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Interpreting Tourist Experiences from First-Person Stories: A Foundation for Mobile Guides

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INTERPRETING TOURIST EXPERIENCES FROM FIRST-PERSON STORIES: A FOUNDATION FOR MOBILE GUIDES

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Abstract

This netnographic study explores first-person stories from online personal travel reports to gain an understanding of tourist experiences. This study uses these stories in order to model tourist spatio-temporal movement at the destination within the context of their tourist-activated networks. The stories provide information about the behavior of tourists on the move with respect to their problems, critical moments, information needs, knowledge gain, and the perceived value of overall travel experiences. The results offer several implications are drawn for designing mobile technology that enhance tourist experiences. This study contributes to the practical and theoretical development of tourism and information systems in two ways. First, this study shows that online communities such as travel journals can be used as reliable sources of tourist behavior. Second, the results of this study support further development of a theoretical framework for designing mobile technology that supports the traveler experience.

Keywords: Tourist Experiences, Movement, Network, Mobile Guides.

1. INTRODUCTION

Numerous studies on innovations in mobile technology and its application to tourism highlight various projects and introduce specific mobile tourist guides and tourism decision support systems (Ardissono et al., 2003; Poslad, 2003; Maruyama et al., 2004), emphasizing the evaluation of basic features, capabilities, and architecture (Kray & Baus, 2003). However, there are extremely limited in the sense that they fail to recognize that tourists' experiences should be considered that foundation for the design of mobile technology. An exception is a study by Brown and Chalmers (2003) who conducted an ethnographic study of city tourists' practices with a series of video-diaries, observations, and interviews to draw implications in designing mobile technology for tourists. In this study, they examined the extent to which tourists search information in order to decide how and when they might do, where things are, and how to share their experiences with others. Brown and Chalmer (2003) concluded that there are many opportunities for designing better technology for tourists. More recently, the European project called CRUMPET (Creation of User-friendly Mobile Services Personalized for Tourism) recommended a number of services to support location-sensed tourist attractions, interactive maps, and multimedia information about tourist attractions (Poslad, 2003).

Mobile guides that include context/location based systems can assist tourists to create a richer experience. In a spatial sense, mobile guides can assist tourists in finding locations of possible attractions to visit. In a temporal sense, mobile guides assist tourists in estimating the time of arrival, length of stay, and departure time from one attraction to another. Tourists might encounter critical moments when information is needed right away such as when they try to find the schedule of public transportation, the schedule of events, etc. Difficulties in finding information to satisfy time-critical and spontaneous needs can cause frustration to tourists. Thus, it is posited that mobile technology can create value by satisfying these time-critical and spontaneous needs, thus helping tourists save time, save money for search efforts and avoid overall trip displeasure.

2. LITERATURE REVIEW

2.1 The Tourist Experience

The term "tourist experience" is a socially constructed term and is associated with multiple interpretations from social, environmental, and activities components of the overall experience. Several writers have attempted to chronologically and temporally define the term *tourist experience* (Jennings, 2006). According to Graburn (1989), temporality is central to tourism experience. The tourism process begins with the "ordinary," progresses to "heightened" moments, and returns to the ordinary. The chronological and temporal definition of *tourist experience* is based on the notion that the experience includes various phases: anticipatory, experiential, and reflective (Craig-Smith & French, 1994). However, several other writers interpret tourist experience beyond the chronological dimension (Jennings, 2006). Cary (2004) suggested the term *tourist moment*, referring to the highest of the Graburn's heightened moments whereas Urry (1990, 2000, 2001) introduced the term *tourist gaze* as a "gaze" through which a tourist objectifies and interprets the place that s/he visits.

Beeton, Bowen, and Santos (2006) argue that the tourist experience is becoming more and more mediated through the advent of the Internet. The terms *mediation* and *brokerage* in the tourism setting refer to an active attempt by an individual to mediate the tourism experiences of another individual. Jennings and Weiler (2006) argue that mediators of the tourist experience can be personal (e.g., other tourists, tourist providers, governments, and host communities) and non-personal (e.g., signage, design, aesthetic, and settingscape). An example of an on-site experience mediator is a professional tour guide, who is responsible for linking tourists to attractions, facilities, and hosts. Recent studies indicate that the Internet, however, has the potential to have substantial impact of tourist experiences whereby tourists use multimedia features including text, images, video streaming, and virtual reality to enhance and/or reinterpret their tourism experiences.

