm
Last Update Date: 09-12-2002

Yattaw, N.J. (1999) Conceptualizing Space and Time: A Classification of Geographic Movement. Cartography and Geographic Information Science, 26(2), 85-98.

Yoo J. E., McKercher, B. and Mena, M. (2004). A Cross-Cultural Comparison of Trip Characteristics: International Visitors to Hong Kong from Mainland China and USA. *Journal of Travel and Tourism Marketing, 16*(1): 63-75.

Yu, H. (2004). Spatio-temporal GIS Design for Exploring Interactions of Human Activities. *Proceedings Third International Conference on Geographic Information Science*, Adelphi, Maryland, USA.

APPENDIX A

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Understanding tourist movement patterns in a destination: A GIS approach

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Received (in revised form): 6th June, 2006

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ABSTRACT

KEYWORDS: spatial movement, travel itineraries, Hong Kong, geographic information system (GIS)

This paper presents preliminary findings of research examining the movement patterns of tourists within a destination. The study focuses on fully independent individual travellers visiting Hong Kong. Little research has been conducted looking at movements within a destination. Macro or inter-destination movement patterns may inform intra-destination movements. Factors affecting tourists' choices of itineraries give reasons to support the shaping of the patterns. These factors include human factors (type of individual, travel party, motivations, etc), physical factors (destination geomorphology), trip factors (main or secondary destination, first-time or repeat visitor, etc) and the time factor (length of stay in destination, total trip duration). Geographic Information System is used for documenting spatial–temporal movements of tourists through mapping.

Tourism and Hospitality Research (2007) 7, 39–49.
doi:10.1057/palgrave.thr.6050027

INTRODUCTION

One of the major aspects of tourism geography is to examine tourist activities and spatial patterns in relation to the physical and the built environment. It focuses on explaining spatial patterns of tourist activities at different scales, such as global, national, regional and local (Pearce, 1995). Tourist movement are the spatial changes of activity locations of tourists. At a global level, tourists move from the generating region to destination regions or between destination regions (Leiper, 1979). At the local level, tourists travel within a single destination from attraction to attraction, or shifting from activity to activity.

Inter destination movements are characterised by the movement from tourist-generating regions to one or more destinations, whereas intra-destination movements are the directions and places where tourists go within a destination. Inter-destination movement patterns have been studied by a number of scholars in the last few decades (Mings and McHugh, 1992; Lue *et al*., 1993; Oppermann, 1995; Law and McKercher, 2002). The study of intra-destination movement of tourists, however, is limited. Little prior research has been conducted examining tourist movements within a destination

(Cooper *et al.*, 1993; Pearce, 1995; McKercher and Lew, 2004). The study has been inhibited by the difficulties of gathering useful and detailed itinerary information from tourists.

Tourist movements can be influenced by many different factors. They can be divided into three major aspects, including human 'push' factors (tourist role, travel party, personal motivations, prior visits, etc), physical 'pull' factors (destination geomorphology and configuration) and the time factor (length of stay in destination, total trip duration).

This paper presents the preliminary findings of a study examining the movement patterns of tourists within a destination through mapping in geographic information system (GIS). Its purpose is to explore if various factors, including first-time and repeat visitation or length of stay, may affect movements.

BACKGROUND

A destination combines various elements including nature, weather and climate, infrastructure, constructions and services provided (Kim, 1998). A local destination, as defined by the World Tourism Organisation (WTO), is the 'focal point in the delivery of tourism products and the implementation of tourism policy' (WTO, 2002). It has its own physical and administrative boundaries also providing tourism products and services to tourism activities. Understanding the needs of tourists and their activity patterns could facilitate policy design, development of new tourism products and/or better management of visitors.

Hong Kong, as a local destination, received a total of 23.4m arrivals in 2005 (HKTB, 2006). The growth is expected to continue as major new attractions opened in 2006, including Hong Kong Wetland Park and Ngong Ping 360 (cable car in Lantau Island). Pleasure travellers accounted for over 65 per cent of the total number of arrivals and 85 per cent were classified as fully independent travellers (FITs). FITs are tourists who are not in a travelling group and who purchased their own hotel and air ticket package or booked the tickets and accommodation separately. There is no set itinerary from the travel agency; instead, they demonstrate a more flexible travelling pattern based on personal motives and choices.

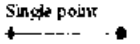
MOVEMENT PATTERNS

Previous research has been focused on inter-destination movements of tourists. Little prior research has been conducted studying the intra-destination movement patterns. Macro or inter-destination movement patterns may inform micro intra-destination movements as they can be viewed as movements of tourists at different levels of scale. The study of inter-destination movement patterns helps to conceptualise intra-destination movement patterns.

A number of scholars have studied the movement patterns of tourists based on spatial characteristics. They identified inter-destination movement patterns pertaining to the nature of space, describing the occurrence of tourist activities in spatial-referenced location. Mings and McHugh (1992) studied the movement patterns of domestic tourists in Yellowstone National Park in the United States. Four patterns were identified: 'direct route', 'partial orbit', 'full orbit' and 'fly-drive' pattern. Lue *et al.* (1993) conceptualised five different patterns for pleasure vacation trips at multi-destination level: 'single destination', 'en route', 'base camp', 'regional tour' and 'trip chaining' pattern. Oppermann (1995) categorised the previous patterns and added two more to his own model based on the exit survey of international tourists from Malaysia. The two new patterns identified are 'open-jaw loop' and 'multiple-destination areas loop'. Hognfeldt (1999) identified four types of patterns taken by Norwegians in Southern Norway: 'day-trip', 'resort-trip', 'based-holiday' and 'round-trip'. Based on the patterns identified by previous studies (Table 1), the movement patterns can be summarised into the six categories listed below:

— *Single*
  — *single point*: No diversions in the whole visitation process. Tourists visit a single destination and return home using the same route.

Table 1: Categorisation of travel patterns with simplified sketches

Tourist movement patterns		
Summarized patterns	*Previous study*	
	Scholar	*Pattern name*
I. Single		
Single point 	Mings and McHugh (1992)	• Direct route
	Lue *et al.* (1993)	• Single destination
	Oppermann (1995)	• Single route
	Flognfeldt (1999)	• Resort-trip
II. Multiple		
Base site 	Lue *et al.* (1993)	• Base camp
	Oppermann (1995)	• Base camp
	Flognfeldt (1999)	• Base holiday
		• Day-trip
Stopover 	Lue *et al.* (1993)	• En route
	Oppermann (1995)	• Stopover
Chaining loop 	Mings and McHugh (1992)	• Full orbit
	Lue *et al.* (1993)	• Trip-chaining
	Oppermann (1995)	• Full loop
	Flognfeldt (1999)	• Open-jaw loop
		• Round-trip
III. Complex		
Destination region loop 	Mings and McHugh (1992)	• Partial orbit
		• Fly-drive
	Lue *et al.* (1993)	• Regional tour
	Oppermann (1995)	• Destination-area loop
Complex neighbourhood 	Oppermann (1995)	• Multiple-destination area loop

● Tourists Generating Region(s); ● Tourists Destination Region(s); ——— Transit Route.

- *Multiple*
  - *base site*: Tourist starts from home and travels to a primary destination, making it the 'base camp' for further overnight visits to secondary destinations within that particular area.
  - *stopover*: There is a single destination as the main focus of the trip where attractions or destinations along the route are present. Tourists are normally captured by these attractions either on their way to the main destination or on their way back.
  - *chaining loop*: Tourists go through several destinations without any repetition. Stops in between the loop may not necessarily be related to or connected to each other. Tourists visit places or attractions in connection with the destination to which they are travelling.
- *Complex*
  - *destination-region loop*: Tourists travel part of their trip over a direct route to either a primary destination or a site near the destination region, and from there start a circuitous route visiting other destinations. After finishing the touring loop, they return home through the most direct route between the primary destination and home. It is a combination of the 'single point' and 'chaining-loop' pattern.
  - *complex neighbourhood*: Tourists going from one destination to the other, without repeating the travelling leg, may travel to a number of attractions or places within a region. This pattern can be seen as a combination of some or all patterns mentioned above. This is a pattern that is more suitable to describe the complexity of tourist movement patterns, allowing variations and blending of different patterns.

FACTORS AFFECTING TOURIST MOVEMENT PATTERNS

Tourist movement patterns can be affected by a number of factors. To better understand the formation and shaping of tourist movement patterns, in-depth studies of the underlying factors contributing to tourist movement decisions are needed. Tourist movement patterns may pertain not only to space, but may also be reflected by differences in trip profile, personal motives, physical configurations of destinations, prior visitation and time. These factors can be sub-divided into three major aspects of human, physical and time factors.

Human factors

Individual differences reinforce diverse variations in the tourist decisions of travel itineraries and movement patterns. As suggested by Cohen (1972), 'novelty and strangeness are essential elements in the tourist experience'. Tourists tend to have their own 'environmental bubble', also known as 'tourists bubble' (Jaakson, 2004), delimiting a surrounding that is relatively familiar or containing elements to remind them about home. Judd (1999) suggested that 'tourist bubbles create islands of affluence that are sharply differentiated and segregated from the surrounding urban landscape'. Tourists tend to remain in their own 'environmental bubble' when they are not familiar with the destination area. Cohen's study of tourist behaviour is based on tourists' familiarity and conducts asserted in destinations. Tourists are classified into four different categories based on the level of influence of personal 'environmental bubble' (Cohen, 1972; Mo *et al.*, 1993).

The organised mass tourists largely confine their activities to their 'environmental bubble'. They have well-planned itineraries. Their itineraries, time-budget, accommodation and activities are fixed without much flexibility. As they do not have full control over their own itineraries, their movement patterns become routine. Individual mass tourists, on the other hand, demonstrate a more flexible travelling pattern as they have more control over time and itinerary. Some of the major arrangements are, however, still made by the tour agency, and these activities are still confined by the 'environmental bubble'. The explorers demonstrate activity patterns that are less confined by their 'environmental bubble'. Under this type, the tourists plan out their itineraries for themselves

and are willing to discover new places. They will still operate within the circle of familiarity and carry out basic routines and activities that remind them of their hometown. Compared to the first two types of tourists, the explorers are much less confined by the 'environmental bubble' and participate in activities that may be away from the circle of familiarity. The last type of tourists are least confined by the 'environmental bubble'. They are adventurous and demonstrate high flexibility in their travelling schedule and movement patterns. The tourists' familiarity with the destination and their willingness to explore will affect their movement patterns. Tourists who find themselves familiar with the environment are more adventurous and demonstrate more extensive movement patterns.

Destination familiarity is 'a combination of previous travel experience and the level of information obtained about a destination' (Fideswell and Faulkner, 1999). Prior visit experience imposes influences on tourist movement patterns as participation in activities varies between first time visitors and repeaters (Gitelson and Crompton, 1984; Oppermann, 1997a; Lehto *et al.*, 2004; Wang, 2004). According to Oppermann (1997a), movement patterns of repeat visitors visiting New Zealand are generally more concentrated in fewer locations. On the other hand, first timers visit more attractions, which may not be only the primary attractions. This is because repeaters to New Zealand normally seek relaxation and, therefore, choose a familiar place. This was further proved by Lehto *et al.* (2004) that tourists tend to specialise and narrow down their choices of places and activities when they gain more experience. Movement patterns of repeaters are narrower and with fewer activities involved.

Revisits may involve further exploration of the destination or seeking relaxation at places with emotional attachments (Gitelson and Crompton, 1984). Different motives or benefits fulfillment would result in different tourist movement patterns. Motivation theories indicate that individuals constantly strive to achieve a state of stability, a homeostasis. They strive for ego-enhancement or self-recognition during their trip. Self motivations and benefits seeking dominate the decision-making process of tourists (Crompton, 1979; Dann, 1977; Lue *et al.*, 1993). A destination may be able to fulfill a single benefit or multiple benefits of a tourist. Tourists may also combine destinations in order to get a single benefit or certain benefits sought (Lue *et al.*, 1993). This model of benefits sought reveals the importance of purpose fulfillment and ego-enhancement in relation to destination visits. Individual travellers with multiple purposes will normally visit more places for goal satisfaction, and a more extensive movement pattern will be expected (Fideswell and Faulkner, 1999).

Physical factors

The physical factors are those that emerge from the external physical environment instead of those motivated by the tourists themselves. Tourist movement patterns are motivated and affected by the attractions and activities available at the destination. The choices of itineraries are influenced by the physical pull factors of the destination (Burton, 1995; Crompton, 1979). Physical factors affecting tourist movement patterns can be divided into three broad aspects: destination configuration, attractions and transport network.

Tourist attractions are elements of a 'non-home' place, which draw visitors away from home (Gunn, 1972 as cited in Lew, 1987). Different attractions create variations in the demand of tourist visits. The uniqueness, variety, number and distribution of attractions within a destination will affect tourist movement patterns. Attractions include natural assets, tangible heritage, intangible heritage, purpose built attractions and shopping area, etc. Attractions can be ordered in a hierarchy based on the power of individual attraction to draw tourists from a greater distance. Primary attractions are represented by places or sites that have the greatest ability to pull tourists, whereas tertiary attractions have a relatively lower pulling effect. Tourist movement patterns will

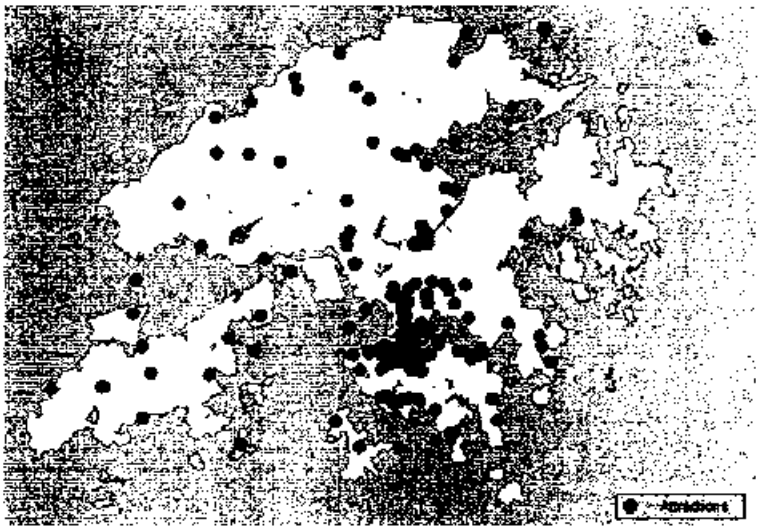


Figure 1 Scattered map of tourist attractions in Hong Kong

be affected by the distribution of attractions within a destination based on the pulling effect of different attractions.

According to the local destination management organisation, Hong Kong has over one hundred attractions scattered throughout the territory (Figure 1). They include both tangible and intangible sites and experiences. Most are concentrated in the built-up downtown areas of Kowloon and Hong Kong Island. Uniquely, though, Hong Kong has major attraction nodes scattered throughout suburban and exurban areas as well.

Time

Time, as a limited resource in the course of a trip, will either encourage or discourage the movement patterns of tourists. Time is usually fixed once the travel arrangements have been made, especially if the tourist relies on international air transport. A direct relationship has been recognised between the length of stay and the number of places visited (Oppermann, 1997b; Pearce, 1990). First-time visitors and tourists with a shorter stay in destination tend to focus more of their visits at primary attractions. Time scheduling and the length of stay are the two major elements affecting tourist movement patterns.

Pearce (1995) recognised the day-to-day variations of tourist movement patterns. Tourists demonstrate a touring peak of activities on Day 2, and tend to participate in more activities and visit more places in the first two days of the trip. With a dip in mood on Day 3, tourists display a more confined movement pattern. Tourists are more willing to explore when it comes to the fourth or fifth day of the trip. They tend to participate in self-initiated and more exploring activities from Day 4 onwards. The longer the tourists stay in a destination, the more exploring activities they will participate in.

METHOD

This study is undertaken as part of the student's Master's studies and forms a component of a large government-funded study on tourist

movements in Hong Kong. Seven hotels located in close proximity to the Victoria Harbour were invited to participate in the research. These hotels were located in either Tsim Sha Tsui (Kowloon) area or Wan Chai District (Hong Kong Island), which are the major tourist areas in Hong Kong. Interviews took place in the hotel lobby using a judgment sampling technique to select visitors on check-in. Unlike attraction-based samples, 'hotel-based' sampling is independent of activities, time schedules and itineraries of the participants, reducing the influences of these factors on movement patterns. Candidates had to be non-local residents; they had to be pleasure tourists and FITs who were not in a travelling group.

Respondents were first asked to participate in an initial interview in the hotel lobby. The arrival questionnaire asked questions about trip patterns, tourist motivations, planned activities and demographic information. Upon completion, they were given a trip diary with some short departure questions attached at the back. Participants were asked to complete the diary on a daily basis, recording places that they visited and the activities that they participated in. As a special element of this research, the trip diary acquired most of the itinerary data, which provided information of high level of consistency and accuracy required in the later stages of analysis (Kalfs and Harvey, 2002). The trip diary is a self-completion survey that documented information such as time spent and transportation means taken between activities. Participants were asked to return the trip diary by post at the end of their trip. About 1,900 people were interviewed in the initial phase and about 400 usable trip diaries were returned. Data were collected over a 13-month period from November 2001 to December 2005.

Since no well established model has been developed for the study of tourist movement patterns within a destination, this research borrows the basic concepts of the grounded theory approach. Glaser and Strauss (1967) first coined the term grounded theory, suggesting the concept of 'discovery of theory from data'. This research, as an exploratory analysis, was not aiming to prove any existing theory. This research is a theory-generating process that aimed at generating new intra-destination movement patterns. Intra-destination movement patterns are identified from the data collected by grouping data based on different variables, such as individual characteristics, time budget and prior visits.

Table 2: Profile of 94 respondents and their trip profile

	Number	*Percentage*
Country of origin		
Australia	53	56.4
UK	41	43.6
Gender		
Male	32	34
Female	62	66
Age group		
18–25	5	5.3
26–36	10	10.6
36–45	16	17.0
46–55	26	27.7
56–65	27	28.7
65 or above	10	10.6
Prior visit		
Repeat visit	50	53.2
First-time visit	44	46.8
Hong Kong as the only destination in the trip		
Yes	35	37.2
No	59	62.8
Hong Kong as main destination in the trip		
Yes	39	41.5
No	55	58.5
Length of stay		
Minimum	1 night	—
Maximum	11 nights	—
Average	4.6 nights	—

Geographic Information System (GIS)

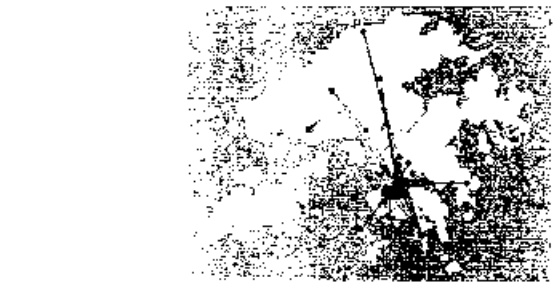
An important component of this research is the use of GIS for data analysis. GIS refers to 'a computer system for capturing, storing, checking, integrating, manipulating, analysing and displaying data related to positions on the earth's surface' (Mine Action Information Center, 2004). It is an analysing tool that is extensively used in geographical studies. The use of GIS helps to visualise spatial data through mapping. Data are enhanced through visualisation and by overlaying of individual movements on the map. As 'point, line and area elements are the basic building bocks in a GIS' (Van der Knaap, 1999), attractions visited and activities participated in, as recorded in the trip diary, are mapped as points and the transit route between them are mapped by simplified straight lines.

FINDINGS

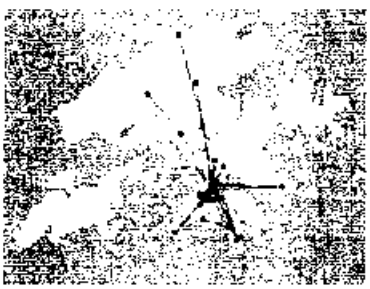
Preliminary analyses were performed by mapping itinerary data obtained from trip diaries of 94 Australian and British visitors. The profile of the respondents and their trip profiles are summarised in Table 2. General movement patterns are identified based on tourists' prior visit and their length of stay in Hong Kong. The preliminary analysis presented here examines a small group of respondents and seeks to examine if various travel factors may influence movement patterns. It can best be described as a pilot analysis.

Differences between first-time and repeat visitors

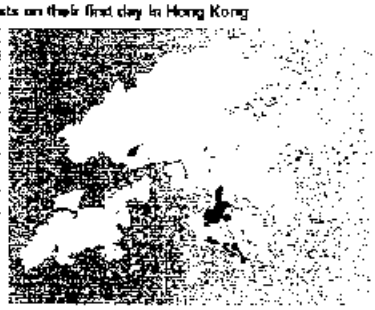
By analysing movement patterns on Day 1 of tourist visits, prior visit was the first factor to



A Movements of total of 94 tourists on their first day in Hong Kong



A Movements of 50 repeat visitors



A Movements of 44 first-time visitors

Figure 2 Tourist movements on first-day visit in Hong Kong

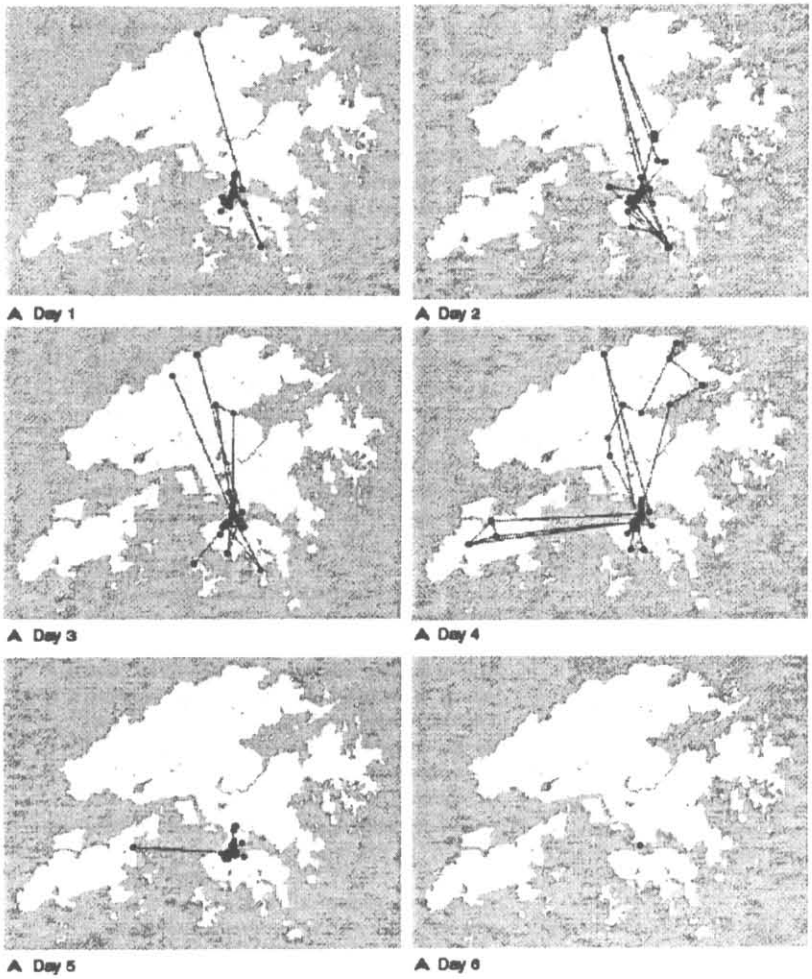


Figure 3 Movement patterns by day (length of stay=5 nights)

be considered. Differences on movement patterns between first-time visitor and repeat visitors were recognised. Overall, the movement patterns appear quite dispersed, including visits to China, outlying islands and major attractions such as Victoria Peak and Stanley Market. When the 94 tourists were divided into groups of repeat visit and first-time visit, different patterns, however, emerged (Figure 2). The 50 repeat visitors, who were destination aware, travelled widely throughout the SAR. By contrast, the 44 destination naïve

first timers spent most of their time in the downtown core, relatively close to their hotels.

Movement patterns by day

Different movement patterns by day were also considered by analysing the patterns shown by the 11 participants who spent five nights (six days) in Hong Kong (Figure 3). Again, significant differences are noted. First and last day movements were concentrated in the downtown area. By contrast, movements in Days 2, 3 and 4 were much more dispersed, with Day 4 being the most active. These movement patterns appear to apply to other lengths of stay. For instance, tourists who spent eight nights in Hong Kong would demonstrate a more extensive pattern in the first five days of the trip. The number of activities and movements participated in started to decrease from Day 6 onwards.

CONCLUSION

The contribution of this research is the identification of tourist movement patterns within a destination. It is expected to be the pioneer study of using GIS as a spatial analysis tool in tourism research of intra-destination movement patterns. Preliminary research findings have proved that tourist movements can be affected by a number of reasons. As a pilot study, this paper is not comprehensive enough to explain the detailed intra-destination movement pattern demonstrated by all tourists visiting Hong Kong.

The results suggest that tourists demonstrate a more diverse movement pattern on the first day of their repeat visit to a destination. In contrast, first-time visitors, who are less familiar with the destination, show a more confined movement pattern when compared to the repeat visitors. First timers spent most of the first day exploring around their tourist bubble and environment, close to the accommodation area or hotel. On the other hand, tourists generally displayed a more extensive pattern of movements on their first few days of the trip. Activity patterns tended to be more confined, and the number of activities participated in reduced towards the end of the trip. Contrasting patterns between the first day and the last day of visit are identified.

Further detailed exploratory analysis will be done to find out more exact patterns demonstrated by tourists within destinations. It is believed that GIS in this research could help to figure out the spatial and temporal distribution of movement patterns within destinations. Intra-destination movement patterns can be quite different and are believed to be influenced by a number of different factors.

ACKNOWLEDGMENTS

Funding for the project was provided by a grant from the Hong Kong University Grant Committee.

REFERENCES

Burton, R. (ed.) (1995) 'Tourism and the Environment', in 'Travel Geography', 2nd edn, Pitman Publishing, London, pp. 1–60.

Cohen, E. (1972) 'Toward a Sociology of International Tourism', *Social Research*, 39, 164–182.

Cooper, C., Fletcher, J., Gilbert, D. and Wanhill, S., (eds) (1993) 'An Introduction to Tourism', in 'Tourism: Principles and Practice', 1st edn, Longman Scientific & Technical, Harlow, Essex, pp. 1–10.

Crompton, J. L. (1979) 'Motivations for Pleasure Vacation', *Annals of Tourism Research*, 6, 408–424.

Dann, M. S. (1977) 'Anomie, Ego-Enhancement and Tourism', *Annals of Tourism Research*, 4, 4, 184–194.

Flognfeldt, T. (1999) 'Travelers Geographic Origin and Market Segmentation: The Multi Trips Destination Case', *Journal of Travel and Tourism Marketing*, 8, 1, 111–124.

