The Hong Kong Polytechnic University

School of Hotel and Tourism Management

Adoption of Web-based Self-service Technology: A Case of Airline Online Check-in Systems

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Philosophy

June 2012

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the away of any other degree or diploma, except where due acknowledgement has been made in the text.

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ABSTRACT

The acceptance of technology, particularly various information systems, by tourists has been a well-studied area in tourism literature. Tourism research on technology acceptance has been challenged in a similar setting, from culturally biased perspectives to quantitative investigation. This thesis attempts to fill the knowledge gap by constructing a conceptual model for understanding technology adoption intention of web-based self-service technology (SST) in the tourism industry setting, and by exploring the differences between Asians and Westerners with regard to technology adoption intention dimensions. To achieve the objectives, qualitative and quantitative methods, along with an Etic-Emic approach, were adopted. The entire research followed the Churchill (1979) instrument development procedure to attain the key objectives.

To identify the factors affecting web-based SST adoption intention from the perspectives of both Asian and Westerners, the preliminary qualitative study combined the corresponding literature review with focus group interviews with Asians. The following are the eleven factors utilized in the study: perceived usefulness, perceived ease of use, perceived behavioral control, trust, subjective norm, perceived risk, customization, word of mouth (WOM), perceived playfulness, prior experience, and attitude. Expert panel assessment was carried out to assess the content reliability and validity of all measuring items. Respondents filled out online, self-administered questionnaires in the pilot testing, after which a total of 202 useable questionnaires were gathered. Exploratory factor analysis was employed to analyze the pilot test data, in which nine factors were finalized: perceived usefulness, perceived ease of use, perceived behavioral control, subjective norm, perceived risk, trustworthy and customized experience, WOM, perceived playfulness, and attitude.

The pilot test was followed by the main survey, which was conducted to construct and test the conceptual model and the relationships among the key constructs via hypotheses testing. The survey took place at the Hong Kong International Airport in March 2012. A total of 479 valid questionnaires were gathered. Quota sampling was used to match the sample with the equal proportion of Asians and Westerners. The data were analyzed using confirmatory factor analysis and structural equation modeling. The five constructs, namely, perceived usefulness, trustworthy and customized experience, perceived risk, perceived behavioral control, and subjective norm, were specified as the significant factors affecting adoption intention, mediated by attitude. Attitude was also confirmed to be a critical determinant affecting technology adoption intention. In addition, divergence of Asians and Westerners in terms of adoption factor was also examined. Compared with their counterparts, Asians were likely to be attentive to WOM, subjective norm, and perceived playfulness.

In the final section of this thesis, theoretical and practical implications, as well as research limitations and future research directions, are discussed. Theoretically, this research provided a holistic investigation and collation of the major factors examined in previous technology adoption studies. The thesis contributed to technology adoption research by identifying two new dimensions, customization and WOM, that shade technology adoption intention. A reliable and valid conceptual model and corresponding measuring items were generated. Research findings demonstrated the applicability of the model, and the universal application of the model across populations was also confirmed. The study also revealed the overlooked yet important aspect of web-based SST in tourism research. In terms of the practical implications of the thesis, airline and tourism practitioners were recommended to enhance the functionalities of their current web-based SST, provide more human-touch and customized features, educate users in using the system, devote attention to travelers' internal referents, and carry out sophisticated system security. These recommendations were in

consideration of usefulness, trustworthy and customized experience, perceived risk, subjective norm, and perceived behavioral control, which were found to be the critical determinants that affect web-based SST adoption intention. Limitations and future research directions were also included.

Keywords: Technology Acceptance Model, Adoption Intention, Web-based Self-Service Technology, Cultural Difference, SEM

PUBLICATION ARISING FROM THE THESIS

- **Lee, Louisa Yee Sum**, & Tsang, Nelson Kee Fu (2012). Toward a Conceptual Framework for Web-based Self-service Technology Adoption in the Hospitality Industry. *Proceedings of Council for Australasian University Tourism and Hospitality Education (CAUTHE) National Conference 2012 (pp.410-424).* Melbourne, Australia. February 6-9.
- **Lee, Louisa Yee Sum** (2012). Hospitality Industry Web-based Self-service Technology Adoption Model: A Cross-cultural Perspective. Journal of Hospitality & Tourism Research (Under review).

ACKNOWLEDGEMENTS

I am blessed that I was given this opportunity to complete my MPhil study in the School of Hotel and Tourism Management of the Hong Kong Polytechnic University, a school with supportive culture and well known for its excellence in research. Looking back at the past two years, I know I gained not only a degree certificate, but also a solid base for my future career life and friendship. I am indebted to those who helped, guided, and supported me during my long journey of pursuing my MPhil study.

First of all, I would like to extend my genuine gratitude to my chief supervisor, Dr. Nelson Tsang, for his unremitting guidance, enlightenment, and encouragement. He supported and motivated me, offering insightful advice during the most challenging times. Without his guidance, I doubt I would complete my MPhil study in such a timely and smooth manner. Thank you for being so considerate and patient with me!

My heartfelt appreciation also goes to my co-supervisor Professor Cathy Hsu. Her dedication and commitment to research really impressed me. She also opened up my perspective toward the field of research, motivating me to achieve explore and reach new heights. I learned from her the importance of giving attention to details as well as the value of hard work and sincerity, all of which are useful when doing research. In the end, I learned from her the behavior expected of me in the professional world.

I also want to pay tribute to my supervisory committee members, Dr. Henry Tsai and Dr. Jinsoo Lee, for their useful comments and suggestions. In addition, I am very grateful to Professor Rob Law, Dr. Steve Pan, Dr. Ada Lo, and Dr. Catherine Cheung for their constructive advice on the thesis questionnaire. Special thanks also go to Dean of School and Chair Professor Kaye Chon for his continuous support of my extracurricular activities during my study.

I also extend my heartfelt gratitude to my fellow faculty members, research students, and friends at the School of Hotel and Tourism Management. We spent plenty of days and nights working hard, shared countless joyful moments, and discussed different research ideas together. I do treasure the friendship, support, and all the happy moments during the past two years. I would not have such a delightful school life without all of you.

Last but definitely not the least, I would like to extend a big thank you to my beloved Arantes Lee, Grace Wong, Vanessa Lee, and Jonathan Tam. They are truly the world's best parents, sister, and better half. Thank you for cheering me on when I was frustrated, and being the first to appreciate when I did well. Without your unconditional love and support, I would have never persevered in this challenging yet enjoyable journey!

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CHAPTER 1.INTRODUCTION

1.1 Influence of Technology on Service Encounter

Technology advancement stimulated the rapid development of the service industry and transformed the way business is conducted in the new economy (Patterson, 1995). Today, billions of people all over the world are connected to the Internet. Hence, business firms are connecting instantaneously with their clients across international borders. Service organizations aim to delight their customers by creating valued-added products and services, turning creativity and innovation, as well as the infusion of technology in service encounter, as essential prerequisites to this objective (Kandampully, 2002). Hence, service encounter is presently regarded as "high-tech." Infusion of technology in service encounter raises concerns for privacy, confidentiality, and unsolicited forms of communication (Earp & Baumer, 2003; Samuelson, 2003). The sophisticated implementation of technology can generate many positive outcomes for employees and customers.

The term *service encounter* draws many attentions in service marketing and the hospitality industry. Surprenant and Solomon (1987, p.87) defined service encounter as "the dyadic interaction between a customer and service provider," whereas Shostack (1985), Winsted (1997), and Keaveney (1995) conceived a broader meaning for the term, saying that it is the duration of the direct interaction of a consumer with a firm. The definition of Surprenant and Solomon (1987) basically pointed to the human-based services rather than equipment-based services. Scholars then generalized the concept and determined that personal interaction is an imperative element of the process (Solomon, Surprenant, Czepiel, & Gutman, 1985). The latter definition by Shostack (1985) covers the generic service industry, including the service employee, physical facilities, and tangible elements. Bitner, Booms, and Tetreault (1990) believed that this definition by Shostack (1985) elevated the

meaning of service encounter to include both human and non-human interaction elements. Traditionally, service encounter has been seen as "high-touch" and "low-tech." However, the nature has changed dramatically with the infusion of technology (Bitner, Brown, & Meuter, 2000).

Bitner et al. (2000) proposed a technology infusion matrix to illustrate how service encounter benefits from the effective use of technology by employees and customers (as shown in Figure 1). With technology in place, employees improve efficiency and effectiveness through the easily accessible customer database, consequently enhancing the value of the encounter with customers. Technology also drives customers' satisfaction toward service encounter, most especially for those firms who provide services without employee involvement. Customers can access services regardless of place and time without the complications of interpersonal exchanges. Within the technology infusion matrix are the three key dimensions of service encounter satisfaction and dissatisfaction adapted from Bitner et al. (1990), namely, customization/flexibility, service recovery, and spontaneous delight. Past literature revealed that customers do not like to be limited by rigid rules, and they expect flexibility in service encounter (Bettencourt & Gwinner, 1996; Harvey, Lefebvre, & Lefebvre, 1997). Using technology helps organizations to customize their offerings by providing service employees with cutting-edge technological tools, such as powerful database, sales force automation, and helpdesk applications (Bitner et al., 2000). Service recovery, the second dimension in the matrix, is critical in pleasing and retaining unsatisfied customers (Gronroos, 1988; Smith & Bolton, 1998). Service recovery has been empirically proven to strengthen the bond between the customer and the organization and foster customer loyalty (Hart, Heskett, & Sasser, 1990). Technology deployment for service recovery becomes pervasive by involving customers in service efforts, acting on recovering data, and

anticipating fixes (Brown, 2000). For example, Hartness International develops a video response system consisting of a wireless camera to carry out remote interactive repairs after a malfunction occurs (Slater, 1998). Moreover, the deployment of technology for service recovery entails the involvement of fewer employees and provides employee with the means to recover on behalf of the customer in a timely manner. Lastly, many organizations today attract and retain customers by the means of surprise (Vanhamme, Lindgreen, & Brodie, 1999). An example of technology deployment for spontaneous delight is Ritz Carlton Hotels, which maintain a database to record unique preferences of more than 250,000 frequent customers (Hart, 1996).

Drivers of Service Encounter Satisfaction

Technology as Enabler for	Customization/ Flexibility	Effective Service Recovery	Spontaneous Delight
Employees	Technology can be used by <u>contact employess</u> to improve the efficieny and effectiveness of service encounters by enabling customization, improving service recovery and spontaneously delighting customers.		
	<u>Industry Examples:</u> AT&T Streamline Individual Inc.	<u>Industry Examples:</u> Genreal Electric USAA	<u>Industry Examples:</u> Progressive Corp. Rtiz Carlton
Customers	Technology can be used by <u>customers</u> to improve the efficieny and effectiveness of service encounters by enabling customization, improving service recovery and spontaneously delighting customers.		
	<u>Industry Examples:</u> Amazon.com Wells Fargo Federal Express	<u>Industry Examples:</u> Hartness Intl.	<u>Industry Examples:</u> Cisco

Figure 1. Technology Infusion Matrix (from Bitner et al., 2000)

The infusion of technology in service encounter has been undergoing changes during the last decade, transitioning from being tangible to intangible. The wireless Internet brings unparalleled opportunities for business operators to leverage the benefits of mobility in e-commerce (Lu, Yu, Liu, & Yao, 2003). Moon and Kim (2001) also noticed the emerging information technology drift in the context of the World Wide Web, changing information access methods of individuals and the business strategy of organizations. Clarke (2008) also acknowledged the tremendous change, stating that this customer-orientation tendency in offering value for time serves as a competitive advantage over traditional e-commerce models. In other words, self-service technology (SST) has transformed from an actual machine to a web-based system. The Internet is regarded as the world's fastest growing marketplace with seemingly limitless conditions to facilitate the marketing of products and service development (de Ruyter, Wetzels, & Kleijnen, 2001). The delivery of additional value and the online access to interactive SST have become increasingly important in obtaining competitive edge and in strengthening customer relationships. Nonetheless, customer adoption is critical in fulfilling the utilization and development potentials of web-based SST. Forrest and Mizerski (1996) suggested that researchers undertake primitive investigation to unearth customer adoption intention toward web-based SST. The evolving tendency and merits of web-based SST create a pressing need to study the behavioral intentions of customers toward adopting web-based SST.

1.2 Self-service Technology Development in the Hospitality and Tourism Industry

The intense competition and the dynamic environment of the business world today compel tourism and hospitality organizations to continue improving and maintaining their competitive advantages. The rapid development of SST draws new challenges and opportunities, continuously providing the hospitality and tourism industry with new ways to

serve. Forrester Research (2006) found that the European online travel market, including online airline ticket and hotel reservation at Expedia.com, was forecasted to record a continuous growth at approximately EURO 77 billion in 2011. The SST trend also spreads to the hospitality and tourism industry. Hotel self check-in and check-out kiosks, point-of-sales vendors, guest room automatic wake-up calls, and airport automated self-service check-in kiosks are examples of traditional SST.

In the last decade, the tourism market experienced a salient change in its sophisticated customers, who have become more demanding, seeking better choices and high involvement in purchasing decisions (Middleton, Fyall, Morgan, & Ranchhod, 2009). Tourism and hospitality organizations examine diverse ways to enhance service options, while SST provides convenient and appealing solutions to customers (Lema & Agrusa, 2009). With the rapid technological developments, especially the Internet, the SST structure is shifting from an actual machine to a web-based platform, offering higher flexibility and greater interfacing channels among multiple applications. Online travel agencies, online hotel reservations, and airline online check-in system are some examples of the new SST structure. Customers can now benefit from the increasing simplicity and user-friendliness of web-based applications. Moreover, the diffusion of SST in the tourism and hospitality industry contributes in minimizing the negative impact of certain obstacles like high turnover rates and inconsistent service standards. SST facilitates the solutions to these chronic issues.

1.3 The Importance of Self-service Technology to the Airline Industry

The airline industry takes the lead in the world economy and the international tourism industry by providing a healthy air transportation system (Cento, 2009). According to Goeldner and Ritchie (2006, pp. 123), “The airlines have revolutionized travel,” Without the

industry and air passengers, hotel occupancy is low, attractions goes unvisited, and rental cars go unrented. In the United States (US) alone, commercial aviation generates more than US$100 billion of revenue annually, with over 3,200 companies providing air transportation for passengers and cargo over regular routes and on regular schedules and employing approximately 600,000 people (Barnes Reports, 2011; Goeldner et al., 2006). Noting the importance of the industry, the airline industry was chosen as the examined context in this thesis.