2.2 Tourists' Spatio-Temporal Movement

Tourist experiences can be interpreted chronologically from their movement through space and time whereby tourists move from one destination to another during a certain time interval (Xia, Ciesielski, & Arrowsmith, 2005). This movement can be seen as a dynamic process which is characterized by spatial, temporal references and attributable components (i.e., the nature of place visited). In addition, because at any point in time a tourist's location position can be derived, tourists' travel patterns can be conceptualized as spatial movement within a network. In this system, the nodes of the network are attractions or other points where tourists stop and the edges of the network are the routes that tourists choose to travel between the two places. Lew and McKercher (2006) argue that travelers follow two basic patterns (linear and territorial) of movement while visiting a destination. From this, they classified territorial tourist movements into no movement, convenience-based movement, concentric exploration, and unrestricted destination-wide movement; linear movements were classified into point-to-point patterns, circular patterns, and complex patterns (Lew & McKercher, 2006).

3. METHODOLOGY

3.1 Netnography and Purposive Sampling

This study used tourists' stories to obtain insight into tourist experiences at a destination. The approach used in this study is similar to Brown and Chalmers (2003), except that this study used travel stories provided in an online environment. This method is labeled as netnography by Kozinets (2002) and has been used for diverse studies in online communities and individual blogs (Kozinets 2002;

Woodside, Cruickshank & Dehuang, 2005). It is argued that netnography is faster, simpler, and less expensive than traditional ethnography and it is more naturalistic and less obtrusive than focus groups or interviews (Kozinets 2002). Tourists usually write travel reports after the trip ends (e.g., at the end of the day or after getting back home), so their travel activities are not affected by observation (no uneasiness from being monitored, watched, or interviewed). The online medium also enables people to casually write their personal problems and experiences during travel without being strained to follow certain criteria for publication. As a result, it is argued that blogs are appropriate sources for obtaining information on real travel experiences.

This particular study is based on first-person stories published on the Internet that contained detailed information about travel experiences in Philadelphia. Philadelphia is relatively large U. S. city that is rich in culture and heritage. The data were collected by purposive sampling that included blog entries containing travel reports on Philadelphia. The search for blog entries was conducted on Google using combinations of the following keywords: "Philadelphia," "Philly," "Travel," "Trip," and "Blog." The Google search efforts resulted in several journal entries posted in travel blogs (e.g., travelblog.org, globenotes.com, blog.realtravel.com, and travelpost.com), general blogs (e.g., blogger.com, multiply.com), blog sections in independent personal websites, and real travelers' stories published on official tourism board websites. The results were further selected based on the following considerations: (1) the stories must be based on the writer's personal experiences (e.g., excluding stories with "*My sister spent 10 days in Philadelphia and she said…*"), and (2) the stories must contain descriptions of spatio-temporal movements (e.g., excluding stories with "*We drove to Philly to see Indepe(n)dence Hall, the Liberty Bell and ot(h)er historical sites… then we drove to New York.*"). This selection process resulted in nine journal entries that provide a detailed description of their travel experiences in Philadelphia; analyses were conducted of one day from each of the respective journal entries.

3.2 Identification of Spatio-Temporal Movement Sequences

The definition of tourist movement in this study is the movement from one attraction district to another during a single day. Unfortunately, it was impossible to identify the travelers' exact arrival times at each attraction based upon the journal entries. The solution to this problem was to simplify the time points into a visit sequence. The temporal sequence of visitor movement was based on three time intervals: (1) morning (denoted as 1), (2) afternoon (denoted as 2), and (3) evening (denoted as 3). Time references in the journal entries were identified by finding (1) exact matching words (e.g., "*in the morning*," "*in the afternoon*"), (2) words designating a point in time (e.g., "*at 9:00 am*"), and (3) words with reference to other activities or situations (e.g. "*after lunch*," "*right when the store is opened*").