Gitelson, R. J. and Crompton, J. L. (1984) 'Insights into the Repeat Vacation Phenomenon', *Annals of Tourism Research*, 11, 199–217.

Glaser, G. and Strauss, A. L. (1967) 'The Discovery of Grounded Theory: Strategies for qualitative research', Aldine Publishing Company, New York.

Hong Kong Tourism Board (HKTB). (2006) 'A Statistical Review of Hong Kong Tourism

2005'. Hong Kong Tourism Board, Hong Kong.

Jaakson, R. (2004) 'Beyond the Tourist Bubble? Cruiseship Passengers in Port', *Annals of Tourism Research*, **31**, 1, 44–60.

Judd, D. R. (1999) 'Constructing the Tourist Bubble', in Judd, D.R. and Fainstein, S. (eds) *The Tourist City*. Yale University Press: New Haven, CT and London, pp. 35–53.

Kalfi, N. and Harvey, A. S. (2002) 'Emerging Developments in Time Use and Mobility', in Mahmassani, H. S. (ed.), *In Perpetual Motion: Travel behavior research opportunities and application challenges*. Elsevier: Oxford, pp. 289–306 Chapter 14

Kim, H. B. (1998) 'Perceived Attractiveness of Korean Destinations', *Annals of Tourism Research*, 25, 2, 340–361.

Lehto, X. Y., O'Leary, J. T. and Morrison, A. M. (2004) 'The Effect of Prior Experience on Vacation Behavior', *Annals of Tourism Research*, **31**, 4, 801–818

Leiper, N. (1979) 'The Framework of Tourism: Towards a definition of tourism, tourist, and the tourist industry', *Annals of Tourism Research* 6, 4, 390–407.

Lew, A. A. (1987) 'A Framework of Tourist Attraction Research', *Annals of Tourism Research*, 14, 553–575

Lew, A. A. and McKercher, B. (2002) 'Trip Destinations, Gateways and Itineraries: The example of Hong Kong', *Tourism Management*, 23, 6, 609–621.

Lue, C. C., Crompton, J. L. and Fesenmaier, D. R. (1993) 'Conceptualization of Multidestination Pleasure Trips', *Annals of Tourism Research*, 20, 289–301.

McKercher, B. and Lew, A. A. (2004) 'Tourist Flows and the Spatial Distribution of Tourists', in Lew, A. A., Hall, M. W. and Williams, A. M. (eds), 'A Companion to Tourism'. Blackwell, Oxford, pp. 36–47.

Mine Action Information Center. (2004). *Online Resource: Spatial Information Clearinghouse* http://maic.jmu.edu/sic/glossary.htm (Last Update Date: 31st March, 2004).

Mings, R. C. and McHugh, K. E. (1992) 'The Spatial Configuration of Travel to Yellowstone National Park', *Journal of Travel Research*, Spring, **30**, 4, 38–46.

Mo, C. M., Howard, D. R. and Havitz, M. E. (1993) 'Testing an International Tourist Role Typology', *Annals of Tourism Research*, **20**, 319–335.

Oppermann, M. (1995) 'A Model of Travel Itineraries', *Journal of Travel Research*, **33**, 4, 57–61.

Oppermann, M. (1997a) 'First-Time and Repeat Visitors to New Zealand', *Tourism Management*, **18**, 3, 177–181.

Oppermann, M. (1997b) 'Length of Stay and Travel Patterns', Australian Tourism & Hospitality Research Conference, pp. 471–480.

Pearce, D. G. (1990) 'Tourism, the Regions and Restructuring in New Zealand', *Journal of Tourism Studies*, **1**, 2, 33–42.

Pearce, D. G. (1995) 'Tourism Today: A geographic analysis', Longman Scientific & Technical, Harlow, Essex

Tideswell, C. and Faulkner, B. (1999) 'Multidestination Travel Patterns of International Visitors to Queensland', *Journal of Travel Research*, 37, 4, 364–374.

Van der Knaap, W. G. M. (1999) 'Research Report — GIS Oriented Analysis of Tourist Time-Space Patterns to Support Sustainable Tourism Development', *Tourism Geographies*, **1**, 1, 56–69.

Wang, D. (2004) 'Tourist Behaviour and Repeat Visitation to Hong Kong', *Tourism Geographies*, **6**, 1, 99–118.

World Tourism Organization. WTO. (2002) *Think Tank Enthusiastically Reaches Consensus on Frameworks for Tourism Destination Success* http://www.world-tourism.org/newsroom/Releases/more_releases/november2002/thinktank.htm.

Appendix A2 ? McKercher et al. (2006)

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Journal of Business Research 59 (2006) 65–70
JOURNAL OF BUSINESS RESEARCH

How tourists consume a destination

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Received 1 April 2005; received in revised form 1 August 2005; accepted 1 January 2006

Abstract

This paper posits six different activity styles of tourists within a destination. Three patterns are noted among main destination visitors: the Wanderer, the Tour-taker and the Pre-Planner. Likewise, three different patterns are identified among the cohort of stopover or secondary destination visitors: the Explorer, Unconstrained and the Intimidated. These different consumption styles reflect different movement patterns within the destination and also are evocative of different personalities, motivations, the desired level of engagement and comfort with cultural distance found among the respondents.

Keywords: Spatial movement; Tourist roles

1. Introduction

Destinations serve different roles for tourists and, consequently, tourists consume destinations differently. However, at its core, tourism involves the movement of people through time and space and, as such, differences in consumption styles should be reflected by and reflective of differences in movement patterns. This paper presents preliminary findings from a large study examining the movements of tourists in Hong Kong. The authors posit a number of different consumption styles for main destination and through tourists based on analysis of in-depth interviews.

Hong Kong is the most popular urban destination in the world, with arrivals exceeding 21.8 million people in 2004. Of these, some 3.3 million were long haul western tourists (HKTB, 2005). Tourism activity is expected to accelerate with the opening of Hong Kong Disney in September 2005, the further easing of travel restrictions from Mainland China and the opening of 24 new hotels in the next two years, increasing the room stock to over 51,100 (HKTB, 2004). Hong Kong is unique among urban destinations in that its major attractions are widely dispersed. Hotels, museums and shopping centers are concentrated in the downtown urban core of Hong Kong Island and Kowloon. Street markets are scattered throughout Hong Kong Island and Kowloon, while major attractions, including theme parks, scenic sites, temples and other built attractions tend to be located some distance from the urban cores. Cultural, heritage and natural attractions are located in the New Territories and outlying islands. Consequently, visitors must travel widely throughout the Hong Kong Special Administrative Region (SAR) to consume attractions and activities.

2. Background

A variety of studies have attempted to map the movements of tourists between destinations or between their home and destination areas (Mings and McHugh, 1992; Lue et al., 1993; Oppermann, 1995; Flognfeldt, 1999; Sirsum et al., 2002). Little research has been conducted, though, examining the movements of tourists within a destination area and none has explicitly attempted to understand, map and model these movement patterns. It is widely recognized that tourist behavior can be influenced by a number of intervening factors. Fakeye and Crompton (1991) found substantial differences in the behavior of first time and repeat visitors, while, McKercher (2001) found that main destination tourists acted quite differently than through travelers. Lew (1991) showed how guidebooks presented a different mix of accommodations and attractions to

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doi:10.1016/j.jbusres.2006.01.009

different market segments, which implicitly affected behavior. Similarly, Fennell (1996) determined that special interest tourists tend to confine their actions to activities that relate to the specialized reason for visiting, while the generalist sightseeing tourist will tend to travel more widely with no clearly evident pattern.

All tourism activity is influenced to some extent by the time available to tourists and how they choose to spend that time (Chavas et al., 1989; McKean et al., 1995). Time is one of the few absolutes tourists must face, for it cannot be stored for use at a future date (Truong and Hensher, 1985). Independent tourists have a great deal of discretion in how they can spend their time budgets. Hence, they are the subject of this paper. Time use decision making is related both to the absolute amount of time available and also to the set of activities the tourist wishes to consume during his or her stay. Some will choose to participate in a large number of activities, while spending relatively little time on each.

The socio-cultural background of tourist may also influence behavior. Yan (2003), studying tourist flows in China, for example, found that spatial patterns of international tourists are influenced, in part, by cross-cultural differences, geographic origin, nationality and cultural backgrounds. Likewise, Lew (1987) compared attractions in Singapore that different nationality-based segments were interested in, versus where they actually went to identify under and over supply and demand patterns. Cultural distance may also affect behavior, with tourists from culturally proximate source markets seeing different attractions and traveling to different areas within a destination than those from culturally distance source markets (Lew, 1987; Flognfeldt, 1999).

3. Method

The results reported in this paper are part of a larger study examining the movements of fully independent pleasure travelers (FITs) within a destination. The larger study seeks to understand how tourists consume a destination by analyzing mapping movement patterns gathered from trip diaries using GIS software. A secondary goal is to develop a deeper understanding of the reasons behind observed patterns through the completion of in-depth interviews with visitors, hence this research. A non-random, judgment sampling technique was used to select participants, with guests at five hotels targeted. The data collection period ran from autumn 2004 to autumn 2005 and the target sample size is 500 respondents. Data collection involved a three stage process. Detailed interviews were conducted on arrival to profile the tourist, and to gain insights into intended activities, motivations and trip details. Participants were then provided with a trip diary and instructed to complete it each day documenting their activities, observations and modes of transport used. Finally, departure surveys were conducted at the end of the trip asking respondents about their activities and any deviations from their initial travel plans.

A subset of respondents was asked to participate in a more in-depth, qualitative study to seek further information on the trip planning process, activities undertaken, the information search process both prior to departure and in the destination, more details on their itineraries and other factors. This paper reports on 25 such interviews. The sample represents a broad cross-section of western, long haul tourists who visit Hong Kong. It includes 13 people who identified Hong Kong as their main destination and 12 who used it as a secondary or stopover destination. The groups range from a German backpacker in his late 20s traveling alone to retired couples in their late sixties. Three singles participated, along with eight couples, two same sex groups and three groups that included parents and adult child. No families with children were included. The length of stay varied from three to 20 days, while the total trip duration ranged from eight to 44 days. Most people planned their trip four to six months in advance. Slightly more than half had visited Hong Kong before, with most of the repeat visitors identifying the city as their main destination.

A semi-structured interview format was used. Each interview lasted up to 1 h and was conducted on the day of departure. Interviews were recorded and detailed interview notes prepared. Each of the three authors analyzed the notes independently to identify consumption patterns. This process adopted an iterative, phenomenological methodology. Since no models of movement patterns exist, analysis sought to let ideas come from the data itself, rather than imposing preconceived ideas. Analysis began by mapping the movement patterns on a macro level. Three patterns emerged: people who rarely traveled far from the hotel; those who apparently undertook a systematic exploration of Hong Kong and a small number of people who ventured only to out of the way areas of the Special Administrative Region. Subsequent analysis examined the influence of such factors as destination status (main versus through), party composition, length of stay, tour group participation, level of pre-planning and other factors. In the end, six consumption styles discussed below were identified.

The study has a number of limitations. As with all qualitative studies, the research relies on the subjective evaluation of spoken words and not on the quantitative evaluation of numbers. As such, bias or errors can enter in three possible areas: the respondent misinterpreting the question and providing a different answer to the question asked; the researcher recording the answer inaccurately; and the analyst misinterpreting the recorded response. In addition, there is a risk of cultural bias, especially in a study such as this where the authors come from a different ethnic and cultural background than the study participants. The method used sought to minimize bias and to report the findings faithfully.

In addition, this paper is exploratory in nature. The six different consumption styles, based on a small sample of 25 respondents must be interpreted as being indicative and not definitive. In some cases, a style is identified based on as few as two respondents. Finally, the study examines the consumption style of long haul, culturally distant international tourists. Caution should be exercised in drawing conclusions about consumption styles of domestic tourists or of short haul, culturally similar tourists.

4. Findings

The role of Hong Kong as the main destination or as a secondary stopover was the key discriminating factor influencing consumption styles. Main destination visitors exhibited markedly different patterns than through travelers. Three patterns are identified within each sub group, producing a total of six different consumption styles among the 16 respondents. Fig. 1 identifies the observed styles. Each is described briefly below along with the profile of the individual demonstrating that style.

4.1. Main destination visitors

Three different patterns emerged among the 13 respondents who identified Hong Kong as their main destination. They have been labeled the Wanderer, Tour-taker and Pre-planner.

Wanderers are the most flexible of all tourists. They arrive in the destination with a broad set of objectives or goals but have no firm or pre-set plans. Instead, they decide what they are going to do on the day and change their plans during the day if needed. As respondent 5 indicated we "did not have any plans before visiting. Hong Kong ... we just want to go round and have some local sightseeing... there is little pattern to our itinerary." Respondent 7 added "we are more likely to wander around, instead of having a well planned itinerary...We not only enjoy visiting the places and spending a long time at each place we also see the journey to the place to visit as a valuable experience." Respondent 20 stated "[while] we roughly planned the places we wanted to visit we only set day by day itineraries." They also added that the relied heavily on the Lonely Planet to inform them of their next day's activities. For them, the journey to the place they are visiting is as important as the place itself

These people are adventuresome, confident tourists, who describe themselves as experienced international travelers. For example, couple 20 described themselves as "both of our personalities are quite outgoing and we are always open to something new." They comprise first time and repeat visitors or a mixture of repeaters escorting first time visitors. Mixed groups of first timers and repeaters will often separate for part of the visit as each wishes to pursue different activities or visit different places.

They are prototypical recreational tourists who combine sightseeing and shopping with a pleasurable vacation experience. Their motivations to travel involved escape, rest and relaxation, having fun, or as one couple stated "to get away from our daily stress and to go to a place with different culture to rest, relax, have fun and shop — definitely shop!". On arrival, they intended to visit theme parks, historic sites and venture into China or Macau. For them, travel is a chance to go to new places, do many things, try exotic food and go to local markets. But, they are also less interested in exploring natural and cultural places than other main destination visitors. Likewise, they rarely take tours, but when they do, it is to more out of the way places. They use public transport extensively.

The Pre-Planner is the antithesis of the Wanderer. This type of visitor prepares detailed plans prior to departure outlining what he or she intends to do over the whole trip. Plans may include comprehensive, rigid daily itineraries. As a group, they explore the destination systematically and purposefully, ensuring they visit as many of the highlight items identified before departure. Respondent 14 "did a very detailed travel plan before visiting. We have marked in detail (including location and transportation routes) in a map for reference... As this is our first-time visit, we planned our trip very thoroughly before coming." Similar sentiments were echoed by respondent 15 who stated "we set a list of places we wanted to visit before our arrival and scheduled the sites to visit every day."

Not surprisingly, they conduct a great deal of research and consult many sources prior to departure. Tourist literature and word of mouth suggestions play a particularly important role in determining their itineraries. Participant 10 "asked one of our friends who lived in Hong Kong to send us some information. We took their recommendations very seriously and followed the daily trip route they suggested... [In addition], the information from the Hong Kong Tourism Board is detailed, accurate and very useful. It makes our trip planning easier." Respondent 24 said that he "basically followed tour schedules and his relative's suggested itinerary" to set his own independent itinerary.

The destination is the main and only international destination visited during this trip. Most are first time visitors who are very active, seeing and usually exceeding their daily target of planned activities. They describe themselves as experienced, independent tourists. Planning helps them "explore and travel to as many places as we can in a day."

Their underlying motives for visiting Hong Kong and reasons to travel, in general, differ from the more relaxed Wanderers. They travel to go to places with different cultures and to learn about the culture and heritage of that destination. They are less adventuresome than Wanderers, prefer shopping malls to local markets for example, or familiar food to exotic cuisines. Even though they plan their itinerary in great detail and participate in a large number of activities, they are likely to self

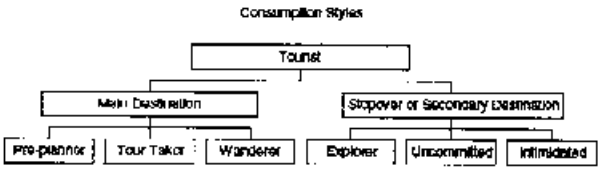

Fig. 1. Consumption styles.

assess themselves as preferring to do fewer things in the destination, and spending more time doing each.

The third type of main destination visitor is the Tour-taker. This person buys multiple sightseeing, cultural or special interest tours during the visit. The cohort consists largely of women (single, groups of women or mixed groups where women outnumber men. Hong Kong is the main and only destination and they are first-time visitors. They are experienced travelers, who describe themselves as being curious about the local culture and interested in developing a deeper understanding of Hong Kong. Purchasing a tour provides them with an opportunity to gain a more authentic, back of house understanding of the city. As one retired academic commented "I am curious about people and hope to understand and feel the life of the community." They research the destination in depth before visiting and appear to be heavily influenced by information gatekeepers, notably travel agents and hotel staff, as members of this group indicated that they either pre-selected tours prior to departure or relied on the advice of the concierge.

They describe Hong Kong as someplace they have always wanted to see and indicate that their reasons for visiting were to learn about the city's culture and heritage or in response to recommendations by family and friends. They intend to visit festivals and show a strong preference for cultural heritage and museums. They are also interested in exotic food, being active and visiting both local markets and shopping malls. Indeed, their profile places them somewhere between the Pre-planner and the Wanderers, as they exhibit a high degree of preplanning and a greater willingness to engage the destination on its own terms.

4.2. Stopover visitors

Hong Kong is increasingly becoming a stopover destination for visitors on their way to or from China, Southeast Asia or Australia. Its position as a transport hub makes it an attractive short stay, secondary destination. Prior studies (Lau and McKercher, 2004; McKercher and Wong, 2004) show that stopover tourists have different motives for visiting and expect to participate in different activities than main destination visitors. As a cohort, this group conducts far less research prior to arrival, sets fewer goals while in the destination and does far less planning. The main destination is the primary focus of pre-departure research, as evidenced by respondent 11 who stated "we planned more about the trip to Australia as this is our main destination." Again, three different consumption styles were noted amongst the small cohort of 12 stop over visitors, the Explorer, the Uncommitted tourist and the Intimidated tourist. The Intimidated and Uncommitted tourist share a number of common traits, while the Explorer is different.

Explorers are experienced, independent tourists who are confident about traveling on their own. They embrace the cultural differences that a destination like Hong Kong has to offer. The stopover destination was usually the first stop on their trip and, as such, they were still very enthusiastic about traveling as a whole. These people consider stopover destinations as a chance to fill in gaps in their overall travel experiences. While they may visit mainstream attractions, they also make a point of looking for unusual or unique experiences. The German tourist who matched this profile, for example, specifically wanted to see a Chinese temple, while a British couple saw Hong Kong as a chance to get a taste of China. An Australian couple wanted to visit remote places that few tourists visit and to "explore the local cultural and heritage and to see things tourists seldom see." They hired a taxi for the day, paid the driver HK$1000 (US$130) and instructed him to take them to places tourists rarely go. The destination is someplace they have always wanted to see. When traveling in general, they prefer independent travel, do little preplanning and seek to do fewer things but more deeply. Most will travel as FITs, but some will take day tours while in the destination.

By contrast, the Uncommitted and Intimidated tourist is much less adventuresome, and indeed, may be overwhelmed by the strangeness of the destination. The Uncommitted tourist spends a relatively small proportion of the total trip time in the destination. In all cases, Hong Kong was the last stop prior on their itinerary. The authors were left with the strong impression that these people were emotionally tired and were ready to go home. They were more interested in finishing the trip that visiting another place. One couple commented "we wanted to visit Repulse Bay as our home town is situated in a coastal area and my house faces the beach. We wanted to go there as we are already seriously home sick. We can't wait to come home to our Home Sweet Home."

This group is especially vulnerable to external factors limiting their activities. Each respondent indicated modest to strong interest in participating in a variety of activities and joining tours, but in the end did little, citing poor weather or high winter air pollution levels as the cause of their inactivity. A couple from Switzerland was particularly affected by pollution, stating "the exhaust from the busses and lorries is absolutely terrible at street level. We have runny noses and sore throats after just two days. We had to find someplace the allowed us to breathe the fresh air so we decided to go to the countryside. [A few days later] we felt sick again. The polluted air in the street made us sick. We are dying from the dreadful air and heavy traffic. We can't stand the air conditions in the city anymore and therefore chose to find another natural place. We visited a beach."

Interestingly, both respondents came from rural areas and found it difficult adjusting to congestion, noise and pollution in a city. Overall, they were not particularly adventuresome and, perhaps, their tolerance for new experiences had been exceeded by the time they visited. They indicated that their primary reasons for visiting Hong Kong was that it was a stopover and also because they had an opportunity to discover a new place. When they travel, they are equally likely to go to new or familiar places, prefer a mix of exotic and familiar foods and also will visit local markets, but prefer shopping malls.

While the enjoyment of the Uncommitted tourist was affected by external factors, the Intimidated tourist was simply overwhelmed by the strangeness and cultural distance of a place like Hong Kong. Intuitively, this group is likely the smallest segment identified. As a result, they rarely ventured beyond the

immediate vicinity of the hotel. This group was also least likely to try local cuisine and instead frequented well-known Western brand name restaurants, such as McDonald's and the Hard Rock Cafe. These individuals were the only people to comment on the quality of the standard of English among the local populace.

Couple one found "Hong Kong enchanting but too crowded with people, shops and high-rise buildings. It's not easy for us to adapt to the environment, especially those salespeople (touts) who were standing near the Star Ferry handing out leaflets." Their main reason for visiting was because their air ticket "allows us to stay here without charges."

Respondent eight accompanied her spouse on a business trip. She too was clearly overwhelmed and unprepared for a place like Hong Kong. Her coping strategy was to create a small comfort zone in the immediate vicinity of the hotel and progressively explore this area more deeply each day. She informed the study team " I tried to familiarize myself first of the area where I am located" and felt "more comfortable going to places I can find on a map first so the I will know how to get back to the hotel." She did not venture outside of the hotel's environs until day four.

5. Discussion and conclusions

This study sought to identify different consumption styles among long-haul visitors to Hong Kong. Six different patterns were identified based on the analysis of 25 in-depth interviews, augmented by responses to arrival and departure surveys. The role of the destination as the main or as a secondary/stopover goal for the trip exerted the greatest influence on the observed patterns. Main destination visitors engaged the destination more deeply and, generally, consumed it in a more systematic manner. They also tended to do more pre trip planning, often to the extent of identifying detailed itineraries. Stopover visitors, on the other hand, had a much more superficial relationship with the destination and either used it purposefully to fill in gaps in the travel experience or found aspects of it unpleasant or overwhelming and restricted their activities.

The style, or depth of consumption, therefore, appears to relate to the emotional investment the tourist makes in the destination and the concomitant risk of the visit affecting overall trip satisfaction. A significant element of risk is apparent among the main destination visitors, in general, and those who identified Hong Kong as their only destination, in particular. If the visit is poor, then the overall trip experience will be unsatisfactory. As a result, they have invested heavily to optimize the chances of a successful trip. Also, this group seems less affected by externalities, and more willing to accept the destination on its own terms, again perhaps as a strategy to maximize their holiday enjoyment. Stopover visitors, on the other hand, have made much less of an emotional commitment and, consequently, the risk of a poor experience affecting overall satisfaction is less. As a result, the consequences of participating in fewer activities than planned or forsaking activities due to weather conditions, extreme cultural differences intimidating the individual, or other factors are far less for this cohort.

In addition, a continuum of behavior patterns was noted within the two cohorts of main destination or stopover visitors. The consumption patterns noted reflected the individual's underlying motivations and psychographic characteristics. The Wanderer tended to be the most extroverted main destination visitor who, though traveling for fun and recreational purposes, was more willing than other groups to accept the destination on its own terms and explore it accordingly. The Tourist-taker, on the other hand, tended to be somewhat more inhibited, but was also traveling to have deeper needs met. This person wanted to develop a better understanding of local culture and heritage and saw the services of the professional tour guide as a means to this end. The Pre-planner was the most inhibited of the main destination visitors and also, generally, preferred culturally similar experiences. The extreme level of planning may have been his or her way to reduce the strangeness of the destination to an acceptable level.

Similarly, a continuum of activity styles and visitor profiles was noted among the stopover visitors. Explorers share more in common with the profile of main destination visitors than with other stopover guests. They were beginning their trip and were still excited about the prospects of discovery and seeking new novel experiences. By contrast, the Uncommitted and Intimidated tourist appeared to be unprepared emotionally for the extent of the cultural difference they were exposed to, but for different reasons. In the case of the Uncommitted tourist, one could argue that travel fatigue was the key factor. This person was nearing the end of the trip and was tired. The Uncommitted tourist was not prepared emotionally to rise to the challenge of exploring another strange destination, unless it was easy to do so. Their reaction would have been different had they visited the place on the outward bound section of the trip, rather than on the return leg. The intimidated tourist, on the other hand, was simply placed in an environment that was too strange for their tastes.

This paper has posited a number of activity styles. The patterns provide a framework for ongoing research. It is also hoped that others can expand the work to include short haul, culturally proximate tourists or to examine the domestic market.

Acknowledgment

Funding for this study came from a grant from the Hong Kong University Grants Committee Central Earmarked Research Grant programme.

References

Chavas JP, Stoll J, Sellar C. On the commodity value of travel time in recreational activities. Appl Econ 1989;21:711–22.

Fakeye PC, Crompton L. Image differences between prospective, first-time and repeat visitors to the Lower Rio Grande Valley. J Travel Res 1991;30(2):10–6.

Fennell D. A tourist space–time budget in the Shetland Islands. Ann Tour Res 1996;23(4):811–29.

Hogsfield L. Traveler geographic origin and market segmentation: the multi trips destination case. J Travel Tour Mark 1999;8(1):111.

HKTB. Hotel supply situation as at June 2004. Hong Kong: Hong Kong Tourism Board; 2004.

HKTB. Visitor arrival statistics, December 2004. Hong Kong: Hong Kong Tourism Board; 2005.

Lau LS, McKercher B. Exploration versus acquisition: a comparison of first time and repeat visitors. J Travel Res 2004;42(3):279–85.

Lew AA. The English-speaking tourist and the attractions of Singapore. Singap J Trop Geogr 1987;8(1):44–59.

Lew AA. Place representation in tourist guidebooks: an example from Singapore. Singap J Trop Geogr 1991;12(2):124–37.

Lue CC, Crompton JL, Fesenmaier DR. Conceptualization of multidestination pleasure trips. Ann Tour Res 1993;20:230–89.

McKean J, Johnson D, Walsh R. Valuing time in travel cost demand analysis: an empirical investigation. Land Econ 1995;71(1):96–105.

McKercher B. A comparison of main destination and through travellers at a dual purpose destination. J Travel Res 2001;39(4):433–41.

McKercher B, Wong D. Understanding tourism behavior: examining the combined impacts of prior visitation history and destination status. J Travel Res 2004;43(1):171–9.

Mings RC, McHugh KE. The spatial configuration of travel to Yellowstone National Park. J Travel Res 1992;30:38–46 [Spring].

Oppermann M. A model of travel itineraries. J Travel Res 1995;57–61.

