



The Application of Deductive Method in Modeling Tourist Movement in Local Destinations

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Abstract. This paper aims to develop a model of tourist movement in local destinations using the deductive method. The model is based on examining how intervening factors as determinants that have been identified previously in urban transport modeling and tourism literature can affect movement in local destinations. This study uses a literature study approach. This analysis aims to develop a model of tourist movement based on determinant factors that have been previously identified in the tourism literature. Data were analyzed using spatial analysis. The results of the study show that the model of tourist movement in local destinations consists of four main components, namely origin, destination, modes and routes. Intervening factors that influence tourist movements are sociodemographic characteristics, travel characteristics, destination characteristics, and external factors. This paper also discusses the implications and limitations of the model and suggests directions for future research.

Keywords: Tourist Movement, Local Destinations, Tourism, Destination

INTRODUCTION

The model of spatial movement patterns of tourists within a destination is developed using an inductive approach based on urban transportation models and tourist behavior as the basis for identification. The factors identified include a set of characteristics of a destination and a set of traveler characteristics that influence decision-making and behavior. These factors influence movement patterns in two directions, resulting in four types of territorial path models and three linear paths. Understanding traveler movements within a destination has practical applications for destination management, product development, and attraction marketing.

The relationship between tourism and transportation is clear, but the relationship between transportation and tourist destinations is not yet clear, so exploration is needed in understanding the movement patterns of intra-destination tourists and the main influence of these movements, as well as basic spatial models that can be used as the basis for empirical studies of tourist movements that can be applied practically to destination planning. Understanding how travelers move through space and time, and the factors that influence

their movement, has important implications for infrastructure and transportation development, product development, destination planning, and planning new attractions, as well as managing the social, environmental, and cultural impacts of tourism.

One of the challenges in model development is balancing the need for simplicity and ease of presentation with the need for a counterweight to enough detail to enable meaningful analysis. Overly simple constructions may be visually appealing but may lack utility and wide applicability. Similarly, overly complex models may be interesting but difficult to interpret. Therefore, it is important to identify the appropriate level of flexibility to reflect a variety of useful scenarios.

The aim of the study is to contribute to the field of tourism development by identifying factors influencing intrastation movement patterns of tourists, and to model the range of travel plan patterns generated.

LITERATURE

Research on purposeful movement has traditionally been driven by inductive, empirically-based methodologies, primarily using mapping or lists of planned goals and stopovers. However, McKercher and Lew (2004) have illustrated this approach has a number of limitations that hinder further investigation beyond initial explanatory studies.

Small-scale maps lose data detail. The route from A to B may not be direct or the same for everyone. Some travelers may stop at other places. This makes the data complex and redundant, even with small samples (Opperman 1995). A “local tourist destination” is a place with tourism products, services, attractions, and resources. It has boundaries, management, images, and competitiveness. It involves different stakeholders, such as host communities. It can join or link with other destinations. It offers tourism products and policies.

This rather awkward description still provides insight into the purpose of minima and maxima. The intent of the framework is to conceptualize destinations as local entities that can include cities, towns, or regional areas. This definition excludes, on the one hand, complex reordering regardless of size, and on the other hand the ultimate state/province, country, or multinational agglomeration. So, Orlando will be considered a local destination, whereas Disneyworld or Florida will not. Likewise, Montego Bay in Jamaica meets this criterion, while the Caribbean would be excluded. The WTO definition reinforces the fuzzy nature of boundary goals, for it also recognizes that goals can be nested and networked to shape larger goals. For example, the Blue Mountains in the

western suburbs of Sydney, Australia, can be defined as destinations in their own right on one level, but can also nest within the larger Sydney area. The purpose of this paper is to describe possible day trip movement patterns within local destinations. The outer boundaries of the local destination area are important because these boundaries distinguish it from the larger destination area. For this paper, destination locales are defined as areas that contain products and activities that can normally be consumed within a day trip from the heart of the destination and that are typically promoted by the destination as part of its overall suite of products. While still lacking in a high degree of specificity, it is a suitable definition for use in the spatial model described below. In recognition of this data challenge, a deductive, conceptually-led approach has been adopted to explore the problem of trade movement.

