Asia Pacific Journal of Information Systems
Vol. 29 No. 3 (September 2019), 448-467

ISSN 2288-5404 (Print) / ISSN 2288-6818 (Online)
https://doi.org/10.14329/apjis.2019.29.3.448

Special Issue on Smart Services and Internet of Things

Exploring the Movements of Chinese Free Independent Travelers in the U.S.: A Social Network Analysis Approach

Lin Li[a], Yoonjae Nam[b], Sung-Byung Yang[c,*]

[a] *Ph.D. Candidate, School of Management, Kyung Hee University, Korea*
[b] *Associate Professor, Department of Culture, Tourism & Content, Kyung Hee University, Korea*
[c] *Associate Professor, School of Management, Kyung Hee University, Korea*

ABSTRACT

In a new age of smart tourism, free independent travelers (FITs) choose their travel routes in a more diversified and less predictable way with the aid of smart services. This paper focuses on the movements of Chinese outbound FITs in the U.S. in the year of 2018. 110 places to visit (destinations) extracted from 122 travel routes recommendations on Qyer.com, a major online travel community in China, are analyzed with social network analysis (SNA). Based on the results of SNA, employing degree centrality, eigenvector centrality, betweenness centrality, network visualization, and cluster diagram methods, some preferred cities and natural attractions outside city centers (i.e., New York City (NYC), Los Angeles, San Francisco, Washington D.C., and Niagara Falls) are identified. Moreover, it is found that NYC in the East and Los Angeles in the West play a major role in the movements of Chinese FITs. This study contributes to the body of knowledge on tourist destination movements and provides valuable implications for smart service development in the tourism and hospitality industry.

Keywords: Free Independent Traveler, Tourist Destination Movement, Place to Visit, Smart Service, Smart Tourism, Social Network Analysis

Ⅰ. Introduction

As smart tourism has revolutionized the tourism industry with the improvement of information and communications technology (ICT) (Gretzel et al., 2015), travelers nowadays are tailored with smart services using diverse mobile applications (apps) in their mobile devices such as smartphone and tablet personal computer (PC). In addition, travelers are enjoying the benefits of independent travel over package travel as they can plan their own travel itinerary as they wish and have more flexibility to decide where,

*Corresponding Author. E-mail: sbyang@khu.ac.kr Tel: 8229619548

when, and what to do. A consequence of this new trend is that travelers' travel routes connecting multiple destinations become more diversified, and thus their movements become less predictable and smarter than ever.

The destination movements of free independent travelers (FITs) are believed to be more informative in understanding tourists' behavior than those of package travelers, as independent travelers are more likely to engage in various destinations and spend longer time on the trip (Cohen, 1972; Pearce, 1990; Vogt, 1976). Hence, we believe that analyzing the spatial destination movements of FITs can contribute to a better understanding of not only individual behaviors of FITs, but also tourists' flows, hidden patterns, and the spatial distribution of tourists in general (McKercher and Lew, 2004).

Chinese outbound FITs comparatively use more smart services than Western travelers (Gulliver, 2016), and they are representative of other Asian (e.g., Korean and Japanese) travelers due to their unparalleled large number. Even from the international perspective, a Chinese outbound FIT is the one group of unneglectable forces among international travelers due to its huge market potential; this market will be likely to be the largest in 2021 (U.S. Travel Association, 2015). We therefore believe that Chinese outbound FITs are representative candidates to show how smart services can be applied and facilitate travelers' movements in a tourism environment.

When these Chinese outbound FITs search the travel information online, Qyer.com (穷游网), famous by its largest community size and large quantity of user-generated content (UGC) in China, is many tourists' first choices. Qyer.com has launched a popular community called 'travel routes recommendations', where travelers upload their own travel movement recommendations all around the world based on their personal experiences and preferences. Among all others, 'travel routes recommendations in the U.S.' is one of the most active communities on Qyer.com, as the U.S. has an enormous geography and various kinds of travel destinations Chinese FITs want to visit all the time.

Extant studies on tourist destination movements have focused primarily on either movements among natural attractions or those among cities (e.g., Chung et al. 2017; Leung et al., 2012; Shih, 2006); the literature has only identified the movement patterns among popular natural wonders such as 'Grand Canyon - Yellow Stone - Niagara Falls' or those among major cities such as 'San Francisco - Los Angeles - Las Vegas'. However, little effort has been made to study places to visit that include both natural attractions outside city centers and cities yet. As both nature and man-made resources are considered as main types of tourist destination (Gallarza et al., 2002), neither natural attractions outside city centers nor cities alone are sufficient to represent places to visit in the tourism industry. Therefore, we believe that analyzing Chinese FITs' movements among places to visit including both cities and natural attractions outside city centers may provide critical insights into finding some hidden patterns that would not have been detected if this study had not been undertaken. Moreover, this attempt may help explore how individual travelers are moving around during the trip, and thus predict their next destinations in a more detailed and comprehensive manner.

Our research question therefore is, "What destinations (including both cities and natural attractions outside city centers) are more popular and central than others for Chinese FITs when they visit the U.S.?" By answering this question, we aim to better understand the unique preferences and hidden patterns in terms of the movement of Chinese FITs.

For example, Chinese FITs may have different sequences and preferences in choosing what to see within each city, while natural attractions outside city centers are on their must-see bucket lists, as in the case of other travelers (Law, 2019). Therefore, a typical tourist movement of a Chinese FIT would probably be like 'San Francisco (city) - Los Angeles (city) - Las Vegas (city) - Grand Canyon (natural attraction outside city centers)'.

Ⅱ. Theoretical Background

2.1. Free Independent Travelers with Smart Services

Travel arrangements are commonly categorized into package and non-package travels (Morrison et al., 1994). Morrision et al. (1994) stated that package travel makes travel easier to manage and more convenient as travel guides (or escorts services), transportations, and accommodations are pre-arranged throughout the trip. However, their travel itineraries are fixed and thus tourist destination movements usually remain the same even among different groups of tourists.

On the other hand, non-package travelers attempt to plan their personal travel itineraries and seek unique experiences that package travel fails to provide (Li et al., 2018). Free independent travelers (FITs) are one representative example of non-package travelers who do not follow the rigid travel schedule made by the agency, so that they experience local culture and explore tourist attractions in a more flexible way. Esser (2019) argued that today's smart FITs are familiar with using smart services, including UGCs and online reviews for attractions, accommodations, transportations, and even restaurants on mobile apps which can help access the travel information that suit their preferences. They are also very familiar with the use of smart travel assistants with an artificial intelligence (AI) technology which can assist them through their whole journey (Esser, 2019).

