

Cyber Tourist: *Analysis of IT-based Travel Behavior of Chinese tourists to Chiang Mai, THAILAND*

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Abstract— It is very important to understand tourist's behavior, since travel behavior plays an important role in tourism development, such as improving facilities and services in tourism destination, improving marketing strategies, enhancing appreciation and understanding of cultural heritage sites and etc. This study aims at constructing a model of IT behavior of Chinese tourists who travel to Chiang Mai, Thailand. 464 samplings are used for developing the model by using Explanatory Factor Analysis (EFA). Twenty-four variables of IT behavior are developed from literature review. EFA results reveal that IT behavior of Chinese tourists can be classified into four groups. IT-based travel behavior model by Chinese tourists in Chiang Mai can be explained as four components namely; Basic (4 factors), Pre-travel (8 factors), On-going (6 factors), and Post-travel (6 factors). The portion of the variance explained by the first, second, third, and fourth principal components were 20.228, 15.824, 13.483, and 10.994, and 60.529 for overall variance explained. For application, the model can be used as a guideline for online promotion of tourism product, tourist attractions and e-commerce websites. Chiang Mai should provide sufficient travel information via proper ICT channels at the travel attractions to support this kind of self-travel and exploration such as; Internet Access point, Digital contents, infrastructure, and any technological elements selected to become a part of a site's presentation.

Keywords— *Cyber Tourist; E-tourist behavior; Tourist behavior; Chinese tourists;*

I. INTRODUCTION

Travel & Leisure, one of the most popular U.S. travel magazine published by American Express Publishing ranked Bangkok and Chiang Mai as the first and the second world best cities in 2010. In addition, these two cities were also ranked first and second best cities of Asia in the same year. The world best cities were rated by the readers based on: sights and landmarks; culture and arts; restaurants and food; people; and value [1]. Unsurprisingly, Chiang Mai has drawn a large number of tourists globally, especially Chinese tourists who have been influenced by the Chinese film, "Lost in Thailand", which was released in 2012 and Chiang Mai was the main shooting location of the film. There were 1.1 million Chinese tourists who visited Chiang Mai in 2010. The number increased to 1.7 million in 2011, and 2.7 million in 2012. Top travel destinations in Chiang Mai among Chinese tourists were

Thapae Gate, Wat Phra That Doi Suthep, Night Bazaar, Chiang Mai University, Wat Phra Singh, and Chiang Mai Walking [2].

Typically, tourists find their travel information from diverse information sources such as newspapers, television, travel agencies, guidebooks, word-of-mouth, etc. But today, the Information and Communication Technology (ICT) and internet have become an integral part of our lives in many aspects. The Statistic of Internet Usage is 42.3% of World Population [3]. It is starting to shape tourist behavior in online travel information search as well as making purchase. Tourists use websites for planning, searching, purchasing, and amending their travel programs continuously increasing. According to Olga Kiilunen [4], Mobile applications as solutions to enhance sustainable travel behavior among Generation Y showed 78 per cent of respondents are usually booking travel services by themselves. Generation Y are skillful travelers and tend to personally design every detail of the journey, rather than choosing ready-made packages offered by travel agencies. The most used information sources when making travel-related decisions is from desktop internet. Transportation to destination and accommodation are mostly booked in advance, meanwhile activities and transportation within destination are more likely to be purchased during the trip. Irene Lucena Rodríguez [5] found that Social media platforms are the new media to express themselves, share contents, ideas and experiences which other tourists may use as a reference in their travel planning; fact which is greatly appreciated among tourists due to the high needs of information which they require. Social media platforms are searched and used all along the decision-making process for tourism products. Its use varies among the different stages of the process. In the pre-purchase stages, Tourists search for information to read tourists' experiences which are perceived from the traveler's experience in travelling. A wide number of platforms are used: forums, blogs and social networks for destination information whilst opinion platforms for accommodation. While in the post-purchase stages social platforms are not used anymore as the main source of information but as a secondary source for gathering information and sharing contents. Gathering information in order to take particular details of a destination or a service; and uploading information to friends' social networks and tourism online communities and forums in order to share experiences,

photos, and videos and help other travelers to plan their experience.