For this study, spatial movement was based on travel between nine districts within the Philadelphia area: Old City/Historic District (denoted as A), Washington Square (B), Convention Center District (C), South Street Area (D), City Hall (E), Logan Square (F), Art Museum Area (G), South Philadelphia/Italian Market (H), and Greater Philadelphia (I). A spatial sequence was developed from the journal entries by finding: (1) exact matching words describing the districts (e.g., "*in Old City*"), (2) words mentioning names of the roads (e.g., "*at 5th and Market*"), and (3) words mentioning names of sites (e.g., "*Betsy Ross House*," "*at Pat's and Geno's*"). This study examines the movement between districts including the network edges and transportation modes used while visiting the city.

3.3 Interpretation of Positive and Negative Experiences

This paper analyzes the travel experiences by interpreting the positive and negative feelings of the writers from the journal entries. For example, words such as "sad," "bad," and "uneasy" represent negative feelings toward the experience while "good," "delicious," and "fantastic" describe positive feelings. In some cases, bloggers also used cynical words to express negative feelings (e.g.,

"*spectacular mood*"). Several aspects were considered such as general statements about satisfaction, the quality of attractions visited and facilities used, the level of information available to make decisions on the itinerary and scheduling, and knowledge gained from visiting the various Philadelphia attractions.

Interpretation of the negative and positive feelings from different stories was then followed by an examination of major problems causing the feelings. For instance, the opening of a travel story below leads to the discussion of major problems that caused the negative experience:

> *"The city had lots of promise for us.... So we had a great outlook on things when we pulled into downtown Philadelphia. The area looked neat, too. However, things kind of went downhill once we parked the car."*

4. TOURISTS' SPATIO-TEMPORAL MOVEMENT PATTERNS

Nine stories were analyzed in order to map the spatio-temporal movement of the writers while they were touring the city; seven of them are summarized in this section.

Experienced Traveler. Robert is a young married American male who spent three days in Philadelphia with his family (including children). The first day was spent becoming familiar with the city (as a primer to the next day's schedule), the second day for touring the city, and the third day for touring around in the suburbs. Figure 1 illustrates their movement on the second day. The family started the tour after breakfast, visiting the National Constitution Center, where they had a 20-minute introductory presentation about the site and then visited the museum area. During this time interval, they moved around the historic district to visit several other attractions, such as the Christ Church Cemetery and the Betsy Ross House. During the second time interval, they were still located in the same district, but after some time, they moved to South Philadelphia and the Art Museum Area. They used a car for movement between districts, but walked when moving around inside the district. The temporal sequence of this family's movement can be categorized as *122* (one district visited in the first time interval, and two districts visited in the second time interval), while the spatial sequence is *AHG*; i.e., spending more time in the first district (Old City/Historic District) and ending the day trip in the Art Museum District.

The AG Networks. Two travelers, Novel and Edward, share movements which have the same spatial sequence: the trip started in the Old City/Historic District and ended in the Art Museum District (*AG*). Novel is a young American female who went on a one-day organized trip to Philadelphia with her friends. Her temporal sequence is *12*, meaning that she spent the entire morning in the Old City/Historic District and the afternoon in the Art Museum area. She had arranged activities in the morning (i.e., visiting the National Constitution Center and touring Independence Hall) but found some extra time to visit an exhibit in the area. However, her visit to the Art Museum can be categorized as a spontaneous activity, as she had free time to spend before her tour bus left. Novel used the Philly Phlash, a bus connecting Philadelphia downtown attractions, to move from the Historic District to the Art Museum Area and then to return to her tour bus.

Edward is a young American male who took a one-day trip to Philadelphia with his wife. Different from Novel, his temporal sequence is *11*; he spent the morning in the Old City/Historic District and then moved to the Art Museum Area before noon. Edward intended to visit more attractions than what he eventually visited; he moved around in the Historic District and decided to drive to the Art Museum Area after visiting only one attraction (the Liberty Bell).

Christie's Half Day Tour. Christie was traveling to Philadelphia to attend a conference. She is a young married American female, and was traveling with her family (including children). Figure 1 illustrates her movement on her last day in Philadelphia, where she spent the time touring the city with her family. The tour started with a Philly cheese steak lunch at Pat's in the South Philadelphia Area. After finishing the lunch, they moved to the Historic District and moved around there, visiting several

attraction sites. Their tour ended after they decided to drive out of the city to Delaware and, finally, to the airport in the evening. The temporal sequence of this family's movement can be categorized as *22* (two districts visited in the second time interval), while the spatial sequence is *HA*.