Smart services are the key element of information systems that are capable of providing more relevant information and supporting decision making process (Gretzel et al., 2015). More recently, AI-embedded smart devices (e.g., smartphone and tablet PC) and IT artifacts also contribute to the development of smart services (Kabadayi et al., 2019). Smart services therefore have been applied to various industries, such as healthcare, transportation, agri-business, tourism, and even smart city development (e.g., Alt et al., 2019; Hunter et al., 2015; Khan and Ismail, 2018; Kogan and Lee, 2014; Koo et al., 2016; Piro et al., 2014). As to the application of smart services in the tourism and hospitality industry in particular, most previous research has focused on their conceptual development and the construction of ecosystems (Brandt et al., 2017). Recently, the experience of smart services has raised some attention; to name a few, smart services are applied to service robots, serving as chef and butler (available at Marriott and Hilton), smart rooms with personalized itinerary (available at Starwood Hotel), and smart dining that provides virtual cashers and automatic pickup systems for food (available at many restaurant chains) (Kabadayi et al., 2019). However, smart services have rarely been studied under the context of tourist destination movements although they have been frequently applied to facilitate travelers' movements these days.

With regard to the study of tourist destination movement, there are a few recognizable attempts among previous research. For example, Gherasim

(2012) investigated the tourist movements of Romanians for a better rural tourist development. Lee and Kim (2018) focused on international tourists who visit South Korea with the purpose of shopping and explored their movement patterns. We however found that there are few attempts to focus specifically on the tourist destination movements in the era when they are supported by smart services. Regarding the movements of Chinese outbound travelers who frequently use smart services, despite the fact that Yang et al. (2009) found that Chinese travelers prefer package travel when traveling to the U.S. due to the lack of information available and the language problem, we argue that a decade after Yang et al. (2009)'s study, the movements of Chinese FITs, which have become a major portion of Chinese outbound travelers, have rarely been further explored. More specifically, how they move during the trip with the aid of smart services has been less tackled.

2.2. Social Network Analysis and Tourist Destination Movements

As proved by many researchers, social network analysis (SNA) in tourism makes it possible to find the central or the hub cities where visitors mostly visit as well as the movement patterns with other cities (Chung et al., 2017). However, previous studies have explored the movements of travelers only at the limited destination basis, failing to analyze it in a more detailed and comprehensive way. To name a few, Leung et al. (2012) examined the movements of international visitors in Beijing after 2008 Beijing Olympics at the natural attraction level. Shih (2006) and Hwang et al. (2006) explored the tourist network at the city level in Taiwan and the U.S., respectively. Mansfeld (1990) examined the international tourist flows at the country level. However, to the best of our knowledge, a comprehensive study of tourist destination movements considering both cities and natural attractions outside city centers has not been attempted.

This study therefore intends to fill this research gap and focus on both natural attractions outside city centers and cities, as many FITs choose not only major cities to visit, but also famous or interesting natural wonders outside cities to explore. Moreover, it is especially the case for the U.S. where a large number of natural attractions are generally located far away from major cities. By comparison, most places to visit in Europe are located inside or close to the cities in the form of man-made marvels, such as Eiffel Tower in Paris, Colosseum in Rome, and Acropolis and Parthenon in Greece. That is, we believe that by exploring Chinese FITs' tourist movements among places to visit including both natural attractions outside city centers and cities in the U.S., this study can provide valuable implications for smart service development in the tourism and hospitality industry.

Ⅲ. Research Methodology

3.1. Data Source and Data Sampling

This study focuses on Chinese outbound FITs for the following two major reasons. First, they rely more on smart services embedded in mobile apps, compared to Western travelers. As China becomes the powerhouse of smartphones, Chinese are jumping straight to mobile apps and AI-facilitated smart devices; thus, the number of smart service users in China almost doubles the population of the U.S. and becomes approximately equals to that of Europe (Lewis, 2017). On the contrary, Western travelers

are relatively less comfortable and more uncertain about searching travel routes or booking accommodations using smart services (Gulliver, 2016). We therefore believe that Chinese outbound FITs have more 'smart' characteristics facilitated by the use of smart services than Western travelers.

Second, Chinese FITs are the representative of other Asian (e.g., Korean and Japanese) travelers as they are on the unstoppable rise of growth compared to other Asian travelers. It is estimated that Chinese travelers have already made 180 million outbound trips in 2019 (Arlt, 2019), which almost triples the total number of outbound trips of Korean (30 millions) and Japanese (35.5 millions) combined in 2019 (Lee, 2019). Internationally speaking, Chinese FITs were the third largest group among all groups in the world in 2015, but will be likely to be the largest in 2021 (U.S. Travel Association, 2015). Therefore, the huge number of tourists enables China to be the most representative country among Asian countries. Hence, learning the movement patterns of Chinese FITs can be meaningful for the future development of tourism, providing valuable practical implications.

This study collected data from Qyer.com, which is the first and the largest online travel community for Chinese outbound FITs. A total of 122 recommendations of U.S. travel routes were posted by Chinese FITs based on their experiences on Qyer.com in the year of 2018, indicating the group of destinations with the specific order of visits, such as 'San Francisco (city) - Yosemite National Park (natural attraction outside city centers) - Monterey (city) - Los Angeles (city)'. Finally, a total of 110 places to visit were extracted from 122 travel routes recommendations. <Table 1> shows the top 20 U.S. places to visit (i.e., cities and natural attractions outside city centers) Chinese FITs had recommended in 2018.

3.2. Social Network Analysis

SNA is the most appropriate research method for exploring the movement patterns of Chinese FITs in the U.S. as it makes the examination of tourist destination movements possible by identifying structures inside networks on the base of components' (tourist destinations') relationships (Rogers and

<Table 1> Chinese FITs' Top 20 Places to Visit in the U.S. in 2018

Rank	Places to Visit	C or A*	F**	Rank	Places to Visit	C or A	F
1	New York City	C (major)	83	11	Yellowstone	A	27
2	Washington D.C.	C (major)	71	12	Yosemite	A	22
3	Niagara Falls	A	63	13	Page	C (tourist-related)	21
4	Boston	C (major)	59	14	Antelope Canyon	A	20
5	Los Angeles	C (major)	58	15	San Diego	C (major)	20
6	San Francisco	C (major)	56	16	Horseshoe Bend	A	19
7	Philadelphia	C (major)	54	17	Monterey	C (tourist-related)	19
8	Las Vegas	C (major)	46	18	Chicago	C (major)	18
9	Grand Canyon	A	39	19	Santa Barbara	C (tourist-related)	17
10	Buffalo	C (major)	32	20	Big Sur	A	16

Note: * C represents the city, while A represents the natural attraction outside city centers; ** F stands for frequency.

Kincaid, 1981). Tourist destinations and their relationships are presented in the social network; the nodes in the network indicate places to visit in the U.S., while links specify the movements of Chinese FITs.