The global economic recession led to the deterioration of airline profitability (Cento, 2009). Effectiveness and efficiency in doing business as well as in product and service delivery are the keys to success in a challenging business environment. As stated in the 2011 Global Aerospace Outlook Challenges of an Ever-Changing Industry (CIT Aerospace International, 2011), the airline industry is hit by multiple challenges, namely, regulations to curb carbon emissions, volatile customer demand, unpredictable regulation, soaring fuel prices, unstable fuel supply, and fierce competition. Airlines have no choice but to closely monitor their operations and identify inefficiencies to save cost. All means to improve overall efficiency should be carried out while dealing with the greater effect of global competition and moving to improve the sustainability of the business. Burdened by all these issues and challenges, airline companies are obliged to aim for cost efficiency, which can be achieved through substantial means such as airline restructuring, proper market segmentation, product differentiation, adoption of yield management, and technology inclusion (Weatherford & Bodily, 1992; McGrill & Van Ryzin, 1999). The International Air Transport Association (IATA) conducted an air travel survey regarding the adoption of self-service channels (IATA, 2007). Results indicated that air travelers not only accepted high-tech travel options, but also welcoming more opportunities to predominate over their travel experiences. Over half of the interviewees originated from Asia Pacific countries called for more self-service option.

These motives compelled IATA to launch the Fast Travel Program, which aims to provide "more choice, control and convenience to passengers through self-service channels" (IATA, 2008, pp.4). Allowing passengers to obtain their boarding passes through self-service channels, such as mobile, web, and kiosk, is one of the initiatives of the program. Majority of the airlines worldwide, including United Airways and Cathay Pacific Airways, launched the flight online check-in service, which enables passengers to check-in, select seats, and update frequent flyer information regardless of time and location. Passengers can now simply print out their own boarding pass at home or office. Upon arriving at the airport, passengers with only hand-carried baggage can proceed directly to the security check point and present the boarding pass printout, skipping queues at the regular check-in counters. Cathay Pacific e-Business manager says the company received exponential growth in online check-in system usage (eTravel Blackboard, 2009).

The adoption of SST brings mutual benefits to airlines, airports, and passengers. A prime benefit of adopting SST is saving costs. Bicker (2006) claimed that using SST, such as online check-in systems, saves airlines US$2.5 per check-in. SST is a means for airline companies to redeploy scarce and valuable resources to provide better customer service (Hospitality Technology, 2008). At the airport level, passenger congestion solutions are more critical than ever. With the increased security measures, passenger volume and airport waiting times are at an all-time high. By adopting SST, physical and technical infrastructure is significantly optimized, resulting in higher asset utilization and mitigated passenger congestion (IATA, 2008). Passengers who use SST-based check-in receive concrete benefit from having more control over their journey and completing airport formalities at their own pace. Over half of the passengers worldwide have responded positively to being provided with more self-service options to speed up their journey. They can enjoy a seamless, convenient, and simplified travel experience. With respect to the mentioned benefits to the

three groups of stakeholders, SST is pivotal to the airline industry, and the investigation on the behavioral intentions of customers toward adopting web-based SST is necessary. In response to the challenge of the airline industry and the evolving importance of web-based SST, the context of the airline online check-in system was adopted in this thesis.

1.4 Purpose and Objectives

With the evolving concern for more flexible and personalized services from customers, as along with the increasing trend in the consumption of online tourism products, SST contributes to a seamless, convenient, and simplified travel experience. The Chief Executive Officer of IATA predicted that the world will continue to become more mobile (Thomas, Hubona, & Wang, 2011). SST is shifting from an actual machine to the Internet because of the lower cost involved and the increasing popularity of the platform. Travelers today conduct information search and make travel arrangements online (Li & Law, 2007). Investigating the various factors affecting the travelers' intention to adopt web-based SST is essential because of the proven cost-saving benefit of such technology. The technology acceptance model (TAM) of Davis (1989) is the most widely adopted framework that outlines technology adoption. However, scholars' criticism on culture bias may limit the comprehensiveness of the model (Al-Gahtani et al., 2007).

Given the dynamic environment and infusion of web-based SST in the tourism industry, investigating the factors affecting consumers' behavioral intention in using web-based SST is necessary. To build a sophisticated conceptual framework on the basis of TAM, this study consolidates TAM extension studies in the tourism industry, specifically in the online setting, using a combination of qualitative and quantitative approaches. In addition, culture is a focal factor that should be taken into consideration because of the culturally diverse customers of the tourism industry. This study also considers that of Trillo (1997),

who observed that "technology is not independent of culture" and substantiated the bonding between culture and technology. Noting that past studies point to the questionable application of TAM in Asian settings and the significant relationship between culture and technology, this study adopts the Etic-Emic approach to identify culturally unique dimensions for TAM.

Hence, the objectives of this study are as follows:

1. To investigate the factors affecting technology adoption intention from an Asian perspective;
2. To identify the underlying dimensions of web-based SST adoption intention in a tourism industry setting;
3. To construct and test a conceptual model of technology adoption intention toward web-based SST in a tourism industry setting;
4. To determine the impact on attitude and adoption intention of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting;
5. To explore the differences between Asians and Westerners in terms of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting; and
6. To discuss implications and to offer recommendations for tourism practitioners with regard to improving existing web-based SST.

1.5 Significance of the Study

1.5.1 Theoretical Contribution

Various studies have attempted to modify and revise the TAM by adding different constructs (King & He, 2006; Hu, Clark, & Ma, 2003; Chen, Gillenson, & Sherrell, 2002;

Pikkarainen, Pikkarainen, Karjaluoto, & Pahnila, 2004; Mathieson, Peacock, & Chin, 2001; Premkumar, 2003; Burton-Jones & Hubona, 2006; Castañeda, Muñoz-Leiva, & Luque, 2007; Featherman & Pavlou, 2003; Hwang, 2005). Reviewing the related literature on TAM in the tourism and hospitality industry, the researcher determined that scholars also incorporated different constructs with the TAM without considering culture. Responding to the problems and critiques, this research introduces a modified TAM tailored for the industry, especially for the online setting, by collating previously studied and accepted factors and considering cultural issues. This study establishes a foundation for future research in related fields and in the application of web-based SST in the areas of technology adoption intention in the industry. Davison and Jordan (1998) and Walsham (2002) recognized the importance of embedding cultural assumptions into information technology, especially in the area of explicit evaluation of potential adopters, as Western technology designers often embody assumptions about Western culture. With the prevailing needs of globalization, the drift in SST introduction, and the flourishing development of the industry, the value of cross-cultural research is clear and supported with empirical data. After the completion of this study, a web-based SST adoption conceptual model can be further studied across cultures and information technology platforms.

1.5.2 Practical Contribution

Drawing upon the investigation on cultural issues in technology adoption intention, this study provides empirical evidence for web-based SST adoption and fosters the future development and improvement of tourism web-based SST, especially online check-in systems of airlines. Employing the Etic-Emic approach in the extension of TAM aims to address criticisms of previous TAM studies, mainly benefitting the marketing and product development facets of web-based SST. Straub, Keil, and Brenner (1997) delineated that the

value of cross-cultural research is significant because of market globalization. The findings of the present study can highlight critical factors of web-based SST adoption, and provide recommendations for practitioners to prevent failure of web-based SST implementation. Industry management and practitioners can consider corresponding means to mitigate the resistance to use and encourage usage of web-based SST. By the virtue of incorporating more culturally sensitive content in SST, the findings of the present study will help identify customer needs and wants and gain a deeper understanding of technology adoption intention from an Asian perspective.

1.6 Organization of Thesis

This thesis has seven chapters. Chapter 1 provides the research background information and the critiques of previous TAM studies, which serve as the introduction to the research objectives. Theoretical and practical significance are discussed at the end of this chapter. Chapter 2 reviews the introduction of web-based SST and the social psychological theories backing the entire research, provides detailed explanation of past relevant research shortcomings, explains the relation between technology and culture, and introduces the Etic-Emic approach. Chapter 3 introduces the two-stage methodology, the exploratory qualitative stage and the explanatory quantitative stage, including the research design, sampling plan, and the data analysis methods. Chapter 4 provides an analysis of the qualitative data, including the conceptual model derived from the literature review and the focus group interview discussions. Research hypotheses on the proposed conceptual model are presented. Chapter 5 reports the findings of pilot testing and the main survey in a chronological order using descriptive analysis, exploratory factor analysis (EFA), confirmatory factor analysis, structural equation modeling, hypotheses testing, and independent samples t-test. Chapter 6 discusses the important findings that correspond to the objectives. Chapter 7 concludes the

thesis with an overview of the study, theoretical and practical implications, as well as the limitations and future research directions.

CHAPTER 2.LITERATURE REVIEW

This chapter focuses on the definition of SST and introduces the research domain, which is the airline online check-in system. A brief discussion on several social psychological theories, including the theory of reasoned action (TRA), the theory of planned behavior (TPB), and the TAM, is included to connect the study to relevant theoretical foundations. Critiques of previous studies, the relationship between technology and culture, and the Etic-Emic approach are canvassed. This review provides an understanding of the previous research in this area, as well as background information and justification for the present study.

2.1 Definition of Self-service Technology

Information technology has transformed business processes since the 1990s and continues to influence today's fast-paced world. Increasing evidence shows that technological innovations and advancements will continue to play a focal role between customers and organizations. In response to the profound importance of technology-facilitated development, organizations gradually put more resources and investment into technology development to achieve business efficiency, improve productivity, and support management decisions (Varol & Tarcan, 2009). Technology is integrated across all industries today and replaces human service via SST.

SST refers to technological interfaces that allow customers to produce the service independent of direct involvement from the service employees (Meuter, Ostrom, Roundtree, & Bitner, 2000). Scholars asserted that marketspace has substituted the traditional marketplace (Rayport & Sviokla, 1995). Marketplace is the interaction between customers and employees requiring the physical presence of both parties, whereas marketspace is a virtual platform where transactions take place via various forms of technological channels.

The driving force behind the introduction and adoption of SST is saving costs (Fisher & Beatson, 2002). Niininen, Buhalis, and March (2007) appreciated the customer centricity feature of SST, as it allows customers to select and customize their products, as well as personalize their consumption experience. Timely and accurate information provided via SST is one kind of merit (Law, Leung, & Buhalis, 2009). SST also serves as a means to foster customer relationship management, maintain an organization's competitiveness, and improve business relationships with customers (Stockdale, 2007; Alvarez, Martin, & Casielles, 2007).

Various industries have utilized SST, and the banking industry is the pioneer. Automated teller machines (ATMs), check cashing system, in-store kiosks, interactive telephone banking, and pay-at-the pump are some examples. With the effective, efficient, and low-cost features of the Internet, SST has gradually transitioned to becoming web-based. Banks and courier service companies offer services over the Internet, such as the Federal Express and Apple store online package tracking systems, the e-banking system of The Hong Kong and Shanghai Banking Corporation, and the online movie ticket purchasing systems. The trend of SST inclusion in service encounter has also spread to the tourism industry in recent years.

2.2 Airline Online Check-in System

Technologies render a new way to foster and improve travelers' entire experience by creating many value-generating strategies (Werthner & Ricci, 2004). These value-extracting strategies include process automation, such as self-check-in of airline passengers. Alaska Airlines was the pioneer in initiating and launching the system in 1999 for general passengers on selected flights (Alaska Airlines, 2005). The online check-in system allows passengers to select seats, access updated flight information and frequent flyer information, make special

requests, and order merchandise. Since the launch of that system, an increasing number of airlines such as British Airways, Cathay Pacific Airways, Swissair, Qantas Airways, Air Asia, Air France, and Virgin Atlantic Airways, began to introduce the same. In July 2008, Sojern, Inc. an independently owned company that have partnered with six major network carriers, including American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, United Airlines, and US Airways, started enriching valuable information by incorporating weather forecasts for the trip duration and by providing cuisine choices as well as destination festivals and events (Business Wire, 2008). The merits of the system include enhanced efficiency and reduced cost (Werthner & Ricci, 2004). Passengers can use their wireless devices to access online check-in anytime and anywhere. This seamless and quick check-in process enables customers to enjoy a high degree of flexibility and control over their own time and travel arrangement, as well as plenty of shopping or leisure time in the airport commercial area (Martín-Cejas, 2006). The implementation of the system also contributes to customer service improvement and customer satisfaction by minimizing the level of bureaucracy and enhancing productivity gains (Buhalis, 2004). From the perspectives of companies, the system helps minimize check-in unit costs. British Airways, a company targeting to achieve 80% of online flight booking and 50% of online self-checking-in, implemented an online check-in system, expecting to save a total of £100 million British pounds. This example demonstrates the economic benefits of online check-in systems to airline companies.

Despite the lack of relevant data on Internet users with respect to the travel and tourism industry in Asia, statistics show that Asian Internet users increased from around 114 million in 2000 to over 1 billion in 2011, a growth rate of 789.6% (Internet World Statistics, 2012). By late June 2009, the number of Chinese Internet users reached 338 million, up by 13.4% from late 2008 (China Internet Network Information Center, 2009). The ever-changing

customer demand and the increased global competition are the main driving forces for enterprises to seek continuous improvements in their product development. An increasing number of airline companies tend to develop similar online self check-in systems, while some indicate further developments in the existing online check-in system. In view of the inevitable business dynamic, investigating the factors influencing customer's adoption of the system is necessary. Another important reason for the selection of the airline online check-in system as a research subject is the fact that no transaction is involved. Previous studies investigated various factors across numerous online settings (Van der Heijden, Verhagen, & Creemers, 2003; Pavlou, 2003; Jarvenpaa, Tractinsky, & Saarinen, 1999). However, these studies were all linked to consumer purchasing decision making. By contrast, airline online check-in system is an after-care alternative for passengers. Passengers have great flexibility and freedom to choose between using an online check-in system or the traditional human-based service.

2.3 Social Psychological Theories

The essence of this research is to investigate the factors influencing travelers' technology adoption. For a detailed investigation, this section offers a breadth of review on related social psychological theories.

2.3.1 Theory of Reasoned Action

Fishbein and Ajzen (1975) proposed the TRA under the premise that a person is rational and considers the systematic use of information available to him/her. The theory also hypothesizes that a person is under total volitional control to perform certain behaviors (Madden, Ellen, & Ajzen, 1992). Similarly, Ajzen and Fishbein (1980) believed that behavior intention is the best predictor for a particular behavior. Behavior intention, in turn, has two antecedents, namely, attitude and subjective norm. Attitude is defined as "a person's general

feeling of favorableness or unfavorabelness toward some stimulus object" (Fishbein & Ajzen, 1975, pp. 216), whereas subjective norm pertains to "the subject's perception that most people who are important to think he/she should or should not perform the behavior in question" (Ajzen & Fishbein, 1980, pp. 57). This relationship is depicted in Figure 2. In other words, subjective norm is when an individual desires and perceives the preferences recommended by his/her close referents while performing a certain behavior. Support for this theory is quite extensive in consumer behavior research (Belleau, Summers, Xu, & Pinel, 2007; Shimp & Kavas, 1984; Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Singh, Leong, Tan, & Wong, 1995) and marketing research (Kalafatis, Pollard, East, & Tsogas, 1999; Buttle & Bok, 1996; Choong, 1998; Dubinsky & Loken, 1989). Sheppard, Hartwick, and Warshaw (1988) credited the predictive utility of the theory across conditions.

