Smart Tourism: A Study of Mobile Application Use by Tourists Visiting South Korea

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Abstract

The purpose of this exploratory study is to identify the mobile phone applications (apps) used by foreign tourists visiting South Korea through a pilot study using focus groups and individual interviews. Concentrating on tourist mobile app use in a smart tourism environment and categorized through a taxonomy of mobile applications lays the framework and determines the factors boosting tourism smartphone app trends by foreign tourists visiting South Korea. Researchers collected data through ethnographic methods and analyzed it through qualitative research to uncover major themes within the smart tourism app use phenomenon. The researchers coded, counted, analyzed, and then divided the findings gleaned from a pilot study and interviews into a taxonomy of seven logical smartphone app categories. The labeling and coding of all the data accounting for similarities and differences can be recognized and are logically discussed in the implications of the apps used by tourists to assist tourist destinations. More specifically these findings will assist smart tourism destinations by better understanding foreign tourist smartphone app use behavior. Tourists visiting South Korea interviewed in this study exhibited significant mastery of Internet of Things (IoT) technologies, craved free WiFi access, and utilized smartphone apps for all facets of their travel. Findings show major concentrations of app use in bookings of accommodations, tourist attractions, online shopping, navigation, wayfinding, augmented reality, information searching, language translation, gaming, and online dating while traveling in South Korea.

Keywords: smartphone applications, smartphone application services, smart destination, smart tourism, smart tourist.

1. Background

Smart is a term which is often used to refer to technological, economic, and social developments boosted by technology today. The term is defined as a new buzzword applied to describe the increasing reliance of tourism destinations, industries, and tourists on emerging technologies. This study aims to explore the use of mobile applications by tourists visiting South Korea.
forms of information communication technology (ICT) that allow for massive amounts of data to be transformed into value proposition [1]. People have adapted to new technologies and can use information technology (IT) devices not only in their daily lives, but also when they are traveling. Smart tourism appears to be a logical progression from traditional tourism to an innovative approach where consumers are relying on the extensive adoption of ICT in tourism [1]. While considering ICT as a key to the conceptualization as well as the development of smart tourism, smart ICT is expected for comprehension, and profitable from experience, acquiring and retaining knowledge, and responding efficiently and effectively to a new situation [2]. For a long time, ICT with the ability to support tourism intelligently has been discussed, developed, and envisioned [3]. The use of mobile devices today reflects an era of unprecedented connectivity and ubiquitous access to the Internet [4].

South Korea has become one of the smart tourism destinations enhancing smart tourists’ travel experience through a variety of personalized mobile application services. This has been made possible through the concerted efforts of the Korean government and its funding initiatives on the establishment of the technological infrastructure of smart tourism [5]. Inviting smartness into tourism destinations dynamically interconnecting stakeholders through a technological platform on which information relating to tourism activities could be exchanged instantly [6]. Such development benefits the tourism industry by providing easy access to information for both tourism organizations and tourists through integrated and centralized data platforms [7]. Tourists are more likely to gain a memorable experience on the trip when they can participate in activities within a destination [8]. Although the use of mobile application services has driven smart tourism today, agreement on the actual practices of those technological solutions have still not been concluded. As a study in smart tourism destination, this research examines the kinds of mobile applications available for tourists in South Korea.

Tourists are receiving traveling benefits from multiple components and layers of smart technology which are supported by ICT and using smart devices. Governments, stakeholders, and tour operators should focus on necessities a smart destination needs and provide tourists with what a smart city or destination can offer through official pages and applications [9]. This study investigates seven categories of modern mobile applications used by English-speaking foreign tourists in South Korea (referred to from now on as “Korea”) to offer suggestions for improvements in smart tourism destination infrastructure.
2. Methods

Based on a pilot study conducted in South Korea in mid-2017, researchers conducted extensive interviews with 110 short-stay and long-stay tourists and expatriates living in Korea. Through the analysis of the interviews, modern app use by English-speaking foreign tourists in Korea was categorized based on the taxonomy of mobile applications in tourism by Kennedy-Eden [10]. A mobile app is a downloadable software program designed to run on mobile devices such as smartphones, tablets, music players, etc. This mobile application taxonomy categorizes the functions of apps into seven areas: Navigation, Social, Mobile Marketing, Security/Emergency, Transactional, Information, and Entertainment. In the following paragraphs, each section of the mobile app taxonomy will be discussed showing the popular apps used by foreign tourists traveling in Korea.