Places to visit or tourist destinations are considered as the nodes of SNA in this research, and both natural attractions outside city centers and cities are included in places to visit for the following two reasons. First, based on the classification of Middleton and Hawkins (1998), both natural attractions and man-made attractions are sub-categories of destination attractions, which has been further validated by Gallarza et al. (2002). We therefore believe that a package of both natural attractions outside city centers and cities (as man-made attractions) can be used to represent places to visit as two major tangible components in SNA. Second, even under the same cultural background, FITs still have their differences in where they want to go and see inside cities based on their travel preferences, needs, and limitations (Walter and Tong, 1977). However, in the case of the U.S., natural attractions outside city centers are usually on most tourists' must-see bucket lists, which is also proved by the fact that Chinese tourism boom has been extended to many natural attractions far away from cities in the U.S. (Jones, 2015; Law, 2019).

In order to analyze tourist destination movements, we used UCINET 6, the best-known and most popular software program to calculate key centrality-related measurements (i.e., degree, eigenvector, and betweenness centralities) in SNA (Otte and Rousseau, 2002). Using UCINET 6, we also visualized this network and segmented it into several sub-groups with the cluster diagram method. <Table 2> presents different types of measurements and their definitions regarding centrality.

For clustering, we conducted the quadratic assignment procedure (QAP) correlation of coefficients and regression to evaluate the strength of the relationship among networks (Krackhardt, 1987). The advantage of the QAP correlation is that it can provide a direct test of similarity between two matrices with taking advantage of all dyadic information represented in each matrix and compare each dyadic cell in a network with the corresponding cell in another network (Nam, 2015). Further, the QAP regression method can also test which network as a predictor has an effect on a certain network without parametric assumptions (Barnett et al., 2016).

Ⅳ. Data Analysis and Results

4.1. Network Structure: Degree Centrality

<Table 3> presents the results of calculation of degree centrality for the top 20 out of 110 places

<Table 2> Conceptual and Operational Definitions of Measurements

Measurement	Conceptual Definition	Operational Definition	References
Degree Centrality	the central point based on many direct contacts with other points	the number of co-visitors between two cities	Nam and Barnett (2011); Scott (2000)
Eigenvector Centrality	an ideal measure for those networks in which the tie strength between actors	the number of cities that are linked specifically with the central cities	Barnett et al. (1993); Nam (2015); Nam et al. (2014)
Betweenness Centrality	to the "share" of the shortest paths in a network that pass through a certain node	the number of cities that are co-linked specifically with two other cities	Borgatti and Halgin (2011)

<Table 3> Top 20 Places to Visit in Terms of Degree Centrality

Rank	Places to Visit	C or A	Degree 1	Degree 2
1	Los Angeles	C (major)	677	0.087
2	San Francisco	C (major)	660	0.085
3	New York City	C (major)	605	0.077
4	Las Vegas	C (major)	596	0.076
5	Grand Canyon	A (national park)	583	0.075
6	Washington D.C.	C (major)	508	0.065
7	Niagara Falls	A (state park)	500	0.064
8	Boston	C (major)	445	0.057
9	Yellowstone	A (national park)	443	0.057
10	Page	C (tourist-related)	404	0.052
11	Philadelphia	C (major)	379	0.049
12	Antelope Canyon	A (neither national nor state park)	371	0.048
13	Horseshoe Bend	A (neither national nor state park)	359	0.046
14	Yosemite	A (national park)	346	0.044
15	Monterey	C (tourist-related)	342	0.044
16	Grand Teton	A (national park)	325	0.042
17	Big Sur	A (tourist-related region)	320	0.041
18	Salt Lake City	C (major)	298	0.038
19	Moab	C (tourist-related)	293	0.038
20	San Diego	C (major)	282	0.036

to visit in 2018. Degree centrality shows the number of co-hyperlinked cities that a city or an attraction shares with other destinations (Chung et al., 2017). <Table 3> indicates that Los Angeles had the highest degree centrality score (677, 0.087), followed by San Francisco (660, 0.085), New York City (NYC) (605, 0.077), and Las Vegas (596, 0.076). In addition, only five out of 20 places to visit belong to the East, namely NYC, Washington D.C., Niagara Falls, Boston, and Philadelphia and the rest (75 percent) belong to the West. That is, when Chinese FITs visit the eastern destinations in the U.S., they mainly prefer to co-visit NYC, Washington D.C., Philadelphia, Boston, and Niagara Falls, while their choices in western destinations are more varied in general, including not only major cities (e.g., Los Angeles and San Francisco) and national parks (e.g., Grand Canyon and Yellowstone), but also interestingly some tourist-related small cities that rarely been explored by package travelers (e.g., Page and Moab) and even some natural attractions which are neither national nor state parks (e.g., Antelope Canyon and Horseshoe Bend), having gained popularity in recently years in China due to the influence of social media.

4.2. Network Structure: Eigenvector Centrality

Interestingly, the results of calculation of eigenvector centrality are much different to those of degree centrality. <Table 4> indicates that NYC had

<Table 4> Top 20 Places to Visit in Terms of Eigenvector Centrality

Rank	Places to Visit	C or A	Eigenvector
1	New York City	C (major)	0.356
2	Washington D.C.	C (major)	0.310
3	Los Angeles	C (major)	0.295
4	Niagara Falls	A (state park)	0.290
5	San Francisco	C (major)	0.286
6	Boston	C (major)	0.267
7	Las Vegas	C (major)	0.248
8	Grand Canyon	A (national park)	0.234
9	Philadelphia	C (major)	0.234
10	Yellowstone	A (national park)	0.169
11	Page	C (tourist-related)	0.140
12	Buffalo	C (major)	0.139
13	Yosemite	A (national park)	0.137
14	Antelope Canyon	A (neither national nor state park)	0.133
15	Horseshoe Bend	A (neither national nor state park)	0.129
16	Monterey	C (tourist-related)	0.124
17	Grand Teton	A (national park)	0.112
18	Salt Lake City	C (major)	0.110
19	San Diego	C (major)	0.109
20	Big Sur	A (tourist-related region)	0.108

the highest eigenvector centrality (0.356), followed by Washington D.C. (0.31), Los Angeles (0.295), and Niagara Falls (0.29). NYC moved up to the top of rankings as its links to Washington D.C. and Niagara Falls made NYC the most influential city. Moreover, the top two destinations (i.e., NYC and Washington D.C.) are all eastern cities geographically close to each other, implying that, compared to the relatively high frequency of visits, there are not many places to visit in the eastern part of the U.S.

4.3. Network Structure: Betweenness Centrality

<Table 5> presents the results of calculation of betweenness centrality for the top 20 out of 110 places to visit in 2018. It indicates that NYC had the highest betweenness centrality score (360.391, 6.012), followed by Niagara Falls (303.709, 5.066), Los Angeles (244.316, 4.075), Washington D.C. (220.768, 3.683), and Boston (215.379, 3.593). As betweenness centrality represents the number of shortest paths that pass through a certain node (Chung et al., 2017), it is found that Chinese FITs were most dependent on NYC in the East and Los Angeles in the West. It is plausible that Niagara Falls played a connecting role between places to visit in the Eastern part of the U.S. and those in Canada.