Various researchers have indicated travel behavior of tourists that influencing tourism such as understanding consumer behavior is very useful for developing tourism products. It is also an integral source of information for promoting tourism products and highlights how to sell tourism products particularly in this globalized era, in which the patterns of tourist traveling is highly influenced by global factors such as the mass media [6].

A. Problem Statement

It is very important to understand tourist's behavior, before, during and after travelling, since travel behavior nowadays pays an important role in tourism development, such as improving facilities and services in tourism destination, improving marketing strategies, enhancing appreciation and understanding of cultural heritage sites and etc. Meanwhile Chinese tourists who are the most tourists travel to Chiang Mai.

B. Objectives

The main purpose of this paper focuses on the survey investigation of how many Chinese tourists are dependent on the IT device and IT usage in travelling to give the diversity of supportive approaches accordingly.

II. BASIC CONCEPT FOR IT-BASED TRAVEL

A. Tourism Trends

The tourism trends that will be the most important in the tourism industry in 2015 are Data, Mobile, and Visual. Tourists use mobile devices to know where, what, when, why, and how of their destination from real time online. Destination Marketing with Virtual Reality is now giving new meaning to travelers who are using IT-based travelling. Tourists prefer to get quick and personalized information from online and to look for travel and leisure activities as well as business sites on smartphones and tablets. [7][8][9][10]. IPK International [11] indicated that Technology-based 'sharing economy' firms are increasingly penetrating the travel industry by offering consumers far more individualized choices than traditional suppliers. Overall, speakers agreed that technology will continue to impact dramatically on the travel industry by enabling companies to offer far more individualized services in the future. With the rapid growth of newcomers who are winning market share with "disruptive" business models, traditional travel companies need to respond quickly with innovative products and services to defend their competitive positions.

B. Changing Tourists behavior

ICT has changed consumer behavior in hospitality and tourism in recent years. Consumer behavior has been transformed and new realities have emerged in the marketplace. Technology adoption, particularly the use of mobile platforms such as tablets, smartphones and other handheld devices, is of critical importance in the use of ICT to engage in dynamic dialogue between consumers and suppliers. Travelers generally consider the Internet to be the best source for information searches. For example; People in Belgium tend to take more time to complete their trip planning and to explore many options before making a decision, whereas US travelers are quicker and use a single Web site to plan the whole trip. This suggests that wireless services should be highly focused depending on behavioral patterns of users searching for tourism information. And tourists generally accept online purchasing and have a higher intention to purchase online when Web sites offer higher levels of control. Regarding the role of ICT after purchases, most people are willing to share travel photos within their networks by using more than one type of social networking tools [12].

IPK International also reported that in 2014 online bookings continued to boom with a further 7% rise to a 66% share of all travel bookings worldwide but there are signs they could be reaching saturation level at about 70% in mature markets. The global market share of travel agency bookings has more or less stabilized at 24%, according to World Travel Monitor@figures. Meanwhile, there was a sharp increase in bookings by smart phone this year. China (10% share) took first place in the share rankings, followed by the USA (7% share) and Japan (5% share). Social media channels such as review portals, blogs and forums have also become very popular for planning trips, and are used extensively by more and more travelers around the globe [13].

C. Chiang Mai: the cultural city of Thailand

Chiang Mai "Rose of the North" is a cultural and natural wonderland with ethnic diversity, a multitude of attractions and welcoming hospitality in Thailand. The city's historical background can be traced back to the ancient Lanna Kingdom (1259-1939) when Chiang Mai served as its administrative, economic and cultural capital. The old city of Chiang Mai is a showcase of the North's fascinating indigenous cultural identity that includes diverse dialects, a delectable cuisine, distinctive architecture, traditional values, lively festivals, numerous handicraft workshops, northern style massage, and classical dances. Chiang Mai is one of the few places in Thailand where it is possible to experience both historical and modern Thai culture coexisting side by side.