Sriram N, Lew AA, Ragunman K. Gateways, hubs and destinations: transportation networks in Southeast Asia. In: Yeoh BSA, Set TE, Wang J, editors. Tourism management and policy: perspectives from Singapore. Singapore: World Scientific; 2002. p. 55–90.

Truong T, Hensher D. Measurement of travel time values and opportunity cost model from a discrete-choice model. The Econ J 1985;95:438–51 [June].

Yan EJ. A cross-regional analysis of inter-national tourist flows in China. Tour Geogr 2003;5(3):257–79.

Appendix A3 ? McKercher & Lau (2007)

Methodological Considerations When Mapping Tourist Movements in a Destination

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Abstract

This paper discusses some of the methodological challenges involved when attempting to study the movements of tourists within a destination. It reports on the experiences of the authors who undertook a large scale study of tourist movements in Hong Kong. A secondary goal was to trial a variety of innovative tracking technologies. Overall, the study was successful but the use of innovative technologies proved to be a failure.
Funding for this study was provided by a grant from the Hong Kong University Grants Committee. The authors appreciate the UGC's support.

Introduction

Tourism, at its core, involves the movement of people through time and space. However, as fundamental as this issue is, relatively little direct research has examined specifically the temporal/spatial interactions of tourists within destinations. In 2003, the lead author had a grant proposal accepted by the Hong Kong University Grants Committee Central Earmarked Research Grant fund to track the movements of tourists in the city. The study began in early 2004. The second author was employed initially as a research assistant, but performed so well, she was admitted to the Masters of Philosophy programme to pursue this research for a formal qualification. The study had four main objectives:

1. Identify and model the spatial patterns of tourist movement in Hong Kong
2. Investigate how the use of tourist time budgets influences behavior
3. To examine if intervening factors affect movements and
4. To test traditional and innovative methods for gathering and analyzing tourist flow data.

The fourth objective is the subject of this paper. Researchers have been aware of the need for better approaches to study itineraries for some time (Fennell 1996) but have faced significant practical problems in gathering and analyzing data (Lew and McKercher 2002), especially for large projects. Emerging digital tracking technologies used for non-tourism purposes appear to have the potential to resolve many data collections problems that have hindered research in this area. This study sought to examine them in field conditions. The study team was working in a knowledge vacuum about how exactly to operationalise the project, as no research had been published at the time. This paper, therefore, tells the story of how a large scale tourist tracking study was undertaken, the decision making processes involved in selecting preferred tracking tools, operational issues and then concludes by reflecting on what worked and what did not.

Options Available to Track Tourist Movements

Three generic options exist to track tourists: 1) direct observation; 2) self completion trip diaries and maps, and; 3) passive observation using a variety of electronic technologies. The merits and weaknesses of each are discussed briefly below.

Observation

Direct observation by following the individual unobtrusively and noting his or her movement patterns is perhaps, the most accurate yet least practical and most ethically questionable method available. To the best of the authors' knowledge, only one person, the late Martin Oppermann, attempted this method. He assigned students to follow tourists in a New Zealand destination and instructed them to do so surreptitiously so as not to be discovered by their subjects. The ability to document precise information at a micro level and monitor exactly how long someone stays at any one stop represent the greatest benefits of this method. The researcher can also note the interaction between group members, observe the negotiated decision making process and can further observe non verbal cues that may affect movements.

However, these benefits are outweighed by a number of operational and ethical constraints that render it suitable in only limited certain conditions. It is highly resource consumptive, requiring either a large staff of observers or a prolonged period of observation in order to generate a sufficiently large sample. Its efficacy also depends on stealth and deception on behalf of the observer, for the researcher must not be discovered, nor the intent of the observation discerned lest it interfere with the independent nature of the movement. This last point raises an important ethical question about unobtrusive observation in general and this technique in particular. Vallence (1995), Payne and Dimanche (1996) and others argue that informed consent is one of the basic rights of any study subject. Yet, the very act of informing the individual and gaining their consent could compromise the study.

Maps and trip diaries

The use of maps and trip diaries is the most traditional technique used to monitor movements and map itineraries in inter-destination travel. Mings and McHugh (1992) have used maps, while Oppermann (1995), Van der Knaap (1999) and Huldrup (2004) have used trip diaries. Maps are useful for documenting routes followed by tourists but are constrained by data aggregation limitations. In particular, mapping techniques, by necessity, rely on small scale maps, resulting in loss of fine movement detail. Maps also rarely document how long people stay at any stop or destination. Trip diaries usually contain a detailed list of destinations and stopovers, including lengths of stay, but cannot document the precise route taken. Most people assume the most direct route is taken, but this assumption cannot be proven. Space limitations and arbitrary decisions and questionnaire wording can all influence the type and quality of information gathered.

In addition, data analysis has also proven problematic (Oppermann 1995; Sriram, Lew and Raguraman 2002). Any researcher who has tried to document itineraries comes to appreciate quickly how easily it is to become overwhelmed by the data. What on the surface appears to be a relatively simple task of documenting travel from Point A to Point B, in reality becomes the extremely complicated task of documenting and then attempting to make sense of hundreds or thousands of individual travel routes, some going directly from A to B, some using different routes to make the trip and others stopping at C, D or E. The situation is even more complex when attempting to map intra-destination movements. Inter-destination itineraries tend to follow a logical, though complex path leading from the home to the destination area or areas and back. Intra-destination movements can involve more stops, and a less logical path. Cost is a further consideration as information is must be transcribed manually from the diary or map into a format that is suitable for subsequent GIS analysis. The transcription process may also introduce error.

Electronic tracking technologies

Recent innovations in electronic tracking technology have resulted in the introduction of a variety of new methodological opportunities to track tourists passively. Electronic tracking tools fall into one of two categories: point based monitoring and continuous monitoring systems.

Point based monitoring systems, as the name implies, rely on digital equipment to track the movements of individuals as they pass fixed receiving stations. Participants wear an unobtrusive low frequency transmitter which activates a receiver when in range. O'Connor, Zerger and Itami (2005) used a cross country race timing system to record the movements of 900 individuals along a limited trail system in an Australian national park. The authors are aware of others who have tried to use Bluetooth or similar technology

The O'Connor et al study identified relatively low-cost and the ability to monitor hundreds of people using unique identifiers as benefits of the system. They also cited the noninvasive nature of wearing a simple ankle bracelet as a further benefit. Their study noted that limited battery life and memory capacity of the system created operational problems. The reliance on point specificity to monitor movements is the greatest weakness of this system. Point based monitoring systems are effective in a constrained space, such as a simple, linear trail network. But they are not practical in an unbounded area, where the costs and logistics of establishing a huge network of receiving stations are prohibitive.

Instead, some form of continuous monitoring system is more effective. Continuous monitoring systems rely on existing digital satellite or land based tracking networks to continuously track the movements of individuals through triangulation. Global Positioning Systems (GPS) are most common continuous tracking system. Recently mobile phone system providers have also begun to sell tracking systems commercially.

Research into their use in tourism is still in its early stages, although some pilot studies have been published. Shoval and Isaacson (2005, 2007) are conducting some interesting work. Their research to date has been confined to experiments involving a single individual trialing various systems in different locations to test the accuracy of the system. Hagen, Kramer, Modsching and Gretzel (2006) conducted another pilot study using 15 GPS devices and a sample of 65 individuals. Arrowsmith and Chhetri (2005) used a mixed method of GPS and questionnaires to monitor the movements of visitors to Port Campbell National Park in Australia.

The authors also conducted a pilot test using the telephone tracking technology offered commercially by a local provider. Figures 1 through 4 show the potential applicability of the method. Figure 1 documents the attractions visited during the pilot test, while Figure 2 shows the recorded length of stay at each place visited. Figure 3 identifies the precise route taken by the study subject. Figure 4 documents the sequence that individual attractions were visited

This and other studies suggest that, potentially, digital technologies can revolutionize the study of tourist movements. Technology is advancing so quickly that what were considered innovative techniques five years ago are now part of the commercial mainstream today. For example, our initial 2002 proposal raised the idea of working with a telephone provider to test if it was possible to track movements passively using mobile phones. By the time the project was approved in 2003, such a service was already offered commercially by at least three local providers. Moreover the system was so sophisticated that an individual could be located to within 50m in urban areas and 500m in rural areas.

The tourism studies reported above were conducted under tightly controlled experimental conditions, with no large scale, population study conducted to date. Shoval and Isaacson (2005, 2007) used a single researcher. O'Connor et al (2005) restricted their study to a simple trail network totaling 600m in length with a single entry/exit point. This study also lasted for only three days. Arrowsmith and Chhetri (2005) used a sample of 102 individuals and ran their study for only two days. Hagen et al (2006) conducted their study for less than a month, but involved a sample of only 65 individuals whose movements were restricted to an inner city tourism precinct.

The Hong Kong Study

The Hong Kong study had the ambitious objective of attempting to conduct the first large-scale analysis of tourist movements within a destination. Previous studies had examined inter-destination movement patterns (see Mings and McHugh 1992, Lue, Crompton and Fesenmaier 1993, Oppermann 1995, Flognfeldt 1999, Sriram, Lew and Raguraman 2002, and Lew and McKercher 2002), but no research had been published on intra-destination movements or movements within a destination. Testing a variety of different tracking technologies in a tourism setting was a secondary objective of the study

Selecting Suitable Tracking Techniques – reducing choices

The scope of the study was substantially different than the pilot projects reported above. To begin, Hong Kong can be described as an infinite destination, in the sense that the scope of the study is not constrained to a small, finite area or node. The Hong Kong Special Administrative Region covers an area of around 1,100 square kilometers and consists of Hong Kong Island, a peninsular extension of Mainland China encompassing Kowloon and much of the New Territories and 262 outlying islands. Both Hong Kong Island and Tsim Sha Tsui (Kowloon) have a discrete downtown cores.

Moreover, it is a highly decentralized tourism destination, as shown in Figure 5 which documents the distribution of attractions. Discrete downtown accommodation, retail and attraction nodes can be found on Hong Kong Island and Kowloon. Theme parks, built, cultural and natural attractions tend to be distributed outside of these areas. For example, Hong Kong Disneyland is situated on Lantau Island close to the international airport. The other major theme park, Ocean Park, is located on the south coast of Hong Kong Island along with other tourism nodes such as Stanley (historic and markets) and Aberdeen / Repulse Bay. The New Territories is the home to a number of built attractions and is also the focal point for many cultural and historic attractions. Outer islands have some built attractions (Big Buddha and Ngong Ping Cable car on Lantau Island), with many of the smaller islands offering unique cultural and outdoor recreational opportunities. Whatever methods were chosen, therefore, had to offer territory wide coverage.

Trip diaries and maps were chosen as one method because of their proven track record elsewhere. Their use would ensure a viable sample, regardless of the effectiveness of other techniques. The initial proposal called for between 40% and 50% of all data to be collected via this technique. The major weaknesses of diaries and maps were addressed in the data collection instrument. The path issue was dealt with by asking respondents to indicate if they took a direct or indirect route between places and also to identify the mode of transport used which would provide an accurate indication of the route. Scale considerations were resolved by including both a small scale map of the entire HKSAR and a blow-up large scale map of the Hong Kong Island and Kowloon core areas (see Figure 6). Key attractions were also located on the map to help respondents locate their owns movements better.

Three digital techniques were also considered, with the initial proposal calling for the use of two. Each would provide between 25% and 30% of the usable sample. Options included fixed monitoring systems, GPS and mobile phone tracking. In the end, only the mobile phone system was adopted. The following discussion explains why the other two options were rejected.

The University's IT experts advocated strongly the use of fixed monitoring systems using Bluetooth or similar technology. They argued that technology was proven, cost-effective and easy to manage. However, IT people are not tourism experts and had little knowledge of the complexity of the tourism system in Hong Kong. They believed naively that tourists moved within a small set of major attractions and little else. They suggested that the establishment of 15 to 20 receiving stations at the most popular sites would effectively capture most movements. However, when both the volume and spatial distribution of attractions were described, the IT people realized quickly such a method was unsuitable. The decision to abandon it was prudent, as study participants subsequently visited more than 200 separate attractions or points of interest dispersed throughout the entire territory. It would have been impossible to establish receiving stations at all these points, plus along major transit ways to capture the route taken.

Global Positioning System (GPS) technology was also identified as another likely viable data collection tool, even though the problem of dropouts whenever someone entered a building was recognized. GPS works by triangulating the receiver with three or more satellites through an uninterrupted line of sight. The system cannot work if the sight line is blocked, as happens when one enters a building. The dropout problem could be controlled, though, by setting a sufficiently short recording interval to capture people immediately prior to entering and immediately after exiting a building. GPS also does not work in taxis, buses or other covered public transport systems. As such, its use could monitor visits to outdoor attractions, but would not be suitable to map the route taken by participants to reach these places.

Subsequent discussions with GPS providers identified two other architectural problems that ultimately led to the abandonment of this idea. The first is the canyoning effect caused by high rise buildings in densely developed areas. Local providers mentioned the system did not work well in downtown Hong Kong Island and Kowloon because high rises narrow the line of site to a small vertical area, making it difficult for GPS units to locate enough satellites to operate. The extensive network of elevated covered pedestrian walkways designed to ease traffic congestion problems and protect pedestrians from Hong Kong's sub tropical climate provided a second architectural barrier. May to early October are hot and humid with occasional heavy showers and thunderstorms. Tropical cyclones (hurricanes) threaten the city between July and

September and about 80% of the annual rainfall occurs during the summer (HKO 2007). The covered walkways provide a sheltered respite from intense sunshine and rain. But, their roofs also block GPS systems in the same way that entering a building does. Thus, it could prove impossible to track movements of the individual traveled along these walkways.

GPS systems, therefore, would not be effective in much of downtown Hong Kong Island and Kowloon. These neighborhoods house the largest concentrations of hotels, tourist shopping areas and attractions. The abandonment of this option was also prudent given that the subsequent study revealed that two-thirds of all person-trips included a substantial local touring element in these cores and that more than 20% of all person-trips were confined entirely to downtown Kowloon or Hong Kong Island.

That left mobile telephone tracking systems as the only remaining digital tracking option. It was pursued, but as will be discussed in the next section was not successful. The technology worked fine, but tourists were reluctant to participate. Telephone tracking technologies are brilliant in their simplicity and remarkably accurate. Using existing mobile phone relay towers, individual phone numbers can be located to within an accuracy of 50m in developed areas and 500m in rural areas. The only requirement is to leave the phone on and it can be tracked passively and unobtrusively. The system functions equally as well indoors and out, resolving the problems linked to GPS. It has the added benefit of providing real time tracking if desired, or of storing data electronically in a format that is compatible with existing GIS software and base maps. Telephone tracking is phone number specific, enabling the simultaneous monitoring of a virtually unlimited number of phone providing the number is registered with the tracking system and an appropriate sim card is installed.

The need to be a subscriber of the system provider, have a local phone number, have the appropriate sim card installed and register the number represent the only real limitations from a tourism research perspective. These issues are not critical when domestic tourists are the objects of the study, for many will already be subscribers to the system provider in their home community. However, it can provide a barrier for international visitors, who, by definition, are not residents of the host country and therefore, neither subscribe to the local phone system, have a local phone number nor have the appropriate sim card installed in their phone.

There are two possible ways to overcome this obstacle. The first is to provide visitors with another dedicated mobile phone (and battery charger) for the duration of their visit. This option, though simple, has a number of drawbacks, of which cost of replacement should the phone be lost or souvenired is the greatest. Each mobile phone unit costs anywhere up to US$300, plus the administrative costs associated with installing a sim card and connecting the number to the tracking system. Unscrupulous tourists could keep the phone as a nice 'souvenir' and simply replace the sim card when they returned home. Others not used to carrying two phones (their own mobile and the tracking device) could leave it inadvertently at shops, attractions or restaurants. The potential loss rate could be reduced by charging a large refundable deposit (say US$500), but such an onerous charge would deter participation.

The second solution is to install a local sim card in the visitors' own phone, with a local telephone number. An incentive of unlimited local calling could make this option more appealing. This option allows the individual to continue to use his or her phone and the cost of replacing the sim card is relatively low (less than US$10) should the one provided be lost or not returned. It was selected.

Operationalising the study

Data collection ran for a period of 14 months from October, 2004 to December, 2005. Fully independent tourists staying at six participating hotels in downtown Kowloon and Hong Kong Island were targeted. Prospective participants were approached on check-in and a face to face out arrival interview was administered after they agreed to participate. This first survey gathered demographic and trip profile information, motivations, past travel history with Hong Kong and intended activities. Participants were then provided with a data collection tool and given precise instructions about how to use it. Researchers returned to the hotel and collected the instrument on checkout. They conducted a short exit interview gathering additional trip information. Participants were then given a third survey asking about their behavior of 32 popular attractions and were instructed to return it by post after returning home.

A substantial attrition rate can be expected in multi-stage surveys of this type. This study was no different. Some 1900 tourists agreed initially to participate in the study, completed the arrival survey and were given

the tracking instrument. The vast majority of them were westerners. However, only 499 individuals provided visible tracking information and fewer than 370 completed all three stages of the survey.
The tracking data collected included 498 viable trip diaries and maps, and 1 by mobile telephone. Indeed, so few people agreed to participate in the mobile phone experiment that it was abandoned after six months and the researchers focused exclusively on the trip diary tool. Efforts were made to trial the mobile phone system on an alternate set of visiting friends and relative (VFR) tourists, but again, the take up rate was poor. Staff at the Hong Kong Polytechnic University were invited to participate by notifying the researchers when their friends or relatives were visiting. Three university-wide requests were made that resulted in fewer than 25 successful cases. Interestingly, more than 10 sim cards were lost (or not returned) from this small sample.

Operational Issues: Trip Diaries and Maps
Ultimately, trip diaries and maps proved to be the only viable data source. But they were not without their problems. The quality of trip diary information varied significantly. In all, 600 diaries were returned, but about 100 of them contained such incomplete information that they had to be culled from the final sample.
The quality of the entries in the remaining 498 diaries was variable, in spite of explicit directions and sample entries being provided (Figure 7 provides an example of the type of information provided in the diary). The most complete diaries detailed the individual's daily movements exactly, including the length of stay at each stop and the precise route followed. Less complete diaries identified the district visited without specifying the location. The data were sufficiently robust to model movement patterns and to map movements on a district-wide basis. However, they became less reliable when attempting to document visits to specific attractions, especially in the central tourist nodes.
The quality of the information provided on the maps was poor and the authors would not recommend a mapping exercise. Prior mapping studies documented inter-destination movements over long distances, using small scale maps (see Mings and McHugh 1992 and Lew 2003). They worked well, largely because fine movement details were not required, road options were limited and, importantly, participants drove themselves over the route followed. They were active participants in the journey, and as such were path aware tourists who could map their route accurately.
Hong Kong is different as virtually no tourist has access to a car here. Instead, they rely on various public transit providers to move them around the city. As such, they become passive observers in the journey and paid less attention to the specific path taken. Most could not trace their route accurately after the fact.
Most visitors, and all first-time visitors have poor understanding of the specific spatial layout of Hong Kong. They may know the districts they are in and may know the names of major streets, but have little fine detailed knowledge of side streets, differing street names and even the layout of the city. Large scale maps of downtown areas that showed most streets and major attractions, but did not identify street names. Again, few people could recall the precise path taken and were therefore reluctant to write on the map.
The level of cartographic illiteracy was a third issue that surprised the authors. We are geographers by training and are used to interpreting maps, in general, and to associating three dimensional features to their location on a two dimensional map. Many others, though, have great difficulty with this task, inhibiting their ability to plot their movements.

Operational Issues: Telephone tracking
The level of resistance, and indeed outright refusal to participate in the mobile phone phase of the study was both surprising and unexpected. It was surprising because this technique is simpler than completing a diary, involves the least amount of work on behalf of the study participant and has the added incentive of free local telephone calls during their stay. It was unexpected because the group of respondents were mature, well educated individuals who were experienced travelers and, presumably, technologically aware.
The technology is more advanced than the willingness of consumers to use it. In retrospect, a number of reasons may explain their unwillingness to participate.
The telephone tracking system was seen by many people as being too invasive. Most people were not aware that their movements could be monitored passively through any mobile phone network anywhere and many felt this prospect to be quite offensive. Privacy is one personal freedom that is increasingly under threat in this digital age and era of ubiquitous CCTV surveillance cameras. This system was another example that Big Brother could follow them everywhere. The prospect that one's movements could be monitored continuously to an accuracy of within 50 m simply by virtue of having a mobile phone, was something that many people found disturbing. Indeed, some people asked the researchers if this technology

was available in their home countries and wondered how much information their own local providers may have been able to gather on their movements.
By contrast, the information flow could be controlled in trip diaries. Respondents were free to provide as many or as few details on their movements as they wanted. They could understand intuitively the single-minded purpose of trip diaries to understand movements, while telephone tracking technology could be used for more sinister motives.
Commitment also emerged as an issue. Individuals who agreed to install the sim card in their phone would also have to make a hard commitment to participate in this study for the duration of the stay. Conversely, those who agreed to take a trip diary made a much softer commitment. They could voluntarily withdraw from the study at any time simply by not returning the diary or by stopping making entries. The 75% attrition rate from the initial interview to submission of trip diaries suggests a lack of commitment on behalf of many people who initially agreed to participate in this study.
Finally, inconvenience emerged as a minor deterrent. Participants had to remove their own chip and replace it with our sim card. Doing so provided them with unlimited local phone calls, but international calls were blocked. Participants wanting to make long-distance phone calls would need to remove one chip and reinstall the other. They would then have to reverse the process to continue with the experiment. Such practice is common in Hong Kong where many people have multiple chips for different purposes, but is rare in large Western countries.

Conclusions: Lessons Learned

The 500 trip diaries provided a wealth of data that can be analyzed for many years. Papers have already been written on the preliminary findings, application, identification of movement patterns and methodological issues. Further papers are expected to be written on factors affecting movements, including weather conditions, analyses of different market segments, sequence of visitations and other topics.
It would be impossible to analyze the data without GIS software, for while each tourist may move in a rational manner, the aggregate movements of all tourists are essentially stochastic. Figure 8 shows the complexity of the data by plotting the movements of a sample of 30 individuals. Effective analysis also requires a methodical and systematic approach to break down and categorize the data at an individual level and then build a comprehensive profile. Examining daily movement patterns, rather than the collective movements of each tourist, proved to be the most effective approach to cope with the volume and diversity of information gathered. The second author, for example, analyzed 930 discrete person-day trips instead of the total movements of the sample of 250 respondent she examined when writing her thesis. This approach has also been adopted in subsequent papers.
Telephone tracking technologies hold great potential, but may simply be too new to be accepted by visitors. The near universal resistance to the use of this system had more to do with a deep philosophical objection to having every move monitored by such an essential piece of equipment as a mobile phone as with the inconvenience of changing chips. The idea of using a mobile phone to track one's movements is still relatively new. Hong Kong and parts of developed Asia seem to be ahead of most of the rest of the world in the commercialization of this technology. A variety of public and private sector organizations currently use it and most phone companies offer this service. However, it is still relatively novel elsewhere. A recent newspaper article from Australia, for example, hailed this concept as a 'new' idea for Australia, even though it has been offered commercially in Hong Kong for five years. Resistance should dissipate once the method becomes adopted more widely elsewhere. Effective tracking of tourists by phone may be possible in five years, but not now.
The study highlighted the benefits of using multiple techniques, lest one prove ineffective. The project would have failed had we relied solely on digital technologies. It also highlights the need to be cautious about the suitability of other methods. Trip diaries work well and are easy to use, but researchers must be aware of the high attrition rate and their inability to plot the path taken. Maps are ineffective in destinations where tourist automobile use is low, for visitors do not pay attention to the path followed when using public transport. Maps may be effective in rubber tire destinations. GPS and fixed monitoring systems may be work in a limited area, but are not viable at a destination scale. Consumers are not prepared to accept phone tracking technology as yet.

Ironically, while local destinations are the focal point in the delivery of tourism products and the implementation of tourism policy (WTO 2002), the destination has been the subject of relatively little research. In particular, knowledge about how tourists negotiate destinations is lacking. Practical problems associated with data collection and analysis have hindered this line of inquiry. The emergence of a variety of digital tracking techniques and the increasing ease of use of spatial analysis systems, such as GIS, have the potential to overcome barriers that have inhibited research in the past. In doing so, they hold the potential to revolutionize our understanding of the destination. The technology is already proven. The challenge now is to let consumer confidence in the technology reach the same level of sophistication as the technology itself.

References

Arrowsmith C and P. Chhetri (2003) *Port Campbell National Park: Patterns of Use.* Parks Victoria Melbourne 73 pp <http://scholar.google.com/scholar?hl=en&lr=&q=cache:glim16kTI18J:www.srnr.arizona.edu/~gimblett/ArrowSmith%2520and%2520Chetri%2520GPS%2520final%2520report.pdf+arrowsmith+%22port+campbell%22> downloaded February 7, 2007.

Fennell D. (1996) A Tourist Space-time Budget in the Shetland Islands *Annals of Tourism Research* 23 (4). 811 – 829.

Flognfeldt T (1999) Traveler Geographic origin and Market Segmentation: The multi trips destination case *Journal of Travel and Tourism Marketing* 8(1). 111 –

Haldrup M (2004) Laid Back Mobilities: Second home holidays in time and space *Tourism Geographies* 6(4):475 - 454.

HKO (2007) *Hong Kong's Weather* Hong Kong Observatory http://www.hko.gov.hk/cis/climahk_e.htm downloaded February 14, 2007

O'Connor A., A. Zerger and B. Itami (2005) Geo-temporal Tracking and Analysis of Tourist Movement *Mathematics and Computers in Simulation* 69:135 - 150

Lew A. and B. McKercher (2002) Trip Destinations, Gateways and Itineraries: The example of Hong Kong *Tourism Management* 23(6): 609-621.

Lue CC., Crompton, J. L., Fesenmaier D. R (1993) Conceptualization of Multidestination Pleasure trips *Annals of Tourism Research* 20: 289 – 30

Mings R. C., McHugh K. E. (1992) The Spatial Configuration of Travel to Yellowstone National Park *Journal of Travel Research* 30 (Spring). 38 - 46

Oppermann M (1995) A Model of Travel Itineraries *Journal of Travel Research* pp 57 – 61

Payne D. Dimanche F (1996) Towards a Code of Ethics for the Tourism Industry: An Ethics Model *Journal of Business Ethics*, 15 (9) pp 997 - 1007
Smith, N. C. and Quelch J. A. (1993) Ethics in Marketing, Irwin, Boston

Shoval N and M Isaacson (2005) The Application of Tracking Technologies to the Study of Pedestrian Spatial Behaviour *The Professional Geographer* 58: 177 -183

Shoval N and M Isaacson (2007) Tracking Tourists in the Digital Age *Annals of Tourism Research* 34(1) 141 - 159

Sriram, N., Lew, A.A. and Raguraman, K. (2002) Gateways, Hubs and Destinations: Transportation Hierarchies in Southeast Asia. In B.S.A. Yeoh, T.E. Ser, and J. Wang, eds., *Tourism Management and Policy: Perspectives from Singapore*, pp. 55–90. Singapore: World Scientific

ten Hagen, K., R Kramer, M Modsching and U Gretzel (2006) Capturing the Beaten Paths: A novel method for analysing tourists' spatial behaviour at an urban destination. *ENTER Conference* 12 pp <http://www.vesuv-projekt.de/files/Spatial_Behaviour_Analysis_for_ENTER_MM_RK_KtH_UG_2005_09-09.pdf> downloaded February 8, 2007

Valance E (1995) *Business Ethics at Work*, Cambridge University Press, Cambridge.