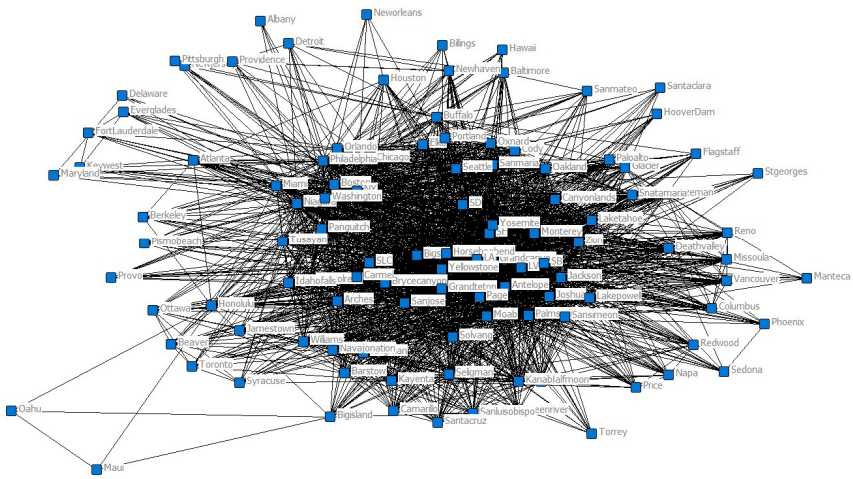
<Table 5> Top 20 Places to Visit in Terms of Betweenness Centrality

Rank	Places to Visit	C or A	Betweenness 1	Betweenness 2
1	New York City	C (major)	360.391	6.012
2	Niagara Falls	A (state park)	303.709	5.066
3	Los Angeles	C (major)	244.316	4.075
4	Washington D.C.	C (major)	220.768	3.683
5	Boston	C (major)	215.379	3.593
6	Las Vegas	C (major)	209.102	3.488
7	San Francisco	C (major)	192.824	3.216
8	Philadelphia	C (major)	176.688	2.947
9	Grand Canyon	A (national park)	161.226	2.689
10	Honolulu	C (tourist-related)	138.003	2.302
11	Yellowstone	A (national park)	132.547	2.211
12	Page	C (tourist-related)	117.711	1.963
13	Grand Teton	A (national park)	112.864	1.883
14	Antelope Canyon	A (neither national nor state park)	105.400	1.758
15	Horseshoe bend	A (neither national nor state park)	96.089	1.603
16	Moab	C (tourist-related)	84.583	1.411
17	Big Sur	A (tourist-related region)	80.559	1.344
18	Big Island	A (tourist-related region)	79.699	1.329
19	Santa Barbara	C (tourist-related)	76.267	1.272
20	Yosemite	A (national park)	75.887	1.266

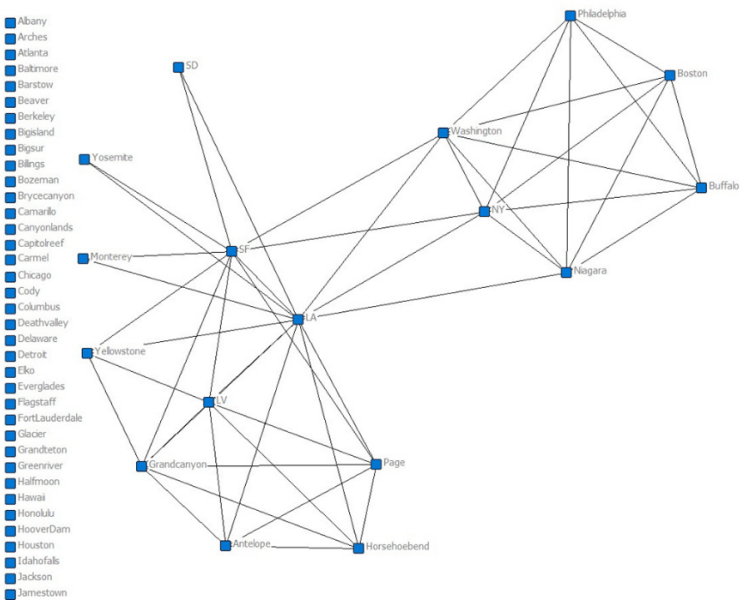
4.4. Network Visualizations

Hubs (i.e., central destinations) and multi-clusters co-existed in a multi-layered network can be shown in the network visualization of <Figure 1>. Cohesive sub-groups, which are loosely connected by destinations with a high score of betweenness centrality, are also briefly shown in this visualized network. More detailed sub-groups can be segmented by applying cluster analysis and shown in the form of cluster diagram (Lee et al., 2018).

We further visualized the network including only places to visit with more than 15 connections for simplification, and the network is illustrated in <Figure 2>. Based on this graph, the following three remarkable features are found. First, both tourist destinations in the West and the East were co-visited by Chinese FITs in 2018, indicating that a considerable portion of Chinese FITs travel across the Eastern and the Western part of the U.S. on their single trip. Second, most frequently and influentially linked places to visit (i.e., tourist destinations with a high score of centrality) in the East included five cities (i.e., NYC, Washington D.C., Boston, Philadelphia, and Buffalo) and one natural attraction (i.e., Niagara Falls). Third, as for places to visit in the West, six cities (i.e., Los Anglos, San Francisco, Las Vegas, San Diego, Monterey, and Page) and five natural attractions (i.e., Grand Canyon National Park, Yellow Stone National Park, Yosemite National Park,



<Figure 1> Places to Visit Network for Chinese FITs



<Figure 2> Simplified Places to Visit Network for Chinese FITs (Using Destinations with More Than 15 Connections only)

Horseshoe Bend, and Antelope Canyon) were included.

4.5. Network Structure: Cluster Diagram

<Table 6> to Table 12 show cluster diagrams of places to visit using the convergence of iterated correlation (CONCOR) algorithm for structure equivalence, proposed by Wasserman and Faust (1994). CONCOR can be used as a proximity measurement tool to build approximate structural equivalence between nodes by measuring the extent to which they

belong to identical columns (Breiger et al., 1975). A total of 110 places to visit were merged into seven uniform clusters by UCINET 6, and the places to visit that have similar characteristics in the network were tied together. To be specific, places to visit in Cluster 1 are mostly located in northeastern states, such as New York, Massachusetts, Connecticut, Pennsylvania, New Jersey, Maryland, and Delaware, and the majority of destinations were cities (see <Table 6>).

The places to visit in Cluster 2 are mostly located in southeastern states, such as Florida and Georgia (see <Table 7>).

Cluster 3 includes only three cities, which are Berkeley in California, and Mauri and Oahu in Hawaii (see <Table 8>).