Ora's Four Nodes Network. Ora, a young, single, Middle-Eastern female, made a network connecting four nodes on her one-day trip to Philadelphia. She traveled by train with her friend, and started with the Historic District in the morning. Ora moved around in the district to visit several attractions before changing her position to the neighboring district, the Washington Square District. After moving around in the area, she changed her position again to the Convention Center District. Her last node was the Logan Square District, which she visited after lunch. Ora's temporal sequence is *1122* (she changed positions in both time intervals) and her spatial sequence is *ABCF*. Like the previous travelers, Ora also started the trip from the Historic District and then made her move west.

Jennifer's Network. Different from the previous patterns, Jennifer, a young, single, Dutch female, started her trip with City Hall and its surrounding areas in the morning, made her move to the Museum Area, had lunch, and ended her trip in the Historic District, with a tour of Independence Hall. Jennifer visited Philadelphia with her friends for two days. The movement pattern, illustrated in the figure, is from her second day. She spent the first day going around with her host, a friend who's originally from Philadelphia, to familiarize herself with the city before a tour the next day. On the second day of her trip, Jennifer's temporal sequence is *112*; she arrived at two districts during the first time interval and then moved to another district during the second time interval. The spatial network activated by Jennifer's trip is *EGA*.

Gay-Friendly Network? Philadelphia is one city that has taken initiatives to attract gay and lesbian vacationers. The city has become famous for its gay-friendly attractions and gay-friendly environment. To get an insight on trips taken by a gay traveler, we analyzed the movement pattern of Frank, a young American male who spent the weekend in the city with his friends. All previous patterns included the Historic District in their networks, but Frank's network does not have the Historic District in it. Frank and his friends started their trip outside the downtown area, visiting the Barnes Foundation. They spent the entire morning at the site and then changed positions to the Italian Market to grab their lunch at Pat's and Geno's. The trip continued to the South Street District, where they spent the afternoon and evening. Frank's spatial network is *IHD,* and the temporal sequence is *122*.

Summary of the Network. Most travelers included the Historic District/Old City in their itinerary (except Frank). Furthermore, most of them stayed or moved around in the district for the entire interval of time, usually during the morning, (or during the early afternoon), before changing positions to the other districts. Most travelers had the city's famous food, the Philly Cheese Steak, for lunch (mostly at Pat's or Geno's in the Italian Market). Most travelers connected two or three districts in the network; only one traveler connected four districts into a network. Most travelers used cars for movement between districts (one traveler used the bus) and walked when moving inside a district.

Although most travelers do not state the exact route they take during traveling, the movements can be categorized as either concentric movements or unrestricted destination-wide movements. The latter category describes tourists who have a high level of information about their destinations (e.g., Robert), while the former is for tourists who are initially uncertain about what to do at the destination (e.g., Christie) or are confined to the proximity of their original spot (e.g., Novel). In terms of the linear paths model, all movements can be categorized as touring point-to-point movements. The types of attractions visited by the travelers (especially those traveling with spouse and children) are mostly historic sites (the National Constitution Center, Independence Hall, the Liberty Bell, etc.), museums (the Museum of Art, the Barnes Foundation, Mummer Museum, the Franklin Institute, etc.) and exhibits. Only one traveler (Frank) combined museums with entertainment (in South Street).