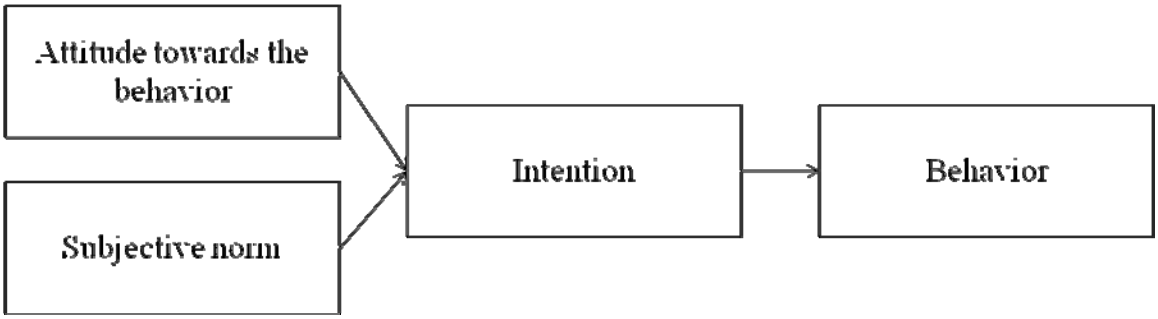

Figure 2. Theory of Reasoned Action (adapted from Ajzen & Fishbein, 1980)

2.3.2 Theory of Planned Behavior

The TPB, initiated by Ajzen (1991), was an extension of the TRA in predicting human behavior and behavioral intention. The theory posits that an individual's behavior is a function of his/her intention, in which the person's attitude, subjective norm, and perceived behavioral control can predict human behavioral intention and actual behavior (Figure 3). This theory is proposed because of the necessity to address the original model's limitation in dealing with subjects who have incomplete volitional control. Despite a person's willingness to perform a behavior, the performance somehow depends, to a certain degree, on several

non-motivational factors, such as the availability of requisite opportunities and resources. These factors collectively comprise a person's actual control over the behavior. Hence, behavior is jointly determined by motivation (attitude and subjective norm) and ability (perceived behavioral control).

The TPB has been applied and validated in several consumer behavior studies, such as in alcohol consumption (Conner, Warren, Close, & Sparks, 1999), unethical behaviors (Man, 1998), condom use (Reinecke, Schmidt, & Ajzen, 1996), leisure activity participation (Ajzen & Driver, 1991), hunting intention (Hrubes, Ajzen, & Daigle, 2001), committing driving violation (Parker, Manstead, Stradling, Reason, & Baxter, 1992), smoking cessation (Norman, Conner, & Bell, 1999), healthy eating (Conner, Norman, & Bell, 2002), and recycling behavior (Cheung, Chan, & Wong, 1999). Hospitality and tourism field researchers also broadly adopt TPB and examine it in the context of customer or tourist behavior such as customer dissatisfaction response in restaurant (Cheng, Lam, & Hsu, 2005), potential Chinese travelers to Hong Kong (Lam & Hsu, 2004), destination selection (Lam & Hsu, 2006), vacationers' revisitation (Petrick, Morais, & Norman, 2001), and sustainable tourist behaviors (Budeanu, 2007)

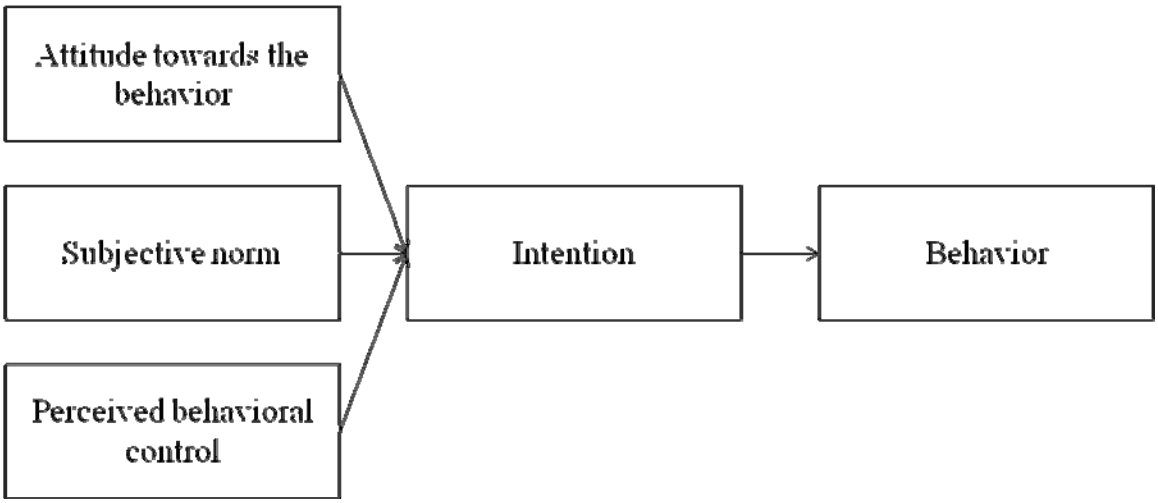

Figure 3. Theory of Planned Behavior (adapted from Ajzen, 1991)

2.3.3 Technology Acceptance Model

The TAM, similar to TPB, is another derivative model of the TRA. Davis (1989) tailored this model for the study of user acceptance of information technology system, aiming to explain users' technology adoption of technology-facilitated applications (Davis, Bagozzi, & Warshaw, 1989). TAM was an early attempt in applying psychological factors to technology adoption (Schepers & Wetsels, 2007). The model was based on two theoretical constructs, namely, perceived usefulness and perceived ease of use, which are the fundamental determinants. According to Davis (1989), perceived usefulness is the extent of a person's perception that using a specific system would enhance job performance, whereas perceived ease of use is defined as the degree of a person's belief that using a specific system is effortless. In the TAM, perceived usefulness served as both dependent variable and independent variable because it was found to be useful in predicting behavioral intention, and it can be predicted by perceived ease of use. Higher level of agreement on these constructs pointed to a positive relationship with the adoption of the system. The model postulated that individual's technology usage was determined by behavioral intention, which was jointly affected by perceived usefulness and attitude. The concept is illustrated in Figure 4.

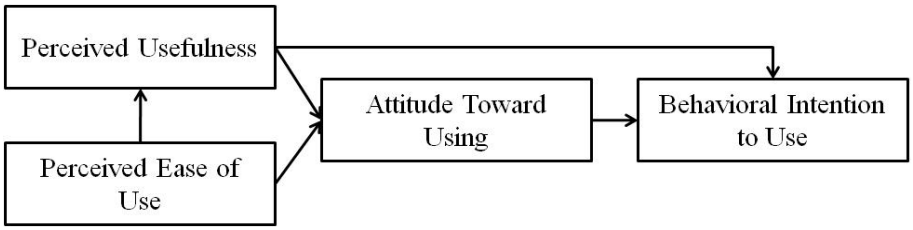

Figure 4. Technology Acceptance Model (adapted from Davis, 1989)

The two determinants stated above are supported with accumulated empirical research and strong theoretical foundation (Chen et al., 2002; Szajna, 1994; Hendrickson, Massey, & Cronan, 1993). Since 1990, the first TAM article (Davis, 1989) has received 2,462 journal

article citations in the Social Science Citation Index. Hence, the model is considered as a robust theoretical framework across time and technologies, such as entertainment-oriented information system (Heijden, 2004) and hand-held devices (Bruner & Kumar, 2005), and an efficient tool in predicting information technology adoption of individuals. Since the establishment of the TAM, numerous scholars attempted to add external variables and integrate them with the model, aiming to raise the explanatory power. Lee, Kozar, and Larsen (2003) conducted a comprehensive research on TAM-related articles from 1986 to 2003, and found 25 variables introduced by previous researchers. Self-efficacy (Fenech, 1998), perceived enjoyment (Chin & Gopal, 1995), prior experience (Dishaw & Strong, 1999), and computer anxiety (Gopal, Miranda, Robichaux, & Bostrom, 1997) are just a handful of examples. The TAM is empirically tested to be a robust model, with the support of the well-established TRA theory, and serves as a theoretical foundation guiding this research. Based on the literature, two hypotheses are proposed:

Hypothesis 1: Perceived usefulness influences travelers' intention of adopting web-based SST, mediated by attitude.

Hypothesis 2: Perceived ease of use influences travelers' intention of adopting web-based SST, mediated by attitude.

2.4 Critiques on Technology Acceptance Model Studies

Albeit being empirically tested to have strong explanatory power, the TAM remains questionable because it was merely examined and validated in Western contexts. Al-Gahtani, Hubona, and Wang (2007) raised a possible limitation of TAM, stating that the model may not be applicable for non-Western cultures. Schepers and Wetzels (2007) commented that culture is a moderator in splitting between Western cultures, such as Europe, North America,

Australia, and New Zealand, and other cultures in information technology adoption studies. Meanwhile, Kedia and Bhagat have long called for the recognition of cultural variations across nations in consumer and technological research. However, cultural factors have yet to be intensely investigated in technology diffusion literature because of its subtlety and complication (Philips, Calantone, & Lee, 1994).

While the TAM was initially developed in the U.S., the majority of TAM–related studies are conducted in industrialized, Western contexts such as North America and Europe; only a scant number is conducted outside the North America (Ho, Raman, & Watson, 1989; Robey & Rodriguez-Diaz, 1989; Straub et al., 1997; Heijden, 2004; Rose & Straub, 1998). McChoy, Everard, and Jones (2005) stated that the model is culturally biased. Hence, the universal application of the TAM is questionable (Anderson, Al-Gahtani, & Hubona, 2008). McCoy, Galletta, and King (2007) criticized the literature exploring the TAM from a perspective of limited cultural orientation. A widely adopted definition of culture is by Hofstede (1980), who defined culture as "the collective programming of the mind which distinguishes the members of one group or category of people from other" (pp. 5). Hofstede (1993) posited that national culture is inferable in behaviors and practices through verbal statements, although it cannot directly be observed or accessed. Straub et al. (1997) observed that cultural differences existing among countries would influence a multinational company's ability to adopt and utilize information technology. Given the rapid momentum in globalization, the extent to which the TAM applies to all cultures around the world must be explicated urgently.

Merely applying the TAM in similar information systems and environments is another shortcoming of past studies. Lee et al. (2003) consolidated over a hundred TAM-related studies and discovered that more than 30 information systems were examined from 1992 to 2001. These systems can be categorized into four areas, namely, communication systems,

general-purpose systems, office systems, and specialized business systems. They further recommended the exploration of more diverse settings and contexts, particularly in the study of Internet. McChoy et al. (2005) concurred with Lee et al. (2003), suggesting that the study of technology adoption in the Internet context should be carried out because of the proliferation of the Internet. Unclear classification of the mandatory or voluntary situation of respondents is another problem (Lee et al., 2003). For instance, scholars applied the TAM in a general office information system and assumed that respondents (associates) were voluntarily using certain information systems, when in fact, the respondents simply had no choice. Therefore, the result of such studies may vary in mandatory and voluntary situation.

Furthermore, Lee et al. (2003) also argued that researchers of the TAM simply replicated previous studies and made minor adjustments without making any significant contribution on knowledge, despite the use of the TAM in providing a systematic ground for many extensions and elaborations. Qualitative study is a more useful alternative to obtaining richer information and gaining more insight in relative areas. Several information system scholars also perceived the advantages of triangulation and incorporating qualitative methods with quantitative methods, which help uncover richer results than when a single method is used (Karahanna & Straub, 1999; Lee, 1991; Rousseau & Tijoriwala, 1998).

2.5 The Relationship between Technology and Culture

Driven by service improvement and work efficiency, organizations have invested heavily in information technology with the likelihood of continuing this investment pattern into the near future (Chau & Hu, 2002). Under the current shift to globalization, an increasing number of organizations operate across cultures. Therefore, technology adoption has a great influence on service encounter, and the need to be responsive to customers from different

cultures who perceive technology in customer service delivery is important. Culture affects lifestyle, and lifestyle influences how people communicate and interact with technologies (Brandtzæg, 2010). According to Fisher and Beatson (2002), culture has a significant influence on the effectiveness of organizations. Service providers have to adopt the culture of the customer during a service encounter process so as to obtain customer satisfaction. Fisher and Beatson (2002) conducted a preliminary discussion on the relationship between technology and culture under Hofstede's model. Past literature also studied cultural influence on service delivery (Donthu & Yoo, 1998; Fisher & Beatson, 2002; Winsted, 1997; Mattila, 1999), advertising (Green, 1999), or cultural barriers to technology transfer (Jensen & Scheraga, 1998; Scheraga, Tellis, & Tucker, 2000).

Studies on the TAM and culture suggested limited propositions to change the basic structure of the model by incorporating cultural influences. These studies simply concentrated on antecedents to the original constructs of the TAM varying across cultures or perceived culture as a moderator (Fusilier & Durlabhji, 2005; Lee et al., 2003). Anadarajan, Igbaria, and Anakwe (2002) found it surprising to observe a non-significant relationship between perceived usefulness and microcomputer usage in an Asian metropolitan city due to cultural differences. A possible explanation is the abstractive versus associative characteristics of Western and non-Western culture suggested by Glenn and Glenn (1981) as well as by Kedia and Bhagat (1988). People from associative cultures utilize association among events that may not have logical basis, whereas those from abstractive cultures use a rational cause-effect relationship style of thinking. In associative cultures, cognition and behavior are often diffused, and communication is characterized by face-to-face contact. This culture is prevalent in Africa, Asia, and in some countries in Latin America such as Peru and Colombia. On the contrary, major communication in abstractive cultures is conveyed via mass media and technological mechanisms. Europe and North America are typical examples of

abstractive cultures. This theory is supported by several studies. Anadarajan et al. (2002) noted that social pressure is critical in usage behavior, whereas Shih and Venkatesh (2003) examined the home computer usage in the U.S., Sweden, and India, finding out the significant relationship of attitudinal belief with usage outcome in the Indian sample. Culture is therefore found to have an influence on technology adoption behavior. Pookulangara and Koesler (2011) asserted that every region in the world is culturally different, highlighting the need to understand whether technology adoption intention of people for various cultures varies from each other. Their study also emphasized the need of incorporating a cultural element in the basic constructs of the TAM.