Contemporary urban transportation models have evolved from Lowry's early work in the '60s, which used gravity models to distribute travel between housing, jobs, and retail zones in the Pittsburgh area (Rodriguez 2003). They generally assume that the majority of people will take the shortest or most efficient route possible from their point of origin to their destination (Meyer and Miller 1984). In a large population, this distribution of trips will perfectly reflect the knowledge of alternative routes available, and will include congestion alleviation and the availability of public transport (Page, 2009).

Transport is important for city life and tourism. We need scientific methods to study and improve travel behavior. Kim (1983) suggests using mathematical and economic approaches to make urban transportation models. These models can help us understand and change travel factors and impacts. We can make transportation better, safer, and greener (Aminah, 2008; Filliyanti, 2009; Mukhlis, 2010; Sukandar, 2011)

A typical transportation model divides a city into relatively homogeneous land-use zones, each having a fixed number of people wanting transportation. This is a demand factor, and residential zones tend to have the highest travel generation at certain times of the day. For the tourism industry, travel-producing zones and points tend to be highly concentrated areas of hotels, motels, and resorts, as well as more dispersed second homes that belong to friends and relatives. Like weekday commuting, overall, the flow of tourists will exit this point of origin in the morning, and return there at the end of the day (similar to a hub-and-spoke pattern) (Sukandar, 2011).

In urban transport modeling, the same division of cities that results in travel also serves as a destination. The balance between the number of trips produced and received

varies throughout the day. For example, in the morning the residential area will be the main point of origin of the trip, while in the afternoon it will be the main destination point of the trip. This balance differs based on the land use of each zone. For the tourism industry, travel zones and generating points tend to be highly concentrated areas of hotels, motels, and resorts, as well as many more disperse second homes and homes of friends and relatives. The main purpose of land use consists of various attractions and potential attractions, some of which are discrete and independent entities in the landscape, and some of which are more amorphous and better suited to the zone approach. The latter may include areas with different sights, sights, smells, and architectural or design textures.

The transport network is the roads and other factors that affect travel choices. More paths mean more complexity in modeling transport flows. Some tourists may choose scenic or detoured routes for exploration, not just direct or fast routes. Movement patterns depend on the size, density, and diversity of destinations. Small or concentrated destinations have more predictable patterns than large or dispersed destinations. Examples are Las Vegas versus London or New York (Page, 2009; Muhammadun, 2012; Mukhlis, 2010; Son, 2018).

The topography of the destination will also affect the placement of facilities and the shape of the transportation network which in turn will affect the flow of tourists. Movement in mountain destinations crossed by challenging tracks will be different from flat destinations. Linear, point-to-point tours on a clearly defined route are more likely to occur in mountainous areas or islands, while there is potential for more scattered and alternative route patterns in destinations located on flat ground. Similarly, traffic jams (often time-affected), road and other construction, weather conditions, and traffic accidents can occur to temporarily reshape a place's transportation geography, and affect travel plans.

The fourth element is the choice of transport mode. Tourists may not know the public transport system well. Some destinations have special transport systems for tourism. The choice depends on the availability, cost, and benefit of different modes. The basic modes are car, commercial transport, public transport, and walking. The travel distance and cost affect the preference.

Domestic tourism in most developed countries is based on private cars and is sometimes referred to as "rubber-tires". tourism". Self-driving tourism is so prevalent that it seems to be largely ignored in academic research as a topic in itself, although Jakle (1985) discusses its historical development in the American North. In many destinations,

cars provide the greatest flexibility in route selection, attraction selection, and time use (Page, 2009).