3. Findings

3.1 Navigation

This paper refers to apps that address the subsections of navigation, such as global positioning systems (GPS), augmented navigation, and wayfinding. Merriam-Webster Dictionary defines GPS as, “a navigational system using satellite signals to fix the location of a radio receiver on or above the earth’s surface.” The United States government agency at www.GPS.gov defines augmented navigation as, “Any system that aids GPS by providing accuracy, integrity, availability, or any other improvement to positioning, navigation, and timing that is not inherently part of GPS itself.” Wayfinding typically means being able to find one’s way during travel by land, air, and sea.

Tourists visiting Korea relied heavily on Navigation apps while driving rental cars or navigating downtown streets on foot. The majority of tourists interviewed preferred to use Korea’s extensive public transportation system instead of renting a car, except when traveling to Jeju Island where fly-and-drive packages are popular. The most popular GPS navigation apps were Kakao Navi, Kakao Driver, Google, and Naver Navi. An advanced form of GPS is Augmented GPS, which enhances the GPS through a more 3D visual experience. The Waze app is trendy amongst foreign tourists in Korea because it is simple and it is in English. Waze gives directions verbally well before a turn, unlike many Korean navigation apps. This extra time is beneficial for foreign tourists who may have limited knowledge of which direction they
need to go.

Moreover, the majority of respondents used a plethora of wayfinding apps, such as subway and bus apps (Seoul Bus, Kakao Metro, Kakao Bus, Subway Korea, Waze, Metroid, etc.) and map apps (Kakao Maps, Google Maps, Naver Maps). Naver and Kakao Maps, which integrate navigation into the maps, are more popular than Google Maps in Korea. Many tourists commented that Kakao and Naver maps are more accurate and work better in Korea than Google Maps. Naver Maps is currently only in Korean; however, Kakao Maps has an English interface.

### 3.2 Social

Social networking apps include all of the applications that connect individuals to their family, friends, colleagues, and acquaintances to share thoughts, pictures, and ideas. Widely used by tourists visiting Korea are social networking sites, communication apps, and dating/language exchange apps. Findings showed a similar usage of social app use while traveling in Korea to Kallas’ [11] 2018 Top 15 worldwide social app rankings in Figure 1:

![Figure 1] 2018 Kallas’ Top 15 Worldwide Social App Ranking

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of Users</th>
<th>Name</th>
<th>Number of Users</th>
<th>Name</th>
<th>Number of Users</th>
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<tbody>
<tr>
<td>Facebook</td>
<td>2.2 billion</td>
<td>Reddit</td>
<td>330 million</td>
<td>Google+</td>
<td>111 million</td>
</tr>
<tr>
<td>YouTube</td>
<td>1.9 billion</td>
<td>Pinterest</td>
<td>200 million</td>
<td>LinkedIn</td>
<td>106 million</td>
</tr>
<tr>
<td>Instagram</td>
<td>1 billion</td>
<td>Ask.fm</td>
<td>160 million</td>
<td>VK</td>
<td>97 million</td>
</tr>
<tr>
<td>Qzone</td>
<td>563 million</td>
<td>Tumblr</td>
<td>115 million</td>
<td>Odnoklassniki</td>
<td>71 million</td>
</tr>
<tr>
<td>Twitter</td>
<td>336 million</td>
<td>Flickr</td>
<td>112 million</td>
<td>Meetup</td>
<td>35 million</td>
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Tourists visiting Korea cited Facebook as their most preferred social networking site (SNS), followed by Instagram, YouTube, WhatsApp, then Kakao Story. Kakao Story was enumerated primarily by long-stay foreign tourists. The majority of respondents stated that they share their travel experiences through their SNS because of multiple factors; updating family and friends as the primary reason. Tourists often commented that they used SNS extensively before going to Korea in order to gain information about Korea from trusted personal contacts, blogs, and online reviews. Tourists who are visiting Korea for longer than a month listed Kakao Talk as their favorite app to communicate with family and friends while traveling in Korea. Short-stay visitors listed Facebook Messenger, Skype, and WhatsApp as their most popular messaging apps for communicating with family and friends. Tourists overwhelmingly cited using Google
Translate followed by Naver Dictionary for interacting with non-English speaking Koreans while traveling Korea. The majority of respondents agreed that translation applications have made travel much simpler and convenient. Tourists in Korea commonly mentioned the Korea Tourism Organization’s (KTO) 1330 instant translation service as a very supportive app for communicating with taxi drivers, store staff, and local Koreans.