2.6 Etic-Emic Approach

The importation of well-established Western frameworks or models provides Asian researchers with value-laden evidence on applications. However, a number of concerns regarding the "transport and test" of knowledge importation remain, as the move "ignore the cultural meaning of the local conceptualization of the patterns of behavior" (Cheung, Cheung, Wada, & Zhang, 2003, pp.280). Brislin (1976) also mentioned a major problem in cross-cultural studies, stating that researchers simply borrow instruments that are designed, pretested, and validated in one culture, and then replicate such instruments without any modification for another culture. Drawing conclusions about a culture based on the scoring norm of another culture is problematic and misleading. Other cross-culture researchers also challenged the omission of culture-specific constructs that are indigenous to a specific culture (Yiu, Au, & Tsang, 2001; Paunonen, Keinonen, Trzebinski, Forsterling, Roze, Kouznetsova, & Chan, 1996; Cheung, Leung, Zhang, Sun, Gan, Song, & Xie, 2001; Cheung, Leung, Fan, Song, Zhang, & Zhang, 1996; Maesella & Leong, 1995; Jahoda, 1984; Alegria, Vila, Woo, Canino, Takeuchi, Vera, Febo, Guarnaccia, Gaxiola, & Shrout, 2004).

In response to this issue, Brislin, Lonner, and Thorndike (1973) initiated the Etic-Emic paradigm. The etic approach involves evaluating a particular phenomenon or situation with a more culturally neutral or objective constructs, ensuring reliability by standardizing measures (Brislin et al., 1973; Rousseau & Tijoriwala, 1998). The approach emphasizes the core similarities across culture. Cheung et al. (1996) appreciated the combined Etic-Emic approach as useful in constructing new factors suitable for local needs and in retaining the validity and reliability of the established measuring items.

By contrast, the emic approach commences with the investigation of the concepts within the culture, and then proceeds with the understanding of the meaning of the concepts investigated, which are then associated with other factors in the cultural framework. Rousseau and Tijoriwala (1998) observed that the emic approach embeds distinctive and setting-specific content to the constructs. Qualitative methodology can be helpful in capturing the unfiltered perspective. With regard to the utilization of a culture-specific orientation, Harris (1976) claimed that the emic approach is to "get inside of people's heads," implying that the most effective way is to communicate and ask informants of particular cultures. In-depth interview and focus group interview are examples of methods to achieve this purpose.

Previous studies on the TAM in the tourism and hospitality industry of Asian countries simply replicated the constructs and measurements from the original study. These studies fall into the "category fallacy" because the differences across groups and cultures are omitted (Kleinman & Good, 1985). Given the merits of the Etic-Emic approach, the present study responds to the inconsistencies in previous TAM studies in Asian setting by adopting combined methods to establish a culturally valid and reliable web-based SST adoption conceptual framework for the tourism industry.

CHAPTER 3. METHODOLOGY

This chapter presents the research methodology utilized to achieve the determined objectives. Exploratory and explanatory research designs are employed to examine the factors affecting the behavioral intention behind the use of web-based SST. Methodological triangulation refers to the use of multiple approaches in excogitating the answer or information sought, such as the combination of literature review, focus group interviews, and quantitative methods (Oppermann, 2000).

3.1 Research Design

This thesis employed the mixed method, which is a combination of qualitative and quantitative methods, as the research strategy. According to Calder (1977, pp.353), qualitative research is characterized "by the absence of numerical measurement and statistical analysis," thereby providing an in-depth and subjective understanding of the respondents. The adoption of qualitative research was useful in the exploration and consideration of the dimensions involved in the study, and in the development of new themes, ideas, and topics of interest (Gilmore & Carson, 1996). Zikmund (2003) further signified the merits of exploratory qualitative study, saying that this type of study helped to deduce a situation with limited understanding and to crystallize a problem. In the present study, the utilization of the qualitative approach was expected to generate new factors based on those studied in previous literature upon completion of the exploratory qualitative stage. Quantitative method allows hypotheses testing and theory building. The method is widely used in confirming a well-established instrument, thereby laying a ground for future research. Hence, the mixed method research strategy was adopted for the present study.

The thesis methodology consisted of two stages, the exploratory qualitative stage and the explanatory quantitatve stage. As the key purpose of this thesis was to construct a conceptual model on technology adoption intention of web-based SST in a tourism industry setting, the entire research was guided by the systematic instrument development approach suggested by Churchill (1979). The procedure included

1. specifying the domain of construct,
2. generating sample of items,
3. purifying measure,
4. assessing reliability, and
5. assessing validity.

In the exploratory qualitative stage, the study commenced with the application of the Etic-Emic approach to specify the domain of construct and to generate sample of items. Under the etic approach, TAM-related literature presented from the western perspective was reviewed. Under the emic approach, four focus group interviews with Asians were conducted to address the Asian aspect of the study. The completion of the emic approach also fulfilled the first objective of the thesis, which is to investigate the factors affecting technology adoption intention from the Asian perspective. Following the Etic-Emic approach was the generation of a preliminary list of factors affecting web-based SST adoption intention as well as corresponding measuring items, both of which were used as the basis for questionnaire development. Expert panel assessment, suggested by Zaichkiwsky (1985), was used to assess the content validity of the measuring items.

In the explanatory quantitatve stage, the questionnaire approved through the expert panel assessment was pilot tested. The findings of the pilot testing fulfilled Steps 3, 4, and 5 of the Churchill (1979) instrument development process used to develop reliable and valid

measures. Once valid and reliable measurements were formulated, the main survey was consequently distributed. The results were discussed and served as the basis for formulating recommendations to industry practitioners in relation to improving current web-based SST in the tourism industry. The entire research path is outlined in Figure 5.

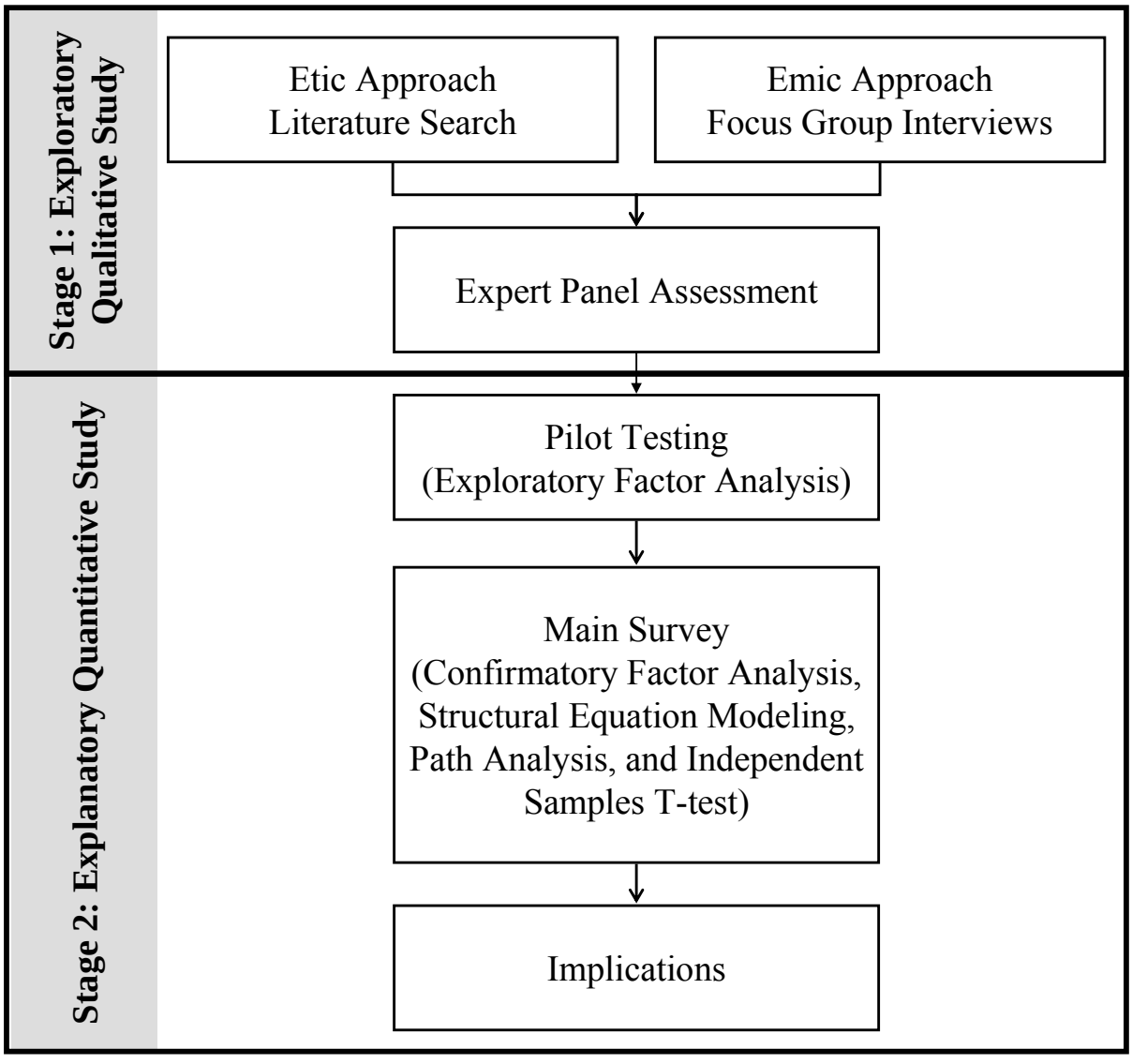

Figure 5. Research Path

3.2 Stage 1: Exploratory Qualitative Study

3.2.1 Literature Search (Etic approach)

The initial literature search aims to generate a preliminary understanding of TAM-related studies in tourism and hospitality academic journals, and to provide a conceptual foundation for the investigation of constructs. Tourism and hospitality academic journals were reviewed to fulfill the objective of constructing a conceptual framework of web-based SST in a tourism setting. The basic processes included the identification of sources, selection of eligible literature, and content analysis. To identify sources, EBSCOhost Hospitality and Tourism Complete and the proceedings of the Information and Communication Technologies in Tourism Conference were selected for database search. The former database contains 828,000 records of scholarly research and industry news in the tourism and hospitality industry dating back from 1965 (EBSCOhost, 2011). In addition, the annual conference, with 18 years of history, has been reputed as the world's largest event on Information and Communication Technologies and tourism (Law, Fuchs, & Ricci, 2011). These databases boast of a broad collection of relevant studies, providing comprehensive coverage on TAM-related articles in this field. Articles were sorted according to three criteria: (i) empirical study of the factors affecting technology adoption, (ii) examination of the online setting, and (iii) voluntary adoption. These selection criteria respond to the evolving trend of Internet utilization and to the criticism toward the voluntary assumption of past studies. From the shortlisted articles, content analysis was carried out to identify the factors affecting web-based SST adoption. The results of the analysis served as the foundation for further investigation through the focus group interviews.

3.2.2 Focus Group Interviews (Emic approach)

Conducting a focus group interview is a means of employing the emic approach. As the TAM was established in Western countries, non-Western focus group interviewees were invited to participate in the study. The purpose of the focus group interview was to generate new constructs affecting technology adoption intention, as well as to evaluate the representation of the constructs found from past literature and the degree of representation of the measuring items with respect to individual constructs. Snowball sampling was adopted to recruit focus group members. It commenced with inviting Asian research assistants and research students in the School of Hotel & Tourism Department who had experienced in using any airline online check-in system within the past 12-month. The first degree contact interviewees were asked to refer their friends who were fit the criterion participating in the focus group interviews. A total of 24 Asians who had experience using an airline online check-in system were invited for the focus group interviews, which were divided into four groups based on their availability. Each interview lasted approximately 45 to 60 minutes. The focus group interviews were semi-structured with some pre-determined questions and allowed free-flowing discussion. The questionnaire used for the focus group interview is attached in Appendix 1. The interviewees shared their experiences and thoughts about using online airline check-in systems. Three key questions were asked:

1. Why do you use the online check-in systems of airlines?
2. Do you like or dislike using online airline check-in systems?
3. Why do you like or dislike using online airline check-in systems?

After a free-flowing discussion on the aforementioned questions, the interviewees were required to indicate their viewpoints by rating the degree of representation of 41 attributes to

measure related factors. A rating of 1 indicated *not representative*, 2 indicated *somewhat representative*, and 3 meaning *clearly representative*. The items rated as 2 or 3 were retained in the questionnaire, whereas items rated as 1 required an explanation or reason from the respondents. The researcher, acting as a facilitator during the interview process, encouraged the exchange of ideas among interviewees and summarized the key points being discussed. Discussion content was recorded for further transcription, data coding, and content analysis to transform the data into meaningful information. All transcripts underwent an indexing method to organize the information into different thematic categories or subcategories. The categories were summarized into meaningful patterns, and the conclusions were then interpreted. As to data collection, member checking and triangulation were employed through a range of individuals to ensure the trustworthiness and validity of the findings (Maxwell, 2005).

3.2.3 Expert Panel Assessment

Subsequent to the Etic-Emic approach, a preliminary list of measuring items was generated. Expert panel assessment followed to evaluate the content validity (Zaichkiwsky, 1985). Seven faculty members from the School of Hotel and Tourism Management of The Hong Kong Polytechnic University were invited as panel members. They were selected based on their extensive experience in conducting research on tourist behavior. The questionnaire used for the expert panel assessment is enclosed in Appendix 2. During the assessment, the panel members were asked to indicate the representativeness of each individual measurement on a three-point Likert-type scale, with 1 indicating *unrepresentative*, 2 indicating *somewhat representative*, and with 3 meaning *representative*. A frequency count of the individual statement ratings by all panel members was conducted. If two or more members rated any specific item as "unrepresentative," the items were eliminated. This procedure eliminated

unrepresentative measuring items, checked the wording for finality, and provided the final judgment on questionable measuring items. The panel members were also asked to rephrase or modify statements to improve clarity and content validity. The questionnaire was then finalized.

3.3 Stage 2: Explanatory Quantitative Study

A cross-sectional research design was employed in this study. The major purpose of the survey was to achieve the second and third objectives, namely, identifying the underlying dimensions of web-based SST adoption intention in a tourism industry setting, and constructing and testing a conceptual framework on technology adoption intention toward web-based SST in a tourism industry setting. A pilot test was carried out before mass distribution of the questionnaire to ensure further that all items are easily understandable. Some modifications were meant to be implemented afterwards. The pilot testing was followed by the actual data collection to achieve the objectives.