The use of cars can be thought of as a discrete variable in the modeling of trade movements. Travelers who don't have access to a car have to rely on local public transit systems, specialized transit providers, or on foot. All three will restrict movement to a certain extent. Public and private transportation is usually limited to specific routes, whereas pedestrians have distance restrictions relating to the strength and endurance of pedestrians. Rurco, Stumbo and Garnarcz (1998) cite difficult public transportation as a barrier to tourism participation, while Page (2009) has observed that only "more adventurous travelers want to travel with the local public transport system". Some forms of public transport are more tourist-friendly than others, with public ferries, street cars, and subways easier to use physically and psychologically. Bus networks, on the other hand, are often problematic for tourists who do not have the local knowledge to negotiate them efficiently.

Moreover, specialized tourism transportation providers offer alternatives to the public in various ways. They provide shuttle buses, hop-on-hop-off tour buses, sines limo, sightseeing ferries, monorails, and the like. While they provide more of an environment accessible to tourism, they also limit the options available because they follow a set route and stop delivering tourists to certain tourist attractions. Taxis and rickshaws are the next mode of choice that presents their own set of opportunities and constraints. They provide more flexibility than general or specialty tourism transport providers. However, cost considerations and concerns about the honesty of drivers, especially when visiting foreign destinations where tourists do not speak the local language, may limit the use of this mode of transport. The risk that people will leave the tourism space and enter Terra Incognita if they choose the wrong bus route or get off at the wrong stop.

Urban transport modeling provides a geographical basis for understanding the movement of people from resulting in a place-to-destination journey through transport networks. No model will capture the true path of every person. However, knowing the division of major, minor, and amorphous attractions, as well as how the available networks and modes of transport connect these to different accommodation venues, and to each other, can enable more efficient service planning to meet the needs of tourists and the marketing of attractions and destinations. The transportation geography of a place can be an adequate planning tool if all travelers share the same interests and strive to optimize

their visit in the same way. However, their actual behavior at a goal can vary greatly, even if they happen to have similar motivations.

Tourist behavior has become a major area of research interest (Walmsley 2004), so this body of knowledge can uncover the intervening factors that influence individual travel decision-making in local destinations. These factors can be grouped into three: the size and expenditure of the tourist's time budget; personal motivation, interests, and the course of group composition; and travelers' knowledge of the destination (Page, 2009).

Time spent in a destination is arguably the single most influential criterion in shaping tourist behavior because it can directly limit or expand the number and range of potential activities available and the depth at which individual activities can be experienced (Pearce 1988). Truong and Henscher (1985) argue that the moment is one of the few absolutes, since it cannot be stored for future date use. The total destination time budget is usually set well in advance of arrival, and is difficult to modify once in place. Therefore, how time is spent, not the amount available, becomes the main variable of choice. Decisions about its spending often involve a trade-off between transit time and time spent at an attraction or venue (Page, 2009).

According to Chavas, Stoll and Sellar (1989) some tourists see time in terms of opportunity/cost, where greater transit time leaves less available at the desired destination. These travelers are "results-oriented", and strive to maximize the time spent somewhere by minimizing transit time. They prefer to follow the most direct route and avoid trips that require long transit times unless there is a considerable payoff in the end. Others see transit time as a commodity that produces benefits on its own (Duval, 2007)

According to Greer and Wall (1979) this traveler can be described as a process-oriented person, finding value in the journey as much as his destination. They are more likely to engage in sightseeing, take indirect routes, and travel to remote areas to explore a destination more broadly. Studies of distance decay show whether people value transit time as a commodity or cost is a function of their total time budget, with those who tend to treat it as a commodity (Page, 2009)

Other factors can also affect its spending. Leiper (1989) and McKercher (2001), for example, show how primary and secondary destination travelers differ in their motives, consumption patterns, and activities. Top travelers have greater destination knowledge and make stronger psychological investments in their overall role in providing a satisfying trip. Thus, they consume more intense levels of purpose. Stopover travelers, on the other hand,

tend to limit themselves to visiting convenience-based tourist attractions at well-known nodes or along major transportation corridors. Also, there are noted differences between first timers and repeaters, with the former interested in exploring the destination, traveling extensively through it, and discovering its culture and heritage. Repeaters prefer social activities such as shopping, eating, and visiting friends and relatives (Fakeye and Crompton 1991; Gitelson and Crompton 1984; Lau and McKercher 2004 in Page, 2009).