Van der Knaap, Wim G.M. 1999. Research Report - GIS Oriented Analysis of Tourist Time-Space Patterns to Support Sustainable Tourism Development. *Tourism Geographies* 1(1): 56–69.

WTO (2002) "WTO Think Tank Enthusiastically Reaches Consensus on Frameworks for Tourism Destination Success." Madrid: World Tourism Organization, Madrid.

Figure 1
Mapping Places Visited
Using Telephone Tracking Systems

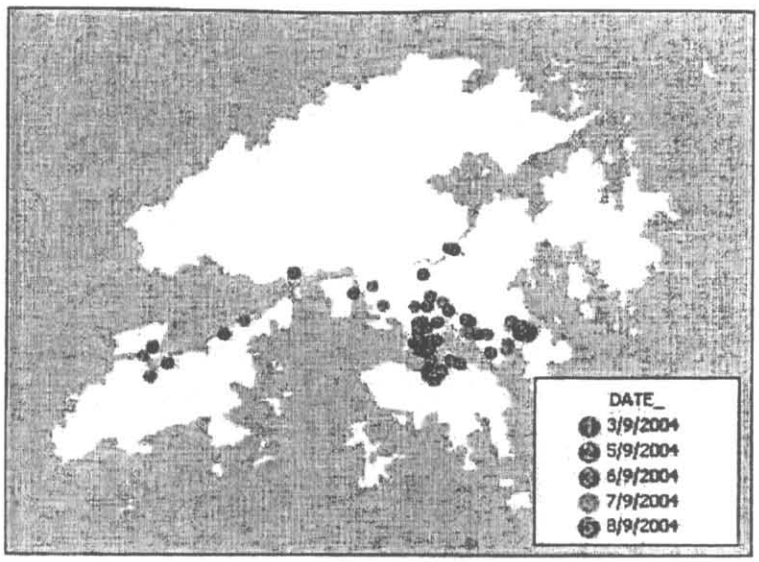


Figure 2
Duration of Visit (minutes)
Using Telephone Tracking Systems

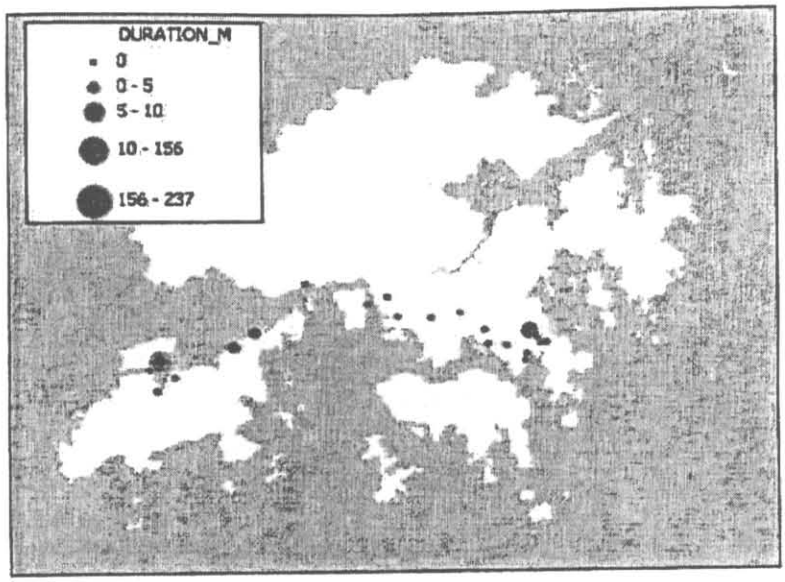


Figure 3
Mapping Routes Taken
Using Telephone Tracking Systems

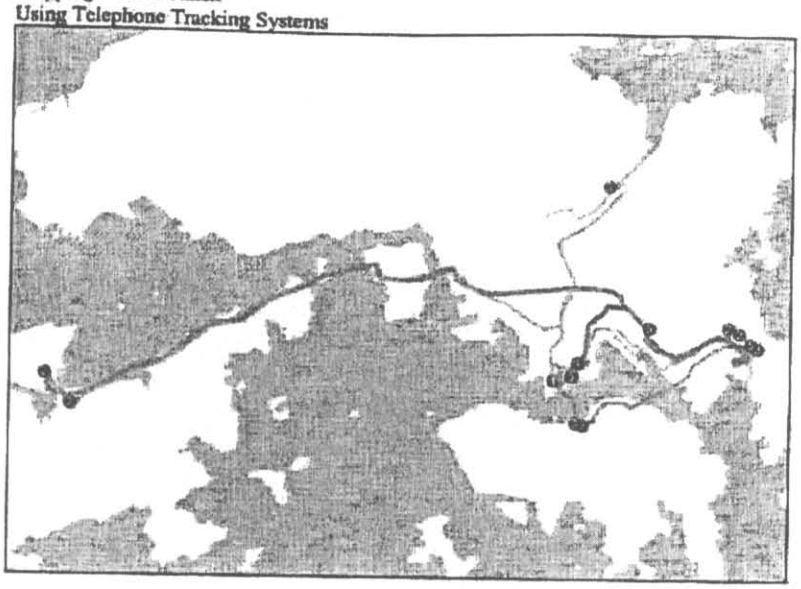


Figure 4
Mapping the Sequence of Visitation
Using Telephone Tracking Systems

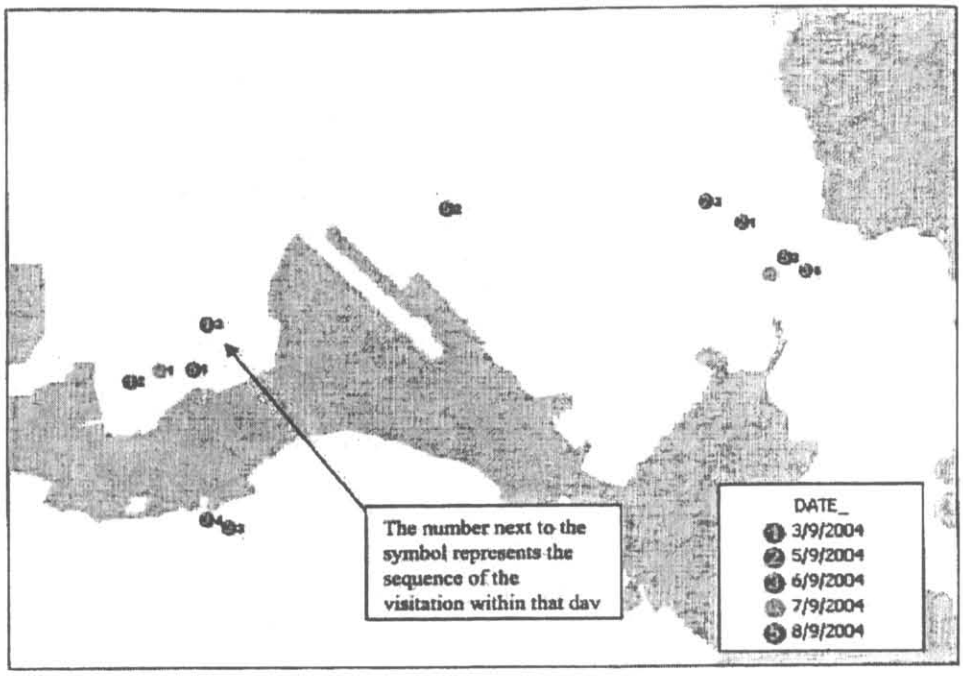


Figure 5
Spatial Distribution of Hong Kong's Attractions

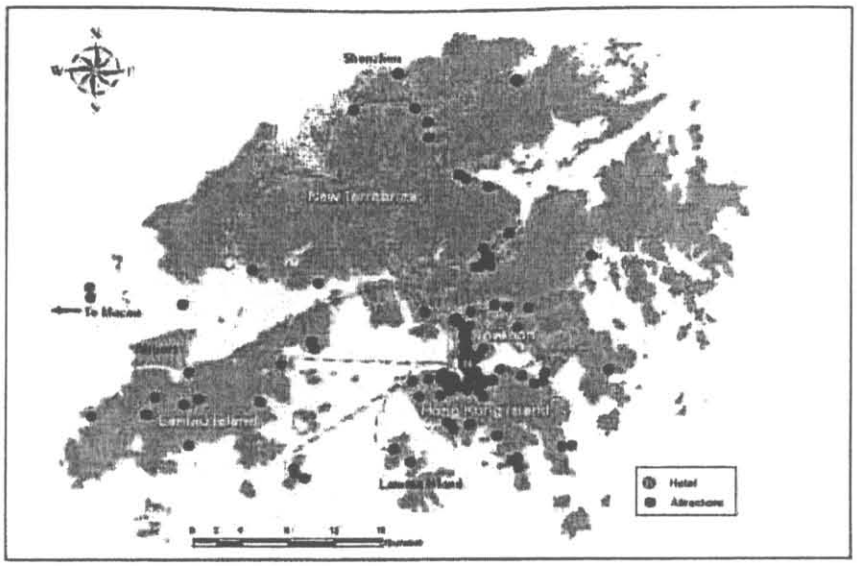


Figure 6
Sample Trip Diary Map

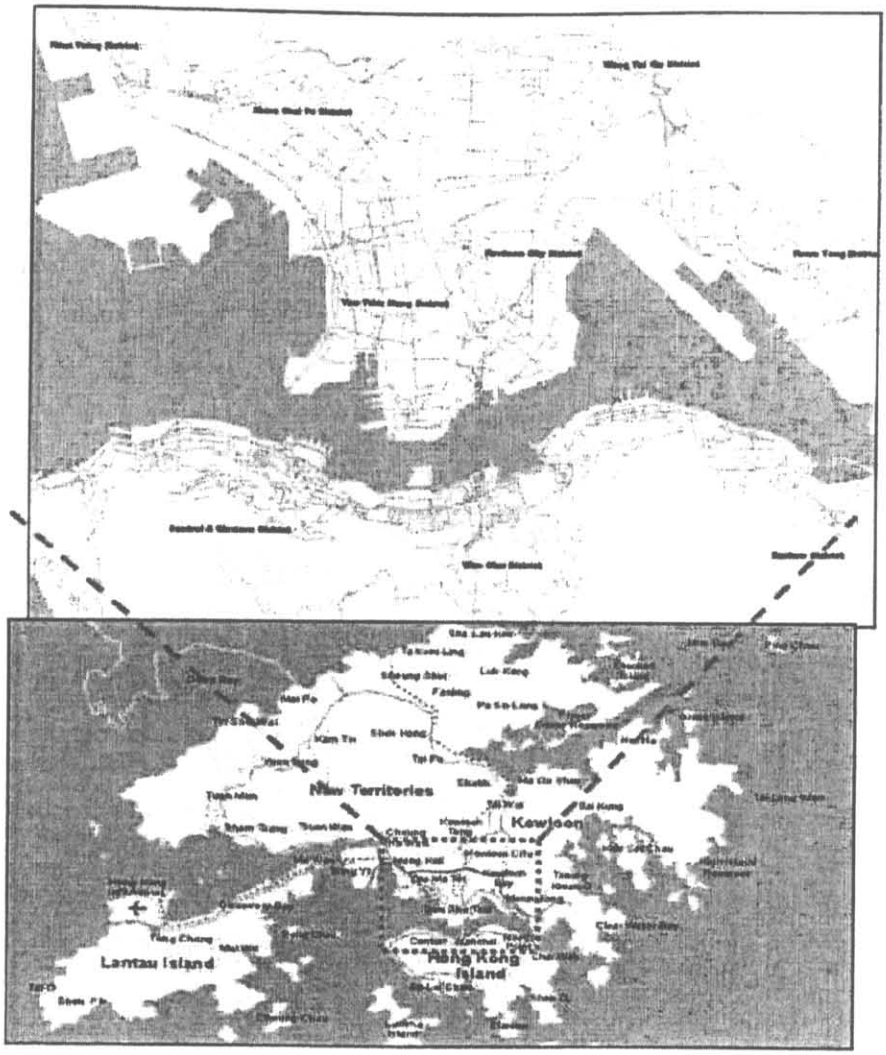


Figure 7
Sample Completed Trip Diary

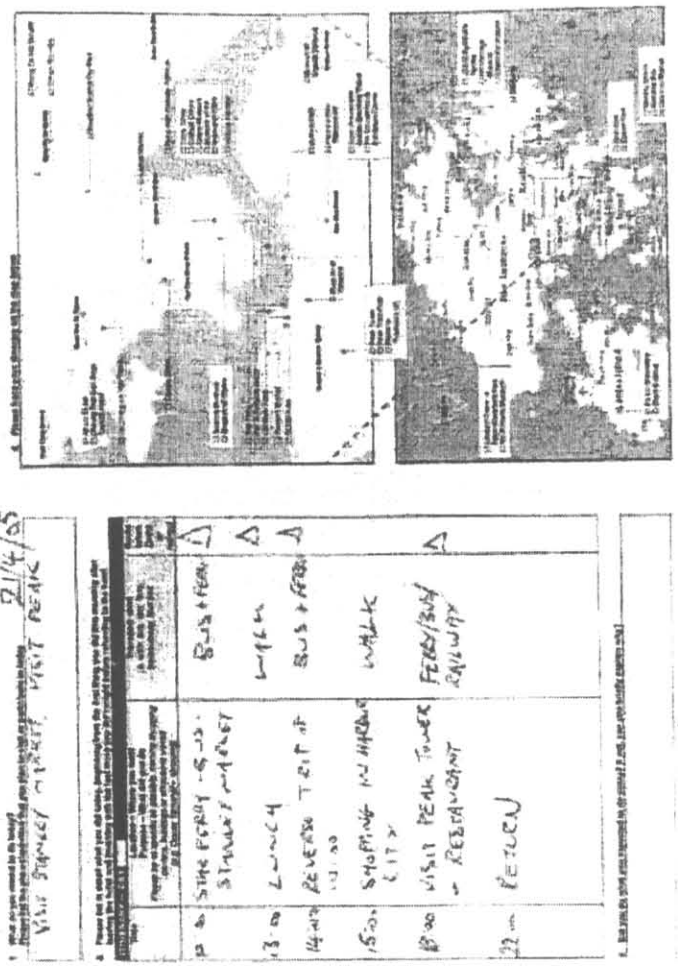
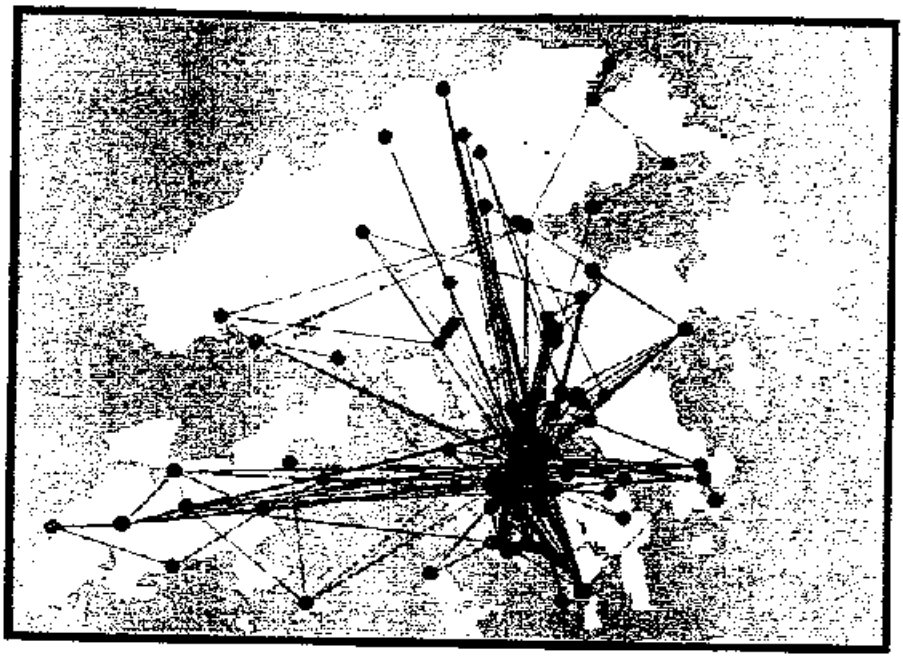


Figure 8
Complexity of Movements



Appendix A4 ? Lau & McKercher (2007)

EXPLORING TOURIST MOVEMENT PATTERNS IN A LOCAL DESTINATION

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and

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ABSTRACT

This paper examines the movement patterns of fully independent travelers (FITs) in a destination. The movements of tourists within a destination have never been examined before in a systematic manner. While some works have been conducted examining movements between destinations, the study of how tourists consume destinations is lacking. This paper aims to identify and categorize the daily itinerary movements of tourists. It also explains the method for categorizing the patterns and the reasons behind. Through visualizing tourist daily itinerary on the map, a total number of 78 different patterns were identified from the 930 daily itinerary routes analyzed. The 78 patterns, though different, share common nature in between.
Key Words: spatial movements, local destination, movement patterns, fully independent travelers (FITs), geographic information system (GIS)

INTRODUCTION

Systematic study of tourist movements within a local destination is limited in tourism research (Pearce, 1995; Haldrup, 2004; Lew & McKercher, 2006). Haldrup (2004:434) mentioned that "Tourist mobility has often been transformed into a black box explaining the character of specific forms of tourism and tourist behaviour, rather than a phenomenon in its own right that has to be explored and explained". Movements of tourists in a macro-scale, which also known as interdestination movement, have been studied for its importance in affecting tourism development and for the understanding of general characteristics of tourists. A number of scholars established their own influential models for tourist movement patterns between destinations (Mings & McHugh, 1992; Lue et al., 1993; Oppermann, 1995; Lew & McKercher, 2002).

Intradestination, at a lower level of scale, signifies by tourist movements within a local destination. It is characterized by the directions of movements, activities participated and attractions visited by the tourist within the boundary of a local destination. When tourists arrive at a local destination, they usually settle down first and explore the immediate area. They do more on other days. At the end of each day, they go back to the lodging place and get ready for the next day activities. The cycle continues until they leave the destination. Due to the limited time budget, tourists were expected to utilize their day fully to satisfy their motivations. This creates variations in their daily movements within the local destination area, namely intradestination movement patterns. Intradestination movements are always unique owing to different time budget, motivations and goals of individual tourist. The study of intradestination movements is challenged by its complexities and the overloading information associated with tourist visitation activities (Lew & McKercher, 2006).

Patterns are based on repetition and commonness. They are the templates or forms which are inferred or discerned from the common nature of the studying issue. Items of the same pattern exhibit comparable and correspondence qualities which differentiate them from other patterns. Geographic Information System (GIS) is the information technology which stores, analyses, and displays both spatial

and non-spatial data (Parker, 1988). The use of GIS helps to visualize tourist daily itineraries through digitization of attractions and connections between sites on the map. The graphical representation of tourist itineraries on maps were compared with each other and intradestination movement patterns were emerged.

Instead of proving any existing theory, this paper proposes new patterns to explain intradestination movements. This paper aims to explore the movement patterns demonstrated by tourists visiting a local destination. By evaluating individual daily itinerary of tourists visiting Hong Kong, intradestination movement patterns will be identified. This paper explains the technique for the presentation and management of the huge amount of data obtained, both spatial and aspatial data. The use of GIS and how the patterns were generated from the trip diaries will be discussed. Details of the data collection process, challenges and limitations of the research will also be presented. The study of intradestination movement patterns has pragmatic implications for attractions planning and management within local destination. By understanding the emergence of different patterns, local destination marketers would be able to provide the most suitable tourism product for visitors.

SCALE OF MOVEMENTS

Tourist movement is a key component in the tourist system (Leiper, 1979). The three geographical elements of a tourist system involve a tourist generating region, a tourist destination region and the transit route which connects the two regions. Leiper (1979) defined tourist generating region as the "place where tours begin and end", whereas the tourist destination region is "where tourists stay temporarily". Tourists start and finish the trip at their home town, taking the transit route and participate in all kind of tourist activities in the destination region. Interdestination movements are normally at international, between country or city level, whereas intradestination movements are those within a city or a local destination. The two scales of movements demonstrated clearly the three geographical elements of a tourist system. The tourist generating region can be either hometown or hotel whereas the tourist destination region is the destination country, city or attractions visited. In micro-scale, intradestination level, connections between attractions are generally by public transport, taxi or automobile.

Spatial movements between destinations, i.e. interdestination movement, have been studied by a number of scholars throughout the last few decades. Little attention, on the other hand, has been paid in the study of intradestination movements (Cooper & Fletcher et al, 1993; Pearce, 1995; McKercher & Lew, 2004). Since inter- and intradestination movement patterns can be perceived as movements of tourists at different level of scale, understanding interdestination movement patterns facilitates the conceptualization of intradestination movement patterns. The study of interdestination movement patterns acts as a reference for the identification and generation of intradestination movement patterns. Patterns generated from the study of interdestination movements shows the result of a number of influential factors. The study of interdestination movement helps to identify major traveling patterns like single point of travel, looping pattern and traveling leg pattern (Mings & McHugh, 1992; Lue et al., 1993; Oppermann, 1995). The patterns were illustrated based on the number of destinations visited by the tourist and the function of each destination in the whole trip. For instance, Mings and McHugh (1992) studied domestic tourist movements within the United States. The "direct route" category demonstrates a shortest distance path from the origin to the destination without any diversion trips. The tourist only visited a single destination in the whole trip. The "direct route" idea applies to intradestination movements if a tourist visited a local destination and he/she visited a single attraction in the day from and to the hotel.

Yanaw (1999:89) suggested that "spatially, all geographic data can be described with points, lines, areas, and volumes". Tourist movements are classified as intermittent geographic phenomena. They are the point-to-point movements that "move infrequently across space without regular intervals" (Yanaw 1999:94). Movements of tourists at different scales can be represented on maps with discrete points and

lines which emphasis on the spatial linkages between two or more locations. The tourist generating region and the destination region suggested in the tourist system can be represented as points on the map. At small scale maps, cities are represented as points whereas in larger scale maps, attractions are illustrated as points. The comparability of inter- and intradestination movement patterns makes it possible to share the factors essential for the generation of new patterns.

BENEFITS SEEKING

Multidestination trips are taken to maximize the benefits of travel. In the typology of pleasure travel patterns, Lue et al (1993) highlighted the relationship between purpose or benefits sought and the number of destinations visited. Four possible combinations of benefits sought and the number of destinations visitation is suggested in the matrix. "Specialization" means tourists visit only one single destination for the fulfillment of a single benefit. Multiple benefits are to be obtained through the visit of one single destination in "benefit diversification". "Destination diversification" suggests that a single benefit is to be sought from multiple destinations and "mixed strategies" suggests multiple benefits to be sought from multiple destinations. The model draws attention to purpose fulfillment and ego-enhancement in relation to destination visitation. It points out the fact that tourists may select single or multiple sites for visitation based on personal motives.

Self motivations and benefits seeking dominate the decision making process of tourists (Crompton, 1979; Dann, 1977). Tourists combine destinations in a trip at multi-destination level for obtaining certain benefits (Lue et al, 1993). A wide range of personal needs are to be satisfied from the pleasure trip to destination or destinations. Individual travelers will normally visit more than one destination for multiple purposes satisfaction (Tideswell & Faulkner, 1999). In application to a more local scale, tourists choose to visit a single attraction or multiple attractions for their daily itinerary in order to satisfy their own purpose or purposes. The decision of whether visiting a single attraction or multiple attractions would affect the final decision of the time spent in each attraction.

DESTINATION FAMILIARITY

Tourists generally exhibit both characteristics of "space searchers" and "space sitters" within the same trip (Walmsley & Jenkins, 1991). Space searchers refer to tourists who demonstrate a wider and active participation and visitation of sites, whereas space sitters are those who are with a confined area of movement. According to Walmsley and Jenkins (1991), space searchers are more active in activities participation, demonstrating a larger area of site visitation. They enjoy visiting a wider range of activities and are more open to explore new places (Cohen, 1972). Space sitters, in contrast, are having a more confined area of movement. They are more passive to explore and are more willing to stay in their circle of familiarity. The choice of movement patterns depends on the personal power of control and the knowledge of the destination.

Since "novelty and strangeness are essential elements in the tourist experience". Cohen's (1972) first tourist typology believed that every tourist will have their own "environmental bubble" of their native culture and is further developed by Jaakson (2004) as the "tourist bubble". It is a surrounding which is relatively familiar to them or contain elements to remind them about home. When tourist first arrived at a local destination, exploration of the immediate hotel area is expected. Tourists familiarize themselves within their "environmental bubble" before they did further exploration to the other area of the destination.

METHOD

This research, as an exploratory study of intradestination movement, studied the movements of the fully independent travelers (FITs) who have "flexibility in their itinerary and some degree of freedom in where they choose to travel within a destination region" (Hyde & Lawson, 2003). They demonstrated greater flexibility in their movements and itineraries based on personal motivations. FITs are independent travelers who purchase their own package or who booked their hotel and air tickets separately. They have better control over their own time and did not follow the tour itineraries or being directed by guides. Also, the FITs have to be pleasure tourists who went on a vacation with enjoyment and would like to satisfy a variety of different motives. Unlike business travelers who shows routine traveling pattern between hotel and work place, pleasure travelers show movement patterns which better demonstrate their motivations and goals to satisfy.

As a local destination where the research took place, Hong Kong combines various elements including nature, weather and climate, infrastructure, constructions and services provided (Kim, 1998). Tourism products and services were provided within the physical and administrative boundaries of Hong Kong, such as major new attractions opened in 2005 namely Hong Kong Disneyland. With a high ratio of pleasure travelers which accounts for over 65% of the total number of arrivals and 85% were classified as fully independent travelers, the study of tourist movement patterns in Hong Kong is valuable. Understanding tourist movement patterns within local destination could provide information and support for the planning, management and promotion of tourism attractions.

Participants were first approached at the hotel lobby upon check-in, they were asked about trip profiles, motivations, planned activities and basic demographic information. After that, they were asked to complete a trip diary for recording their daily itineraries, such as visited attractions, points of interests or activities that the tourists have participated in. Trip diary is a way of obtaining day-to-day and hour-to-hour location and timing of travel itinerary of tourist, without much disturbance in their time scheduling. It can provide information which is required for the spatial movement analysis and shows high level of consistency and accuracy (Kalfs & Harvey, 2002). The completed trip diaries provide useful information concerning tourist daily itinerary movements within the local destination. Tourists provided the attractions and points of interest that they visited in each day of their trip. At the end of the trip diary a departure questionnaire was attached, asking follow-up questions about their visitation in Hong Kong.