3.3.1 Research Instrument Design

The study employed a structured questionnaire as its main research instrument. The questionnaire consisted of five sections. Section One was a screening question inquiring whether respondents had used an airline online check-in system for their flights within the past 12 months. The former criterion served as a control variable, aiming to evaluate the same ground and to refresh the memory of the respondents with regard to their related experience. Respondents who failed to fulfill the criterion would terminate their participation in the survey at this stage; eligible respondents would continue to complete the questionnaire. Section Two was the key section of the entire questionnaire, as it inquired about the respondents' level of agreement on various factors identified from the literature and focus group interviews that affect their behavioral intention toward using airline online check-in

systems. Respondents replied using a seven-point Likert-type scale ranging from (1) strongly disagree, (2) disagree, (3) somewhat disagree, (4) neutral (neither agree nor disagree), (5) somewhat agree, (6) agree, to (7) strongly agree. The seven-point Likert-type scale was utilized as it was found by Diefenbach, Weinstein, and O'Reilly (1993) to be more sensitive than the five-point scale during their research on the effectiveness of a wide variety of commonly used likelihood scales.

Section Three sought the attitudes and intentions of the respondents in using airline online check-in systems. Respondents replied using a seven-point Likert-type scale ranging from (1) strongly disagree, (2) disagree, (3) somewhat disagree, (4) neutral (neither agree nor disagree), (5) somewhat agree, (6) agree, to (7) strongly agree. The measurements were derived from previous literature (mentioned in Chapter 4). Section Four comprised questions about respondents' trip profile, including the frequency of use of the system within the past two years, travel purpose of last air trip, long-haul or short-haul flight, travel companion, and the airline used during the last air travel. The final section, Section Five, gathered the demographic information such as gender, age range, educational attainment, and nationality. The information obtained was useful in classifying respondents into specific categories during data analysis and discussion.

The questionnaire was drafted in simplified Chinese and English, as both Westerners and Asians were the target respondents for this study. Back translation method was employed. According to Maneesriwongul and Dixon (2004), back translation method involves translating the text back into the original language used, aiming to verify the accuracy of the translation. The author originally developed the questionnaire in the English language. A Chinese postgraduate student, who is also proficient in the English language, was invited to carry out the task of back translation, translating the instrument from English to Chinese. Another postgraduate student translated the instrument from Chinese to English. The author

cross-checked the two versions and made the final judgment. Cross-checking ensured the consistency and accuracy of the wordings in the two versions.

3.3.2 Sampling Plan

As mentioned in Section 3.3.1, the target sampling population for both the pilot test and the main survey was travelers who had used an airline online check-in system for their flights within the past 12 months, regardless of gender and nationality. In relation to the sample size, no rule was laid out for the number of subjects invited to test the items for consistency. For the pilot testing, a sample of 200 respondents was required for significance because EFA was employed (Hair, Black, Babin, & Anderson, 2010). An online survey (as shown in Appendix 3) was initiated by posting the survey link on nine travel review websites as well as on 38 airlines and travel-related Facebook pages. Finding summary would be provided to respondents upon request. The context of data collection was considered appropriate because the online setting was the examined context for this thesis. The pilot testing data collection took place from September 2011 to November 2011. The response rate was 53.3%, eventually yielding 202 usable questionnaires.

In survey data collection, McQuitty (2004), and MacCallum, Browne, and Sugawara (1996) addressed the importance of determining the minimum sample size prior to data collection to achieve a desired level of statistical power for testing the hypotheses in relation to fitting covariance structure models. DeVellis also (1991) observed that a small sample size led to instability in covariance estimates. Although minimal consensus has been reached on the recommended sample size for structural equation modeling (Sivo, Fan, Witta, & Willse, 2006), a critical sample size of 200 for structural equation modeling techniques was proposed by scholars (Hair et al., 2010; Garver & Mentzer, 1999; Hoelter, 1983). In other words, the minimum sample size of the main survey conducted for the study was 200.

The researcher recruited 12 undergraduate student assistants to distribute questionnaires at the Hong Kong International Airport. A training workshop covering interviewer etiquette, questionnaire review, special remarks, and other housekeeping issues, was conducted to equip the student assistants with appropriate etiquette and sufficient knowledge prior to the actual survey execution. A questionnaire kit inclusive of questionnaires (as shown in Appendix 4), permission approved by the Hong Kong International Airport Authority (as shown in Appendix 5), stationeries, and training materials was distributed to each student assistant at the end of the training workshop. The survey took place at the Departure Hall and at the Meeters and Greeters Hall during the weekends of March 2012, covering morning, afternoon, and evening to reach passengers travelling both short-haul and long-haul flights. Postcard featuring the Tian Tan Buddha, one of the iconic tourist attractions in Hong Kong, was given away as incentives for respondents who completed the survey. Quota sampling method was adopted to ensure a relatively balanced sampling proportion from different nations. Past literature merely proposed a vague classification of Westerners and Asians. The present research referred to the classification suggested in the studies of Schepers et al. (2007) and Mckercher and Lew (2003). Respondents originating from Europe, North America, Australia, and New Zealand were classified as Westerners, whereas those from China, South Korea, Japan, Vietnam, Thailand, Malaysia, Singapore, and Indonesia were classified as Easterners. Convenience sampling was also employed. The next immediate convenient sampling respondent was invited for interview if the selected respondent was unwilling to participate in the survey. A total of 479 valid questionnaires were collected for further analysis. As advised by the 12 student assistants, the response rate of the survey was approximately 4%.

3.3.3 Data Analysis

EFA was employed to refine and purify the structure and dimensions according to the data obtained from the pilot test. The measuring items were adapted from different studies. Descriptive analysis was performed to analyze the demographic and trip profiles of the respondents. For the main survey stage, the data were first analyzed through confirmatory factor analysis based on factor loadings, convergent and discriminant validity, goodness-of-fit measures, and correlations among latent variables. Structural equation modeling analysis was then conducted once the proposed model generally fitted the sample data well. Byrne (2010) defined structural equation modeling as "a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the multivariate analysis of a structural theory bearing on some phenomenon" (p. 3). Structural equation modeling simultaneously examined and explained the dependence relationship of the investigated latent constructs (Reisinger & Turner, 1999; Yoon & Uysal, 2005). In other words, the structural equation modeling hypothesized relationships among multiple constructs, resulting in a clearer theory conceptualization of the study (Yoo, Gursoy, & Chen, 2001). In the present study, structural equation modeling was performed to investigate the relationships between the criterion variable of technology adoption intention and all other constructs. The goodness-of-fit indices and the parameter were evaluated via the maximum likelihood estimation method. Path analysis was carried out to test the proposed hypotheses. Finally, the t-test of independent samples was employed to explore the differences in perceptions of Asians and Westerners toward web-based SST adoption intention. Descriptive analysis was performed to analyze the demographic and trip profiles of the respondents.

CHAPTER 4. ANALYSIS OF QUALITATIVE DATA

4.1 Literature Serach (Etic Approach)

A total of 61 TAM-related articles were identified after searching the databases of EBSCOhost Hospitality and Tourism Complete and the Information and Communication Technologies in Tourism Conference. After the sorting process, eight articles were determined eligible for further analysis (Casaló, Flavián, & Guinalíu, 2010; Luque-Martínez, Castañeda-García, Frías-Jamilena, Muñoz-Leiva, & Rodríguez-Molina, 2007; Ryan & Rao, 2008, Kim, Kim, & Shin, 2009; Morosan & Jeong, 2008; Bigné, Sanz, Ruiz, & Aldás, 2010; Morosan & Jeong, 2006; Park & Gretzel, 2006). The detailed explanation, definition, and related research are discussed in this section. The following were identified upon consolidation of the factors affecting web-based SST adoption identified from the eight articles: perceived usefulness, perceived ease of use, subjective norm, trust, perceived risk, perceived playfulness, prior experience, perceived behavioral control, and attitude. The context, constructs, data collection method, subjects, and findings of the related studies are listed in Table 1. The pool of constructs were not considered as comprehensive and exhaustive because the original TAM was established in the U.S., and inconsistent results were recorded in Western and non-Western countries. Therefore, the pool of constructs merely served as the basis of the proposed conceptual framework and facilitated the flow of focus group interviews.

Table 1. Literature Review on Previous TAM Extension Studies in Hospitality and Tourism Industry

Author(s)	Context	Constructs	Data Collection Method	Subject	Findings
Casaló, Flavián, & Guinalíu (2010)	Spanish online travel agency	Perceived usefulness Perceived ease of use Attitude Subjective norm Perceived behavioral control	Web-based survey	Members of several firm-hosted online travel communities	A→AI PBC→AI PU→AI PU→A PEOU→A PEOU→PU
Luque-Martínez, Castañeda-García, Frías-Jamilena, Muñoz-Leiva, & Rodríguez-Molina (2007)	Internet searching for holiday information	Perceived usefulness Perceived ease of use Attitude	Survey	Tourists	PU→AI PU→A→AI PEOU→AI PEOU→A→AI
Ryan & Rao (2008)	Online purchase Holiday and travel-related product	Perceived usefulness Perceived ease of use Risk and security	Survey	International vistors	PEOU→BI PU→AI
Kim, Kim, & Shin (2009)	Airline website	Perceived usefulness Perceived ease of use Subjective Norm eTrust Attitude	Survey	Customer utilizing B2C eCommerce on airline websites	PEOU→PU→A→ AI PU→A PU→ AI A→ AI SN→PU→A→ AI T→A→ AI
Morosan & Jeong (2008)	Hotel reservation website	Perceived usefulness Perceived ease of use Attitude Perceived playfulness	Electronic Survey	University students	PU→A→ AI PEOU→A→ AI PP→A→ AI

Bigné, Sanz, Ruiz, & Aldás (2010)	Airline website	Perceived usefulness Perceived ease of use Perceived risk Perceived behavior control Subjective norm Trust	Survey	Internet users who have never purchased airline ticket online	PEOU→A PU→A→ AI PEOU→PU SN→ AI PBC→ AI PEOU→T T→A→ AI
Morosan & Jeong (2006)	Hotel reservation website	Perceived usefulness Perceived ease of use Prior experience Perceived playfulness Attitude	Online survey	University students	PU→A PEOU→A PEOU→PU A→ AI PP→A→ AI PEOU→PP PE→PU PE→PEOU PE→A
Park & Gretzel (2006)	Online travel booking sites	Perceived usefulness Complexity Trust Subjective norm	Survey	Graduate student	PU→ AI C→ AI T→ AI

PU: perceived usefulness; PEOU: perceived ease of use; SN: subjective norm; T: trust; PR: perceived risk; PP: perceived playfulness; PE: Prior experience; PBC: perceived behavioral control; A: attitude; C:complexity; AI: adoption intention

4.1.1 Trust

Trust is applicable to a wide range of relationships among individuals and organizations. Under the context of social psychology, trust refers to the willingness of a trustor to be vulnerable to the actions of a trustee (Mayer, Davis, & Schoorman, 1995). It is a combination of benevolence, integrity, and trustworthiness, all of which increase behavioral intention through reduced risk among inexperienced consumers (McKnight, Cummings, & Chervany, 1998). Empirical studies found that trust is very much correlated with future interaction intentions (Doney & Cannon, 1997; Corbitt, Thanasankit, & Yi, 2003; Kim & Prabhakar, 2004). Several empirical studies attempted to evaluate trust under the TAM (Gefen, 2000; Corbitt et al., 2003), the results of which showed that perceived usefulness and perceived ease of use are important determinants in trust formation. More importantly, consumers indicate that trusting online transaction systems affects their acceptance of the e-commerce system. This evidence reflects the significant influence of trust toward the acceptance of online systems.

Trust contributes to long-term relationship building with consumers. Pavlou (2003) posited that trust is a catalyst among consumers and organizations, whereas Kim et al. (2009) observed that trust is the most significant long-term obstacle for realizing the potential of e-commerce. According to Gefen (2000), online consumers believe that online sellers are willing to bear consumers' interest in mind by maintaining honesty in transactions and by being capable of delivering services as promised. In online transactions, security and privacy concerns are highly addressed and are catching extensive amount of attention. Shon, Chen, and Chang (2003) suggested that security is the primary issue persuading consumers to stay with a traditional travel agency instead of an online travel agency. Moreover, trust is described as the belief that the organization behaves in a socially responsible manner and fulfills the trustee's expectations without taking advantage of the latter's vulnerabilities

(Pavlou, 2003). The lack of trust also prevents consumers from engaging in online transactions if the organization fails to convey a sense of trustworthiness. Therefore, trust is a significant factor in ensuring the continuation of a customer's relationship with the organization. In a similar vein, trust is widely adopted in consumer behavior research (Liu, Marchewka, Lu, & Yu, 2005; Luarn & Lin, 2005; Bock, Zmud, Kim, & Lee, 2005). On the contrary, trust is a latent behavioral belief directing an individual's attitude toward a purchasing behavior (Wu & Cheng, 2005). A trustworthy organization indicates a higher possibility of gaining benefits and preventing possible risks of the consumption. Trust, therefore, is hypothesized as the common antecedent of attitude. Hence, the following hypothesis regarding the relationship between trust and behavioral intention is proposed:

Hypothesis 3: Trust positively influences travelers' intention of adopting web-based SST.

4.1.2 Subjective Norm

Subjective norm is powerful in explaining individual behaviors to some extent. Social influence from acquaintances is accounted by the TPB that includes decision makers' subjective norm relating to their internal referent such as family and friends (Ajzen, 1991). Evidence points to the strong connection of active information-seeking and decision-making behavior to external referents (Leonard-Barton, 1985). Internal referent groups are those with whom the decision maker has close ties, whereas external referent groups have distant ties with the decision maker (Taylor and Todd, 1997). Brown and Reingen (1987) also indicated word of mouth (WOM) from an expert and an opinion leader plays an important role in shaping consumers' attitudes and behaviors. Knowing the importance of subjective norm on consumers' behavior, few scholars attempted to define subjective norm (Anjzen, 1991; Taylor & Todd, 1995; Song & Zahedi, 2001; Song & Kim, 2006). Anjzen (1991) stated that it

is a socially expected mode of conduct, whereas Taylor and Todd (1995) claimed that subjective norms reflect "perceptions that significant referents desire the individual to perform or not perform behavior." Consolidating all the reviewed definitions, this study defines subjective norm as "perceived social pressure or others' opinions regarding the product and using other people's information in order to avoid unsatisfactory outcomes."

Legris, Ingham, and Collerette (2003) argued that the TAM is a useful model, but the inclusion of human and social change process variables are required. Numerous studies incorporated the construct thereafter. In most cases, subjective norm is directly and significantly related to a person's intention to use the system (Schepers et al., 2007). When a person perceived that his or her important referents think he or she should use the system, the person incorporates the referent's beliefs into his own belief system, thinking that a large number of people cannot be wrong in their opinions, so the system must be useful, even though the person does not like or believe in the system (Venkatesh & Davis, 2000). Although subjective norm appears to be essential, the TAM itself does not explicitly include any subjective norm construct. Furthermore, Kim et al. (2009) conducted an empirical testing on a group of over 400 customers using e-commerce and found that viewpoints from important referents sway a person's attitude on technology adoption. Therefore, the following hypothesis is formulated:

Hypothesis 4: Subjective norm positively influences travelers' intention of adopting web-based SST.