Budget alone cannot fully explain variations in travel patterns. Haldrup (2004) used diaries to record daily the space-time movements of the second homers in Denmark, which he mapped in a 3-D trajectory model. He found that these long-term tourists tended to choose one of three styles or modes of movement: inhabiting, navigation, and drifting. Each reflects a different narrative about how people experience place and interpret the meaning of leisure and tourism. Similar to this, Leiper (1990) asserts that travelers travel within their own discrete systems, although these may overlap. In other words, every traveler has different motivations, resources, accommodations, services, attractions, and movements. although they may visit many of the same attractions during the trip (Lemarchand, 2004).

Debbage (1991) says that personality affects travel behavior. He tested Plog's model in the Bahamas. He found that allocentric tourists travel more and earlier than psychocentric tourists. This agrees with Cohen's (1979) ideas of strangeness and familiarity. Some tourists like to explore and be independent. Others like to stay in familiar and safe places. They may not leave the resort or hotel without a guide. Personality also affects interests.

Adas (1996) found that special interest travelers consume a destination very differently from mainstream, generalist tourists. They are much more purposeful and purposeful in their actions and are more willing to visit low-level attractions with specialist appeal. They also spend more time in each place visited. Group dynamics can also affect movement, as a group of tourists must negotiate an acceptable set of activities. Individual preferences can be put under pressure to conform to groups, especially in collectivist societies such as those found in Asia. The socio-cultural background of tourists also seems to have an influence. Cultural distance can also influence behavior, with travelers from culturally nearby source markets seeking out different attractions and traveling to different areas within a destination than those of cultural origin. distant origin (Page, 2009).

Alternatively, in one published goal movement study, Keul and Kuheberger (1997) followed anonymously selected tourists in Salzburg's old town area, recording time spent walking and stopping. Follow-up interviews found no difference in patterns based on individual preferences, goals, and plans. This may indicate that the spatial behavior of tourists within the district is clearly determined more by the geography of the place and the suitability of the group rather than individualism.

People travel differently as independent or group travelers. Independent travelers have more freedom in choosing transportation, places, interests, and time. Group travelers have more restrictions depending on the tour. Also, people's fitness and abilities affect how they travel. Younger travelers tend to be more active, while older ones more relaxed. Some disabled travelers need more time and support for their travel activities (McKercher et al. 2003).

Place Knowledge. The information used when travelers conceptualize a place shape their impressions of what a place has to offer and, importantly, how experiences exist to be consumed (Dann 1996 as cited in Ryan 2000). However, the nature of information retrieval and the types of information needs people have varied and are usually incomplete (Fodness and Murray 1999). As a result, the ability of tourists to understand the destination and choose what activities to pursue is highly individualistic subject to considerable external influences.

Advice can affect tourist movement (Seaton and Bennett 1996). The fame of an attraction makes tourists visit it even if it is far. The less famous attractions are more optional and replaceable. Tourists may choose the closer or more convenient ones. This is based on distance decay and market access theories. They say that demand decreases with distance and alternatives. Tourists want to use their time well (McKercher and Lew 2003).

METHOD

The model was developed deductively based on testing how intervening factors previously identified in urban transport modeling and tourism literature might influence movement in local destinations.

This research uses a literature study approach. This analysis aims to develop a model of tourist movement based on determinants that have been identified previously in the tourism literature.

DISCUSSION

Tourist destinations and characteristics are described in the form of Table 1 of the paths traveled by tourists. The geometry of motion can be modeled in two dimensions: territoriality and linearity. The territorial model (Figure 1) basically reflects the impact and perception of distance and intervention opportunities, while the linear model (Figure 2) reflects reflecting the geography of a place.