Moreover, frequently mentioned by all foreign tourists, was that Facebook and Instagram were by far the two most used apps to share their travel experiences within their social networks. Many respondents revealed that they used Facebook, Meetup, and dating applications to meet people in Korea for activities like hiking, language exchange, dating, or for finding travel companions.

Approximately 7% of tourists surveyed mentioned that they used dating applications or other meeting apps to encounter someone for entertainment or to “hook up.” Hooking up commonly refers to meeting another person for romantic reasons, typically for a short duration without commitments. Tinder, OkCupid, Bumble, and Match are dating apps that were commonly cited as being used by foreign tourists in their home countries. Many of the respondents who used dating apps in Korea indicated that while traveling in Korea they have used dating apps to meet Koreans and other foreign tourists for companionship or entertainment. Respondents who used dating apps stated that Tinder, Badoo, Korean Cupid, and OkCupid, were the most commonly used. Several respondents who did not use dating apps said that when using Korea’s language exchange app Meeff, which matches Koreans to foreigners based on age, location, gender, language, etc., for language exchange, that their Korean counterpart was very interested in dating. Several foreigners who used Meeff called the app “Korea’s Tinder” for Koreans who want to make foreign boyfriends or girlfriends.

### 3.3 Mobile Marketing

Mobile marketing includes the following categories: Content Awards, Alerts, Discounts, Employment, Security/Emergency, Medical, Emergency, and Product/Service Information. This paper focuses on the mobile marketing categories of Discounts and Security/Emergency as they relate to tourism. Mobile marketing discount notifications are used by tourists who regularly visit specific destinations. A majority of short-stay visitors stated that they use roaming mobile or prepaid SIM cards purchased at the airport or just use the abundant free Wi-Fi on Korean public transportation, at hotspots, or in coffee shops. Long-stay tourists tend to purchase mobile data plans or just use free Wi-Fi available in most public and retail locations.
3.4 Security and Emergency

Korean residents and foreign tourists with Korean phone numbers receive mobile emergency notifications through text messages. However, anyone can dial the KTO’s free Korea Travel Hotline & Complaint Center at 1330 from any phone in Korea, or (Area Code)-1330 from a cellular phone in Korea, or 82-(Area Code)-1330 from abroad. The caller can receive instant translation in English, Korean, Chinese, Vietnamese, Malay, Russian, Thai, or Japanese. The service is conveniently available twenty-four hours a day and seven days per week. The 1330 travel hotline service can also be used to make comments, suggestions, or address concerns while in Korea or after returning to their home country. Respondents repeatedly praised the 1330 Tourist Hotline provided by the KTO, where multilingual staff can provide three-way calling to help resolve any issues in real-time or provide translation services in taxis or stores or during emergencies by helping to call the police, fire department, or emergency services.