4.1.3 Perceived Playfulness

Exploring the Internet fulfills work and play purposes, advocating the argument of considering playfulness in the TAM (Cheong & Park, 2005). Investigating the adoption of

hospitality websites simply relying on traditional TAM constructs is misleading because websites today not only feature functionality but also playfulness (Morosan & Jeong, 2008). Perceived playfulness is recognized to be a key factor influencing travelers' adoption of a system (Morosan & Jeong, 2006). The construct is a kind of emotional issue, as it comprises factors such as cognitive, social, physical spontaneity, joy, and sense of humor (Webster & Martocchio, 1992). In a human-computer setting, Hackbarth, Grover, and Yi (2003) referred to perceived playfulness as an individual's tendency to interact spontaneously with a computer, whereas Moon and Kim (2001) defined perceived playfulness as the degree of an individual's attention toward the interaction with a technological system. The two definitions are more or less alike. Past research verified through empirical examination the critical role of perceived playfulness in technology adoption intention. Lin, Wu, and Tsay (2005) endorsed perceived playfulness as an essential predictor in travelers' online behavior. Liu and Arnett (2000) stressed the significance of perceived playfulness by suggesting its important role associated with website success. In addition, Moon and Kim (2001) found a significantly positive relationship between perceived playfulness and attitude, addressing the importance for technological developers to consider both intrinsic and extrinsic motivational factors in the interface design. The role of perceived playfulness as an antecedent of attitude is substantiated. Previous research also discerned that playfulness strongly correlates with users' positive attitudes (Triandis, 1971; Webster, Heian, & Michelman, 1990; Sandelands, Asford, & Dutton, 1983). Supported by past literature, the proposed hypothesis is as follows:

Hypothesis 5: Perceived playfulness positively influences travelers' intention of adopting web-based SST.

4.1.4 Prior Experience

Prior experience is imperative for online SST because of the probability that a particular behavior is repeated (Cho, 2004). Rogers (1995) established an innovation adoption theory and discussed the potential effect of prior experience with an innovation adoption intention. He explained that an individual will try out innovation partially and will develop an intention to actually adopt it upon identifying some advantages in using it. An individual will reconsider the actual adoption based on satisfaction with prior experience and will confirm whether they will continue to adopt the innovation. His theory was empirically tested in the U.S., and the results support the idea that consumers who have more prior experience would have greater intention to adopt the innovation. In other words, information generated from trial definitely affects adoption intention. The studies by Kay (1993), Moore and Benbasat (1991), and Wellner (2001) and Cho (2004) were aligned with the findings of Rogers (1995), supporting the direct effect of past experience with computers or the Internet on future adoption intention.

Prior experience is believed to affect technology adoption. This construct, however, has yet to gain much research attention compared with other technology adoption factors, particularly in the tourism and hospitality field. A possible reason is that people nowadays have high contact with technology in daily life, work, or school, and they are already used to technology, suggesting that the trail process is no longer as important as before. Rogers (1995) further explained that positive prior experience generated in the knowledge stage sheds some light on attitude formation. The trial adoption is found to be essential in accumulating knowledge and strong beliefs about the system, and this kind of cognitive process will enhance the users' attitudes toward using a particular system (Yoh, Damhorst, Sapp, & Leczniak, 2003). The following hypothesis is proposed based on the discussion:

Hypothesis 6: Prior experience positively influences travelers' intention of adopting web-based SST.

4.1.5 Perceived Risk

Scholars do not have a unified definition on perceived risk (Dowling, 1985; Mitchell, 1999), and the concept is somewhat ambiguous. The present study adopted the definition of Pavlou (2003) who defined perceived risk as the "customer's subjective belief of suffering a loss in pursuit of a desired outcome." When engaged in an online service process, customers are alert to different kinds of risks, including the fear from the reality that an online service provider may not take adequate measures to reduce risk. As subjective belief affects behavior action, reduction of perceived risk can influence the willingness of customers to adopt SST.

The advent of online service providers has rendered perceived risk an inevitable element of online service because of the latter's distant and impersonal nature. Customers are required to release personal or financial information without knowledge of whether the online service provider is "big or small, new or established, legitimate or illegitimate" (Hagel & Singer, 1999, p. 10). De Ruyter et al. (2001) found that perceived risk negatively affects behavioral intentions toward using online services. Hence, the untrue information about an online service leads to the inclusion of perceived risk as a possible factor of SST adoption. Pavlou (2003) indicated that perceived risk is derived from behavioral and environmental uncertainties. The former occurs when an online service provider behaves in an opportunistic manner by providing an online service, which the government is unable to monitor adequately. Such scenario creates a performance risk and a privacy risk because of the disclosure of private customer information. The latter exists mainly due to the nature of the Internet, which is beyond the full control of online service providers. The possibility of a

third party interrupting the online service delivery process under firewall and encryption remains. Private information may be illegally disclosed because of theft.

Sarin and Weber (1993) introduced a risk value model, deducing that the riskiness and the value of a certain behavior are influential consideration of an individual's decision making. Under this risk-return framework, a person would likely desire behavior with greater value and lower risk. In other words, the attitude in favoring or disfavoring a behavior is determined by the risk-value tradeoff. Bell (1995) concurred with the argument and suggested that making judgment of a behavior corresponds to the risk measure inherent in a behavior. Based on the above premises, the following hypothesis is derived:

Hypothesis 7: Perceived risk negatively influences travelers' intention of adopting web-based SST.

4.1.6 Perceived Behavioral Control

The TRA, originated by Fishbein and Ajzen (1975), is an influential model in predicting human behavior and behavioral inclination. The main idea of this theory is that human behavioral intention is affected by attitudes via subjective norms, while behavior is influenced by intention. However, researchers discerned the limited explanatory power of the theory if customers do not have volitional control over their behavior (Taylor et al., 1995; Ajzen, 1991). The TPB is then proposed to counteract the limitation, incorporating the notion of perceived behavioral control into the model. Bandura (1982) defined perceived behavioral control as an individual's judgment on the degree of the execution of required actions to deal with specific situations. Chiu (1998) asserted that time, information, financial consideration, self-confidence, and availability of other resources are required in making an appropriate decision. Hence, perceived behavioral control is a salient factor in predicting behavioral

intention. Ajzen (2002) further illustrated the concept using a job applicant example. The candidate's intention is to get the job, but carrying out his intention is apparently not under his/her total control. By all means, he/she can compose a persuasive cover letter or establish a relationship with employees in that particular company. However, the employer may find another more qualified candidate to fit the position. The example highlights that behavior is subject to various obstacles in reality, and control over behavior does matter in the behavioral intention. Scholars found that this factor does affect behavioral intention for online travel agency purchasing decision (Casaló et al., 2010), airline website (Bigné et al., 2010), lodging website (Jeong & Lambert, 2001), and travel destination selection (Lam & Hsu, 2006). The empirical evidence in the study by Bagozzi and Kimmel (1995) showed that attitude is a strong mediator between students' perceived behavioral control and intention in exercising and dieting. Hence, attitude is an antecedent of perceived behavioral control. The proposed hypothesis is as follows:

Hypothesis 8: Perceived behavior control positively influences travelers' intention of adopting web-based SST.

4.1.7 Attitude

Ouellette and Wood (1998) delineated that behavioral intention reflects a person's attitude toward a behavior, or the favorability of the consequences and importance of certain behavior. In this perspective, attitudes affect behavior with mediating behavioral intention (Eagly & Chaiken, 1993). With the explosion of SST, understanding the willingness and ability of customers to use the new technology has become important. Parasuraman (2000) mentioned the concept of technology readiness to explore customers' use of new technology to accomplish goals. Customer continuum on adopting technology is expected to correlate with their propensity to embrace and employ technology. A handful of research reached

similar results, further supporting the concept. Customers' attitudes about interactive teleshopping are good predictors of their tendencies to adopt the mode of shopping (Eastlick, 1996). Dabholkar (1996) also found that customers' feelings about technology-based self-service option are positively correlated with their intention to use. According to Ajzen and Fishbein (1980), attitude pertains to a person's negative or positive evaluations of performing the target behavior. Personal attitude influences the behavioral intention toward using technology and relating it to actual use. Although positive and negative feelings about technology may coexist, the relative dominance of the two feelings is likely to vary across individuals. In the research of Davis et al. (1989), attitude was found to partially mediate behavior intention. Nonetheless, several studies disagreed, discovering a strong relationship between these two variables.

Kay (1993) observed the attitude toward computer use with a mixed assortment of constructs, including anxiety and efficacy. Studies revealed that computer anxiety is a fairly common occurrence. Over hundreds of undergraduates at a Malaysian university were interviewed and indicated that they were suffering from a certain degree of computer anxiety (Sam, Othmam, & Nordin, 2005). A study of DeLoughry (1993) also showed that a third of college students in the United States were suffering from computer-related anxiety. These studies targeted anxiety related to personal computers and the concept is extended and applied to web-based SST setting in the present study. Technology attitude studies focus on users' willingness and ability in relation to general technology tools or equipment, whereas computer anxiety studies are narrowly focused on personal computers. Based on the empirical and theoretical backgrounds, the following hypothesis is proposed:

Hypothesis 9: Attitude positively influences travelers' intention of adopting web-based SST.

Consolidating the discussed constructs identified from previous literature, a total of nine constructs with 41 measurements affecting technology adoption intention were obtained.

Apart from the original two basic constructs proposed in the TAM, perceived ease of use and perceived usefulness, subjective norm, trust, prior experience, perceived playfulness, perceived risk, perceived behavioral control, and attitude were also found to have an influence on technology usage behavioral intention. According to the empirical evidence from past literature shown in Table 1, subjective norm, trust, prior experience, and perceived playfulness affect behavioral intention through attitudes, and the influence of perceived ease of usefulness toward attitudes is mediated by perceived usefulness.

4.1.8 Relationship of Constructs and Theory of Planned Behavior

In the present study, several identified constructs were adapted from the TPB initiated by Fishbein and Ajzen (1975) to predict human behavior and behavioral intention. The theory posits that an individual's behavior is a function of his/her intention, and the person's attitude, subjective norm, and perceived behavioral control can predict human behavioral intention and actual behavior. The definition is regarded as an extension of the TRA by Fishbein and Ajzen (1975). Reviewing the application of the TPB in tourism research, the researcher found no existing studies that applied the theory into the context of web-based SST. Applying the TPB in the study setting is worthwhile because of the evolving trend and importance of web-based SST in the tourism industry.

According to Conner and Abraham (2001), adding new constructs to the TPB contributes to the enhancement of the predictive power of the theory. Many scholars incorporated additional factors to establish a more sophisticated theory, while the identified constructs in the present study, such as prior experience, perceived risk, trust, and perceived playfulness, were tested and supported by the TPB as well. Quellette and Wood (1998) reckoned that recurring well-practiced past behavior makes a person automatically perform

certain behavior, whereas Sutton, McVey, and Glanz (1999) postulated that experience of past behavior is a powerful predictor in affecting behavior intention. Hence, past experience affecting behavior intention is supported with empirical results, and it is believed to be mediated via attitude (Quellette & Wood, 1998; Zanna, Olson, & Fazio, 1980). With respect to the construct of perceived risk, Bigné et al. (2010) stated that this factor affects technology adoption intention directly without the mediation of attitude. However, Antil (1984) and Zaichkowsky (1985) argued that performing any behavior involves a certain notch of risk perceived by a person. In turn, that person may develop an overall feeling and constitutes his own attitude toward the behavior. In other words, perceived risk is the antecedent of attitude affecting a person's behavior intention. As stated by Ajzen (1985, 1991), a consumer is unwilling to consume a merchandise if he/she perceives the act as being high risk, even with the presence of a positive attitude toward that particular merchant, as implied in the TPB.

Trust is becoming popular facilitator of Internet application adoption and is recognized by the academia and the industry (Hsu & Chiu, 2004a). Trust is hypothesized to be a common antecedent of attitude under the TPB (Wu & Chen, 2005). Trust toward the e-vendor is a kind of salient behavioral belief affecting consumer attitude toward the purchasing behavior. With the integration into and the examination of trust in the TPB, Wu and Chen (2005) noted the apparent significance of trust toward the adoption of an e-service. Perceived playfulness was also found to positively influence the attitude and intention in the facet of consumer behavior research (Heijden, 2004; Hsu & Chiu, 2004b). Oliver and Shapiro (1993) explained that a person perceives that performing a behavior will produce certain outcomes, and the outcomes may depend on many social-economic motivation factors. Perceived playfulness reflects the persons' intrinsic belief, thereby shedding some light on attitude. Lin et al. (2005) incorporated the construct with the TAM and the TPB, resulting in a statistically significant relationship between perceived playfulness and continuance of

behavior intention. In summary, all the identified constructs from past literature were verified and validated to affect behavioral intentions with the mediation of attitude.

The TPB was successfully applied in past studies with strong predictive utility. Scholars who integrated other constructs, such as past experience, perceived risk, trust, and perceived playfulness, into the TPB and applied them in many consumer behavior researches also supported the significance of such constructs affecting behavior intention. Therefore, the constructs found in the literature search stage were built on well-established theory, contributing to the justifiable philosophical foundation for the present study. Figure 6 illustrates the model established based on the literature review.