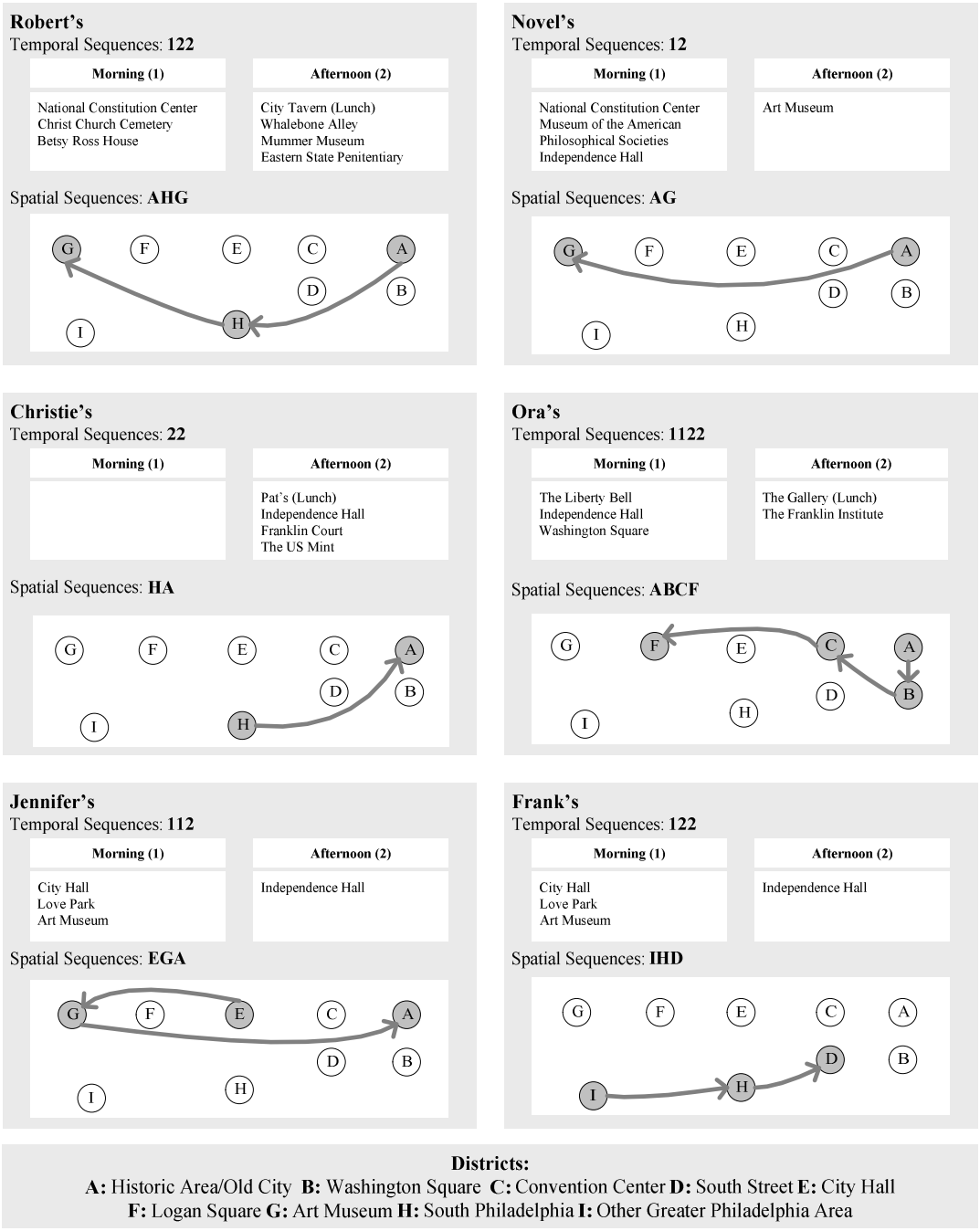


Figure 1. Tourists' Spatio-Temporal Movement Patterns in Philadelphia

5. INFORMATION NEEDS AND TRIP EXPERIENCES

5.1 Critical Information Needs upon Arrival

Arrival is a critical moment for tourists (especially first-time tourists). Upon arrival, most tourists unfamiliar with the destination need timely information to find locations of hotels they reserved, how

to get to the location, and other information. The following quotes describe the tourists' problems upon arrival in Philadelphia:

> *"When I got into the city and I surfaced from the train, I was a bit uneasy. I had asked questions on how to get to the hotel. You know "*left, left then straight, two blocks*" I never get these right."* – Meadow (a middle-aged, married American male)

> *"…got to Philadelphia at about 14:00 to discover I couldn't get into the hostel till 16:30 which put me in a spe(c)tacular mood as I had to lug my rucksack around…"* – Phil (a young, single, English male)

Meadow questioned the accuracy of the information he got from local people about the direction to his hotel, and Phil was disappointed about being unaware of the check-in time at his hostel. Their negative feelings from not being well informed, expressed by the words "*uneasy*" and "*in a spectacular mood*," might lead to frustration and could reduce travel satisfaction. It is important to provide timely information for travelers upon arrival, especially information about directions and public transportation schedules.