Table 1. Destination and Variables Impacting Intra destination Movements

Theme	Impact
1. Travel Origin/Accommodation Location	
A. Group or Spread	Diversity and complexity of itineraries
B. Type: Hotel, Resort, House, Other	Geographical identification of market segments
C. Client / Market Segment	Service and product customization
2. Travel Destination/Attraction Location	
A. Number, Diversity/Types, Hierarchy	Diversity and complexity of itineraries (including organized vs. self-paced travel)
B. Clustering or Isolated	Identification of thematic districts
C. Substitute Intervention or Attraction	Service and product customization The importance of relative location for accommodation
3. Transportation Accessibility	
A. Network Traffic Dense / Concentrated or Linear Topography / Site Characteristics	Degrees of freedom or restriction of movement Number of options and alternate linear paths Perception of ease of travel and desire to wander or explore
B. Public Transportation, Tour Companies	Value of location for construction
C. Driverless vehicles, walking	Variable access to attractions
D. Quality, Ease, Cost Bottlenecks and Affordability of Information and Signage	Choice of mode of transport or restrictions
E. Limitations/Barriers of Distance Decay	
CHARACTERISTICS OF TRAVELLERS	
1. Time Budget	
A. Travel Time, Length of Visit	Number of activities or attractions to visit Depth of participation in an activity Perception of acceptable itinerary distance
B. Time Value	Tolerance of transport experience
C. Result or Process Oriented	
2. Motivation, Interest and Composition	
A. Allocentric or Psychocentric	Acceptable choice of attraction sets, includes substitute attractions
B. Special Interest or Generalist	
C. Recreational or Educational Oriented	Acceptable perception of linear paths, distance and contents
D. Age and Physical Disability	
E. Travel Group Dynamics	Freedom or restriction of movement Decision making process
3. Knowledge of purpose and emotional value	
A. Information Sources, Gatekeeper	Emotional attachment to purpose or attraction,
B. First Time or Repeat Visit	Relative attractiveness of attraction

C. Primary or Secondary Purpose	Perception of acceptable itinerary distance Acceptable set of attraction options, including replacement attractions
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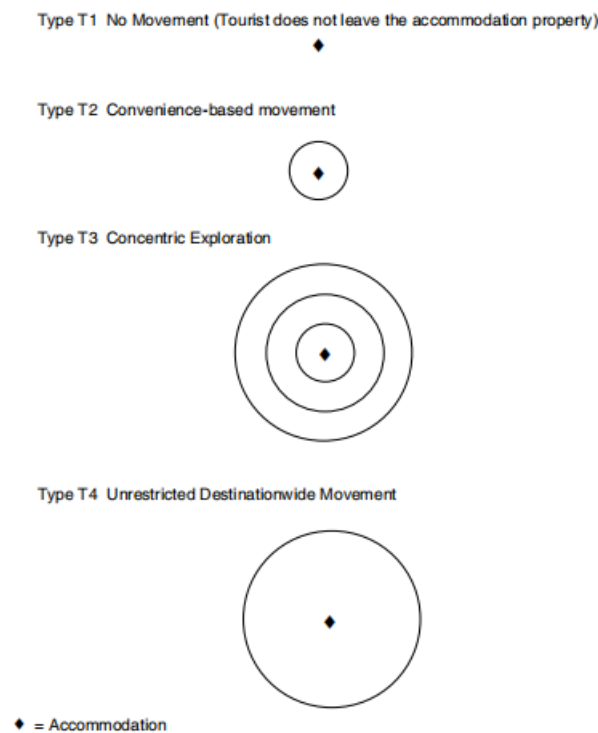


Figure 1. Territorial Models of Tourist Behavior in Local Destinations

Every trip made by a traveler has a characteristic territorial and linear path. The starting point for both dimensions is the locus of accommodation, (hotel, motel, hostel, resort, campground, friend's house or relative's house or holiday home). The territorial model group (Figure 1) shows variations in the distance travelers travel from their places of accommodation. The relative distance of movement is represented by the ring surrounding the accommodation point. These range from very limited motion (T1) to completely unlimited motion (T4). Characteristics of a destination, such as the relative location of accommodation and attractions as well as the availability and ease of modes of transportation, will affect the actual territorial form and actual distance at a particular destination. The greatest variation among the four types of territorial models is based on differences in tourism characteristics (Table 1). In general, as transportation becomes easier, time increases, allocentric behavior, and destination knowledge improves, tourist territorial behavior is more likely to reflect T3 and T4 types in these dimensions.