Cluster 4 includes 37 cities and natural attractions, the majority of which are tourist related small- or medium-sized cities (e.g., Page and Tusayan) and natural attractions (e.g., Zion National Park and

<Table 6> Cluster 1 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A	No.	Places to Visit	State	C or A
1	Albany	NY	C	24	Delaware	DE	C
15	Buffalo	NY	C	92	San Mateo	CA	C
64	New Orleans	LA	C	81	Providence	RI	C
59	New York City	NY	C	53	Maryland	MD	C
5	Baltimore	MD	C	107	Washington D.C.	DC	C
12	Boston	MA	C	77	Pismo Beach	CA	A
62	New Haven	CT	C	78	Pittsburgh	PA	C
63	New Jersey	NJ	C	25	Detroit	MI	C
75	Philadelphia	PA	C	20	Chicago	IL	C
65	Niagara Falls	NY	A	94	Santa Clara	CA	C

<Table 7> Cluster 2 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A	No.	Places to Visit	State	C or A
46	Key West	FL	C	35	Honolulu	HI	C
29	Fort Lauderdale	FL	C	39	Houston	TX	C
55	Miami	FL	C	11	Billings	MO	C
27	Everglades	FL	C	68	Orlando	FL	C
4	Atlanta	GA	C				

<Table 8> Cluster 3 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A
8	Berkeley	CA	C
54	Maui	HI	C
66	Oahu	HI	C

Joshua Tree National Park) located in western states, such as California, Utah, and Arizona (see <Table 9>).

<Table 10> shows 22 places to visit in Cluster 5, including not only major cities, such as Los Angeles and Las Vegas, but also some of the most popular natural attractions located in western part of the U.S., such as Grand Canyon National Park and Yellowstone National Park.

<Table 9> Cluster 4 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A	No.	Places to Visit	State	C or A
18	Capitol Reef National Park	UT	A	3	Arches National Park	UT	A
19	Carmel Valley	CA	A	74	Panguitch	UT	C
61	Navajo Nation	AZ	A	41	Jackson	WY	C
57	Moab	UT	C	88	Salt Lake City	UT	C
58	Monterey	CA	C	56	Missoula	MT	C
38	Horseshoe Bend	AZ	A	84	Reno	NY	C
33	Green River	UT	A	110	Zion National Park	UT	A
17	Canyonlands National Park	UT	A	32	Grand Teton National Park	WY	A
71	Page	AZ	C	14	Bryce Canyon	UT	A
42	Jamestown	CA	C	40	Idaho Falls	ID	A
43	Joshua Tree	CA	A	67	Oakland	CA	C
99	Santa Maria	CA	C	91	San Maria	CA	C
72	Palm Springs	CA	A	22	Columbus	MT	C
89	San Jose	CA	C	10	Big Sur	CA	A
2	Antelope Canyon	AZ	A	105	Tusayan	AZ	C
21	Cody	WY	C	106	Vancouver	WA	C
26	Elko	NV	C	93	San Simeon	CA	C
50	Lake Powell	AZ	A	70	Oxnard	CA	C
51	Lake Tahoe	CA	A				

<Table 10> Cluster 5 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A	No.	Places to Visit	State	C or A
96	Seattle	WA	C	82	Provo	UT	C
31	Grand Canyon	AZ	A	9	Big island	HI	A
87	San Francisco	CA	C	97	Sedona	AZ	C
49	Las Vegas	NV	C	85	Santa Barbara	CA	C
48	Los Angeles	CA	C	37	Hoover Dam	NV	A
28	Flagstaff	AZ	C	23	Death Valley	CA	A
76	Phoenix	AZ	C	13	Bozeman	MT	C
100	Solvang	CA	C	30	Glacier National Park	MT	A
73	Palo Alto	CA	C	109	Yellowstone	WY	A
86	San Diego	CA	C	36	Honolulu	HI	C
52	Manteca	CA	C	79	Portland	OR	C

<Table 11> shows 13 places to visit in Cluster 6, which are mostly small towns, located on the way to some major natural attractions, or at the connections between popular natural attractions and major cities. For example, Williams and Kingman are small towns located between Grand Canyon National Park and the west major cities, such as Phoenix, Las Vegas, and Los Angeles.

Cluster 7 has six cities, including Canadian cities, and others are less known and less visited small towns located in the northeastern part of the U.S., which is close to Toronto and Ottawa. These places are considered as less visited locations when Chinese FITs visit the U.S.

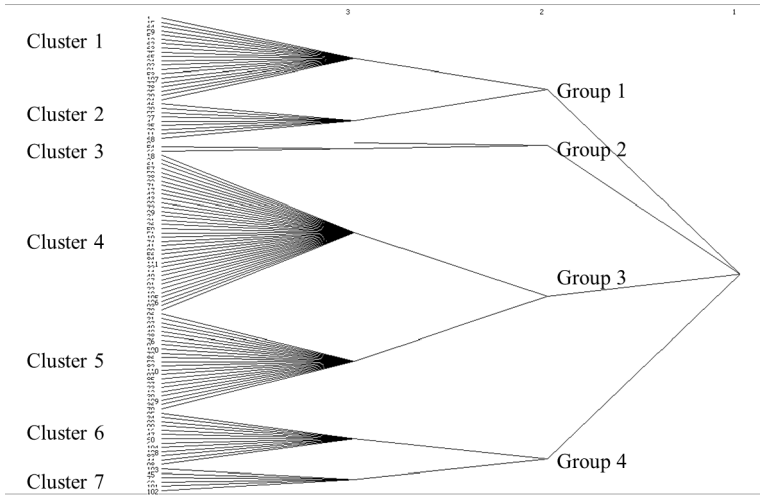
We further merged these 7 clusters into 4 groups, as shown in <Figure 3>. Cluster 1 and 2 are combined

<Table 11> Cluster 6 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A	No.	Places to Visit	State	C or A
95	Santa Cruz	CA	C	6	Barstow	CA	C
34	Half Moon Bay	CA	A	104	Torrey	UT	C
80	Price	UT	C	108	Williams	AZ	C
90	San Luis Obispo	CA	C	83	Redwood	CA	C
16	Camarillo	CA	C	44	Kanab	UT	C
47	Kingman	AZ	C	98	Seligman	AZ	C
60	Napa	CA	C				

<Table 12> Cluster 7 as a Result of Cluster Analysis

No.	Places to Visit	State	C or A	No.	Places to Visit	State	C or A
103	Toronto	Canada	C	69	Ottawa	Canada	C
45	Kayenta	AZ	C	101	St Georges	FL	C
7	Beaver	PA	C	102	Syracuse	NY	C



<Figure 3> Four Groups of Places to Visit: Cluster Diagram

into Group1, which can be categorized as the *East Group*. Cluster 3 remains independently and is considered as Group 2, representing the *Hawaii Group*. Group 3 encompasses Cluster 4 and Cluster 5, which can be considered as the *West Group*, as major cities in the West (e.g., Los Angeles and Las Vegas), some of the most popular natural attractions away from cities in the West (e.g., Grand Canyon National Park), and tourist related small- or medium-sized cities are included. Group 4 comprises Cluster 6 and Cluster 7, which can be named as the *Minor City Group*, as mostly the less known or less visited destinations are categorized into this group.