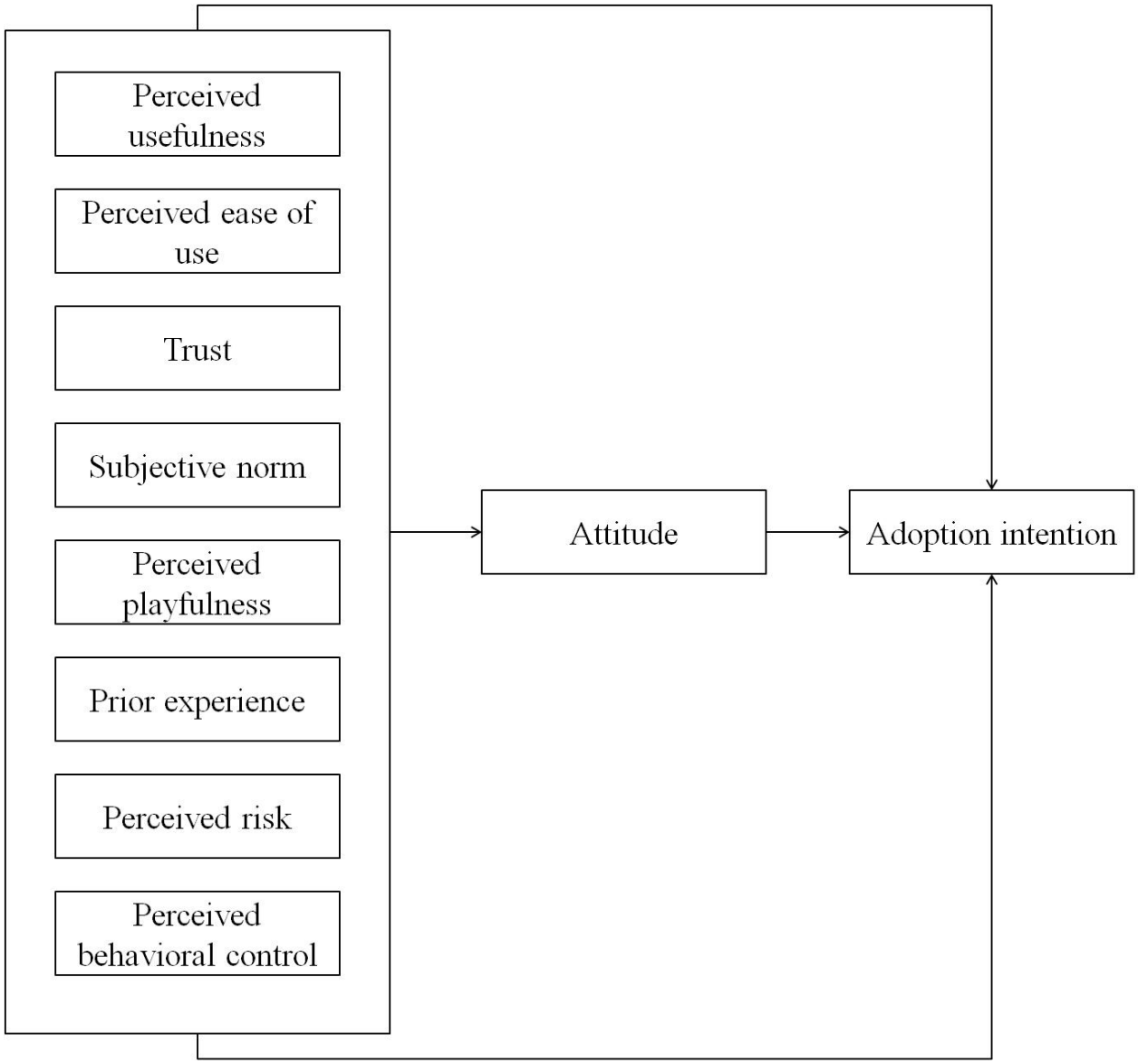

Figure 6. Conceptual Model Derived from Etic Approach

4.2 Focus Group Interviews (Emic Appraoch)

The aims of focus group interviews were to generate new constructs affecting web-based SST adoption intention from Asians' perspective, evaluate the representation of constructs, and to measure items identified in literature. Four focus group interviews, including respondents from different Asian countries, were arranged through a snowball sampling method. A total of 24 Asian interviewees, including Hong Kong Chinese, mainland Chinese, Korean, Thai, and Vietnamese, were invited for the interviews. The language used in Focus Group One to Three was Cantonese because members were either proficiency in the language and the language is their mother tone. It helped to express their true feeling without any language barrier. The medium for Focus Group Four was English. Although English is not their mother tone, they were all studying postgraduate level programs which medium of instruction was English. Therefore, it was believed that language did not pose any issue. The demographic profiles of the respondents are given in Table 2. Nine respondents were male, and the remaining 13 were female. Majority of the respondents were aged 21 to 30, and half of them had post-graduate education.

Table 2. Demographic Profile of Focus Group Respondents

	Gender	Age Range	Origin	Education
Focus Group One				
P1	Female	21-30	Hong Kong Chinese	Postgraduate
P2	Male	21-30	Hong Kong Chinese	Postgraduate
P3	Female	31-40	Hong Kong Chinese	Postgraduate
P4	Female	21-30	Hong Kong Chinese	Postgraduate
P5	Male	31-40	Vietnamese	Postgraduate
P6	Male	21-30	Hong Kong Chinese	Postgraduate
Focus Group Two				
P7	Male	51-60	Hong Kong Chinese	Secondary School
P8	Male	31-40	Hong Kong Chinese	Bachelor Degree
P9	Female	51-60	Hong Kong Chinese	Primary School
P10	Male	21-30	Hong Kong Chinese	Bachelor Degree
P11	Male	31-40	Hong Kong Chinese	Bachelor Degree
P12	Female	21-30	Hong Kong Chinese	Bachelor Degree
Focus Group Three				
P13	Female	21-30	Hong Kong Chinese	Bachelor Degree
P14	Female	21-30	Hong Kong Chinese	Bachelor Degree
P15	Female	21-30	Hong Kong Chinese	Bachelor Degree
P16	Female	21-30	Hong Kong Chinese	Bachelor Degree
P17	Female	21-30	Hong Kong Chinese	Bachelor Degree
P18	Male	21-30	Hong Kong Chinese	Bachelor Degree
Focus Group Four				
P19	Female	31-40	Thai	Postgraduate
P20	Female	41-50	Singaporean	Postgraduate
P21	Male	31-40	Taiwanese	Postgraduate
P22	Female	51-60	Mainland Chinese	Postgraduate
P23	Female	31-40	Korean	Postgraduate
P24	Female	31-40	Mainland Chinese	Postgraduate

4.2.1 Summary of Focus Group Interviews

When asked about the reasons for using an airline online check-in system, all 24 respondents said they appreciated the function of seat selection. They all perceived that it was the most pivotal reason for using an online check-in system. An interviewee (P8) pointed out that "different people have different preferences… selecting the favorable seat can enhance

the flight experience, especially when you are on your own." Two interviewees commented that this distinctive function made the system useful. Convenience and saving time were other reasons, while several interviewees perceived having more control of time over their trip as important. Furthermore, the web-based system allowed passengers to complete the check-in process anytime and anywhere. Additionally, respondents from focus groups one and two agreed on the control issue, saying that checking in via the system in advance could minimize the impact of any contingency accidents leading to delay in making it on time during the scheduled day of flight, such as a traffic jam. However, some interviewees disagreed and commented that the queuing time between traditional check-in counter and online check-in baggage drop counter was similar because of the increasing number of passengers using the system. Nevertheless, majority of the respondents believed that the online check-in process was faster compared with the traditional counter because less procedure was involved.

In addition, some respondents from all four focus groups expressed the user-friendly feature of the system, saying "It is very easy to use…just few simple steps" (P6). Social media and user-generated content websites were found to be influential. Five interviewees from focus groups two and three recognized the launch and merits of the system via numerous channels of mass media, as well as through passenger comments from social media websites. "Passenger comment is their true experience and feeling, so I think their comments are accountable", commented a female interviewee in group two (P9). A male interviewee mentioned the importance of the usefulness, saying that the system was essential in helping him accomplish the check-in process. Moreover, respondents from focus groups one, three, and four confirmed that trust in the airline companies and the system was antecedent to technology adoption intention. They would not use the system if they did not trust the airline companies and the system. However, they also agreed that the functionality varied from different airline companies.

4.2.2 Generation and Representation of Factors

In the second part of the interview, the interviewees commented that the factors derived from literature could really measure the technology adoption intention. Majority of all interviewees agreed on all the factors mentioned in literature, and only a minority disagreed with certain factors. An interviewee in focus group one questioned the influence of subject norm, saying that an internal referent's opinion might not be applicable to her, and that she would only make a decision based on personal judgment.

Based on the findings of the focus group interviews, Asian respondents were found to be attentive to the factors investigated in the literature regarding technology adoption. They adopted the airline online check-in system because of the traits and merits of the system, including personalizing their needs, saving them time, bringing them convenience, letting them have more control over the process, enhancing the process efficiency, being user-friendly, influencing by media, and trustworthiness. Many of the technology adoption factors cited by the respondents were found in literature. For instance, time saving, enhancing efficiency, convenience, and having more control over the process are the measurements of perceived usefulness constructs. User-friendliness falls into the constructs of perceived ease of use, and trust was found to be critical.

Consolidating the findings from the Etic-Emic approach, 11 factors, namely, perceived usefulness, perceived ease of use, subjective norm, trust, prior experience, perceived playfulness, perceived risk, perceived behavioral control, attitude, customization, and WOM, were generated. The first nine factors were derived from the literature review. Two new dimensions affecting web-based SST adoption intention, customization and WOM, were identified from focus group interviews that reflected the Asian perspective.

Interviewees perceived customization of the system as crucial, as all of them favored the seat selection and the special requests function. Hart (1995) defined customization as "the use of flexible processes and organizational structures to produce varied and often individually customized products and services at the low cost of a standardized, mass production system" (pp. 36). Bowen and Shoemaker (1998) empirically verified that customization helps to increase loyalty. Niininen et al. (2007) considered customization as a way of empowering customers via the utilization of technology. In particular, the web environment enables customers to customize the product to fit their personal needs and requirements. Erdly and Kesterson-Townes (2003) explained that customization is particularly prominent because of the heterogeneous characteristics of the tourism industry. Based on the literature review and focus group findings, the researcher hypothesized that customization exerts a positive impact on web-based SST adoption intention. Over half of focus group interviewees formed attitude inclusive of all factors that influence behavioral intention, particularly claiming that a high level of customization brings about a positive evaluation of a system. Therefore, customization is proposed to be mediated by attitude that affects intention. The following hypothesis is proposed:

Hypothesis 10: Customization positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Furthermore, interviewees also perceived that social media and passengers' influences were essential because of the genuine feeling expressed by travelers. WOM is defined as the process of allowing customers to share information and opinions with other buyers related to the usage or characteristics of particular brands, goods, and services (Hawkins, Best, & Coney, 2004).The influence of WOM while making purchasing decisions ranked first in the information source list (Litvin, Goldsmite, & Pan, 2008). WOM is especially pivotal in the tourism industry because the industry's intangible products are difficult to evaluate prior to

consumption. With the widespread adoption of information technology, electronic WOM, or spreading WOM via web-based channels, is also gaining academic credence in recent tourism research (Jeong & Jang, 2011; Bronner & Hoog, 2011; Xiang & Gretzel, 2010). As mentioned previously, the interviewees delineated that factors affecting their adoption intention would be mediated by attitudes because those factors would generate either a positive or negative evaluation of a system and affect their decision making. Thus, the hypothesis below is proposed on the basis of the focus group interviews.

Hypothesis 11: Word of mouth positively influences travelers' intention of adopting web-based SST, mediated by attitude.

4.2.3 Representation of Measuring Items

Evaluating the representation of measuring items was one of the objectives of the focus group interviews. Forty-one measuring items for the nine constructs were derived from previous literature (Venkatesh & Dash, 2000; Davis, 1998; Moon & Kim, 2001; Taylor & Todd, 1995; Featherman & Pavlou, 2003; Pavlou, 2003; Wu & Chen, 2005; Hsu, Yen, Chiu, & Chang, 2006; Heijden, 2004). Focus group interviewees confirmed that majority of the measuring items depicted a high representation level toward corresponding factors. However, issues regarding unclear, long-winded wording and double-barreled items were found. For instance, an item measuring perceived behavioral control, "I would be able to use the airline online check-in system well for online check-in," was ambiguous and long winded. Focus group interviewees converted the statement into "I am able to master the check-in procedure in the system." An example of double-barreled item was that measuring perceived behavioral control, "I had the resources, knowledge, and ability to use airline online check-in system." This particular question dealt with three different issues: resources, knowledge, and ability.

Two new dimensions, customization and WOM, were developed. With regard to customization, the measuring items were developed based on the focus group discussion and the related literature (Duray, Ward, Milligan, & Berry, 2000). As for WOM, all measuring items were developed purely on the basis of the focus group discussion because no relative WOM literature in a similar setting was found.

Furthermore, several items were proposed by focus group interviewees to make the items appropriate for the web-based SST setting. The perceived ease of use indicates that using a particular system is effortless. However, in the context of airline online check-in systems, travelers have to access the airline companies' webpage before logging into the online check-in system. Therefore, interviewees suggested adding a self-developed item, that is, "It is easy to locate the system link on the airline company webpage." Overall, 54 items measuring 11 factors were generated from the Etic-Emic approach, and nine items were revised and proposed by focus group interviewees.

4.3 Expert Panel Assessment

Seven faculty members experienced with tourist behavior research and who were proficient in Chinese and English conducted the expert panel assessment to assess the content validity of the 54 measurements included in the questionnaire. They were to rate on a three-point Likert-type scale to indicate the representativeness of individual items. Five expert panel members deemed only one item measuring perceived usefulness, "I think that the airline online check-in system enables me to acquire high quality information," as unrepresentative and not specific. The said item was eliminated. Furthermore, the panel members were also asked to rephrase or modify certain statements to improve clarity and content validity. In addition, the panel members discerned the problems of double-barrelled

questions and unclear wording in the original measurements. A new measuring item of perceived usefulness, “Using the system enables me to check-in anytime,” was added by the panel members. Several statements were revised and modified according to their comments. The panel members also recommended using the word “system” to represent airline online check-in system in the questionnaire for simplification.. In summary, 11 constructs affecting web-based SST adoption intention were derived from the Etic-Emic approach (as shown in Figure 7), including a list of 54 measuring items (as shown in Table 3).