The city features centuries-old pagodas and temples next to modern convenience stores and boutique hotels. This dichotomy is best appreciated within the moat-encircled old city, which retains much of the fortified wall that once protected the city center as well as the four main gates that provided access to the former Lanna capital city. Within the square of the old city was the location of a palace of Chiang Mai's old rulers, and many important ancient temples such as Wat Pra Singha with its delicate Buddha image hall or Wat Chedi Luang which has the biggest Chedi in Chiang Mai [14].

How to preserve Cultural Heritage sites? And how it is to be presented to the public? The International Council on Monuments and Sites (ICOMOS) Charter for the Interpretation and Presentation of Cultural Heritage Sites was proposed to recognize that interpretation and presentation are part of the overall process of cultural heritage conservation and management. This Charter seeks to establish seven cardinal principles, for Interpretation and Presentation which are; 1) Facilitate understanding and appreciation of cultural heritage sites. 2) Communicate the meaning of cultural heritage sites to a range of audiences through careful, documented recognition of significance, through accepted scientific and scholarly methods as well as from living cultural traditions. 3) Safeguard the tangible and intangible values of cultural heritage sites in their natural and cultural settings and social contexts. 4) Respect the authenticity of cultural heritage sites, by communicating the significance of their historic fabric and cultural values and protecting them from the adverse impact of intrusive interpretive infrastructure, visitor pressure, inaccurate or inappropriate interpretation. 5) Contribute to the sustainable conservation of cultural heritage sites, through promoting public understanding of, and participation in, ongoing conservation efforts, ensuring long-term maintenance of the interpretive infrastructure and regular review of its interpretive contents. 6) Encourage inclusiveness in the interpretation of cultural heritage sites, by facilitating the involvement of stakeholders and associated communities in the development and implementation of interpretive programs. And 7) Develop technical and professional guidelines for heritage interpretation and presentation, including technologies, research, and training. Such guidelines must be appropriate and sustainable in their social contexts [15].

D. Conceptual overview of the study

By studying the use of ICT in tourism by Chinese tourists travelling to Chiang Mai, Thailand. The results for this study will contribute of 2 sections: The demographic profile of Chinese tourists and a factor analysis of ICT-based travel behaviors (model).

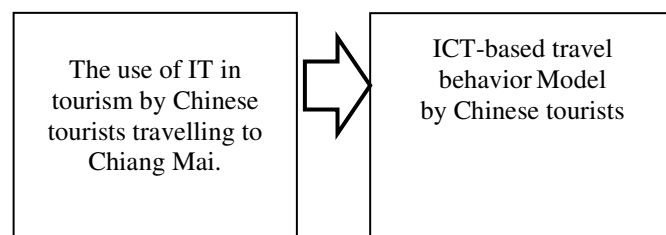


Fig.1 Conceptual of the study

III. METHODOLOGY

464 Chinese tourists, who visited tourist attractions in Chiang Mai, Thailand, were surveyed by questionnaire which was designed based on 24 factors from the literature review in tourist behavior theories and the use of IT. It comprised of: 1) close ended questions about Chinese tourist travel patterns and 2) close ended questions about the IT-based travel behavior in tourism. The data was collected at the top ten travel attractions in Chiang Mai which were perceived by Chinese tourists.

Descriptive analysis: Frequency and percentage, Mean scores and standard deviation were used to analyze demographics information of Chinese tourists and were used to analyze the level of IT used in tourism by Chinese tourists. Explore Factor Analysis (EFA) was used to analyze the factors of IT-based Travel Behavior as following: Kaiser-Meyer-Olkin (KMO) and Bartlett's, Test Chi-square, Eigen Value, And Rotation Component Matrix were used to develop model.

IV. RESULTS

A. The demographic profile of Chinese tourists

The average age of the respondents was 29 years old, 61% were female and 59.7% were single. Most of them worked at private companies (40.6%), followed by students (17.8%). Their average monthly income was 9,345.66 Chinese Yuan or 48,298 Thai Baht.