Aspatial data namely trip motivations, trip profile, intention for activities participation and demographic information were considered as factors affecting tourist movement patters. They were obtained from the arrival questionnaire and were inputted and analyzed by using SPSS. Daily itinerary, recorded on a daily basis in trip diaries, is the spatial data which are the most valuable data of this research. They were first input into excel spreadsheet and transformed into the GIS format for producing movement maps. By using GIS software, tourist movements within destination can be represented on maps with exact coordinates of attractions digitized on maps as points and transit routes between attractions as straight lines connecting points.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

GIS is an analyzing tool which is extensively used in geographical studies, its application in tourism studies is limited, especially on the topic of tourist movement patterns. Existing applications of GIS in tourism research will be examined through identifying the benefits and drawbacks cases by cases. In this research, GIS is used as the mapping tool for data input and analysis. As McAdam (1999) mentioned, "The significant value of GIS technology therefore, is in its ability to provide desk-top mapping through the graphical display and manipulation of data in order to identify patterns or relationships based on particular criteria." The use of GIS helps to transform data into meaningful information available for analysis. An important aspect of GIS in this research is the ability to visualize spatial data. The geometrical aspects of tourist movement can be represented in the GIS environment

through mapping. Maps become an essential element for spatial data analysis. It helps to visualize tourist movement patterns from simply presented on tables as in previous similar studies.

Figure 1
Mapping of Tourist Visitation in Local Destination (Day 1)

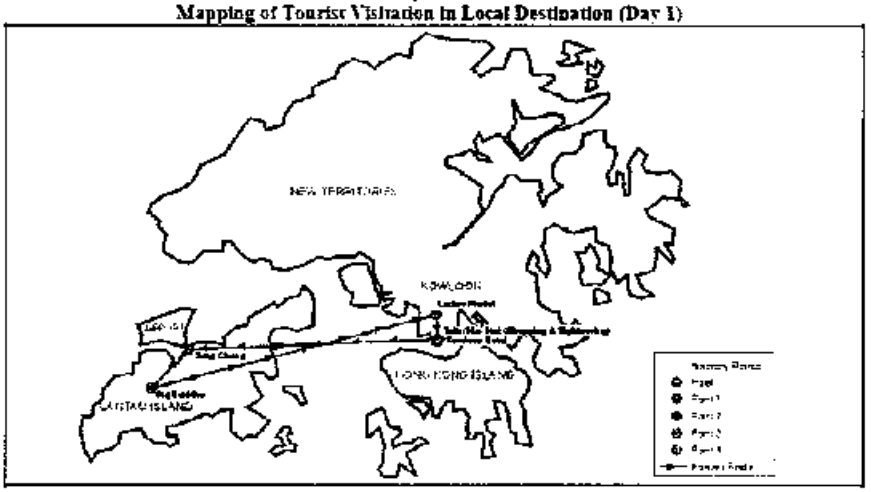


Figure 1 shows the digitized map of the first day movement of a tourist in Hong Kong. The tourist visited a number of attractions in the day, starting the day from the hotel and went back to the hotel at the end of the day. The tourist started the day by exploring around the hotel, do some general sightseeing and shopping as it is the first day arrived in the destination. The tourist went further away to major attraction namely the Big Buddha later in the day. The tourist went through a circular loop without any repeat visit of the same site during the day. Attractions points were connected with straight lines with arrows showing the movement direction and sequence of visitation. The lines show the shortest line connecting the two sites despite of the actual geographic and transportation factors. This digitization process is applied to all the data received from the trip diary and the movements of tourists were transformed maps. Movement patterns were visualized by this method and intradestination movement patterns were obtained

FINDINGS

A total of 1914 tourists were interviewed in the first stage of the research. A viable data base of 250 respondents from four hotels neighbouring to each other were obtained. There were altogether 930 daily itinerary routes recorded in the diaries and were available for the analysis of tourist movement patterns within destination. The 250 tourists visited 5273 points, including the hotel, the starting point and ending point of their daily itinerary, attractions and points of interests. This suggested that tourist on average visited 3.6 attractions in each day of their visitation. Respondents were mainly westerners coming from Australia, New Zealand, and the United Kingdom, accounting for over 70% of the total number of respondents. The tourists showed an average length of stay for 3.78 nights, ranging from a minimum stay of one night to a maximum of eight nights.

ELEMENTS FOR CATEGORIZATION CONSIDERATIONS

Intradestination movement patterns are derived from maps of tourist movements. With the 930 daily itinerary recorded by the 250 respondents, 930 maps were produced for analysis. Each of the individual daily itineraries shows unique characteristics of the movement, however, some of them share common nature when they are presented on maps. Elements are taking into consideration when grouping the individual itineraries. These common elements helped to categorize the itineraries into different patterns and making the data available for analysis. There are altogether five elements which taken into account for classification of patterns. These elements include: number of trips taken (single or multiple), number of stops visited (single or multiple), involvement of local exploration, joining of local sightseeing tour and cross border tourism to China or Macau.

Tourist movements are divided into categories based on the number of trips that he/she taken during a particular day of their visitation. Pattern will either be categorized as single or multiple trips pattern. Tourists who went for multiple trips may perceive the hotel as their base site and show their attachment to the hotel during their visit. The number of stops that tourist visited within a single trip is also considered for categorization. Tourists who visited only a single attraction in a single trip suggested that longer time is spent in that particular site. When tourists visited a number of sites in a single trip, less time is available in each site and tourists may only be able to have a superficial taste of the attraction.

Local exploration is a key factor for understanding tourist movement within destination. The localization effect is noticeable for the fact that tourists explore the immediate area when they settled down in the hotel. It is believed that tourists seek familiarity within the environmental bubble before they did further exploration to the destination. The local exploration is differentiated from other attractions or point of interests because of their generic and spatial proximity nature to the hotel.

Local tour is another factor which may affect tourist movement patterns. Some tourists joined the half-day or whole day local sightseeing tour when they arrived at the local destination. Tourists need to follow set itinerary and are travel from places to places by coach or transfer services. Tourist may be able to visit places which are not common tourist attractions. In order to stick to the principle that tourists have to be independent travelers, daily itinerary routes that involved local sightseeing tour were categorized as a separate group for pattern analysis. The final element to consider during classification is whether the tourist paid a visit to Macau or China as part of their trip itinerary. Tourists visiting Hong Kong may take the trip as an opportunity to explore a little bit more to these Chinese cities by paying a day trip to the cities. Itineraries in association with cross border tourism to China and Macau will be differentiated from the itineraries exhibited within the boundary of Hong Kong. Tourist visitation to these cities will reduce the time that they spent in local attractions, and will result in a different time management for other attractions.

Taking the example in Figure 1, the tourist visited a number of attractions during the day without repeating any other the transit route. The tourist started his day with general sightseeing and shopping within the local area and visited the major attractions later in the day. A circular loop pattern with local exploration is identified from this example. Tourist who demonstrated this pattern of movement shows no participation in cross border tourism to China or Macau and did not take any of the local sightseeing tours.

Figure 2
Illustrated Intradestination Movement Pattern of Figure 1

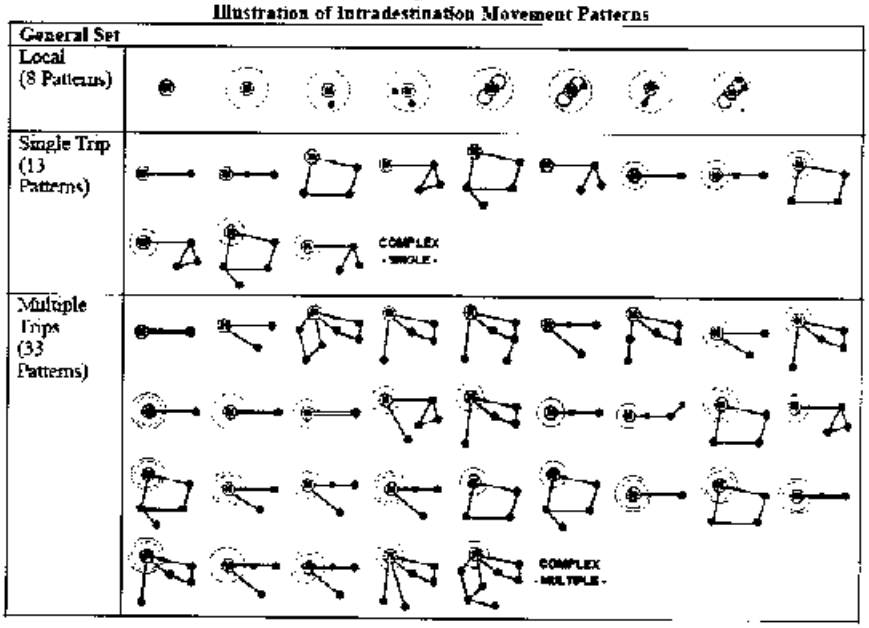
	**Definition of Pattern:** Loop through two or more attractions in a single trip and did some general sightseeing and shopping within the hotel area, either on the way from or to hotel.

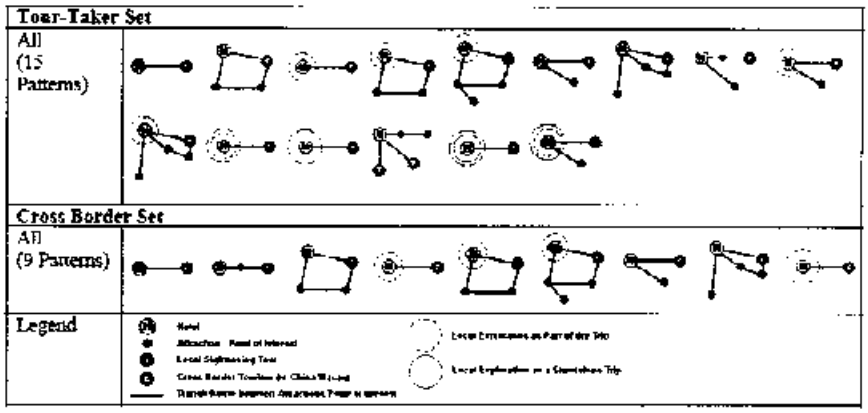
THE PATTERNS

There are altogether 78 patterns identified and the frequency counts ranged from 1 to 124 examples of each pattern. The patterns can be grouped into three major sets, including the general set, the tour-taker set and the cross-border set. The general set include patterns of "No Movement", "Local Exploration" patterns, "Single Trip" and "Multiple Trips" patterns. It is a set which contain patterns showing general single or multiple trip movements without any tour or cross-border visit taken by the tourist. The tour-taker set include all the movement patterns which include a local sightseeing tour, whereas the cross-border set include all the patterns in which tourists paid a visit to China or Macau. The General Set contains 54 patterns with 733 daily itinerary routes fall into this set. The Tour-Taker Set contains 15 patterns with 155 daily itinerary routes and the Cross Border Set contains 9 patterns with 42 itinerary routes. Illustrations of each pattern can be found in figure 3

For each pattern illustrated in figure 3, the point representing hotel is involved. Every tourist started and ended their trip at the point of hotel. A black dot represents an attraction or a point of interest mentioned by the tourist in the trip diary. Points with "T" or "C" mean that tourists either joining a local sightseeing tour or visited a site in China or Macau. Each trip within the single day is connected by the black line between attractions and hotel. When the line ends at the hotel point, it means that the tourist returned to the hotel. Local exploration included in the trip together with other attractions visited is represented as dotted line circled surrounding the hotel point. As a separate local exploration trip during the day, it is represented as black circle with solid line.

Figure 3
Illustration of Intradestination Movement Patterns





The 78 patterns show the possible daily itinerary pattern of intra-destination movements. They are organized based on the five categorized elements and were presented in a systematic way. The huge number of patterns shows the probable diversity of tourist movement patterns within destination. Even they are organized based on the special elements, it is difficult to evaluate these patterns in association with other factors. With the frequency counts ranged from 1 to 124 of each pattern, it is difficult for further analysis as some of the cell size is too small to be representative enough. Though the patterns demonstrate unique characteristics of their own, some of the patterns share common natures and there is a need to collapse these patterns so that further analysis can be done. Also, potential factors affecting tourist movement patterns should be taken into account for understanding the emergence of these intradestination movement patterns. These factors include tourist characteristics, trip profile, day of visitation, repeat visitation of tourists, etc.

CONCLUSION & DISCUSSION

This paper presents the categorization and identification method for intradestination movement patterns. New patterns are being explored from the data and common categorization elements were acknowledged. The use of GIS enhances the data processing procedure and provides a way to handle and manage the massive data set. Using GIS to produce maps of tourist movements within destination was standardized and showing consistent technique for formulating tourist movement maps for analysis.

Limitation is inevitable in any kind of research. Some inadequacies are being identified in the data collection process. Participants were asked to fill in trip diaries which recorded their daily movements. They have to reveal their private routing information to the investigator. Though prior consents and agreements were obtained from the participants, the response rate was quite low for completed trip diaries. Completed trip diaries from participants may vary in the quality of itinerary documentation. Some of the returned trip diaries provide insufficient details for mapping in GIS, or even blank. Since self completion survey was chosen in this research to reduce the disturbance to the participants, the quality of the returned trip diaries have to be depended on the way that participants answered.

This research is expected to be the pioneer study of using GIS as a spatial analysis tool in tourism research of intradestination tourist movement pattern. By incorporating the use of traditional trip diary for

data collection and the use of innovative GIS technology for data analysis, the research bridges the gap between the traditional tourism research method and the use of advance technology. Further analysis between factors affecting tourist movements and patterns facilitate the understanding of tourist behaviour within local destination. Intradestination movement patterns will be further collapse into 13 styles in which factors affecting movement patterns can be considered in association with the styles. The grouping of the 78 patterns into 13 styles is essential due to the fact that the patterns are too diverse for systematic analysis. Destination management organizations can better understand the interests and expectations of the FITs through the analysis which helps to estimate and to evaluate the activities and attractions that should be provided in the destination.

REFERENCES

Cohen, E. (1972). Toward a Sociology of international tourism. *Social Research*, 39, 164-182.

Cooper, C., Fletcher, J., Gilbert, D. and Wanhill, S. (1993). *Tourism: Principles & Practice*. 1st Ed. Longman Scientific & Technical, Harlow, Essex.

Crompton, J. L. (1979). Motivations for pleasure vacation. *Annals of Tourism Research*, 6, 408–424.

Dann, M. S. (1977) Anomie, Ego-Enhancement and Tourism. *Annals of Tourism Research*, 4(4), 184-194.

Haldrup, M. (2004). Laid-back mobilities: second-home holidays in time and space. *Tourism Geographies*, 6(4), 434-454.

Hyde, K.F. and Lawson, R. (2003). The Nature of Independent Travel. *Journal of Travel Research*, 42, 13-23.

Jaakson, R. (2004) Beyond the tourist bubble? Cruiseship passengers in port. *Annals of Tourism Research*, 31(1), 44-60.

Kaifs, N. and Harvey, A.S. (2002). *Perceptual Motion. Travel Behavior Research Opportunities and Application Challenges*, H.S. Mahmassani (Ed.), Austin: Elsevier Science. pp. 289-306.

Kim, H.B. (1998). Perceived attractiveness of korean destinations. *Annals of Tourism Research*, 25(2), 340-361.

Leiper, N. (1979). The framework of tourism - towards a definition of tourism, tourist, and the tourist industry. *Annuals of Tourism Research*, 1979 Oct/Dec. pp. 390-407.

Lew, A.A. & McKercher, B. (2002) Trip destinations, gateways and itineraries: The example of Hong Kong. *Tourism Management*, 23(6). 609-621.

Lew, A.A. & McKercher, B. (2006). Modeling Tourist Movements – A Local Destination Analysis. Annals of Tourism Research. 33(2), 403–423.

Lue, C.C., Crompton, J.L., Fesenmaier, D.R. (1993). Conceptualization of multidestination pleasure trips. *Annals of Tourism Research*, 20, 289-30.

McAdam, D. (1999). The value and scope of geographical information systems in tourism management. *Journal of Sustainable Tourism*, 7(1), 77-92.

McKercher, B. and Lew, A.A. (2004) Tourist flows and the spatial distribution of tourists. In A.A. Lew, M.W. Hall, A.M. Williams, eds., *A Companion to tourism*, Ch 3, pp.36–47. Oxford, Blackwell.

Mings, R.C. and McHugh, K.E. (1992). The spatial configuration of travel to Yellowstone National Park. *Journal of Travel Research*, 1992: SPRING, pp.38-46.

Oppermann, M. (1995). A model of travel itineraries. *Journal of Travel Research*, Spring, 57-61.

Parker, H.D. (1988). The unique qualities of a geographic information system: a commentary. *Photogrammetric Engineering and Remote Sensing*, 54, 1547-1549.

Pearce, D.G. (1995). *Tourism Today: A Geographic Analysis* Longman Scientific & Technical, Harlow, Essex.

Tideswell, C. and Faulkner, B. (1999) Multidestination travel patterns of international visitors to Queensland *Journal of Travel Research*, 37(4), 364-374.

Walmsley, D.J. and Jenkins, J.M. (1991). Mental maps, locus of control, and activity: A study of business tourists in coffs harbour *The Journal of Tourism Studies*, 2(2), 36-42.

Yattaw, N.J. (1999) Conceptualizing Space and Time. A Classification of Geographic Movement. *Cartography and Geographic Information Science*, 26(2), 85-98.

Appendix A5 ? McKercher & Lau (2005)

UNDERSTANDING THE MOVEMENTS OF TOURISTS IN A DESTINATION: TESTING THE IMPORTANCE OF MARKERS IN THE TOURIST ATTRACTION SYSTEM

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Abstract

This study examines the movements of tourists in Hong Kong within the conceptual framework of tourist attractions systems. This framework argues the importance of 'tourists markers' signals sent in influencing visitation. Markers received prior to departure are felt to play an influential role in motivating visitation. This study found a strong correlation between pre departure awareness and absolute disaster in numbers. However, the study also determined that more popular attractions also generated a higher number of spontaneous visits by previously on aware tourists, suggesting the importance of in destination awareness. The study also identified the importance of proximity to major attractions as a source of spontaneous visitation.

Keywords: Tourist attractions systems, markers, awareness.

Note: Funding for the project was provided for by a grant from the Hong Kong Universities Grant Committee

INTRODUCTION

Many factors can influence the movements of tourists within a destination. Law and McKercher (forthcoming) in a review of previously published material identified a number of factors that will influence either destination choice or attraction preference including distance decay and market access (Oppermann and Wall 1979, Paul and Rimmawi 1992, McKercher 1998a, McKercher 1998b, Pearce 1988), urban transport modeling (Meyer and Miller 1984, Rodriguez 2003), the mode of transport used by the tourist (Page 1999), tourist time budgets (Chavas et al 1989, McKean et al. 1995, Truong and Henscher 1985, Walsh et al. 1990), the tourist's personality style and resultant preferences (Debbage 1991, Fennell 1996), place knowledge (Fodness and Murray 1997, Stewart and Vogt 1999), and other factors.

Relatively little research, however, has been conducted on the role of specific attractions in influencing movement patterns. Indeed, attractions are an under-researched area in tourism, even though it is widely recognized that they drive tourism. Some good conceptual work has been produced describing the nature of attractions (Law 1987, Pearce 1991), outlining a hierarchy of attractions (Mill and Morrison 1985, McIntosh

and Goeldner 1990), and describing attractions systems (Leiper 1990, Richards 2002). Little empirical work has been undertaken testing these ideas empirically. McKercher, Ho and du Cros (2004) examined the factors affecting popularity of cultural attractions and McKercher, Wan and Tse (forthcoming) conducted a study questioning whether short duration festivals were tourist attractions. Frost (2003), Leiper (1997) and Teo and Yeoh (1997) have documented failed attractions. Apart from these studies and a few more most of the research on attractions tends to be rather limited. This paper examines, empirically, visitation patterns to a variety of tourist attractions in Hong Kong among long haul international tourists.

TOURIST ATTRACTIONS SYSTEMS

Leiper (1990) first mooted the concept of tourist attraction systems, although he acknowledges the influence of earlier work by MacCannell (1976) and Gunn (1972) (both as cited by Leiper 1990). He argues a systems approach define tourist attractions as comprising three elements: a tourist, a site or nucleus and a marker. Each plays a fundamental role in explaining how places attract tourists. The first two elements, the tourist and the site / nucleus need little explanation, while the third element, the marker, needs further elaboration.

Briefly, Leiper (1990: 382) asserts that these tourists are central part of the attraction system, for without tourists, places would not be thought of as attractions. Likewise, the attraction itself forms the nucleus for visitation. How important the site is in the overall decision to visit can be used as a proxy to rank attractions. Primary attractions / nuclei influence destination choice. Tourists are aware of them prior to departure and this awareness stimulates the visit. Secondary attractions are known prior to the visit, but they play no significant role in the itinerary. Tertiary attractions unknown pre-visit but are discovered by the individual after arriving in the destination (Leiper 1990). Pre departure awareness levels, therefore, may serve as a proxy to rank attractions, as high order attractions are known, while awareness levels decline further down the attractions' hierarchy.

Awareness is signaled by the 'marker'. A marker is defined as "items of information about a phenomenon that is a potential nuclear element in a tourist attraction (Leiper 1990: 377)." In layperson's terms, a marker may be any form of information about the attraction that conveys information and motivates visitation. Markers, therefore, act as both the link between the tourist and the attraction and as the catalyst for visitation. As such, they play a critical role in the attractions system. Markers exist at three levels: generating markers, transit markers and contiguous or in-destination markers. Generating markers refer to information received prior to departure. Transit markers relate to information gathered en-route, while contiguous markers relate to information received in the destination.

Richards' (2002) study of cultural tourism participation illustrates the role the importance of generating markers in particular, as almost half of all tourists surveyed indicated their decision to visit cultural sites was made prior to departure. Special interest tourists, long haul tourists and those on limited time budgets are more likely to rely on generating markers than other visitors. This finding is consistent with Shoval and Raveh's (2004) argument that tourists on limited time budgets must set priorities about which attractions they wish to visit and which ones they will skip prior to departure. Tourists are unlikely to vary their potential itineraries, once set, other than to participate in short duration, easy to consume activities.

METHOD

This paper is part of a larger study examining the movements of independent tourists in Hong Kong. Guests at five participating hotels located in the tourist node of Tsim Sha Tsui, on the Kowloon side of the Hong Kong harbor, were invited to participate. Potential participants were approached at check-in. A non probability, judgmental sample was used, which was felt to be the most appropriate and pragmatic method to gather data. Participants had to satisfy three criteria: they had to be non local residents, be pleasure tourists and be free, independent tourists (FIT). Data used in this study were collected over a 10 month period beginning in November, 2004.

The data collection process involved four discrete stages. It was expected that the participation rates in the later stages would be lower as completion of the entire project required a significant time investment on

behalf of the visitor. To begin, visitors completed a detailed arrival survey, via face to face interviews. This survey gathered demographic and trip information, motivations and expected activities. A total of 1151 individuals participate in this phase.

The second stage involved the completion of a trip diary documenting the respondent's daily movements in Hong Kong. These data will be analyzed using GIS software.

The third stage involved a post trip assessment. Respondents were asked further details about their trip, if they extended their stays, satisfaction levels and also had the opportunity to describe any unexpected activities or experiences. However, the study team desired much more information than could be collected in the trip diary. As such, participants were also provided with a more comprehensive self completion survey that they were asked to complete and return by post. This fourth data collection instrument sought additional details on motives using semantic differential statements, more details on 33 activities pursued or places visited, awareness levels of these places, if and when awareness occurred and if or when the decision was made to visit them. These data are the focus of this study. In total, 520 participants returned this questionnaire. Data cleaning reduced the usable sample to 274 respondents.

Table 1
Demographic Profile of Respondents (%)

Origin		
	Australia/ NZ	38.3
	Canada/USA	12.0
	UK	26.7
	Other Europe	9.4
	Asia	12.4
	Other	1.5
Travel Experience		
	Inexperienced / no prior international travel	10.3
	'average' experience	26.0
	experienced	29.3
	very experienced	34.4
Gender		
	Male	35.3
	Female	64.7
Age		
	<36	21.7
	36 – 45	17.9
	46 – 55	34.7
	>55	36.2
Highest education level		
	High School or less	24.2
	University	51.3
	Post graduate qualification	24.5
Income		
	<US$ 50,000	29.4
	US$50,000 – US$ 99,999	49.0
	US$100,000 or more	21.6

Table 2
Trip Profile
(n = 274)

HK as the only destination	38.7
HK as the main destination	55.5
First time visitors	47.8
Median length of stay in HK	4 nights
Median trip duration	11 nights
Satisfaction level	
Neutral or Dissatisfied	4.4
Satisfied	33.9
Very Satisfied	61.7

The profile of the respondents is summarized in Table 1 and their trip characteristics are shown in Table 2. Over 90% were long haul visitors. They are typically middle-aged or older, well educated and earn incomes in excess of US$50,000 per annum. They self assessed themselves as experienced travelers. Hong Kong was typically included as one of a number of destinations visited during the trip. Slightly more than half indicated that Hong Kong was there main destination. About half were first-time visitors and the rest repeat visitors. The median trip duration was in excess of 10 nights, with the median length of stay in Hong Kong being four nights. The vast majority of respondents (in excess of 95%) were satisfied or very satisfied with their visit.

A growing body of literature suggests that different types of tourists travel to have different motives met and, subsequently, engage in different types of activities (Kerstetter et al 1998, Sung et al 2000). Market segmentation research (Prentice et al 1998) further suggests that motivation based segmentation is the more appropriate way to segment the tourism market than demographics, as interests cross narrow, stereotypic demographic factors. Closer analysis of the binary motivation questions asked in the first phase of the research was used to segment respondents to facilitate further analysis of movement by tourist type.

Four segments emerged from this analysis as shown in Table 3. The first group classified as the 'Stress Free' holiday taker is typified by people who are looking to return to a familiar place with similar culture and language, primarily to rest and have fun. The second group, classified as the 'Business/VFR' group included above free independent pleasure tourists who also came to Hong Kong to conduct business or visit friends and relatives. 'Hedonists', the third group were looking for a short break indulgent holiday that would give them bragging rights among their friends and families when they returned home. The last group was labeled the 'Aspirational' group. They want to discover new places, experience different cultures, and learn about cultural heritage and, importantly, visit places they have always wanted to see.