Ⅴ. Discussion

Applying SNA, we explored the most current movements of Chinese FITs who choose their travel routes in a smarter way with the help of diverse smart services. More specifically, based on 110 places to visit extracted from 122 travel routes recommendations on Qyer.com, most central tourist destinations (i.e., cities and natural attractions) and their relationships (i.e., movement patterns) were identified by calculating or employing degree centrality, eigenvector centrality, betweenness centrality, cluster diagram, and network visualization methods. The followings are discussions on research findings.

First, as shown in <Table 1>, it is found that NYC is the most visited destination by Chinese FITs no matter where they start their trip. The plausible reason is that many Chinese deeply believe that NYC is the most iconic representation of the U.S. Therefore, NYC is a must visit city when they travel to the U.S., which is supported by the fact that NYC is the most popular U.S. destination for Chinese FITs (China Travel News, 2015). According to <Table 5>, it is also found that the score of betweenness centrality of NYC is the highest, implying that when Chinese FITs travel around destinations in the U.S. on their single trip, NYC is used as a gateway in order to move to other domestic destinations which belongs to other sub-groups (i.e., clusters) or vice versa. Furthermore, the higher score of NYC in terms of betweenness centrality than that of Los Angeles strengthens our finding that although many Chinese FITs may start their international trips from the West (e.g., Los Angeles), they are likely to include NYC in their itinerary to fulfil their 'American dreams' (Xinhua, 2018; Zhou, 2017).

Second, based on the calculation of degree centrality, it is found that Los Angeles and San Francisco play a key role when Chinese FITs visit the U.S. According to <Table 3>, as most of co-visit destinations are located in the West, they would be the best cities for Chinese FITs to start (or finish) their itineraries in the U.S. The possible explanation would be that it is much cheaper to fly from (to) China to (from) major cities in the West (e.g., Los Angeles and San Francisco) than major cities in the East (e.g., NYC, Washington D.C.).

Third, the results of eigenvector centrality calculation in <Table 4> indicate that NYC and Washington D.C. in the East are the most two influential cities connected with each other. In addition, Niagara Falls and Boston geographically close to these two cities are found the fourth and the sixth in the ranking, respectively. Based on these results, it can be argued that, compared to the West, there are not many places to visit in the East, but, they have quite strong relationships with one another; that is, once Chinese FITs travel to the East, they are frequently visited together. On the other hand, it is found that Los Angeles and San Francisco are the most two influential cities in the West.

Fourth, we also discovered an interesting finding regarding Hawaii, which has been not only a traditionally popular honeymoon destination, but also has recently gained the reputation as a 'tropical escape' for those who believe in YOLO (You Only Live Once) and try to escape from stressful city lives in China (Yoshioka, 2018). As shown in <Table 8>, despite the low scores of Hawaiian islands (i.e., Oahu and Maui) in terms of centrality-related measurements, Hawaii turns out to be a separated cluster, indicating that there is a considerable group of Chinese FITs who prefer to plan their itinerary routes including Hawaii and destinations in the West (e.g., Berkley in California).

Lastly, as the result of cluster diagram analysis, the four groups (i.e., East, Hawaii, West, and Minor City Groups) are identified. As illustrated in <Figure 3>, cities and natural attractions outside city centers that share similar characteristics depending on their roles and functions are demonstrated across the whole network. It can be explained that the travel destination movements of Chinese FITs can be broadly divided into the U.S. Mainland and Hawaii. Then, the U.S. Mainland can be further divided into the East and the West Groups. Interestingly, the Minor City Group, including the less known or less visited destinations, is also identified as an independent sub-group. With the increasing number of Chinese FITs traveling to the U.S., it seems that the number of FITs who have visited relatively unknown places has also increased.

Ⅵ. Implications and Conclusion

This study has the following theoretical implications. First, this study attempts to broaden the research subject of tourist destination movement by considering both natural attractions outside city centers and cities at the same time. Even though cities and natural attractions have been examined in a separate manner in previous studies, a comprehensive study combining both elements have not been conducted. As one of the pioneer studies to explore both cities and natural attractions outside city centers as places to visit, the identification and exploration of these two components can be the key theoretical contribution, and thus it could shed some light on the body of knowledge on tourist destination movement research.

Second, this study contributes to the prediction of travel destinations in a more detailed and comprehensive manner. Although several attempts have been made by previous literature, a prediction attempt in the context of smart services has been less tackled. We therefore focused on a smart service provided by a major online travel community (i.e., Qyer's travel routes recommendations) and tried to better explore how individual travelers are moving around during the trip, and predict their next destinations compared to traditional package travel.

Third, this study introduces Chinese FITs as a newly emerging type of Chinese outbound travelers in the context of travel to the U.S. Instead of focusing on traditional package travel that has been examined in most extant studies, we emphasized the movement of Chines FITs. Although FITs have recently become popular for Chinese outbound travelers, traveling to the U.S. as a FIT is still a relatively new concept as travel visas to the U.S. are not easily granted to individual Chinese until the issue of '10-year multiple-entry visas' recently. Therefore, the investigation of Chinese FITs, especially in the context of travel to the U.S. may add one more layer to the literature of Chinese outbound travelers.

This study also has practical implications for multiple groups of audience. First, our findings of tourist

destination movements are able to provide various information to improve the level of smart services, as a deep understanding of the patterns of tourist destination movements can help analyze tourists' individual behaviors and grasp the characteristics of the most attractive and popular places to visit (Li et al., 2008). As a result, smart service managers of online travel community, such as Qyer.com, can benefit from our research by accessing to richer information from Chinese FITs, and thus are capable of providing users with a variety of smart services, which leads to competitive advantages against other competing online travel platforms. Mobile apps with smart travel assistants should also be encouraged to be developed with the aid of AI technologies and other advanced algorithms in order to better interact with users. For example, a chatbot function can be popped up to interact with users regarding the travel routes in which they are interested.

Second, online travel website designers can use our findings to better scheme their postings on websites with more obvious and noticeable signs of travel routes. For example, some more eye-catchy design effects or moving graphics interchange formats (GIFs) can be applied to the postings with text descriptions for users to check recommender's movements in an easier manner and plan their own itineraries. Moreover, more incentives can be provided to encourage more users to post their own travel destination movements. For instance, awards of 'the most popular travel route design' can be given among community members using community coins, and votes for 'the easiest travel routes recommendation to follow' can also be initiated to increase the enthusiastic fervor of users to join and actively participate in the events of the online travel communities.