The average length of stay was 1.30 days. The highest number of visits was 8 times. They organized their trips by themselves (33.4%) rather than purchasing the package tours (28.9%). Three-fourth of them (73.8%) travelled for pleasure, followed by for education (15.6%). The main reasons of choosing Chiang Mai as their travel destination were natural attractions (53.3%), followed by historical attractions (33.3%).

The ICT used prior to their trips were Google (35.2%), Website (22.7%), Yahoo (18.1%), Ctrip (17.8%), Social media (2.8%), Wikipedia/web sharing (11.2%), Youtube (9.7%), Elong (9.0%), Kuxan (4.0%), and Web board (2.4%). While the main gadgets used during their trips were cell phones (55.9%), camera (47.4%), smart phone (41.1%), tablet (34.1%), computer (26.0%), entertainment gadgets (3.5%), and other gadgets (3.5%).

B. Factor Analysis of IT-based travel behaviors

Based on The use of IT in tourism by Chinese tourists travelling to Chiang Mai, 24 variables, the result showed that the data was appropriate for the factor analysis (KMO=0.91, The Bartlett's test of Sphericity=2319.033 and p-value= .000 (Table 1), implying that the variables for the IT use behavior of Chinese tourists are adequately correlated for the Factor Analysis.

TABLE I. KAISER-MEYER-OLKIN (KMO) AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.910
Bartlett's Test of Sphericity	Approx. Chi-Square
	2329.033
	df
	276
	Sig.
	.001

There were four principal components retained from the total of 24 variables (the Eigen value of greater than one as shown in Fig. 2) [16]. The portion of the variance explained by the first, second, third, and fourth principal components were 20.228, 15.824, 13.483, and 10.994, and 60.529 for overall variance explained, respectively as shown in Table 2.

TABLE II. RESULT OF PRINCIPAL COMPONENT ANALYSIS

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
	1	9.266	38.610	38.610	9.266	38.610	38.610	4.855	20.228
2	2.423	10.095	48.704	2.423	10.095	48.704	3.798	15.824	36.052
3	1.635	6.814	55.518	1.635	6.814	55.518	3.236	13.483	49.535
4	1.203	5.011	60.529	1.203	5.011	60.529	2.639	10.994	60.529
5	.912	3.801	64.330						
...						
...						
...						
...						
24	.203	.845	100.000						

Scree Plot

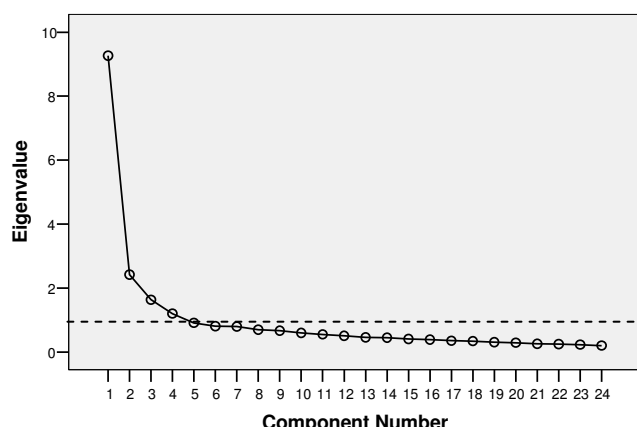


FIG. 2 SCREE PLOT CHART

TABLE III. FACTOR LOADING OF EACH VARIABLE OF THE ICT USE IN TOURISM BY CHINESE TOURISTS

	Component			
	1	2	3	4
v14 making room reservation online	.807			
v15 making payment online	.738			
v13 making online travel purchase such as tour programs, entrance fees, etc.	.734			
v16 usage of websites in tourism planning while travelling	.733			
v11 usage of websites for travel planning	.657			
v12 usage of websites for buying decision of tourism products & services	.607			
v09 searching travel information from websites	.537			
v17 connecting with other people through Internet while travelling	.511			
v07 reading e-books		.746		
v05 usage of an online calendar		.728		
v08 usage of a computer for virtual tour		.675		
v06 usage of online note		.666		
v23 giving comments regarding travel experiences online		.609		
v10 usage of emails for tourism communication		.538		
v21 usage of a security application			.525	
v22 usage of a navigation application			.657	
v19 usage of Internet via cell phone			.609	
v18 sharing travel photos or clips online			.571	
v24 sharing travel experience online			.555	
v20 usage of a weather application			.550	
v01 daily usage of a computer in entertainment				.747
v02 daily usage of a computer in communication				.729
v03 usage of Internet for information search				.727
v04 usage of Internet for information exchange				.630

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
 Rotation converged in 9 iterations.