Table 3
Segmenting the Sample by Motivation

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Stress Free	Business /VFR	Hedonic	Aspirational
n = 71	n = 31	n = 83	n = 83
Go to a place with similar culture and language	Conduct Business	Experience a taste of China	Discover new places and / or things
Go back to a familiar place	Visit friends and relatives	Have a short break	Go to places with a different culture or language
Rest and relax		Learn about cuisine	Learn about culture and heritage
Have fun		To brag to my friends when I return home	recommended by friends and family
			Some place I have always wanted to see

Table 4
Trip Profile by Cluster

	Easy holiday	Business / VFR	Decadence	Discovery / Aspirational	Stat Diff
% first time visitors	33.8	18.9	39.8	80.7	**
% HK as only destination	49.3	40.5	37.3	30.1	none
% HK as main destination	60.6	81.1	50.6	44.6	**
Mean Length of stay in HK (nts)	5.9	8.4	4.5	4.7	**
Mean trip Duration (nts)	15.0	13.4	17.3	31.6	*

* significant at P = .05

** significant at P = .01

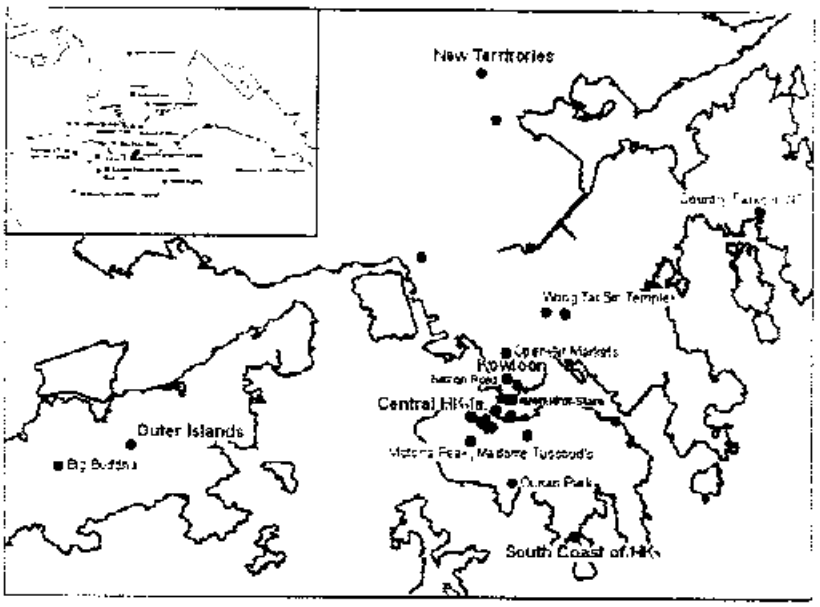
They displayed different travel patterns (Table 4). The "Aspirational" tourist was most likely to be first-time visitor, was traveling for a long period of time and visited multiple destinations. Hong Kong was not their main destination, and consequently, their mean length of stay was short. By contrast, the "Stress-Free" holidayer was most likely to be a repeat visitor, identified Hong Kong as the main destination and stayed almost a week. The "Hedonic" traveler was a short stay repeat visitor. The "Business/VFR" tourist was most likely to be a repeat visitor, identify Hong Kong as the main destination and also stay the longest period of time. Interestingly, while their travel patterns differed, no significant differences were found in any of the demographic variables of gender ($X = 2.176$, df = 3, p =.537), age $X=21.908$, df = 15, p =.051), income ($X=18.342$, df = 15, p = .245), or education ($X = 16.881$, df = 15, p = .326), supporting the assertion that demographic based segmentation is problematic.

The purpose of this study is to gain insights into tourist movements in a destination. In particular, the author wishes to examine the relationship between awareness and tourist behavior at 33 named attractions or

districts in Hong Kong. Their location is shown in Map 1.

Map 1

Hong Kong and Attractions



RELATIONSHIP BETWEEN AWARENESS AND VISITATION LEVELS

Table 5 lists the attractions tested in rank order based on visitation levels. The table also indicates the raw scores of visits and pre departure awareness as well as the participation rate and pre departure awareness rate. Visitation levels varied substantially from near universal participation (86%) to near universal avoidance (less than 1%). However, within the range, clear patterns emerged. The eight most popular places were visited by about two-thirds of respondents. The 10th to 14th most popular places were visited by between about one-fifth and one-quarter of respondents, while a large number of attractions experienced visitation rates of 10% or less. The ninth most popular place, Avenue of Stars, represents an anomaly, which will be discussed later.

Table 5
Comparison of Number of Visitors to Pre-departure Awareness
(n = 274)

Rank	Attraction	Number of visitors	% participation rate	Pre departure awareness level	% pre departure awareness
1	Kowloon	235	85.8	217	82.5
2	Nathan Rd (shopping)	213	77.7	185	70.9
3	Star Ferry (between TST and Central)	210	76.6	221	83.7
4	Central HK Is. (Downtown)	205	74.8	195	74.1
5	Victoria Peak	195	71.2	230	87.5
6	Open Air Markets	181	66.1	174	67.0
7	South Coast of HK	179	65.3	191	72.1
8	Peak Tram	173	63.1	212	81.2
9	Avenue of Stars	115	42.0	65	25.2
10	New Territories	65	23.7	140	54.1
11	HKTB Visitors Bureau	62	22.6	82	31.9
12	Outer Islands	61	22.3	108	41.5
13	Big Buddha	58	21.2	132	50.6
14	Hollywood Rd (antiques)	51	18.6	70	27.1
15	Tin Hau or Man Mo Temples	41	15.0	53	20.5
16	Ocean Park	38	13.9	124	47.7
17	HK Convention and Exhibition Centre	37	13.5	97	37.6
18	Wong Tai Sin Temple	32	11.7	44	17.1
19	Lan Kwai Fong night clubs	31	11.3	65	25.2
20	Museum of Art	30	10.9	66	25.6
21	Country Parks on HK Island	27	9.9	66	25.6
22	Museum of History	23	8.4	65	25.3
22	Flagstaff House and Teaware Museum	23	8.4	43	16.7
24	Expo Promenade / Golden Bauhinia	22	8.0	27	10.5
25	Horse racing	21	7.7	151	58.1
26	Country Parks in NT	13	4.7	60	23.3
26	Hong Kong Heritage Museum	13	4.7	50	19.5
28	Madame Tusaud's	8	2.9	57	22.2
28	Chi Lin Nunnery	8	2.9	33	12.8
30	HK Railway Museum	6	2.2	28	10.9
31	HK Museum of Coastal Defence	4	1.5	31	12.1
32	Mai Po Marshes	2	0.7	35	13.5
32	Sam Tung Uk Village Museum	2	0.7	23	9.0

A strong correlation was noted between visitation levels and pre trip awareness ($r = .897$, $p < .002$) and between participation rates and pre-trip awareness rates ($r = .896$, $p < .001$). Generally, attractions with the highest pre departure awareness drew the largest numbers of visitors, while those with lower pre-departure awareness levels attracted correspondently fewer visitors. The few exceptions were built attractions where awareness levels were generally two to three times higher then their visitation rates. Such attractions may be well-known, but appeal to a relatively narrow. The Avenue of Stars was the only attraction with the significantly higher participation rates than pre departure awareness levels would suggest.

This finding suggests, superficially at least, that a strong link exists between generating markers and the decision to visit. However, as discussed later, it appears that this link is as much coincidental as causal. As high levels of spontaneous visitation were noted at the attractions recording the highest pre-departure awareness levels.

Awareness may be one criteria, but perhaps, intention to visit may be more meaningful. As discussed above, awareness levels were generally high for built attractions, but visitation levels were lower than expected. Table 6 compares the number of people who intended to visit prior to departure with their actually visitation levels. The last column shows the conversion rate between actual and planned visits. Once more a strong correlation exists between the total number of visitors and those who actualized their pre-departure intentions to visit ($r = .977$, $p<.001$). Likewise, a strong correlation emerged between intentions and actions ($r = .997$ $p < .001$). Typically, 90% or more of respondents who planned to visit the seven most popular attractions did so. But the table also indicates that the conversion rate declines as the absolute number of visitors also declines. The eighth to 19th most popular attractions typically recorded conversion rates of between 70% and 80% while the rates for the other attractions was highly variable, ranging from a low of one-third to 80% or more among the small number of people who intended to visit.

Table 6
Comparison of Number of Visitors to Level of pre-departure Plans to Visit

Rank	Attraction	Number of visitors	Number who pre-planned to visit	Number who pre-planned to visit and did	Conversion rate (% of those who pre-planned to visit and did)
1	Kowloon	235	179	176	98.3
2	Nathan Rd (shopping)	214	131	131	94.9
3	Star Ferry (between TST and Central)	210	162	150	92.6
4	Central HK Is. (Downtown)	205	152	140	92.1
5	Victoria Peak	195	163	145	89.0
6	Open Air Markets	181	122	115	94.3
7	South Coast of HK	179	120	110	91.7
8	Peak Tram	173	142	120	84.5
9	Avenue of Stars	115	31	27	87.1
10	New Territories	65	45	36	80.0
11	HKTB Visitors Bureau	62	30	26	86.7
12	Outer Islands	61	49	37	75.5
13	Big Buddha	58	53	34	64.2
14	Hollywood Rd (antiques)	51	22	19	86.4
15	Tin Hau or Man Mo Temples	41	16	11	68.8
16	Ocean Park	38	33	26	78.8
17	HK Convention and Exhibition Centre	37	22	18	81.8
18	Wong Tai Sin Temple	32	17	14	82.4
19	Lan Kwai Fong night clubs	31	21	14	66.7
20	Museum of Art	30	20	10	50.0
21	Country Parks on HK Island	27	12	9	75.0
22	Museum of History	23	20	10	50.0
22	Flagstaff House and Teaware Museum	23	10	8	80.0
24	Expo Promenade / Golden Bauhinia	22	6	5	83.3

Rank	Attraction	Number of visitors	Number who pre-planned to visit	Number who pre-planned to visit and did	Conversion rate (% of those who pre-planned to visit and did)
25	Horse racing	21	20	12	60.0
26	Country Parks in NT	13	10	5	50.0
26	Hong Kong Heritage Museum	13	6	5	83.3
28	Madame Tusand's	8	7	3	42.9
28	Chi Lin Nunnery	8	8	3	37.5
30	HK Railway Museum	6	0	0	0.0
31	HK Museum of Coastal Defence	4	1	1	100.0
32	Mai Po Marshes	2	3	1	33.3
32	Sam Tung Uk Village	2	1	1	100.0

Cont Table 6.

The correlation coefficient between the number of visitors and the conversion rate remained positive and statistically significant ($r = .384$, $p = .027$), but was much lower than that recorded for the other tests of correlation discussed above. This finding suggests the level of commitment erodes among less popular attractions. It further suggests that a hierarchy of attractions can be inferred based on commitment levels as reflected in the conversion rate, rather than on raw visitation levels, demonstrated by tourists to visit. Tourists feel obligated to visit the most popular places, but the level of obligation declines with less popular places, even if the tourist signaled their intention to visit.

Table 7 compares the number and percent of spontaneous or unplanned prior to departure. The right hand column ranks attractions by the percentage of unplanned visits. Once more, a strong correlation is noted between the total number of visitors and the total number of spontaneous visits ($r = .884$, $p < .001$). Again, generally, the eight most popular attractions generated the largest absolute number of spontaneous visits. Proportionally, though, spontaneous visits typically represented between one-quarter and one-third of all visitors to the most popular attraction. This figure grew to between 40% and 60% of visits to the 10 next most popular attractions while, generally, half or more of all visits to the 20th to 32nd most popular attractions were unplanned. Two exceptions were noted at the moderately popular attractions, the Avenue of Stars and the Tin Hau and Man Mo temples, where over 70% of visits were unplanned.

Table 7
Spontaneous Visits

Rank	Attraction	Number of visitors	Number of visits not planned prior to departure	% of visits that were not planned prior to departure	Rank of % of visits that were not planned prior to departure
1	Kowloon	235	51	22.5	32
2	Nathan Rd (shopping)	213	71	34.6	26
3	Star Ferry (between TST and Central)	210	53	26.1	31
4	Central HK Is. (Downtown)	205	58	29.3	28
5	Victoria Peak	195	42	22.5	33

Rank	Attraction	Number of visitors	Number of visits not planned prior to departure	% of visits that were not planned prior to departure	Rank of % of visits that were not planned prior to departure
6	Open Air Markets	181	59	33.9	27
7	South Coast of HK	179	64	36.8	25
8	Peak Tram	173	48	28.6	29
9	Avenue of Stars	115	82	75.2	3
10	New Territories	65	28	43.8	21
11	HKTB Visitors Bureau	62	33	55.9	15
12	Outer Islands	61	24	39.3	23
13	Big Buddha	58	21	38.2	24
14	Hollywood Rd (antiques)	51	30	61.2	12
15	Tin Hau or Man Mo Temples	41	30	73.2	5
16	Ocean Park	38	10	27.8	30
17	HK Convention and Exhibition Centre	37	16	47.1	20
18	Wong Tai Sin Temp	32	17	54.8	16
19	Lan Kwai Fong night clubs	31	17	54.8	16
20	Museum of Art	30	19	65.5	6
21	Country Parks on HK Island	27	16	64.0	8
22	Museum of History	23	13	56.5	14
22	Flagstaff House and Teawure Museum	23	15	65.2	7
24	Expo Promenade / Golden Bauhinia	22	16	76.7	2
25	Horse racing	21	9	42.9	22
26	Country Parks in NT	13	7	58.3	13
26	Hong Kong Heritage Museum	13	8	61.5	11
28	Madame Tusaud's	8	5	62.5	9
28	Chi Lin Nunnery	8	5	62.5	9
30	HK Railway Museum	6	6	100.0	1
31	HK Museum of Coastal Defence	4	3	75.0	4
32	Mai Po Marshes	2	1	50.0	18
32	Sam Tung Uk Village	2	1	50.0	18

Cont. Table 7

EXPLAINING SPONTANEOUS VISITATION

It is relatively easy to understand the relationship between visitation and both pre-departure awareness and intentions levels. However, the explanation for the propensity and volume of spontaneous visits is less clear. Yet, tourists are more likely to visit the most popular attractions rather than less popular ones, regardless of their pre-departure intentions to visit. The authors examine a number of factors identified in the literature that might explain this phenomenon, including proximity, attraction nodes, the differences between first-time and repeat visitors and different behaviors of different market segments.

Proximity (Table 8) clearly plays a role in spontaneous visits, especially among middle tier attractions, which

appear to rely heavily on unplanned visits as a share of their total market. All attractions shown on Table 8, except the Wong Tai Sin temple, are situated in close proximity to clusters of other attractions, can be found located in the central business districts of Hong Kong Island or Kowloon, and / or are grounded by an iconic attraction. Much of the visitation to the Avenue of Stars can be explained by its fortuitous position in the high traffic area of the Kowloon waterfront adjacent to the Star Ferry and passes the Museum of Art and the Space museum. Similar reasons explain the high proportion of spontaneous visits to other attractions.

Table 8
Proximity of Places with the Highest Percent of Spontaneous Visits to Other Attractions

Places with highest levels of spontaneous visits (rank in terms of total visits)	Number (%) of spontaneous visits	Location	Attractions within 500 m (and rank in number of visits)
Expo Promenade / Golden Bauhinia (24)	16 (76.2%)	Wanchai (adjacent to central HK Island)	HK Convention and Exhibition Centre (17)
Avenue of Stars (9)	82 (75.3%)	Kowloon	Nathan Rd (2) Star Ferry (3) Museum of Art (20) Museum of History (22)
Tin Hau / Man Mo Temples (13)	30 (73.2%)	Central (other locations throughout HK)	Star Ferry (3) HKTB Visitors Bureau (13) Lan Kwai Fong (19)
Museum of Art (20)	19 (65.5%)	Kowloon	Nathan Rd (2) Star Ferry (3) Open Air Markets (6) Avenue of Stars (9) Museum of History (22)
Flagstaff House and Teaware Museum (22)	15 (65.2%)	Central HK Island	Star Ferry (3) Peak Tram (8) HKTB Visitors Bureau (11)
Country Parks on HK Island (21)	16 (64.0%)	Victoria Peak	Victoria Peak (5) Peak Tram (8) Madame Tusaad s (28)
Hollywood Rd (14)	30 (61.2%)	Central HK Island	Star Ferry (3) HKTB Visitors Bureau (13) Tin Hau / Man Mo Temples (18) Lan Kwai Fong (19)
Museum of History (22)	13 (56.5%)	Kowloon	Nathan Rd (2) Star Ferry (3) Open Air Markets (6) Avenue of Stars (9) Museum of Art (20)

HKTB Visitors Bureau (13)	33 (55.9%)	Central HK Island	Star Ferry (3) Peak Tram (8) Hollywood Rd (14) Tin Hau / Man Mo Temples (18) Lan Kwai Fong (19) Flagstaff House and Teaware Museum (22)
Lan Kwai Fong (19)	17 (54.8%)	Central HK Island	Star Ferry (3) Peak Tram (8) HKTB Visitors Bureau (13) Hollywood Rd (14) Tin Hau / Man Mo Temples (18) Flagstaff House and Teaware Museum (22)
Wong Tai Sin Temple (18)	17 (54.8%)	Diamond Hill (middle suburb of Kowloon)	Chi Lin Nunnery (28)

Cont. Table 8

The literature suggests that first-time and repeat visitors behave differently (Fakeye and Crompton 1991, Gitelson and Crompton 1984, Lau and McKercher 2004). First-time visitors tend to be destination naïve and as such explore the destination widely. Repeat visitors, on the other hand, are destination aware but, because they had explored the destination during earlier visits tend to limit both their activities and movements to a smaller. First-time visitors will have lower pre-departure awareness levels than repeat visitors, and therefore, will be more reliant on contiguous or in-destination markers to inform their actions. Lieper (1990) suggest that their behavior should be different, consequently.

Tables 9 and 10 test this hypothesis. As predicted, statistically significant differences were between first-time and repeat visitors in pre departure awareness level, post arrival awareness and, to a lesser extent, in the overall lack of awareness on departure on 30 of the 33 attractions examined (Table 9). Repeat visitors had higher pre departure awareness levels and lower overall unawareness levels. By contrast, first-time visitors were much more likely to become aware of the attraction after arriving in Hong Kong. However, when awareness occurred appears to have little or no impact on the actual behavior, as few differences were noted in actual participation rates (Table 10). Repeat visitors were more likely to go to Kowloon, the New Territories and the outer islands, while first-time visitors showed a preference for Victoria Peak. Other than these minor differences, though, their overall movement patterns were similar, raising questions about the role of generating markers as influencers of behavior.

Table 9
Comparision of Awareness Between First-time and Repeat Visitors

Rank	Attraction	First time visitor			Repeat visitor			Chi Sq
		Pre-departure awareness	Post arrival awareness	No awareness	Pre-departure awareness	Post arrival awareness	No Awareness	
1	Kowloon	91	23	10	126	9	4	**
2	Nathan Rd (shopping)	70	36	20	118	8	13	**
3	Star Ferry (between TST and Central)	95	20	1	126	5	7	**
4	Central HK Is. (Downtown)	79	29	17	116	10	12	**
5	Victoria Peak	103	17	6	127	1	9	**
6	Open Air Markets	71	31	23	104	15	17	**
7	South Coast of HK	73	41	13	118	7	12	**
8	Peak Tram	91	26	8	121	3	12	**
9	Avenue of Stars	24	48	54	41	52	39	*
10	New Territories	45	32	48	95	16	23	**
11	HKTB Visitors Bureau	26	24	74	56	24	53	
12	Outer Islands	37	34	54	71	28	36	**
13	Big Buddha	56	26	44	76	24	35	
14	Hollywood Rd (antiques)	18	34	72	52	24	58	**
15	Tin Hau or Man Mo Temples	15	33	44	31	38	27	*
16	Ocean Park	37	45	77	87	20	64	**
17	HK Convention and Exhibition Centre	28	32	65	69	15	46	**
18	Wong Tai Sin Temple	13	34	78	31	30	71	*
19	Lan Kwai Fong night clubs	17	32	76	48	25	60	**
20	Museum of Art	18	35	72	48	28	55	**
21	Country Parks on HK Island	17	39	69	49	28	50	**
22	Museum of History	19	33	73	46	38	55	**
23	Flagstaff House or Tea ware Museum	11	31	83	32	36	65	**
24	Expo Promenade / Golden Bauhinia	4	31	90	23	35	75	**

25	Horse racing	56	22	48	96	9	30	**
26	Country Parks in NT	18	30	77	82	29	62	**
27	Hong Kong Heritage Museum	9	31	85	41	32	59	**
28	Madame Tussaud's (on the Peak)	15	39	71	62	37	53	**
29	Chi Lin Nunnery	9	26	90	24	30	79	*
30	HK Railway Museum	6	25	90	22	37	73	*
31	HK Museum of Coastal Defence	6	29	90	25	33	74	**
32	Mai Po Marshes	12	25	88	23	33	78	
33	Sam Tung Uk Village Museum	4	24	95	19	28	84	**

* significant at P = .05

** significant at P = .01

Table 10
Comparison of Visitation Levels Between First-time and Repeat Visitors

Rank	Attraction	Number of visitors	First time visitors to HK	Repeat visitors to HK	Chi Sq
1	Kowloon	235	107	128	*
2	Nathan Rd (shopping)	213	97	116	
3	Star Ferry (between TST and Central)	210	103	107	
4	Central HK Is. (Downtown)	205	94	111	
5	Victoria Peak	195	114	81	**
6	Open Air Markets	181	87	94	
7	South Coast of HK	179	90	89	
8	Peak Tram	173	98	75	
9	Avenue of Stars	115	47	67	
10	New Territories	65	22	43	**
11	HKTB Visitors Bureau	62	26	36	
12	Outer Islands	61	23	38	*
13	Big Buddha	58	31	27	
14	Hollywood Rd (antiques)	51	20	31	
15	Tin Hau or Man Mo Temples	41	18	23	
16	Ocean Park	38	16	22	
17	HK Convention and Exhibition Centre	37	21	16	
18	Wong Tai Sin Temple	32	13	19	
19	Lan Kwai Fong night clubs	31	11	20	
20	Museum of Art	30	10	20	
21	Country Parks on HK Island	27	13	14	
22	Museum of History	23	10	13	
22	Flagstaff House and Teaware Museum	23	10	13	
24	Expo Promenade / Golden Bauhinia	22	10	12	
25	Horse racing	21	9	12	
26	Country Parks in NT	13	3	10	
26	Hong Kong Heritage Museum	13	8	5	
28	Madame Tussud's (on the Peak)	8	2	6	
28	Chi Lin Nunnery	8	3	5	
30	HK Railway Museum	6	3	3	
31	HK Museum of Coastal Defence	1	2	2	
32	Mai Po Marshes	2	1	1	
32	Sam Tung Uk Village Museum	2	1	1	

* significant at P = .05
** significant at P = .01

Finally, the influence of tourist motivation on behavior is tested. Table 11 compares the awareness levels and visitation rates among the four cohorts of visitors described previously. Again, significant differences emerged in awareness, but few differences were noted in actual visitation propensity. The Business/VFR and Stress-Free tourists reported the highest levels of pre departure awareness. These two cohorts consist of the largest proportion of repeat visitors and were most likely to identify Hong Kong as their main destination. By contrast, the 'Aspirational' group, consisting of 83% first time visitors and the largest share of visitors

identifying Hong Kong as a secondary destination, tended to record the highest levels of post arrival awareness or of continued lack of awareness of the attractions on departure. The 'Hedonic' group also tended to report lower level of pre departure awareness, but higher levels of post arrival awareness. But, in spite of these distinctions, differences in visitation rates were noted at only four attractions. Victoria Peak was most likely to be visited by the 'Aspirational' tourist and least likely to be visited by the Business/VFR cohort. By contrast, members of the Business / VFR cohort were more likely to visit Wong Tai Sin temple, Lan Kwai Fong nightclub district and country parks situated in the New Territories.

Table 11
Difference in Awareness Levels and Visitation Rates of 4 Types of Tourist Identified by Cluster Analysis

Rank	Attraction	Awareness Levels	Visitation Rates
1	Kowloon		
2	Nathan Rd (shopping)		
3	Star Ferry (between TST and Central)		
4	Central HK Is. (Downtown)	*	
5	Victoria Peak		**
6	Open Air Markets		
7	South Coast of HK		
8	Peak Tram		
9	Avenue of Stars		
10	New Territories	**	
11	HKTB Visitors Bureau	*	
12	Outer Islands		
13	Big Buddha		
14	Hollywood Rd (antiques)		
15	Tin Hau or Man Mo Temples	*	
16	Ocean Park	**	
17	HK Convention and Exhibition Centre	**	
18	Wong Tai Sin Temple	**	*
19	Lan Kwai Fong night clubs		*
20	Museum of Art		
21	Country Parks on HK Island	**	
22	Museum of History		
23	Flagstaff House and Teaware Museum		
24	Expo Promenade / Golden Bauhinia	**	
25	Horse racing		
26	Country Parks in NT	**	**
26	Hong Kong Heritage Museum		
28	Madame Tusaud's (on the Peak)	*	
28	Chi Lin Nunnery	**	
30	HK Railway Museum		
31	HK Museum of Coastal Defence		
32	Mai Po Marshes		
32	Sam Tung Uk Village Museum		

* significant at P = .05

** significant at P = .01

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DISCUSSION AND CONCLUSIONS

This study sought to develop a better understanding of the movements of tourists within a destination. It did so through the application of the tourist attractions system model developed by Leiper (1990). The study examined a sample of 274 visitors to Hong Kong and compared their behaviors, awareness levels and intentions to visit 33 named attractions. At a superficial level, the findings support Leiper's theories. Attractions with higher pre departure awareness levels generally attracted more visitors than those with lower levels. The findings also suggest that the best indicator of visitation and levels pre departure awareness has a strong correlation was noted between these two variables. The findings, therefore, support the importance of generating markers in influencing visitation, and by inference, the relative lack of influence of contiguous or in destination markers as a catalyst to visitation.

However, further examination of the data suggested this conclusion is, perhaps, overly simplistic and fails to explain the rich dynamic between the attraction and the tourist. Four findings may necessitate rethinking Leiper's model. First, commitment levels, as reflected by conversion rates between intended and actual visits, declined from the more popular to less popular attractions. Second, more popular attractions tended to generate the largest number of spontaneous visits, while middle and lower order attractions generated fewer, although spontaneous visits played a proportionately greater role in overall visitor numbers, especially in midlevel attractions. Third, proximity to major attraction or to a cluster of attractions proved advantageous in generating spontaneous visits to middle order attractions. Fourth, while awareness very significantly between cohorts of tourists (first – repeat, or the 4 motivation segments identified), few differences were noted in the resultant behavior or propensity to visit among these cohorts.

The findings suggest, therefore, that their role of markers is variable and, perhaps, overstated. Tourists visit a destination's most popular attractions, irrespective of whether they are receptive to generating or in-destination markers. Tourists who are on aware of major attractions prior to arrival, become aware of them and, more importantly, visit. By contrast, the conversion rate for plan visits to middle or lower order attractions declines, irrespective of pre departure awareness levels. Moreover, the impact of proximity and opportunism cannot be exaggerated.