T1 type: No movement. Some tourists never venture outside the area of the property's fines. This situation is most common in all-inclusive destination resorts that

offer a full suite of activities, services, and amenities designed to keep tourists at home throughout the stay. Usually, such a pattern of movement, or lack thereof, is observed in large resort complexes. No movement should also be observed in the other two situations. This can happen at overnight transit stops, where tourists travel directly to the accommodation property and, upon departure, leave the destination without getting around. Alternatively, some may feel too intimidated to leave the accommodation property, or may be advised not to leave for safety reasons. Debbage (1991) suggests that travelers who display psychocentric characteristics may be less willing to venture outside the safety of a hotel. In neighborhoods and cities with high crime rates, hotel staff often advise travelers not to leave the property without taking safety precautions.

Type T2: Comfort-Based Movement. Convenience-based travel patterns are characterized by visits to attractions or participation in activities in nearby areas of the accommodation locus. This style reflects an extreme form of distance decay, where a tourist's willingness or ability to venture deeper into a destination is severely restricted. This type of behavior has been observed in the discretionary pleasure activities of some business and convention delegates, who use little of their free time to shop or visit tourist attractions in direct proximity of their hotels. It may also be clearly visible among those in transit, also limited by time.

Type T3: Concentric Exploration. Concentric exploratory behavior, the pattern reflects initially uncertain movements of tourists and may be intimidated by destinations. Displaying a culture of open shock or psychocentric characteristics, their initial robberies are tentative and either limited to the proximity of the hotel or to the company of a tour guide. As they become more familiar with the purpose, their ability to negotiate their new space, they venture further. Thus, this force can be likened to the release of one's environmental bubbles and the increasing ability to consume the destination state in its own way. Concentric patterns can be much more complex than simple circles. It can be multi-nodal, with a "safe" area limited to accommodation places and a small number forming attraction nodes. Movement within safe bubbles is usually restricted to walking, private vehicles, and special modes of tourist transportation, while exploring outside the safe zone adds to the public's appeal. modes of transportation are mixed.

T4 Type: Unlimited Movement to All Destinations. For tourists who have a high level of information about the destination, much of which is gleaned from previous visits, the entire space can be considered as equally available to visit. But even here distance

damage can impact tourist behavior, although this is no different from the distance perception of nearby residents. Highly allocentric types can also exhibit this behavior through a willingness to take risks and quickly master local forms of transportation. However, most are existential tourists (Cohen 1979) who are completely "at home" in whose destination will most likely feel free throughout the destination area. All forms of transportation modes are freely used by people who are not restricted by tourists.

Linear travel patterns have been identified by several authors examining inter destination patterns. Flogenfeldt (1999), Lue, Crompton and Fesenmayer (1993), Mings and McHugh (1992), and Opperman (1995) have collectively identified 26 styles of such itineraries, which can be grouped into four broad types: single destination and return trips, with or without side trips; circle tours with multiple stops, with or without side-trips from multiple destinations; transit to the destination of the area followed by a double stop loop tour; and complex combinations of linear and circular travel from multiple hubs along larger itinerary routes and multiple destinations. Of these, the first three patterns are logically evident in trade movements. Since a person's place of accommodation usually does not change during a single visit to an area, a fourth pattern will be rare. Three types of linear path models are identified (P1, P2, and P3 in Figure 2).

The point-to-point (P1) pattern follows the same path from and back to the place of lodging. The circular pattern (P2) generally follows a different path away from and back to the place of accommodation. The third category (P3) consists of indistinguishable complexes and combinations of point-to-point and circular patterns. This linear path model reflects the geometry of the movement of tourists from their accommodation points. They simplify the actual movement patterns formed by the geography of a place. Furthermore, linear path models do not depend on territorial distances, can be carried out with any mode of transport, and can be scaled in combination with various types of territorial models (Figure 2), with the exception of motionless forms (T1). The different shapes of linear path models are not exclusive to each other, as travelers may display a combination of linear patterns during the course of their visit. But in general, easier transportation options and increased time budgets, allocentric behavior, and destination knowledge will result in a linear path that better reflects the P2 and P3 types.