The Factor Analysis was employed to identify the underlying dimensions of 24 variables. These variables were extracted by the orthogonal varimax rotation. Each core dimension was named and described as following:

1. Basic: The variables were ranked as follows according to the weight associated:

- v03 usage of Internet for information search
- v02 daily usage of a computer in communication
- v04 usage of Internet for information exchange
- v01 daily usage of a computer in entertainment

2. Pre-travel: The variables were ranked as follows according to the weight associated:

- v16 usage of websites in tourism planning while travelling
- v17 connecting with other people through Internet while travelling
- v14 making room reservation online
- v15 making payment online
- v09 searching travel information from websites
- v11 usage of websites for travel planning
- v13 making online travel purchase such as tour

programs, entrance fees, etc.

v12 usage of websites for buying decision of tourism products & services

3. On-going travel: The variables were ranked as follows according to the weight associated:

v18 sharing travel photos or clips online

v19 usage of Internet via cell phone

v22 usage of a navigation application

v20 usage of a weather application

v24 sharing travel experience online

v21 usage of a security application

4. Post-travel: The variables were ranked as follows according to the weight associated:

v05 usage of an online calendar

v10 usage of emails for tourism communication

v07 reading e-books

v06 usage of online note

v23 giving comments regarding travel experiences online

v08 usage of a computer for virtual tour

V. DISCUSSION AND CONCLUSION

In the past, Chinese tourists in Chiang Mai were older and mostly retirees and they typically bought package tours from travel agencies. IT was not used extensively so these tourists based their travel decisions highly on information perhaps from travel agencies. Today's Chinese tourists are much younger – their average age is 29 years old. Most of them were single. They worked for private companies and had an average monthly income of 48,298 Thai Baht. As the IT has become an integral part of their daily life, this study found that these modern Chinese tourists tended to arrange their trips themselves (Pre-travel) using IT like Google, Yahoo, Ctrip, social media, Wikipedia/websites, web sharing, YouTube, Elong, Kuxan, and web board (listed here from the most to the least frequent use IT respectively). While they were travelling (On-going travel), they also used cell phones, cameras, smart phones, tablets, computers, and other entertainment gadgets (from the most to the least frequent use respectively). The empirical evidence supported the research results, as it was noticed that these tourists travelled around Chiang Mai alone or with friends, travelling with rental vehicles (bicycles, motorbikes) without accompany by tour guides.

Modern Chinese tourists behavior mostly used several devices during their trips by sharing travel photos or clips online, followed by before trips by using the websites on tourism for planning while travelling, then finished trips by using an online calendar, and lastly modern Chinese tourists have a basic usage of ICT by searching information from internet. Based on these Chinese tourists' behavior in IT during their trips and before trips, it was found that their IT

behavior were associated with the travel photos/clips, online sharing, Internet connection through cell phone, usage of a weather application, usage of a security application, usage of a navigation application, and travel writing online, usage of websites in tourism planning while travelling, connecting with other people through Internet while travelling, making room reservation online, Chiang Mai should provide sufficient travel information via proper IT channels at the travel attractions to support this kind of self travel and exploration such as Internet Access point, digital contents at least 3 languages; Thai, English, and Chinese, site's interpretive infrastructure (such as kiosks, in-formation panels, QR code and etc.).

This will make their travel experiences more informative especially for the ones who are travelling alone without tour guides. It is hoped that understanding Chinese behavior on IT-based travel will be help the responsible body promote the right information sources at the right Medias to enhance appreciation and understanding of cultural heritage sites of visiting in all tourist attractions in Chiang Mai.

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