Indeed, inertia appears to play a critical role in determining the behavior of tourists. The most popular attractions will be visited because of their popularity, while lesser attractions will generate fewer visits by the simple virtue of their lower popularity. Thus, at a crude level, pre-departure awareness levels may provide best indicator of likely visitation rates among long haul tourists, however, they do so because they are barometers of popularity, rather than motivators of action.

REFERENCES

Chivas T. P., Stoll J., & Sellar, C. (1989). On the commodity value of travel time in recreational activities. *Applied Economics*, 21, 711-722.

Deobage, K. (1991). Spatial behavior in a Bahamian resort. *Annals of Tourism Research*, 18(2), 251 - 268.

Fennell, D. (1996). A Tourist Space-time Budget in the Shetland Islands. *Annals of Tourism Research*, 23 (4), 811 – 829.

Fakeye, P. C., & Crompton, L. (1991). *Image differences between prospective, first-time, and repeat visitors to the Lower Rio Grande Valley*. Journal of Travel Research, 30(2), 10-16.

Fodness, D., & Brian, M. (1997). Tourist Information Search. *Annals of Tourism Research*, 24 (3), 503 - 523.

Frost, W. (2003). The Financial Viability of Heritage Tourism Attractions: Three cases from rural Australia. *Tourism Review International*, 7(1), 13 - 22.

Gitelson, R., & Crompton, J. (1984). Insights into the repeat vacation phenomena. *Annals of Tourism Research*, 11 (2), 199-218.

Greer, T., & Wall, G. (1979). Recreational hinterlands: A theoretical and empirical analysis in G. Wall (ed.) *recreational land use on Southern Ontario* (Department of Geography Publication series #14), Waterloo University, Waterloo, Canada, pp 227-246.

Kerstetter, D., Confer, J., & Bricker, K. (1998). Industrial Heritage Attractions: Types and tourists *Journal of Travel and Tourism Marketing*, 7 (2), 91 - 104.

Lau, L. S., & McKercher, B. (2004). Exploration versus Consumption: A comparison of first time and repeat tourists. *Journal of Travel Research*, 42 (3), 279 - 285.

Leiper, N. (1990). Tourism Attraction Systems *Annals of Tourism Research*, 17, 367 - 384

Leiper, N. (1997). Big Success, Big Mistake, at Big Banana... Marketing Strategies in Road-Side Attractions and Theme Parks *Journal of Travel and Tourism Marketing*, 6(3/4), 103-122

Law, A. (1987). A Framework for Tourism Attractions Research. *Annals of Tourism Research*, 14, 533 - 575

Law, A., & McKercher, B. (forthcoming). Modeling the movement of tourists in a local destination. *Annals of Tourism Research*.

McKean J., Johnson, D., & Walsh R. (1995) Valuing time in travel cost demand analysis: An empirical investigation *Land Economics* 71 (1), 96 - 105.

McKercher, B. (1998a). The effect of market access on destination choice. *Journal of Travel Research*, 37 (August), 39 - 47.

McKercher, B. (1998b). The effect of distance decay on visitor mix at coastal destinations *Pacific Tourism Review* 2(3/4), 215 - 224

McKercher., B., & Ho, P. (forthcoming). Assessing the Tourism Potential of Smaller Cultural Attractions *Journal of Sustainable Tourism*.

McKercher B., Ho, P., & H du Cros H (2004). Attributes of Popular Cultural Tourism Attractions. *Annals of Tourism Research*, 31(2), 393-407.

McKercher B., Wan S. M., & Tse, T. (forthcoming). Are Short Duration Cultural Festivals Tourist Attractions? *Journal of Sustainable Tourism*.

Meyer, M.D., & Miller, E.J. (1984). *Urban transportation planning : a decision-oriented approach*. New York: McGraw-Hill.

Mill, R.C., & Morrison, A.M. (1985). *The Tourism System: An Introductory text*. Englewood Cliffs, NJ: Prentice Hall.

Page, S.J. (1999). *Transport and tourism. second edition*. Harlow, UK: Prentice Hall.

Paul B. K., & Rimmawi H. S. (1992). Tourism in Saudi Arabia: Asir National Park. *Annals of Tourism Research*, 19, 501-515.

Pearce D. (1998). *Tourist Development 2nd Edition*

Pearce, P. (1991). Analysing Tourist Attractions. *The Journal of Tourism Studies*, 2 (1), 46-55.

Prentice, R. C., Witt, S. F., & Hamer, C. (1998). Tourism as Experience: The case of heritage parks. *Annals of Tourism Research*, 25 (1), 1-24

Richards G (2002). Tourism Attraction Systems: Exploring Cultural Behavior. *Annals of Tourism Research*, 29(4), 1048-1064.

Rodriguez, J-P. (2003). Transport Geography on the Web: The Lowry Model. Visited 19 July 2003 from http://people.hofstra.edu/geotrans/eng/ch6en/meth6en/ch6m2en.html.

Sung, H. Y., Morrison, A. M., O'Leary, & J. T. (2000). Segmenting the Adventure Travel Market by Activities: From the North American industry providers' perspective. *Journal of Travel and Tourism Marketing, 9*(4), 1 - 20.

Stewart, S.I., & Vogt, C.A. (1999). A case-Based Approach to Understanding Vacation Planning. *Leisure Sciences*, 21, 79 - 95.

Teo, P., & Yeoh, B. (1997). Remaking Local heritage for Tourism. *Annals of Tourism Research*, 24(2), 192 - 213.

Truong, T., & Hensher D (1985). Measurement of Travel Time Values and Opportunity Cost Model From a Discrete-Choice Model. *The Economic Journal*, 95 (June), 438 - 451

Walsh, R. Sanders, L., & McKean, J. (1990). The consumptive value of travel time. *Journal of Travel Research*, (Summer), 17-24.

Appendix A6 ? McKercher & Lau (forthcoming)

Manuscript

Movement Patterns of Tourists within a Destination: An empirical study

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Draft ecember 5, 2006

Abstract

This paper reports on a study analyzing the movements of tourists within an urban destination. A total of 78 discrete movement patterns were identified from a sample of 250 visitors who took a total of 930 day journeys. Data were analyzed using GIS software. The large number of movement patterns is a reflection of the interaction of six factors, territoriality, the number of journey made per day, the number of stops made per journey, participation in a commercial day tour, participation in extra-destination travel can be observed patterns of multi stop journeys.

Keywords: spatial movement, GIS, patterns, urban destination

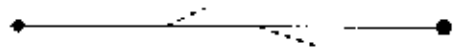
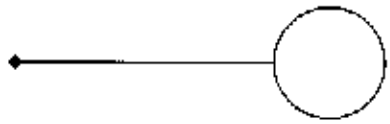
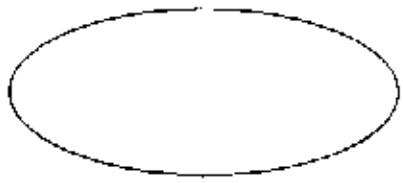
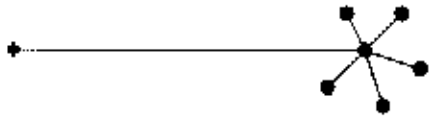
Introduction

The systematic study of tourist movements within a local destination is limited in tourism research (Pearce 1995), causing Haldrup (2004:434) to state that 'tourist mobility has often been transformed into a black box explaining the character of specific forms of tourism and tourist behavior, rather than a phenomenon in its own right that has to be explored and explained.' A number of studies have been conducted mapping and modeling inter destination movements (Flognfeldt 1999, Lue, Crompton and Fessenmaier 1993, Lew and McKercher 2002, Mings and McHugh 1992, Oppermann 1995). To date, though, only one has attempted to map movements with in a destination (Lew and McKercher 2004) and this paper was conceptual rather than empirical. The authors called for empirical research to test their ideas. Understanding movements within a destination plays a fundamental role in understanding tourist behavior, which in turn is directly applicable to the entire suite of destination management issues, including planning, tour product development, transport, attraction planning and accommodation development. In short, it is central to understanding how tourism works at a destination level. This research note reports on the findings of an empirical study examining the movements of fully independent tourists in Hong Kong. Its purpose is to identify the range of movement patterns from a sample of 250 long haul tourists.

Background

A substantial body of literature has mapped and modeled the movements of tourists traveling between their home and destination areas or between destinations. The initial discussion of tourist movements occurred some 40 years ago (Campbell as cited in Flognfeldt 1999), but little empirical work was conducted until the 1990's. Since then, at least five studies have been undertaken in various locations (Flognfeldt 1999, Lue, Crompton and Fessenmaier 1993, Lew and McKercher 2002, Mings and McHugh 1992, Oppermann 1995). Collectively, they identified 26 different itinerary types, differentiated by mode of transport, distance, number of stops and domestic versus international travel. McKercher and Lew (2004) argue that on closer inspection, the patterns can be classified into four broad themes as summarized in that Figure 1.

Figure 1 Itinerary Types

 Single destination, with or without side trips	Lue et al (1993) x 2 Mings and McHugh (1992) x 1 Oppermann (1995) x 2 Flognfeldt (1999) x 1 Lew and McKercher (2002) x 1
 Transit leg and circle tour at a destination (transport modes may vary)	Mings and McHugh x 2 Lue et al x 1 Oppermann x 1 Lew and McKercher x 2
 Circle tour with or without multiple access, egress points; different itinerary styles possible at different destination areas (transport mode may vary)	Mings and McHugh x 1 Lue et al x 1 Oppermann x 3 Flognfeldt x 1 Lew and McKercher x 2
 Hub and Spoke Style (From home community or destination area)	Lue et al x 1 Oppermann x 1 Flognfeldt x 2 Lew and McKercher x 1

Source: McKercher and Lew 2004

The simplest itinerary style involves a single main destination, there and back journey with or without a side trip. A second of itinerary type involves a transit leg to the destination area, followed by a circle tour stopping overnight at numerous points and then returning by the original transit route. The third style involves a circle tour with multiple stops, where the traveler does not repeat any transit leg. The circle tour may be contiguous where ground transport provides the only mode of transport, or may be open-ended or open-jawed where air transport is involved. The final pattern is a hub and spoke pattern where tourists base themselves in a destination area and take side trips to other destinations.

Since inter- and intra-destination movement patterns reflect tourist movements at

different scales, understanding inter-destination movement patterns may inform the conceptualization of intra-destination movement patterns, but may not mirror them exactly. Scale considerations make the challenge of modeling movements between destinations much simpler than modeling movements within a destination. Inter-destination movement models essentially consider the combinations of two components: a transit leg and a destination touring element. All travel involves two or more transit legs from the home to a destination region and back again, or in the case of multi destination trips transit between destination regions. It also will involve a touring element within the destination region, which is influenced by the number of places where overnight stops are made. Transit legs tend to be uni-directional and logical, leaving from the home and eventually returning to it. Likewise, the number of destinations where tourists stay overnight tends to be relatively small for most trips. Even so, the operationalization task of translating data into discrete patterns is complicated by the highly individualistic nature of most itineraries. As McKercher and Lew (2004: 37) note "the relatively simple task of mapping travel from Point A to Point B in reality becomes the extremely complicated task of documenting and then attempting to make sense of hundreds or thousands of individual travel routes, some going directly from A to B, some using different routes to make the trip, other stopping at C, D or E."

Mapping tourist movements within a destination area, on the other hand, is complicated by the virtually unlimited number of places that tourists could visit, an unpredictable sequencing order between places, the potential for stochastic movement patterns that may follow no logical pattern, and the unique needs and wants of individual tourists. Leiper (1990) argues that each tourist operates within his/her own individual tourism system. These systems may overlap at certain points, but each is discrete. Reduced to a destination level, his work suggests that the individual movements by tourists may be unique, even though the patterns made involve visits to many of the same places. This idea is supported empirically by McKercher (2004) who examined visits to classes of attractions. His study of 1304 visitors to Hong Kong asked respondents to identify which of 24 different classes of attractions and activities (i.e. heritage, beach, shopping, rather than the name of a specific place) they visited or participated in during their stay. A total of 1002 different combinations emerged, prompting the author to conclude "tourist movements are highly individualistic. Each visitor picks and chooses from the many activities available to create a personalized itinerary that suits their interests (McKercher 2004:19)."

Intervening variables may exert a disproportionate influence on tourist behavior at a destination level. Time availability will influence how deeply tourists explore the destination as well as both the number of places visited and intensity of visitation. Time is one of the few absolutes tourists must face, for it cannot be stored for use at a future date (Truong and Henscher 1985). In addition, Shoval and Raveh (2004) observed that people on limited time budgets often set their itinerary prior to departure and rarely change it once in the destination. Those with more time have greater flexibility and may follow a less predictable path.

Tourists generally exhibit both characteristics of pace searchers? and pace sitters? within the same trip (Walmsley and Jenkins, 1991). Space searchers refer to tourists who demonstrate a wider and active participation and visitation of sites,

whereas space sitters are those who are with a confined area of movement. According to Walmsley and Jenkins (1991), space searchers are more active in activities participation, demonstrating a larger area of site visitation. Space sitters, in contrast, are having a more confined area of movement. They are more passive to explore and are more willing to stay in their circle of familiarity. The choice of movement patterns depends on the personal power of control and the knowledge of the destination.

Haldrup (2004) adopted a post modernist approach suggesting that movements may be interpreted as a 'performed art?with their own styles and modalities. He suggests that places serve a multiplicity of roles that are rooted in social and cultural narratives that inform the way tourists inhabit, navigate and drift through space. Different travel patterns, therefore, can reflect how people sense and make sense of places and sites, as well as how these place encounters are framed within divergent social and cultural codes.

Motives clearly influence behavior, with multiple benefits seekers being more active than individuals traveling to have a single need met (Lue et al 1993, Tideswell and Faulkner 1999). Lew and McKercher (2004) further recognize a number of destination characteristics will influence movement patterns. The number and spatial organization of attractions, and whether they are clustered or dispersed, influence whether tourists move widely or narrowly within the destination. The spatial relationship between accommodation and attraction will also influence how far people have to travel to enter tourist precincts. Transport accessibility, cost, ease of convenience and whether the individual has access to private cars also influence mobility.

They attempted to model tourist movements conceptually using an inductive approach based on urban transportation modeling and tourist behavior. Their study categorized tourist movements by one of two dimensions: territoriality and linearity. Territoriality reflects the distance that tourists are willing to venture from their place of accommodation. Movement patterns range from extremely restricted, where the tourist does not leave the accommodation property or limits movements to the immediate vicinity of the accommodation house to completely unrestricted movements where they travel freely through the destination. The linear path models mirror, more closely, the inter destination movement models identified above. They include point to point patterns, circle loops with or without a transit leg, multiple patterns and the prospect that the pattern is random and exploratory in nature. Each of the linear path models can be superimposed on the territorial models. Thus, for example, a repetitive point to point pattern could be observed equally by individuals staying in close proximity to the hotel, as well as those who travel to popular outlying attractions.

Method

This study examined the movements of the fully independent pleasure tourists staying in one of four hotels located in close proximity to each other in the tourist precinct of Kowloon, in Hong Kong. FITs were selected for they have flexibility in their itinerary and some degree of freedom in where they choose to travel within a destination region (Hyde and Lawson, 2003). Their movements, therefore, are not

influenced artificially by the constraints imposed by an organized packaged tour.

The study involved a three stage data collection process, including an arrival interview, completion of a trip diary and a post departure survey. Prospective study participants were approached on check-in in the hotel lobby. The sample is, therefore, both purposeful and convenience: purposeful in the context of selecting FITs and limiting the number of hotels targeted to a select group of four and five star properties in close proximity to each other; and convenience by the nature of the selection process. Respondents who indicated a willingness to participate completed the arrival interview which sought information on the trip profile, motivations, planned activities and basic demographic details. They were given a trip diary and instructed to record their daily movements, provide information on places visited, points of interests or activities that the tourists have participated in, time of day, duration of time spent at each place and the transport mode used to navigate around the destination. The trip diaries were collected on departure and the respondent was then given a further questionnaire asking for more detailed information on places visited, pre departure awareness of attractions and intentions. They were instructed to return this survey by post.

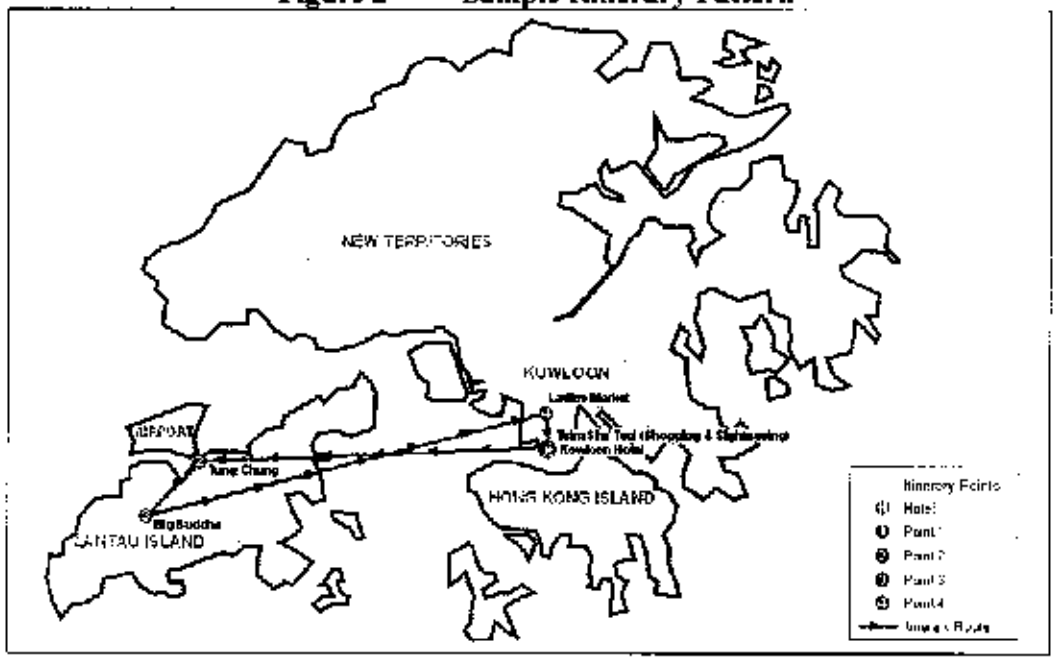
A total of 1273 arrival interviews were conducted between November 2004 and December, 2005 at the four participating hotels. The author's prior experience with multi-stage research suggested that up to three-quarters of initial respondents would not continue with the study. This pattern was observed here as only 340 respondents completed the trip diary. Data cleaning to eliminate non or partial responses and to exclude extremely long stay visitors yielded a viable data base of 250 respondents. Participants originated mainly in western countries, with Australians, North Americans and United Kingdom citizens accounting for 80% of the sample. Asians, in general and residents of China Mainland in particular, were underrepresented. Three reasons are cited. First, the hotels cater more to a Western clientele than to an Asian market. Second, up to half of visitors from the China Mainland visit Hong Kong as members of package tours, which excluded them from the study. Third, there is no culture of participating in this type of study within China. Past experiences of running international visitor surveys indicate that the participation rate amongst westerners is typically high, while the success rate of interviewing visitors from China Mainland is typically less than 10%. The respondents were typical of the long haul pleasure tourist market attracted to Hong Kong (HKTB 2006). About 55% were first-time visitors, 36% identified Hong Kong as their main destination and 21% identified it as their only destination. The mean length of stay was 3.8 nights, with the means at total trip duration being 19 nights.

The study sought to identify movement patterns of tourists within a destination. The most appropriate way to achieve this goal is to analyze movements on a daily basis, rather than on a person-trip basis. Daily movements represent discrete journeys beginning and ending at the hotel. The 250 respondents made a total of 930 person-day trips. They visited a total of 5273 points, or an average of 3.6 places per day, including the hotel. The daily itinerary, as recorded in the trip diary represents the spatial data which were analyzed using geographic information systems (GIS) software. Data were coded into a excel spreadsheet and transformed into the GIS format with exact coordinates of attractions digitized on maps as points and transit routes between attractions as straight lines connecting points.

GIS is an analyzing tool which is extensively used in geographical studies, its application in tourism studies is limited, especially on the topic of tourist movement patterns. Existing applications of GIS in tourism research will be examined through identifying the benefits and drawbacks cases by cases. In this research, GIS is used as the mapping tool for data input and analysis. As McAdam (1999) mentioned "the significant value of GIS technology therefore, is in its ability to provide desk-top mapping through the graphical display and manipulation of data in order to identify patterns or relationships based on particular criteria." The use of GIS helps to transform data into meaningful information available for analysis. An important aspect of GIS in this research is the ability to visualize spatial data. The geometrical aspects of tourist movement can be represented in the GIS environment through mapping. Maps become an essential element for spatial data analysis. It helps to visualize tourist movement patterns from simply presented on tables as in previous similar studies.

GIS helps to visualize tourist daily itineraries through digitization of attractions and connections between sites on the map. Figure 2 shows the digitized map of the movements of one tourist in one day. Starting from the hotel (H), this person then proceeded to explore the immediate vicinity of the hotel, before traveling to an outer island to visit its two main attractions. The person returned to the hotel after visiting the ladies market. This individual did not leave the hotel again that evening. This movement pattern has been characterized as a circular loop with multiple, including local exploration. Each of the itineraries was analyzed visually to define the underlying, or common itinerary styles. The identification of individual patterns was inferred or discerned from the common nature of the movement pattern. Items of the same pattern exhibit comparable and corresponding qualities which differentiate them from other patterns. Movement patterns were identified independent of places visited. Thus, two itineraries could match the same movement pattern style even if the individual visited completely different places.

Figure 2 Sample Itinerary Pattern

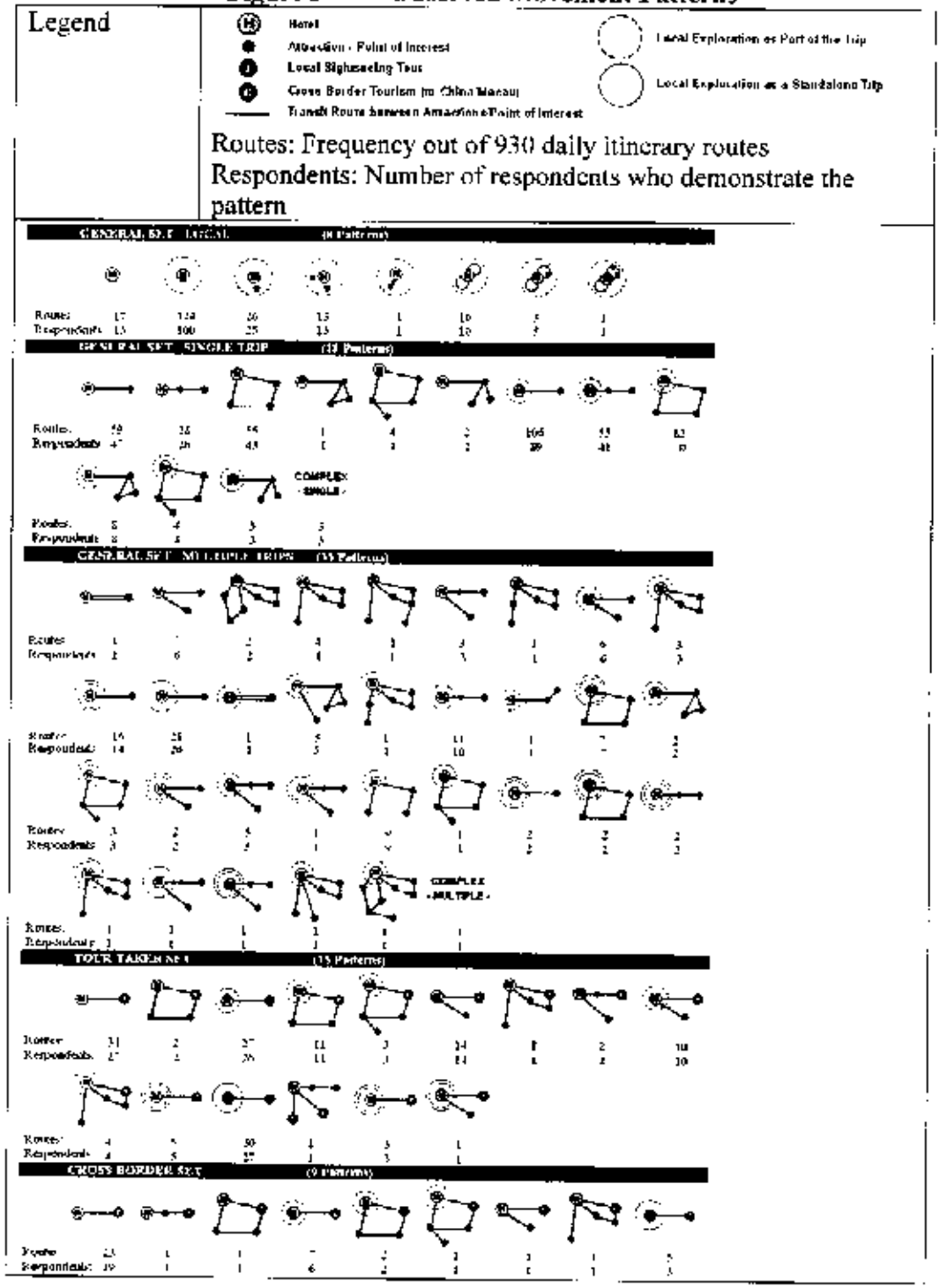


The data set presents some limitations, which must be acknowledged. A self completion survey method was chosen to reduce disturbance of the participants, and to facilitate ease of completion. This method has been used in the other movement studies discussed previously. The quality of the returned trip diaries, therefore, influences the quality of the data set. Some variance was noted, with some of the returned trip diaries providing insufficient details for GIS mapping. In addition, the predominance of western, long haul tourists introduces a level of cultural bias. The patterns discussed below, therefore, are representative of a long haul tourist, but no conclusions can be inferred about the movements of Asian, and especially Chinese tourists.

Results

A total of 78 discrete patterns emerged, as shown in Figure 3. Figure 3 also identifies the frequency each pattern appeared both among the 930 daily journeys and the 250 respondents. The H represents the hotel where the journeys started and ended. A black dot represents a place visited or a point of interest mentioned in the trip diary. 爛? or 鏟? indicates joining a local sightseeing tour or visiting China or Macau on a day trip. Multiple lines indicate the person took more than one trip during the day. Some tourists confined their activities entirely or largely within a 500 m radius of the hotel. This movement pattern is represented as a circle. A solid line reflects a discrete journey that was confined entirely within the radius, while a dotted line circle indicates the person visited places within the immediate region and also traveled beyond it on a single journey. Dotted line circle signifies that tourists stops and explore either on their way to or back from regions outside the radius. It represents tourists wander around the local area with general sightseeing and shopping purposes in an incorporated journey to other regions, whereas the solid line circle signifies the standalone local exploration trip in order to differentiate it from the general wandering journey.