5.2 Spontaneous Trips

Some tourists might plan a trip carefully before visiting a destination, but some trips can be fairly spontaneous. The spontaneous trip appears to happen when a traveler realizes that there is a certain interval of time for him or her to be at the destination, and he or she decides to use the time for tourist activities. These quotes explain the situation:

> *"It turns out that I forgot we had booked a later flight so we could have some more free time in Philadelphia."* – Christie

> *"…we had 4 hours of free time."* – Novel

In deciding a spontaneous trip, the main task for the tourists is to find out what is available, within reach, for the available time interval. Timely information on attractions, accessibility, operating hours, and estimated length of stay at each attraction is important for tourists at this stage.

5.3 On-Site Information Needs

When tourists are at a particular attraction, they search information to gain a better knowledge of the site. However, there are some problems for tourists at this stage, causing them not to get the information they need. One of the problems can be the informational source; either there is no informational source, or the available sources provide insufficient information. These problems were expressed in the following quotes:

> *"We had to practically beg them to explain anything to us at the Franklin sites"* – Christie

> *"…no one was available to tell me the price of the hot Egyptian earrings in the window. I was sad and didn't want to leave but we did."* – Ora

> *"We found out later that the reason we couldn't see it was because it wasn't there. It was just next door at the Library. So much for the helpful guy at the information booth…"* – Edward

Another problem could arise from the content of the information and the manner of delivery. This problem can be found in the following quote:

> *"He kept making these jokes that were supposed to be really funny… but they kind of annoyed me. I wasn't there to hear stories about how the Yankees won the series in 1776… I was there to see the real historical stuff."* – Novel

The problems of not getting the desired information on-site resulted in dissatisfaction of the tourists, which is expressed by the words "*annoyed*" and "*sad,*" which could reduce the perceived quality of the travel experience.

5.4 The Overall Experiences

The overall quality of the travel experience of each tourist can be interpreted from their statements of satisfaction, number of attractions visited, the level of activities at each attraction, and the knowledge gained from the trip. Based on the data, a tourist's satisfaction with particular tourism products or services is determined by the perceived quality of the trip experience. Satisfaction is expressed in the following statements:

> *"I got excited. I mean...this is an important place!"* – Novel
>
> *"My lobster pot pie was delicious."*– Robert
>
> *"...the view is indeed really nice."*– Jennifer

There were substantial differences in the level of activities by tourists at attraction sites. This variation can be interpreted from expressions such as "*toured briefly*" and "*checked out the gift store.*" The level of activities also related to the duration or length of stay at the attractions. Christie, who was spending half a day at two districts, describes her experiences as follows: "*…walked around and saw it through the window,*" "*I took some pictures of Ind(e)pendence Hall,*" and "*walked by the US Mint.*" The level of activities affects the knowledge that the tourists could gain from the attraction. Certainly, there are differences in the knowledge gained between tourists who only took pictures of a particular site, compared with others who managed to join a guided tour exploring the site.

The tourist-activated network generated from the journals and the overall satisfaction of the trip experiences is described in Fig.2. The size of the nodes represents the popularity of each district in the samples (the frequency of being visited); the type and color of the paths represent the movement of different tourists. Some of the nodes are not connected with their neighboring nodes (e.g., E, F, and D), resulting in broken networks.