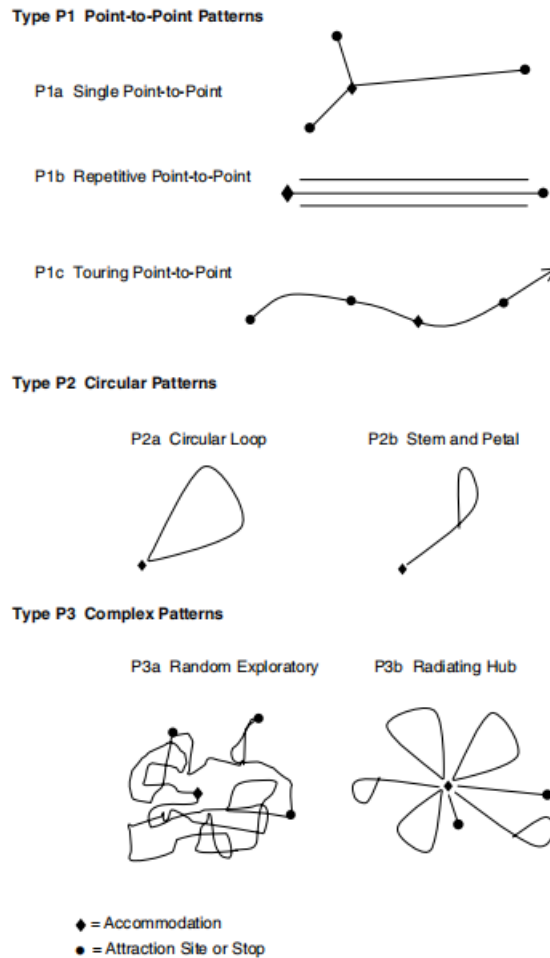


Figure 2. Linear Path Models of Tourist Behavior in Local Destinations

P1a Type: Single Point-to-Point. This movement pattern is probably one of the two most common types. This involves one or more direct trips to the desired stop and then returning to accommodation by the same route. No significant intermediate stops were made and no deviations from the most direct routes were considered. This pattern maximizes time spent at bus stops by utilizing the most efficient transit lines. The number of separate accommodation-to-attraction trips taken during the holiday depends on the length of stay, the layout of the destination organization, the presence or absence of clustered attraction nodes, the mobility of tourists, and the modes of transportation available. Multiple single point-to-point trips can result in hub and spoke patterns, centered on accommodation. This type of pattern will be more common in destinations with separate but compact attraction nodes or with isolated main attractions, such as amusement parks, golf courses, or sports venues. Tourists who use public transportation are more likely to engage in this type of behavior than tourists who drive themselves because it is less complex than a circular route.

P1b Type: Repetitive Point-to-Point. This model represents an extreme form of accommodation-to-attraction transit in which travelers travel to the same stop multiple times during their stay. This pattern can be seen, for example, among several visits to ski slopes, shopping/entertainment complexes, or large amusement parks. It may also be common in small destinations that have one dominant attraction, such as beaches.

P1c Type: Point-to-Point Touring. This pattern is unique to travelers traveling through a destination. In this case, one or more attractions are visited upon arrival at the destination and approaching the accommodation of the venue. The next day, the tourist leaves for his destination by another means of route and stops at one or more additional attractions on the way out. This pattern is most common for short stays and overnight stays at secondary or stopover destinations. "Stops" are convenience-based and limited to attractions located on or near major highways. This pattern has been observed in car travelers in regional destinations of Australia (McKercher 2001) and has also been described by Gunn (1972) in Texas.