Third, this study can also contribute to smart tourism development; less congested, better designed, and smarter transportations and services can be provided by using the discovered tourist destination movements. We found some patterns and references of Chinese FITs, which are less known before. For instance, they can be interested in some tourist-related small cities that rarely been explored by package travelers (e.g., Page and Moab) and even some natural attractions which are neither national nor state parks (e.g., Antelope Canyon and Horseshoe Bend). Therefore, some traffic signs in Chinese language can be highlighted on the highways for a better guidance for Chinese FITs, more parking spaces can be provided, and more smart travel assistant services with Chinese voice recognition technology and chats can be installed to support their travels and improving their travel experiences (Esser, 2019).

Despite implications for both practice and academia, this study has the following three limitations. To start with, different interests/patterns of Chinese FITs are not included in this study due to lack of data availability. That is, determinants of Chinese FITs' travel decision could not be examined to see how individuals' characteristics in various groups influence travel decisions. To be specific, in our research context, providing detailed personal information was not a mandatory requirement for posting travel routes on Qyer.com. Therefore, most profiles of Chinese FITs on Qyer.com had very limited information or was left totally blank. Even from a few profiles filled with personal information of Chinese FITs, we could not find critical determinants that can be used for travel decision making. Therefore, future studies should take one more step to investigate determinants of travel decisions across various groups within Chinese outbound FITs. Second, this study focuses primarily on the exploration of tourist destination movement patterns, and empirical verification has not been conducted. Future research can provide

reasons for why the movement patterns are formed and further empirically verify the relationships with plausible explanations. Third, we only collected data from Chinese FITs through the travel routes recommendations, a smart service provided by one Chinese online travel community. Thus, it may be difficult to generalize our findings to other online travel communities, tourist origin countries, and smart service providers. Therefore, the tourist destination movement that we found can be tested in other travel communities, tourist origin countries, and smart service providers to increase the objective and external validity.

Disclosure statement

No potential conflict of interest was reported by the authors.

Acknowledgements

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2017S1A5B8059804).

<References>

[1] Alt, R., Demirkan, H., Ehmke, J. F., Moen, A., and Winter, A. (2019). Smart services: The move to customer orientation. *Electronic Markets, 29*(1), 1-6.

[2] Arlt, W. G. (2019). *180 million Chinese outbound trips in 2019*. Retrieved from https://china-outbound.com/editorial-2019-forecast/ Accessed on 24 June 2019.

[3] Barnett, G. A., Danowski, J. A., and Richards, W. D. (1993). Communication networks and network analysis: A current assessment. *Progress in Communication Science, 12*, 1-19.

[4] Barnett, G. A., Lee, M., Jiang, K., and Park, H. W. (2016). The flow of international students from a macro perspective: A network analysis. *Compare: A Journal of Comparative and International Education, 46*(4), 533-559.

[5] Borgatti, S. P., and Halgin, D. S. (2011). Analyzing affiliation networks. *The Sage Handbook of Social Network Analysis, 1*, 417-433.

[6] Brandt, T., Bendler, J., and Neumann, D. (2017). Social media analytics and value creation in urban smart tourism ecosystems. *Information & Management, 54*(6), 703-713.

[7] Breiger, R. L., Boorman, S. A., and Arabie, P. (1975). An algorithm for clustering relational data with applications to social network analysis and comparison with multidimensional scaling. *Journal of Mathematical Psychology, 12*(3), 328-383.

[8] China Travel News (2015). *New York City the top US destination for Chinese visitors*. Retrieved from https://www.chinatravelnews.com/article/93999/ Accessed on 23 January 2019.

[9] Chung, H. C., Chung, N., and Nam, Y. (2017). A social network analysis of tourist movement patterns in blogs: Korean backpackers in Europe. *Sustainability, 9*(12), 2251.

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

[11] Esser, J. (2019). *AI in travel booking and management - How smart travel assistants disrupt travel distribution*. Retrieved from https://www.rolandberger.com/nl/Point-of-View/Smart-Travel-Assistants-%E2%80%93-The-new-gateway-for-travel.html/ Accessed on 7 March 2019.

[12] Gallarza, M. G., Saura, I. G., and Garćia, H. C. (2002). Destination image: Towards a conceptual framework. *Annals of Tourism Research, 29*(1), 56-78.

[13] Gherasim, D. (2012). Rural tourism in Romania. *Economy Transdisciplinarity Cognition, 15*(1), 279.

[14] Gretzel, U., Sigala, M., Xiang, Z., and Koo, C. (2015).

Smart tourism: Foundations and developments. *Electronic Markets, 25*(3), 179-188.

[15] Gulliver, B. R. (2016). *Travellers are still unsure about booking trips on their smartphones*. Retrieved from https://www.economist.com/gulliver/2016/09/20/travellers-are-still-unsure-about-booking-trips-on-their-smartphones/Accessed on 25 June 2019.

[16] Hunter, W. C., Chung, N., Gretzel, U., and Koo, C. (2015). Constructivist research in smart tourism. *Asia Pacific Journal of Information Systems, 25*(1), 105-120.

[17] Hwang, Y. H., Gretzel, U., and Fesenmaier, D. R. (2006). Multicity trip patterns: Tourists to the United States. *Annals of Tourism Research, 33*(4), 1057-1078.

[18] Jones, T. (2015) *Chinese tourism boom extends to Grand Canyon*. Retrieved from https://explorethecanyon.com/chinese-tourism-boom-extends-to-grand-canyon/Accessed on 6 March 2019.

[19] Kabadayi, S., Ali, F., Choi, H., Joosten, H., and Lu, C. (2019). Smart service experience in hospitality and tourism services: A conceptualization and future research agenda. *Journal of Service Management*. Online Publication.

[20] Khan, S. F., and Ismail, M. Y. (2018). An investigation into the challenges and opportunities associated with the application of Internet of Things (IoT) in the agricultural sector-A review. *Journal of Computer Science, 14*(2), 132-143.

[21] Kogan, N., and Lee, K. J. (2014). Exploratory research on success factors and challenges of Smart City Projects. *Asia Pacific Journal of Information Systems, 24*(2), 141-189.

[22] Koo, C., Shin, S., Gretzel, U., Hunter, W. C., and Chung, N. (2016). Conceptualization of smart tourism destination competitiveness. *Asia Pacific Journal of Information Systems, 26*(4), 561-576.

[23] Krackhardt, D. (1987) QAP partialling as a test of spuriousness. *Social Networks, 9*(2), 171-186.

[24] Law, L. (2019). *15 Best places to visit in the United States*. Retrieved from https://www.planetware.com/usa/best-places-to-visit-in-the-united-states-us-ny-21.htm/Accessed on 5 March 2019.

[25] Lee, H., Chung, N., and Nam, Y. (2018). Do online information sources really make tourists visit more diverse places? Based on the social networking analysis. *Information Processing & Management*. Online Published.