3.5 Transactional

Transactional apps allow people to conduct financial transactions with individuals or businesses. More specifically, we call transactional apps “mobile payment apps” (PayPal, Google Wallet, Intuit GoPayment, Square, Venmo, and LevelUp), and they are extremely popular with tourists. Purchasing tickets for events such as movies or concerts and making travel reservations through apps is very popular. Tourists shopping in Korea shared that PayPal is their most preferred transactional app. However, PayPal does not offer money denominated transactions in Korean Won, making it difficult to use in Korea with Korean businesses. Korean-based payment apps (Samsung Pay, Kakao Pay, Naver Pay, and AliPay) are popular with foreign tourists, but are more difficult to use because of language issues. Many visitors use Syrup Smart Wallet, an app that holds all of your point cards or award cards for different restaurants, stores or shops in one app, increasing loyalty program use.

Tech-savvy tourists stated that they frequently used apps to purchase tickets for such places as CGV and Lotte Cinema. Also mentioned were Ticketmonster and Ticketlink to buy concert tickets for electronic dance music (EDM) concerts, music festivals, and other events. Purchasing tickets and making reservations while traveling in Korea makes Korea a convenient destination for tourists with smart devices. Many tourists and locals alike prefer to use ticket apps instead of physically going to the site of the movie, event or performance to purchase their tickets in advance and often at a discount.
3.6 Information

Mobile apps were originally offered for overall productivity and information retrieval, including functions such as email, calendar, contacts, weather, and news information, but have become a primary source for gathering information. Tourists in Korea rated Google Search as the preferred app to obtain information while traveling in Korea. Other highly cited and frequently used search apps are Naver, Bing, and Yahoo. Many respondents stated that they used Naver Dictionary as another app to get information. The Mango Plate app, which is similar to Yelp, was also highly cited as a go-to app for obtaining information on which Korean restaurants are good, and the app is updated daily with different user reviews by trusted users of the app. The most frequently used app for tourist information is Trip Advisor. The KTO’s “Visit Korea” travel app was also highlighted as an excellent source of tourist information.

Travel-related apps are extremely useful to tourists while traveling in Korea and some of the most popular travel apps are KORAIL, Trip Advisor, Hana Tour, and Airbnb. Airbnb, especially, has emerged as one of the most popular travel apps used by foreigners and Koreans. However, a few foreign tourists have mentioned that while traveling in Korea, the Korean Airbnb host did not respond to their requests to rent the listed accommodation. The visitors who stated this mentioned that it may be due to the hosts’ lack of English or comfort hosting foreigners. Several foreign tourists listed Kakao Taxi as a highly valuable app when traveling Korea, especially late in the evening or early morning to contact a call taxi instead of trying to hail a taxi from the street. Several female tourists mentioned they felt much safer using Kakao Taxi because each pickup is registered whereas random taxi encounters are not.

3.7 Entertainment

Mobile entertainment comprises numerous activities associated with mobile devices and mobile electronics. Such activities usually include leisure enjoyment through playing games (Clash of Clans), watching videos (YouTube), listening to music (Spotify) or connecting with family and friends through other social networking apps (Facebook, Twitter, etc.). We may even consider shopping or dating through apps as other forms of entertainment. Shopping apps for tourists in Korea are popular with iHerb, Gmarket, Coupang, and Syrup Smart Wallet being the most popular. Korea famously offers quick and efficient online shopping for next day delivery. The Gmarket Global app is available in English, Chinese, and Korean and offers support in English through email and instant chat.
4 Conclusion

The review of smartphone applications, their features, and the way they help 21st-century tourists to improve their experience and maximize their enjoyment while traveling shows that smart tourism is becoming an integral part of travel these days. Those who travel to smart destinations such as Korea have many opportunities to experience a smart trip, but only if their journey is limited to visiting and staying in the major cities. Korea’s government and policymakers in the tourism field are willing to invest on smart tourism projects in the major cities, but not as much in rural and remote areas, even if they are rich regarding tourism resources that may attract many foreign tourists.

Specialists ranked the smartest cities in the world by analyzing 79 indicators across ten different dimensions of urban life: the economy, technology, human capital, social cohesion, international outreach, the environment, mobility and transportation, urban planning, public administration, and governance. Thus, promoting each of these dimensions of urban life by Korea’s national and local governments and companies will lead to increased interest in smart tourism by interested groups and individuals.

References