Figure 3 Observed Movement Patterns



The designation of a discrete pattern was based on the consideration of seven factors:

- territoriality - movement completely within a 500 m radius of the hotel or journeys beyond this threshold,
- the total number of journeys taken each day,
- the number of stops made per journey,
- the observed pattern of multi stop journeys,

- participation in a commercial day tour,
- participation in an extra-destination cross border day trip to China or Macau and,
- various combinations of the above criteria (i.e. two journeys, including one with in the immediate vicinity of the hotel and one that further a field; a single day trip involving the purchase of a commercial tour and visitation to other activities).

The total number of journeys taken each day, the number of stops made per journey and the observed pattern of multi stop journeys are self-explanatory. Other factors, though, require further elucidation. A number of individuals confined their movements exclusively or largely to the immediate surrounds of the hotel, and in a small number of cases never left the hotel grounds. This type of pattern was observed most commonly during the first day of the visit where respondents settled into the hotel and familiarized themselves with their surroundings. However, follow-up in-depth interviews with a small sample of respondents indicated that some people were simply overwhelmed by the strangeness and cultural distance of Hong Kong and rarely ventured beyond the immediate vicinity of the hotel (McKercher, Wong and Lau 2006).

Day tour participation was identified as a separate category, for tours include visits to multiple sites, even though the consumer has purchased a single product. Mapping the full day tour itinerary would tend to distort artificially the movement patterns, for the itinerary is set and the number of stops is pre determined. More insights can be gained by observing whether the tour is the only activity pursued during the day or whether it is combined with other activities. As such, the day tour was considered as a single point. The same situation applies with cross border tourism. The World Tourism Organization identifies a local destination as "physical space ...[with] physical and administrative boundaries defining its management, and images and perceptions defining its market competitiveness... They are the focal point in the delivery of tourism products and the implementation of tourism policy (WTO 2002:n.p.)." Like joining a tour group, the cross border destination was considered as a single point in the movement pattern.

The frequency of each pattern ranged from one case to 124 daily itineraries and was demonstrated by as few as one tourist to as many as 100. The single exploratory trip within the immediate vicinity of the hotel with no specific places mentioned was the most common daily pattern type (13.3% of all patterns and 40% of all tourists), followed by local exploration within the immediate hotel vicinity plus a journey to one place outside of this zone (11.4% of all movements and 36% of all visitors). The circular loop trip with local exploration was the third most common pattern observed (8.8% of all movements and 28% of all visitors). Twenty-four (24) of the patterns appeared only once. The inclusion of these patterns is warranted given the small sample size, for they would likely appeared more frequently had the sample been larger.

The large number of patterns is a function of the various permutations and combinations of the six factors of territoriality, number of journeys made each day, number of stops per journey, different spatial movement patterns across the destination, plus participation in commercial tours and cross border tourism. For example, eight different date trip patterns were identified that involved journeys

exclusively within the immediate confines of the hotel, depending on how many trips were taken each day, how many places were visited and how much repetition of was observed. Likewise, 43 separate patterns involved multiple journeys from the hotel during the same day, including the permutations involving sightseeing tours and cross border tourism.

For the most part, respondents engaged in different movement patterns during each day of their trip. However, the likelihood of repeating the one movement pattern increases with like the stay. As Table 1 indicates virtually all respondents who stayed two days, and a large majority of those who stayed three days displayed different movement patterns each day, while more than half of the sample who stayed five days or longer repeated the same pattern at least once during their stay. But, those who repeated the same pattern typically only did so once. Ten respondents repeated two different patterns, and all stayed five nights or longer. These findings contradict the movement patterns proposed by Lew and McKercher (2004) the suggested that tourist movements may follow a repetitive pattern, especially among long stay tourists who might consume the destination in a systematic manner.

A direct trip to from a distant place, with an intermediate stop, combined with local exploration was the most frequent repeat pattern (13 cases), while a direct trip to and from a distant place combined with local exploration (12 cases) was the second most common repeated movement style. A visit to a single attraction outside the immediate environs of the hotel, followed by a return back to the hotel was the third most common repeated movement pattern (10).

Table 1 Percent of different patterns by length of stay

Length of stay	1 day (n = 15)	2 days (n = 40)	3 days (n = 69)	4 days (n = 49)	5 days (n = 29)	6 or more days (n = 45)
% of respondents with different movement patterns each day	100.0	93.0	75.4	59.2	48.3	37.8
Mean number of different patterns shown	1	1.9	2.7	3.4	4.3	5.1
Median number of different patterns	1	2	3	4	4	5

It is likely the movement patterns reflect differences in visitor profile, motives, past visitation history and trip characteristics. However, small cell sizes preclude more detailed evaluation of the causal conditions behind each pattern. Aggregation of travel styles, resulting in a loss of fine detail, but formation of larger categorical typologies will enable more detailed analysis to be undertaken.

Conclusions

Tourist movements in local destinations are an under studied phenomenon, in spite recognition by the World Tourism Organization (2002) that local destinations are the focal point in the delivery of tourism products and the implementation of tourism policy. This study sought to document and model tourist movements within a local destination area. This study revealed great diversity and complexity in movements, as the sample of 250 tourists demonstrated 78 discrete patterns. Most tourists also varied their movement styles throughout their visit. More research is required to

further study this phenomenon.

References

Flognfeldt, T. (1999) Traveler Geographic origin and Market Segmentation: The multi trips destination case Journal of Travel and Tourism marketing 8(1): 111? 24.

Haldrup, M. (2004). Laid-back mobilities: second-home holidays in time and space. Tourism Geographies, 6(4): 434-454.

HKTB (2006) Visitor Profile Report ? 2005 Hong Kong Tourism Board, Hong Kong

Hyde, K. F. and Lawson, R. (2003). The Nature of Independent Travel. Journal of Travel Research, 42, 13:23.

Leiper, N. (1990) Tourism Systems: An Interdisciplinary Perspective, Department of Management Systems (Occasional Paper #1), Massey University, New Zealand.

Lew, A. and McKercher, B. (2002) Trip Destinations, Gateways and Itineraries: The example of Hong Kong Tourism Management 23(6): 609-621.

Lew A. and McKercher, B. (2006) Modeling tourist movement: a local destination analysis Annals of Tourism Research 33(2): 403 ? 423.

Lue, CC., Crompton, J. L., Fesenmaier, D. R (1993) Conceptualization of Multidestination Pleasure trips Annals of Tourism Research 20: 289 ? 301.

McAdam, D. (1999). The value and scope of geographical information systems in tourism management. Journal of Sustainable Tourism, 7(1), 77-92.

McKercher, B. (2004) The Myth of the Average Tourist Voice of TIC. 4:19 ? 23.

McKercher, B. and Lew, A. (2004) Tourist Flows, Itineraries and Factors Affecting the Spatial Distribution of Tourists in Hall M, Williams A., Lew (eds) A Tourism: Companions to Geography Blackwell, Oxford. pp 36 ? 48.

McKercher, B., Wong, C. and Lau, G. (2006) How tourists consume a destination Journal of Business Research 59(5): 647 ? 652.

Mings, R. C., McHugh, K. E. (1992) The Spatial Configuration of Travel to Yellowstone National Park Journal of Travel Research 30 (Spring): 38 - 46

Oppermann, M. (1995) A Model of Travel Itineraries Journal of Travel Research: 57-61.

Shoval, N. and Raveh, A. (2004) Categorization of Tourist Attractions and the Modeling of Tourist cities: based on the co-plot method of multivariate analysis Tourism Management 25(6):741-750.

Tideswell, C. and Faulkner, B. (1999) Multidestination Travel Patterns of

International Visitors to Queensland Journal of Travel Research 37: 364 - 374.

Truong, T. and Hensher D (1985) Measurement of Travel Time Values and Opportunity Cost Model From a Discrete-Choice Model, The Economic Journal, 95(June): 438 - 451.

Walmsley, D. J. and Jenkins, J. M. (1991). Mental maps, locus of control, and activity: A study of business tourists in Coffs Harbour. The Journal of Tourism Studies, 2(2): 36-42.

WTO (2002) WTO Think Tank enthusiastically reaches consensus on frameworks for tourism destination success. World Tourism Organization, Madrid. http://www.world-tourism.org/newsroom/Releases/more_releases/november2002/thinktank.htm, visited 21 June 2004.

APPENDIX B

Appendix B1 – Arrival Questionnaire

The Hong Kong Polytechnic University 香港理工大學

ARRIVAL

Date:_____ **Name:**_____

School of Hotel & Tourism Management 酒店及旅遊業管理學院

TOURISM MOVEMENT SURVEY

Reference No.:	Questionnaire Checking No.:

Welcome to Hong Kong! The School of Hotel and Tourism Management at the Hong Kong Polytechnic University is undertaking a study examining the movements of tourists in Hong Kong. Your information will be very useful to our research project and all information will be kept confidential. Thank you!

PART 1 INTRODUCTION

Hotel: _____

Country of Residence: _____ **Province/City:**_____

Is this trip just for pleasure? ☐ Yes ☐ No

What is your travel arrangement for this trip? ☐ Guided Package ☐ Others

☐ Air + Hotel Package ☐ Non-Package ☐ Others: _____

PART 2 TRIP PROFILE

I would like to begin by asking you some questions about your current trip.

1. **Is Hong Kong the ONLY destination in this trip?** ☐ Yes ☐ No
2. **Is Hong Kong your main destination?** ☐ Yes ☐ No, Where?_____
3. **How many nights do you plan to stay in HK?** _____Night(s) **4. Total Trip:** _____Night(s)
5. **Where was your last stop before arriving in HK?** _____
6. **Where will your next stop be after leaving HK?** _____
7. **Is this you first visit to Hong Kong?**
   ☐ First-timer ☐ Repeat (Including this trip, this is the _____ time within the past 5 years)
8. **Who are your travel companions on this trip? How many in total?**
   ☐ Spouse / Partner ☐ Family/Relatives ☐ Tour Group
   ☐ Business Associate(s) ☐ Friends ☐ Traveling alone
   Total: _____Adults _____Children (under 18)
9. **Do you plan to join a local sightseeing tour?**
   ☐ No ☐ Yes
   ↘ Which tour you plan to join? _____
   ↘ Which day you plan to join a tour? Day _____

PART 3 ITINERARY

1. I would like to know how important the following factors were in your decision to visit Hong Kong on this trip. Please select the 5 most important by putting a tick in the box next to them.

	Motive:	**"✓" the 5 most important factors**
1	A taste of China	
2	As a short break	
3	Discover new places and/or things	
4	Get away from daily routine / role obligations / stress / troubles	
5	Go to a place with different culture / language	
6	Go to a place with similar culture / language	
7	Going back to a familiar place	
8	HK as a new part of China after reunification in1997	
9	HK as a stopover to other destinations	
10	Learn about cuisine	
11	Learn about culture and heritage	
12	Recommended by friends / relatives	
13	Rest and Relax	
14	Some place I have always wanted to see	
15	To brag about to my friends when return to home town	
16	To have fun	
17	Visiting friends / relatives	
18	Work / Business	
19	Shopping	
20	Others:_____	

2. Would you describe yourself as:

☐ A very experienced international tourist ☐ About Average experience

☐ An experienced international tourist ☐ Not very experienced as an international tourist

☐ An inexperienced international tourist – this is my first international trip taken by air

3. Please indicate all the activities that you intend to participate in during this visit to Hong Kong, put a tick against the appropriate boxes. (Can choose more than 1 option)

☐ 1. Sightseeing ☐ 2. Shopping (Shopping Malls) ☐ 3. Shopping (Markets)

☐ 4. Visiting Theme Parks ☐ 5. Visiting friends / relatives ☐ 6. Playing / Watching Sports

☐ 7. Visiting historic sites ☐ 8. Going to beaches ☐ 9. Visiting festivals or events

☐ 10. Cross border tourism (To Macao / China) ☐ 11. Visiting museums / art galleries / exhibitions

☐ 12. Visiting natural areas, country parks or outlying areas / islands

☐ 13. Others:_____

4. Please specify the activities that you intend to participate in or the places you intend to visit while in HK:

_____

_____

_____

_____

_____

_____

_____

PART 4 DEMOGRAPHIC DATA

Finally, I would like to conclude this survey by asking you some basic information.

Gender: ☐ Male ☐ Female

In which age group do you belong to? ☐ 18 – 25 ☐ 26 – 35 ☐ 36 – 45 ☐ 46 – 55 ☐ 56 – 65 ☐ 66 or Above

What is the highest education Level that you have attained?

☐ Less than Secondary/High School

☐ Completed Secondary/ High School

☐ Some College or University

☐ Completed College/University Diploma/ Degree

☐ Completed Postgraduate

Income category including Total Annual Household Income:
(Total annual income from all members of your household)

Code	US (USD)	UK(Pound)	Australia (AUD)	Europe (ECU)	China (RMB)
1	Less than 10,000	Less than 5,430	Less than 13,070	Less than 10,140	Less than 82,770
2	10,000 – 29,999	5,431 – 16,290	13,071 – 39,209	10,141 – 30,419	82,771 – 248,302
3	30,000 – 49,999	16,291 – 27,150	39,210 – 65,349	30,420 – 50,699	248,303 – 413,842
4	50,000 – 69,999	27,151 – 38,010	65.350 – 91,489	50,670 – 70,979	413,843 – 579,382
5	70,000 – 99,999	38,011 – 54,300	91,490 – 130,699	70,980 – 101,399	579,383 – 827,692
6	100,000 or more	54,301 or more	130,700 or more	101,400 or more	827,692 or more

Thank you very much for your kind co-operation!

Appendix B2 – Trip Diary

DEPARTURE

Hope you enjoyed this trip to Hong Kong. Please kindly spare a few minutes to complete this questionnaire. This information is useful in helping us to complete our project. Thank you!

1. How many nights did you actually stay in Hong Kong?_____Night(s)
2. Is this amount the same length of stay as you planned?
   ☐ Yes ☐ No, Why not?_____
3. Did you join a local sightseeing tour?
   ☐ No ☐ Yes
   ↘ Which tour(s) did you join?_____
   ↘ On what day (s) _____
4. Overall, how satisfied were you with this visit to Hong Kong?
   ☐ Very satisfied ☐ Satisfied ☐ Neither Satisfied nor Dissatisfied ☐ Dissatisfied ☐ Very Dissatisfied
5. Why?
6. Did you find anything special or surprising about your visit? If so, please explain?
7. Do you have any other comments you would like to make?

Please kindly leave your contact if you would like to receive any information about this research.

Name: _____ Email: _____

Thank you very much for your kind co-operation!

Attn.: Gigi Lau (PolyU)

School of Hotel & Tourism Management 酒店及旅遊業管理學院

Hotel Code: Reference No.:

Trip Diary

School of Hotel and Tourism Management
The Hong Kong Polytechnic University

The Hong Kong Polytechnic University 香港理工大學

Acknowledgements:

Harbour Plaza Hotels & Resorts · Hotel Miramar Hong Kong · Sunday · The Park Lane Hong Kong · Marco Polo Hotel Group

This trip diary will help us to record and understand your trip itinerary within Hong Kong.

Instructions:

1. Please list the places or activities that you planned to visit or participate
2. Please record in detail places and activities that you have visited or participated every day
3. Please mark the location of places that you have visited on the map
4. Please draw a line on the map to indicate the route of your trip
5. Please tick the boxes of the places that you have visited on the map

Please kindly return this Trip Diary to the Hotel Reception when you check out, or by mail to:

Dr. Bob McKercher
The School of Hotel and Tourism Management
The Hong Kong Polytechnic University,
Hung Hom, Kowloon,
Hong Kong SAR.

Thank you very much!

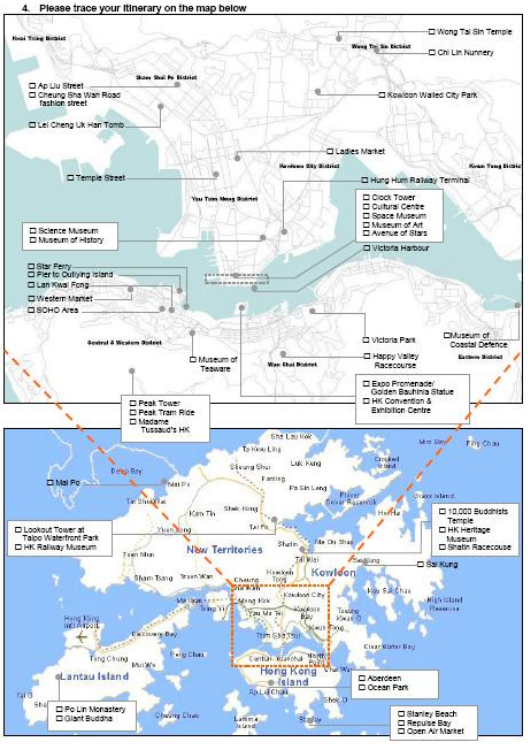
1. What do you intend to do today?
   Please list the places/activities that you plan to visit or participate in today.

2. Please list in detail what you did today, beginning from the first thing you did this morning after leaving the hotel and finishing with the last thing you did tonight before returning to the hotel.

ITINERARY — DAY			
Time	Location – Where you went Purpose – What did you do *Please be as specific as possible, naming shopping centers, buildings or attractions visited (e.g. Ocean Terminal – shopping)*	Transport used *i.e. walk, bus, taxi, ferry, train/subway, tour bus*	Route taken *Direct or Indirect*

3. Did you do what you expected to do today? If not, can you briefly explain why?

4. Please trace your itinerary on the map below



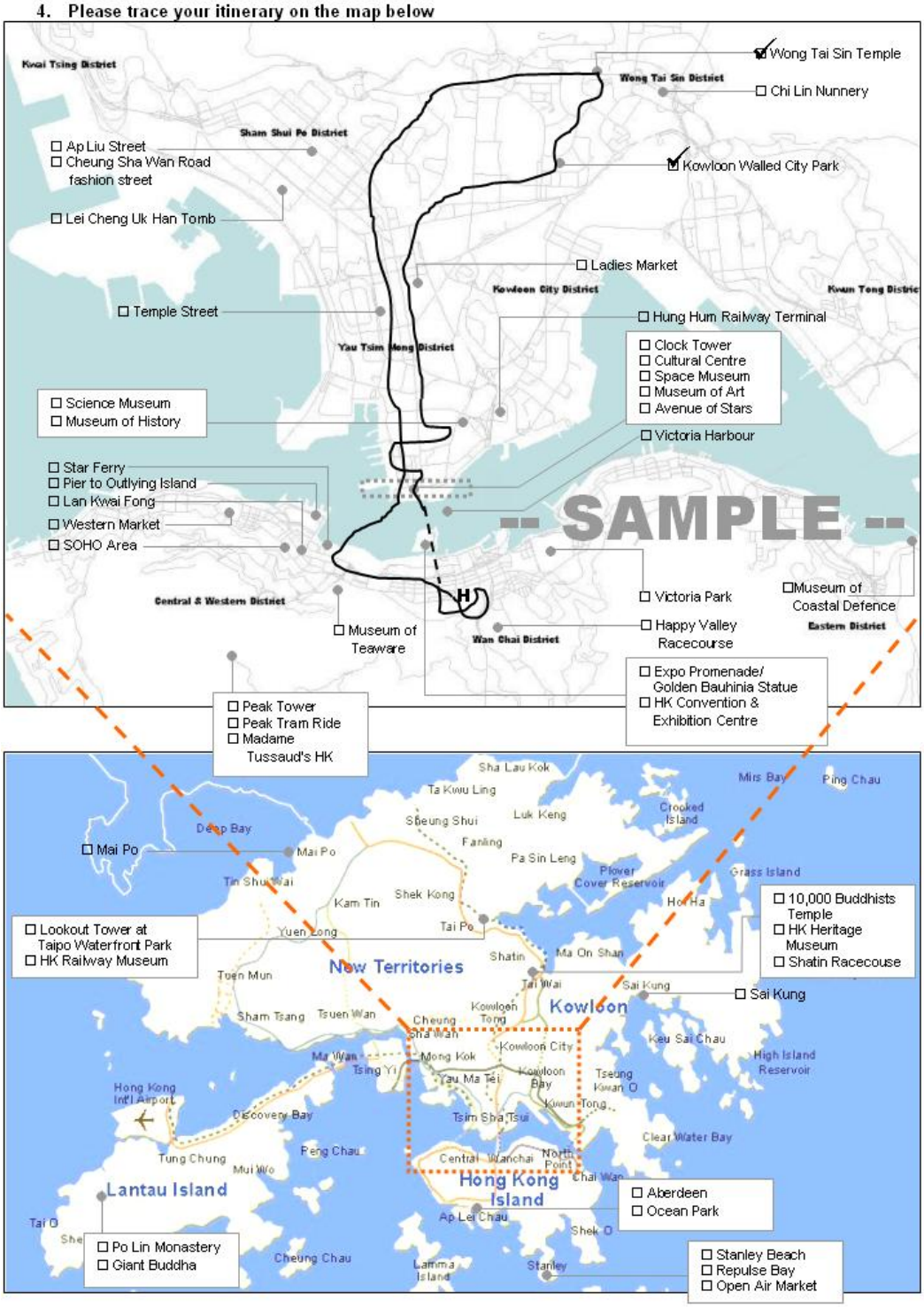
1. **What do you intend to do today?**
   Please list the places/activities that you plan to visit or participate in today.

2. **Please list in detail what you did today, beginning from the first thing you did this morning after leaving the hotel and finishing with the last thing you did tonight before returning to the hotel.**

ITINERARY — DAY ____			
Time	**Location – Where you went** **Purpose – What did you do** *Please be as specific as possible, naming shopping centers, buildings or attractions visited (e.g. Ocean Terminal – shopping)*	**Transport used** *i.e. walk, bus, taxi, ferry, train/subway, tour bus*	**Route taken** *Direct or Indirect*

3. **Did you do what you expected to do today? If not, can you briefly explain why?**

4. Please trace your itinerary on the map below



Appendix B3 – Departure Questionnaire

DEPARTURE

Hope you enjoyed this trip to Hong Kong. Please kindly spare a few minutes to complete this questionnaire. This information is useful in helping us to complete our project. Thank you!

1. **How many nights did you actually stay in Hong Kong?**_____Night(s)

2. **Is this amount the same length of stay as you planned?**

   ☐ Yes ☐ No, Why not?_____

   _____

3. **Did you join a local sightseeing tour?**

   ☐ No ☐ Yes

   ↘ Which tour(s) did you join? _____

   ↘ On what day (s) _____

4. **Overall, how satisfied were you with this visit to Hong Kong?**

   ☐ Very satisfied ☐ Satisfied ☐ Neither Satisfied nor Dissatisfied ☐ Dissatisfied ☐ Very Dissatisfied

5. **Why?**

   _____

   _____

   _____

   _____

   _____

6. **Did you find anything special or surprising about your visit? If so, please explain?**

   _____

   _____

   _____

   _____

   _____

7. **Do you have any other comments you would like to make?**

   _____

   _____

   _____

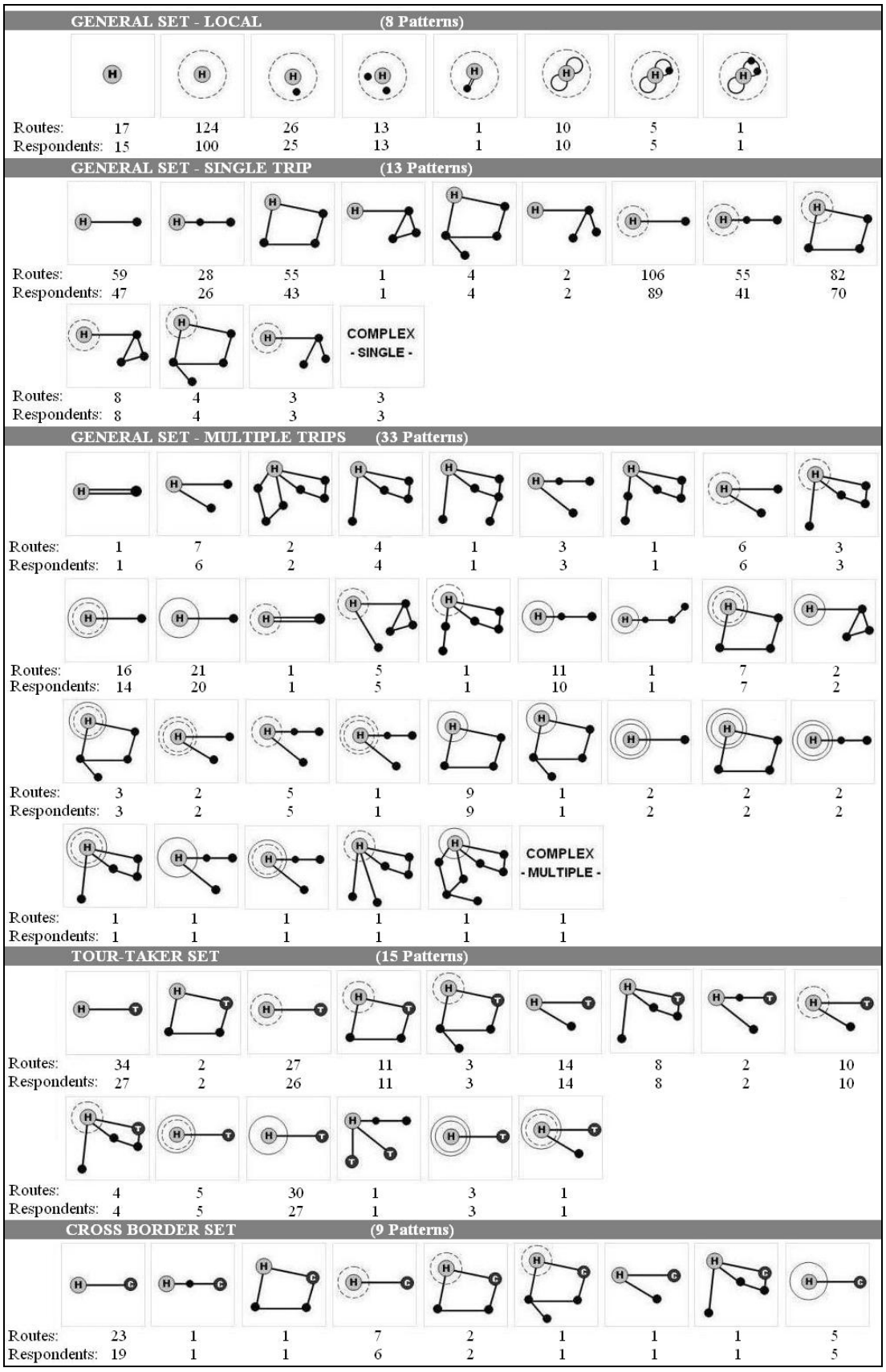
   _____

   _____

Please kindly leave your contact if you would like to receive any information about this research.

APPENDIX C

Appendix C1 – Summary Table of Intradestination Movement Patterns



NOTES