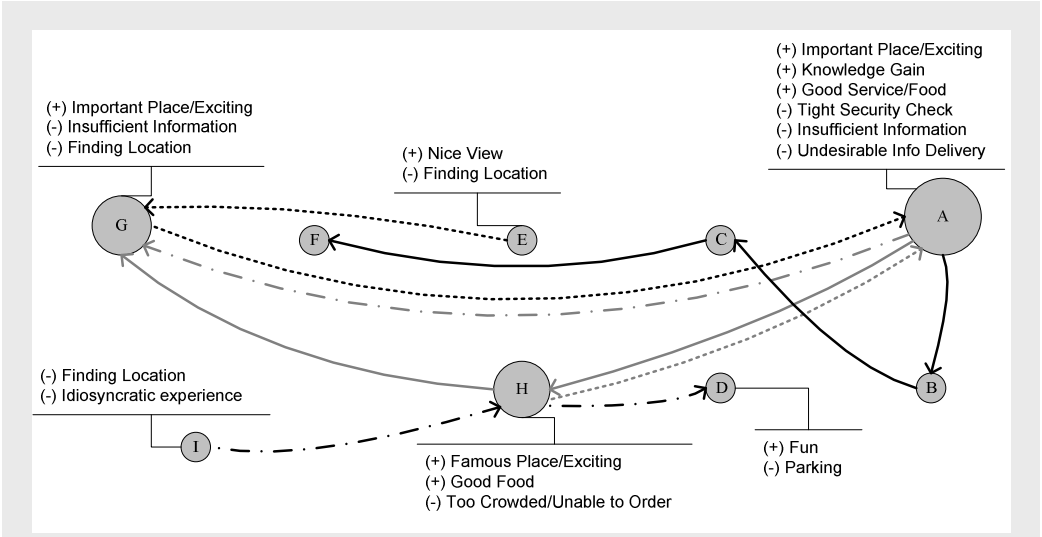


Figure 2. Tourist-Activated Network and Overall Trip Experiences

6. IMPLICATIONS FOR MOBILE TECHNOLOGY

Tourist movements through space and time at a local destination have important implications for destination planning, development of tourism products, and management of the economic, socio-cultural, and environmental impacts on tourism (Lew & McKercher, 2006). Tourists on the move activate a network consisting of different interrelated nodes. Modeling past travelers' movements is important in terms of recommendations for future tourists to activate a richer network and gain a more valuable experience. Development of mobile guides can assist this effort.

The main function of mobile guides should be to assist the travelers in their spatio-temporal movement at the destination. It appears that mobile guides should have features that enable tourists to design their itinerary and schedule, decide what to visit, find where and how to get there (route and mode choice), decide when is the best time to arrive, and estimate how long it will take to get there and how long to be at each site before moving to the next. Based on the analysis of the traveler experiences to Philadelphia, mobile guides should be designed to cater specific features as follows:

- *Critical informational needs upon arrival*. Mobile guides should provide features that enable tourists (especially first-time visitors) to get self-orientation, search specific locations, and get navigation to the desired location without frustration. When mobile guides are not available for travelers immediately upon arrival, the destination could provide the first assistance by broadcasting important information to travelers' mobile phones upon arrival at the airport or stations. Travelers would get a message on their mobile phones, consisting of information on, for example, phone numbers or mobile websites that would provide immediate assistance.

- *Spontaneous Trips*. Mobile guides should provide sufficient and inspirational information about what to do and where to visit during the given period of time. Inspirational features of different attractions within reach (relevant in space and time) are necessary to enable travelers to design trip itineraries and timely schedules, which requires location-awareness and time-awareness applications. Images, or short video streaming, can augment the inspirational features of mobile guides for tourists on unplanned or spontaneous trips.

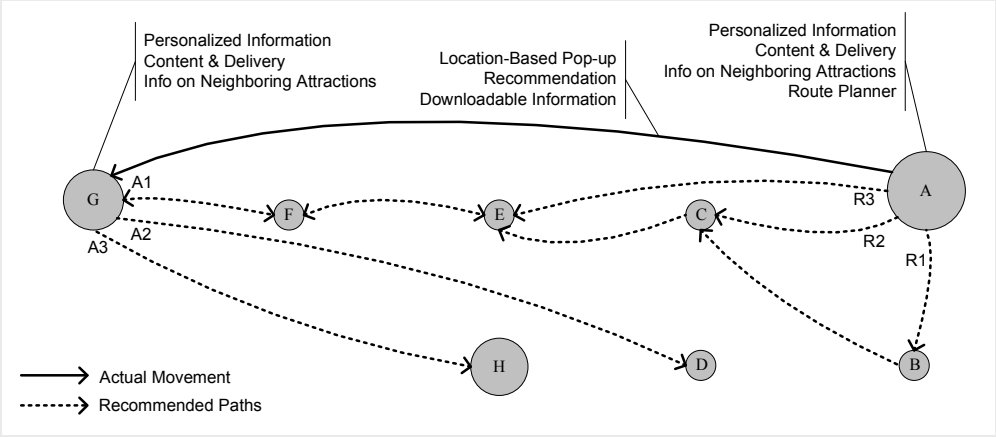
- *Knowledge Gain*. Tourists should benefit from gaining knowledge of the destination from the context-based features of mobile guides. Mobile guides should provide a choice of in-depth information on each attraction. However, it is also important to give freedom to the users to choose the type and depth of the knowledge. The guides can be designed to provide short and general information or messages, and provide commands at the end of the message offered to the visitors, if they would like to explore more detailed information; for example, "*if you would like to know more about Degas, press 32*."