[26] Lee, Y. (2019). *Why are so many South Korean travel agencies closing?* Retrieved from https://skift.com/2019/01/14/why-are-so-many-south-korean-travel-agencies-closing/Accessed on 21 June 2019.

[27] Lee, Y., and Kim, I. (2018). Change and stability in shopping tourist destination networks: The case of Seoul in Korea. *Journal of Destination Marketing & Management*. Online Published.

[28] Leung, X. Y., Wang, F., Wu, B., Bai, B., Stahura, K. A., and Xie, Z. (2012). A social network analysis of overseas tourist movement patterns in Beijing: The impact of the Olympic Games. *International Journal of Tourism Research, 2012*(14), 469-484.

[29] Lewis, C. (2017). *How China surged ahead in mobile – and what the West can learn*. Retrieved from https://www.marketingweek.com/2017/01/31/china-mobile-commerce/ Accessed on 21 June 2019.

[30] Li, L., Lee, K. Y., and Yang, S. B. (2018). Exploring the effect of heuristic factors on the popularity of user-curated 'Best places to visit' recommendations in an online travel community. *Information Processing & Management*. Online Published.

[31] Li, X., Meng, F., and Uysal, M. (2008). Spatial pattern of tourist flows among the Asia-Pacific countries: An examination over a decade. *Asia Pacific Journal of Tourism Research, 13*(3), 229-243.

[32] Mansfeld, Y. (1990). Spatial patterns of International tourist flows: towards a theoretical framework. *Progress in Human Geography, 14*(3), 372-390.

[33] McKercher, B., and Lew, A. A. (2004). Tourist flows and the spatial distribution of tourists. *A Companion to Tourism*, 36-48.

[34] Middleton, V. T., and Hawkins, R. (1998). *Sustainable tourism: A marketing perspective*. Routledge.

[35] Morrison, A. M., Hsieh, S., and T O'Leary, J. (1994). A comparison of the travel arrangements of international travelers from France, Germany and

the UK. *Tourism Management, 15*(6), 451-463.

[36] Nam, Y. (2015). Institutional network structure of corporate stakeholders regarding global corporate social responsibility issues. *Quality & Quantity, 49*(3), 1063-1080.

[37] Nam, Y., and Barnett, G. A. (2011). Globalization of technology: Network analysis of global patents and trademarks. *Technological Forecasting and Social Change, 78*(8), 1471-1485.

[38] Nam, Y., Barnett, G. A., and Kim, D. (2014). Corporate hyperlink network relationships in global corporate social responsibility system. *Quality & Quantity, 48*(3), 1225-1242.

[39] Otte, E., and Rousseau, R. (2002). Social network analysis: a powerful strategy, also for the information sciences. *Journal of Information Science, 28*(6), 441-453.

[40] Pearce, P. L. (1990). The *Backpacker Phenomenon: Preliminary Answers to Basic Questions*. Department of Tourism, James Cook University of North Queensland: Douglas, Australia.

[41] Piro, G., Cianci, I., Grieco, L. A., Boggia, G., and Camarda, P. (2014). Information centric services in smart cities. *Journal of Systems and Software, 88*, 169-188.

[42] Rogers, E. M., and Kincaid, D. L. (1981). *Communication networks: Toward a new paradigm for research*. The Free Press: NY, USA.

[43] Scott, J. (2000). *Social Network Analysis: A Handbook, 2nd ed*. Sage: Thousand Oaks, CA, USA.

[44] Shih, H. Y. (2006). Network characteristics of drive tourism destinations: An application of network analysis in tourism. *Tourism Management, 27*(5), 1029-1039.

[45] U.S. Travel Association (2015). *Fact sheet: International inbound travel to the U.S.* Retrieved from https://www.ustravel.org/system/files/Media%20Root/Document/Research_Fact-Sheet_International-Inbound.pdf/ Accessed on 2 February 2019.

[46] Vogt, J. W. (1976). Wandering: Youth and travel behavior. *Annals of Tourism Research, 4*(1), 25-41.

[47] Walter, C. K., and Tong, H. M. (1977). A local study of consumer vacation travel decisions. *Journal of Travel Research, 15*(4), 30-34.

[48] Wasserman, S., and Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press.

[49] Xinhua (2018). *Los Angeles welcomes record 1.1 million Chinese visitors in 2017*. Retrieved from http://www.chinadaily.com.cn/a/201801/11/WS5a56d97ba3102e5b17374304.html/Accessed on 23 December 2018.

[50] Yang, O. L. W., Hui-Min, G. U., and Ryan, C. (2009). Itinerary planning and structured travel: preferences by outbound Chinese holidaymakers. *Anatolia, 20*(1), 119-133.

[51] Yoshioka, W. (2018). *Hawaii tourism authority: chasing Chinese millennials*. Retrieved from http://www.hawaiipublicradio.org/post/hawaii-tourism-authority-chasing-chinese-millennials/ Accessed on 22 December 2018.

[52] Zhou, W. (2017). *Over 1m Chinese tourists to visit NY in 2018*. Retrieved from http://www.chinadaily.com.cn/world/2017xivisitsfinlandandus/2017-04/08/content_28841394.htm Accessed on 5 February 2019.

◆ About the Authors ◆

Lin Li

Lin Li is a Ph.D. Candidate in the School of Management at Kyung Hee University, Korea. She received her master degree in International Business from Ajou University, Korea. Her research interests include online communities, smart tourism, sharing economy, information privacy, and e-business strategies. Her research has been published in *Information Processing & Management, Asia Pacific Journal of Tourism Research*, and *KSII Transactions on Internet & Information Systems.*

Yoonjae Nam

Yoonjae Nam is an Associate Professor in the Department of Culture, Tourism & Content, Kyung Hee University, Korea. He is interested in current digital media, in general, and corporate communication, diffusion of media contents and social networks, in specific. His research has been published in *Cyberpsychology, Behavior, and Social Networking, Information Processing & Management, International Journal of Human-Computer Interaction, International Journal of Information Management, Journal of Computer-Mediated Communication, Journal of Information Technology & Politics, Sustainability, Technological Forecasting and Social Change*, and many other journals.

Sung-Byung Yang

Sung-Byung Yang is an Associate Professor in the School of Management at Kyung Hee University, Korea. He received his Ph.D. from KAIST. He was a research fellow in the Desautels Faculty of Management at McGill University. His research interests include intelligent systems, smart tourism, online reviews, sharing economy, and customer relationship management. His research has been published in *MIS Quarterly, Information Systems Research, Tourism Management, Computers in Human Behavior, Electronic Markets, Information & Management, Internet Research, International Journal of Information Management,* and many other journals.

Submitted: March 15, 2019; 1st Revision: July 6, 2019; 2st Revision: August 22, 2019; Accepted: August 27, 2019