P2a Type: Circular Circle and P2b Type: Rod and Petal. These types of movements begin at the accommodation point and include visits to two or more attraction stops in a circular pattern. Depending on the pool of attractions visited and the established transport network, this may be the most time- and distance-saving movement pattern. It is used by most local organized tours, and even independent tourists often use this pattern. The main difference between a circle pattern and a stem and petal pattern is the need for foot transit to the area visited. The use of stem and petal patterns is a response to the geographical distribution of transportation systems, accommodation, and destination attractions.

One form of circular loop can be described as a "collector" icon—a tourist whose sole purpose is to see the most important site destinations at the top of the attraction hierarchy. It is more interested in the tourist gaze (Urry 1990) than engaging the destination on a deeper level. As a result, this style of movement is likely to be packed into tours and is prevalent among short-time visitors or first-time travelers on a limited budget.

Type P3a: Random Exploration. This model can be thought of as the antithesis of point-to-point, circular loops, and patterns of movement of rods and petals. Whereas tourists exhibit other patterns of doing objective exploration and systematic purpose, individuals who exhibit random exploratory movements show no or only simple patterns in their actions. Personality style can influence this type, as allocentric travelers who avoid large environments may have a higher tendency to wander. They are flexible,

opportunistic, and process-oriented. Whereas on the surface the pattern may appear chaotic, there may be an underlying logic to motion, which is determined by microgeographic in the experience of place.

P3b Type: Radiation Hub. This pattern is probably the other most common movement pattern (along with a single point-to-point). Most travelers who have a reasonable amount of time at a destination will make some trips from their accommodation point. Some of these may be point-to-point, but others will circle circles and rods and petal patterns, and there may even be one or more random explorations. Accommodation serves as a "hub" for these diverse journeys of varying length and varied motivations. The result is more complex than a single point-to-point pattern, which can also have characteristics of a hub. The number of discrete trips undertaken will depend on the length of stay, the spatial organization of the destination, distance decay considerations, time assessments, and the special importance of the tourist. Radiating blooms will be more common among process-oriented individuals and beginners, and mainstream destination travelers who want to explore the destination thoroughly.

CONCLUSION

The implications of research in this area could be significant, especially for a purpose that depends largely on tourism and that tourists comprise a mostly vehicular and pedestrian movement. The three areas where knowledge of intra destination movement can have the greatest impact include transportation planning, product and image development, and tourism impact management.

Transport Planning. Knowledge of travelers' preferences and actual daily itineraries, and the factors influencing those itineraries, can help transportation providers to meet their needs more efficiently, as well as to better coordinate trips with local transportation flows. Movement information can also be used to identify unnecessary congestion and obstacles in the flow from accommodation to attractions, and other destinations. More sophisticated behavioral modeling, similar to transport modeling, can also be used to generate "what if" scenarios that simulate changes in transport and tourism infrastructure.

Knowing which tourists prefer which trails and destinations can be used to better define existing attractions, plan new ones and market them more effectively. Knowledge of actual tourist routes can be used to determine district boundaries and nodes, as well as the most appropriate gateways. This information can be used to develop new attractions and products alongside routes and in counties and destination nodes. District/node knowledge can also be used in image development. Usually, different segments are spatially grouped in districts and nodes within a destination. A more comprehensive analysis of those groupings (along lines and across districts), and how each segment relates to others spatially, can help create a sense of place, niche market, and more clearly in the overall image of the destination.

The impact of tourism tends to occur when more tourists visit a place than it can sustain. Knowledge of the space and time routes they visit most often, and the destinations they visit most often, can be used to identify time periods and locations that exceed their capacity and have the potential for negative social, environmental, or cultural impacts. Alternatively, patterns of underutilization can also be identified, and management plans can be developed to mitigate negative impacts by shifting utilization from heavy periods, routes, and locations to alternative times, paths, and places. It could be that free-market service providers have instinctively responded to meet transportation, accommodation, and tourist attraction needs and interests in a way that minimizes costs, wastes time, and frustration on the part of tourists, while maximizing economic benefits for society and the overall experience of everyone involved. While certainly not the whole picture, understanding traveler behavior, and specifically how they negotiate space, time, and place is a big part of planning for tourism industry success in local destinations.

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