- *Desired Content of Information and Delivery*. Mobile guides should provide personalized, in-depth knowledge of destinations, with a personalized manner of delivery.

- *Richer Networks*. In order to stimulate visitors to develop richer networks within the destination, mobile guides should provide a recommendation system that includes nearby districts or en route attractions in the network. For example, mobile guides can broadcast information or pop-up advertisements of nearby attractions (sites or events) and best deals (restaurants or shopping) at the location during a certain period of time. Mobile guides can also provide suggestions, consisting of different alternative attractions to see next from a specific location ("visit also" features) and proactive travel tips.

Fig.3 illustrates how the features of mobile guides can enrich tourist experience, taking the case of Edward's movement. Edward had planned his visit to the Old City, Art Museum, and South

Philadelphia in advance. However, facing problems at nearly all attraction sites he intended to visit, Edward only briefly visited the Old City and Art Museum before heading to New York. While Edward was at the Old City District, a mobile guide could have assisted him to gain richer information in a personalized manner of delivery. A mobile guide could have recommended various routes to take him from the Old City to the next planned attraction in the Art Museum District, and, simultaneously, suggested other nodes to visit en route to the Art Museum District. By taking the recommended routes (noted as R1, R2, and R3 in the figure); i.e., visiting other nodes en route to the next planned attraction, the activated network would have been richer, compared to the actual movement. Moreover, to avoid the dissatisfaction of not finding the necessary information, the mobile guide would have enabled Edward to browse information about the desired subjects while on the move. A location-based pop-up advertisement, broadcast to tourists while on the move, can be effective in changing the actual route to the recommended one(s). After the last planned visit, a mobile guide could have recommended time-based additional sites (e.g., restaurants) to visit (noted as A1, A2, and A3 in the figure).



Districts:
A: Historic Area/Old City **B:** Washington Square **C:** Convention Center **D:** South Street **E:** City Hall
F: Logan Square **G:** Art Museum **H:** South Philadelphia

Figure 3. Potential Mobile Technology that Enhance Tourist Experience: Edward's Case

7. CONCLUDING REMARKS

This study contributes to the practical and theoretical development of tourist oriented information systems in two ways. *First*, this study shows that online communities such as travel blogs can be used to understand how people experience places. This study explores the stories from real travelers and interprets the stories to map their movements through space and time. Furthermore, this study analyzes the overall value of the travel experience by interpreting the overall satisfaction, problems, and knowledge gained from the trip. *Second*, the results of this study establish a foundation for identifying potential mobile technologies for supporting visitor experiences. For example, it is clear that mobile guides that are enriched with location-based and context-based information will enable tourists to get a list of attractions and services, give assistance in finding locations, and support tourists with navigation within an area. Furthermore, mobile guides enable tourists to take advantage of the most useful services for a given location by sending advertisements relevant to their time and space. The spatial and temporal nature of tourist activities can be facilitated by the mobile guides. As a result, the use of mobile technology could create value by enhancing tourists' experiences *in situ*. Also, location

aware applications of mobile guides enable tourists to easily plan their itinerary, route, and schedule for a day trip. Once tourists get to a particular attraction, they benefit from the possibility of gaining in-depth knowledge about the attraction, and experience more varied activities, through personalized, context-based information provided by mobile guides. Furthermore, a mobile guide system can provide proactive travel tips and advertise time-space-significant information with a broadcast-based system. Tourist experiences are enhanced by gaining deeper knowledge of attractions, experiencing more spontaneous activities, visiting different places of interests, and taking advantage of the best services at the location.

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