Table 3. Web-based SST Adoption Dimensions and Measurements

Construct and measuring items	Sources
Perceived Usefulness	
Using the system enables me to complete the check-in process quickly.	Moon & Kim, 2001
The system is convenient to use.	Focus group interviews
Using the system enables me to check-in anytime.	Expert panel members
Using the system enables me to check-in anywhere.	Focus group interviews
Using the system enables me to acquire accurate flight information.	Moon & Kim, 2001
Using the system enhances efficiency of the check-in process.	Venkatesh & Davis, 2000
Using the system gives me greater control over the check-in process.	Davis, 1989
Using the system saves my time.	Davis, 1989
Perceived Ease of Use	
The system is simple to use.	Venkatesh & Davis, 2000
The system is simple to use even for my first attempt.	Flavián,Guinalíu, & Gurrea, 2006
It is easy to locate the system link on the airline company webpage.	Focus group interviews
The instruction guiding the check-in procedure in the system is clear.	Flavián,Guinalíu, & Gurrea, 2006
Using the system does not require a lot of my mental effort.	Venkatesh & Davis, 2000
It is easy to complete the check-in process by using the system.	Flavián,Guinalíu, & Gurrea, 2006
It is easy to locate the information that I need in the system.	Flavián,Guinalíu, & Gurrea, 2006
Using the system is free of follow-up formalities, e.g. printing the boarding pass.	Focus group interviews
Subjective Norm	
I use the system because of influential travel experts' recommendation.	Taylor & Todd, 1995
I use the system because of my close friends' recommendation.	Taylor & Todd, 1995
I use the system because of the recommendation of people whose are important to me.	Venkatesh & Davis, 2000
I use the system because of the recommendation by people whose opinions I value.	Venkatesh & Davis, 2000
Trust	
The system is trustworthy.	Doney & Cannon, 1997
The airline company keeps promises in ensuring the completion of check-in process in the system.	Doney & Cannon, 1997
I trust the airline company because it keeps my best interest in mind, e.g. protecting my personal information.	Doney & Cannon, 1997
Prior Experience	
It is a good experience using the airline online check-in system	Morosan & Jeong, 2006
My past experience in using the airline online check-in system triggers me to use it again.	Morosan & Jeong, 2006

I will use the system again even I had poor experience in using it.	Morosan & Jeong, 2006
Perceived Playfulness	
Using the system is entertaining.	Morosan & Jeong, 2006
Using the system is playful.	Morosan & Jeong, 2006
The enjoyment derived from using the system triggers my future adoption.	Morosan & Jeong, 2006
Perceived Risk	
The system is not always reliable.	Focus group interviews
I am concerned that the system will crash during the check-in process.	Focus group interviews
I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent.	Pavlou, 2003
Using the system would add uncertainty, e.g. unsuccessful check-in.	Featherman & Pavlou, 2003
Using the system exposes me to risk.	Featherman & Pavlou, 2003
Perceived Behavioral Control	
I am able to master the check-in procedure in the system.	Focus group interviews
Using the system is entirely within my control.	Wu & Chen, 2005
I have the resources, e.g. internet-connected computer or mobile phone, to check-in online.	Wu & Chen, 2005
I have full computer knowledge in using the system.	Focus group interviews
I am competent in using the system.	Focus group interviews
Customization	
The system allows me to specify my special requests, such as seat selection.	Duray, Ward, Milligan, & Berry, 2000
The system is specifically designed in meeting my requests.	Duray, Ward, Milligan, & Berry, 2000
The system is appealing because it provides a wide variety of services.	Focus group interviews
Word-of-mouth	
I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+.	Focus group interviews
I use the system because of bloggers' recommendation.	Focus group interviews
Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system.	Focus group interviews
Attitude	
I have positive feelings towards using the system.	Hsu, Yen, Chiu, & Chang, 2006
It would be a good idea to use the system.	Hsu, Yen, Chiu, & Chang, 2006
Using the system would be beneficial for me.	Hsu, Yen, Chiu, & Chang, 2006
Using the system delights my travel experience.	Hsu, Yen, Chiu, & Chang, 2006
Using the system is a popular trend.	Focus group interviews
Using the system is satisfying.	Hsu, Yen, Chiu, & Chang, 2006
Adoption Intention	
I will keep using the system in the future.	Taylor & Todd, 1995
I have strong intention in using the system in future.	Taylor & Todd, 1995
I will recommend others to use the system.	Taylor & Todd, 1995

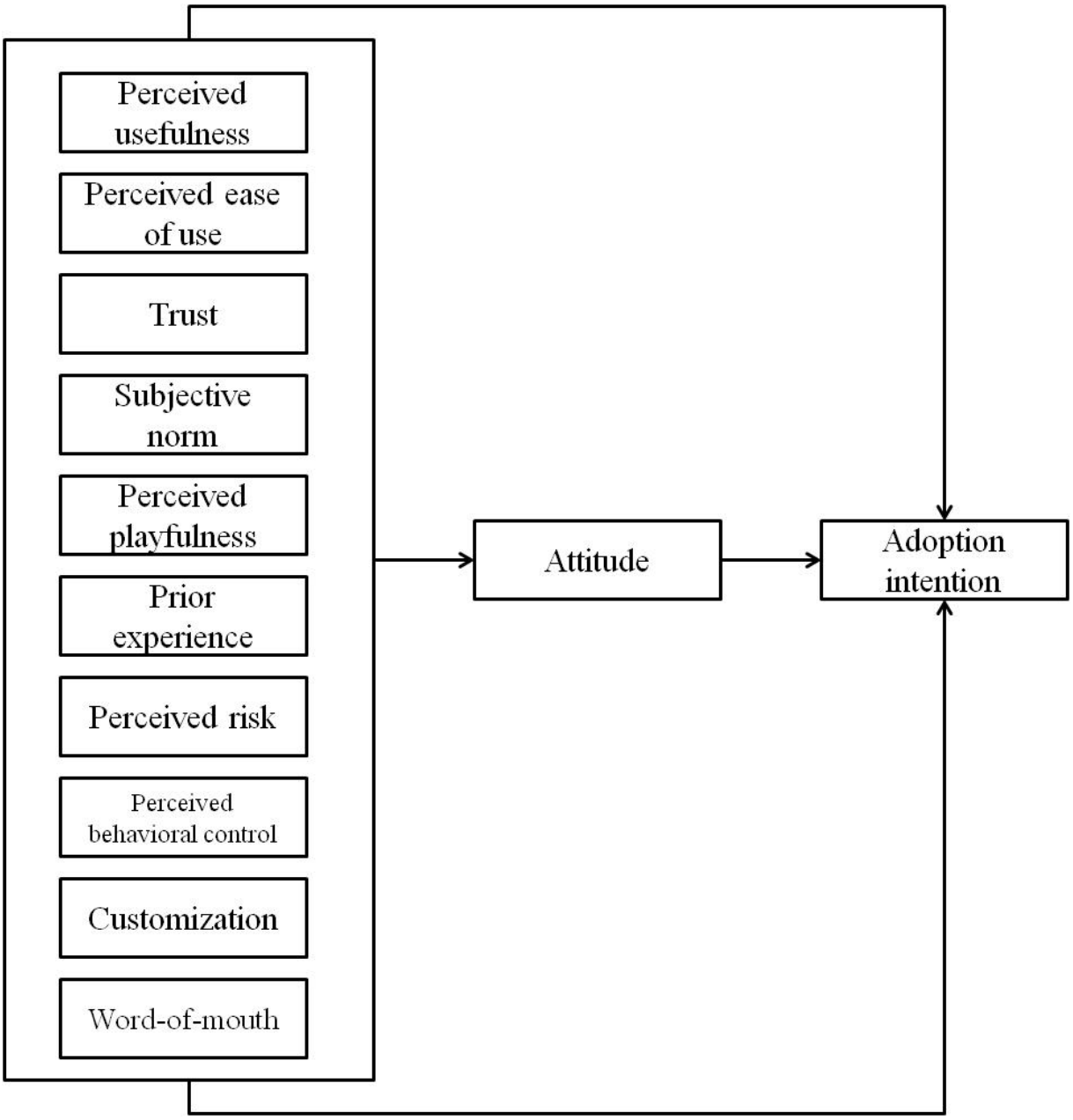

Figure 7. Conceptual Model Derived from Etic-Emic Approach

CHAPTER 5. ANALYSIS OF QUANTITATIVE DATA

This chapter presents the findings obtained from the quantitative data analysis of both the pilot testing and the main survey. The findings of the pilot testing served as the basis for further discussion and hypotheses testing to identify the underlying dimensions of web-based SST adoption intention in a tourism industry setting (second objective), and to construct and test a conceptual framework on technology adoption intention toward web-based SST in a tourism industry setting (third objective). The main survey findings fulfill the fourth and fifth objectives, which are to determine the impact on attitude and adoption intention of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting, and to explore the differences between Asians and Westerners in terms of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting, respectively.

5.1 Pilot Test Findings

The purpose of pilot testing was to purify the measurements, as recommended by Churchill (1979). EFA was employed to analyze the results and in turn achieve the second objective, which is to identify the underlying dimensions of web-based SST adoption intention in a tourism industry setting. A total of 202 valid questionnaires were collected for further analysis.

5.1.1 Demographic and Trip Profiles

The demographic and trip profiles of respondents are shown in Tables 4 and 5, respectively. A greater number of females (52.5%) participated in this survey, and nearly half of the respondents were aged between 21 and 30 years old. The nationalities of respondents were evenly distributed. Around 51.6% of the respondents were from Western countries, such

as the United States and Australia, and approximately 49.2% were from Asian countries, namely, mainland China and Singapore. About 20% of the two groups earned a monthly household income of less than USD2,000 and USD4,001 to USD6,000, respectively.

Table 4. Demographic Profile of Pilot Test Respondents (N=202)

Variables	Frequency	Percent
Gender		
Male	96	47.5
Female	106	52.5
Age Group		
20 or below	18	8.9
21-25	47	23.3
26-30	47	23.3
31-35	26	12.9
36-40	23	11.4
41-45	11	5.4
46-50	11	5.4
51-55	10	5.0
56-60	3	1.5
61 or above	6	3.0
Nationality		
Australia	13	6.4
Brazil	4	2
Canada	12	5.9
France	3	1.5
Germany	7	3.5
Ghana	2	1
Holland	3	1.5
Hong Kong SAR	46	22.8
India	1	1
Italy	1	0.5
Japan	4	2
Macau SAR	3	1.5
Mainland China	21	10.4
Middle East	1	0.5
New Zealand	7	3.5
Portugal	2	1
Singapore	2	1
South Africa	1	0.5
South Korea	3	1.5
Spain	4	2
Taiwan	7	3.5
Thailand	7	3.5
Uganda	1	0.5
United Kingdom	12	5.9
United States of American	30	14.9
Vietnam	4	2

Zambian	1	0.5
Monthly Household Income		
Less than USD2,000	40	19.8
USD2,001-USD4,000	37	18.3
USD4,001-USD6,000	40	19.8
USD6,001-USD8,000	27	13.4
USD8,001-USD10,000	26	12.9
USD10,001 or above	32	15.8

Table 5 shows the trip profiles of the respondents. Majority (56.4%) used the airline online check-in system one to five times within the past 24 months, and 24.3% used the system six to ten times. The primary purposes of their last travel were leisure (46.5%), business (28.2%), and visiting friends and relatives (25.2%). Majority (41.4%) traveled on their own, whereas the second largest group traveled with children or a spouse (22.3%). The airline companies offering online check-in systems accessed by the respondents included British Airways (16.8%), Singapore Airlines (8.4%), Virgin Atlantic Airways (6.9%), and Continental Airlines (6.4%).

Table 5. Trip Profile of Pilot Test Respondents (N=202)

Variables	Frequency	Percent
Times of Using the Airline Online Check-in System within the Past 2 Years		
1-5	114	56.4
6-10	49	24.3
11-15	20	9.9
16 or above	19	9.4
Purposes of Last Travel		
Leisure	94	46.5
Business	57	28.2
Visiting friends and relatives	51	25.2
Short-/long Haul Flight		
Short-haul	103	51
Long-haul	99	49
Travel Companion of Last Trip		
Self	83	41.1
Spouse or children	45	22.3
Parents, brothers or sisters	26	12.9
Friends or relatives	25	12.4
Colleagues	23	11.4
Airline Used for the Last Trip		
British Airways	34	16.8
Singapore Airlines	17	8.4
Virgin Atlantic Airways	14	6.9
Continental Airlines	13	6.4
Mandarin Airlines	12	5.9

Air China	10	5
China Eastern Air	10	5
Japan Airlines	9	4.5
Delta Air Lines	9	4.5
Dragon Air	8	4
Air Canada	7	3.5
Qantas Airways	7	3.5
United Airlines	6	3
All Nippon Airways	4	2
China Airlines	4	2
EVA Airways	4	2
JetBlue	4	2
Air France	3	1.5
Cathay Pacific Airways	3	1.5
EasyJet	3	1.5
China Southern Airlines	3	1.5
TAM Airlines	3	1.5
Emirates	2	1
American Airlines	2	1
Air Asias	2	1
Ryan Air	2	1
Finnair	2	1
Lufthansa Germany	1	0.5
Frontier	1	0.5
Copa Airlines	1	0.5
Qatar Airways	1	0.5
South African Airways	1	0.5

5.1.2 Underlying Dimensions of Web-based SST Adoption Factors

An EFA using principal component method with varimax rotation were employed for the independent variables (factors identified from Etic-Emia approach), the mediator (attitude) and the dependent variable (adoption intention) separately. In the sample of 202 respondents, items that exhibited low factor loadings (≤ 0.40), high cross-loading (≥ 0.40), or low communalities (< 0.50) were deleted (Hair, Anderson, Tatham, & Black, 2010).

With regards the EFA for independent variables, eight rounds of factor analysis were conducted, and eight items out of 54 were removed because of the aforementioned reasons (shown in Table 6). Only 46 measurements remained. Eight factors emerged from the analysis, jointly accounting for 73.86% of the total variance with Cronbach alpha values between 0.811 and 0.938, and exceeding the minimum reliability criterion of 0.70 for acceptability (Sekaran, 2000). The factor analysis results are shown in Table 6. The Kaiser–

Meyer–Olkin (KMO) test and Bartlett's test of sphericity were computed to assess the appropriateness of the factor analyses to the data. KMO measure was 0.872, exceeding Garson's (2001) recommended index of 0.600. The Barlett's test of sphericity was 5826.689 with a significance of 0.000.

The total variances explained and eigenvalues provided evidence for the construct validity of the scale (Churchill, 1979). The extracted factors were similar to the factors derived from previous literature and focus group interviews to a large extent. The underlying factors were perceived usefulness, perceived ease of use, trust-based customization, perceived risk, perceived behavior control, subjective norm, WOM, and perceived playfulness. The third factor was renamed trustworthy and customized experience because the seven measuring items were from the three factors, namely, prior experience, customization, and trust, derived from the Etic-Emic approach.

The first two factors, perceived usefulness and perceived ease of use, are the original TAM dimensions. The former accounted for the largest proportion of the total explained variance (27.699%) with an eigenvalue of 10.249 and eight measuring items, making it the most important factor in determining the structure of response. The perceived usefulness factor determines whether using the system can enhance job performance. The latter dimension, perceived ease of use, consisted of five attributes related to whether using the system is effortless. This factor explained 15.984% of the total variance with an eigenvalue of 5.914. The results were not surprising because substantial literature has consistently found perceived ease of use to be of prime significance in utilizing web-based SST in the tourism industry (Venkatesh, Morris, Davis, & Davis, 2003; Kim et al., 2009).

As for the third dimension, three factors, namely, customization, trust, and prior experience, extracted from the Etic-Emic approach were combined and labeled as *trustworthy and customized experience*. This dimension accounted for 7.9% of the total explained

variance with an eigenvalue of 2.923. The seven scale items measure whether the level of system customization, users' past experience, and trustfulness toward the company and system affect customer adoption. The three original factors are closely associated and noted in extensive technology-related marketing academic research. Trust is specifically pivotal in the online setting because customization is based on confidential personal information. Customers would be willing to engage in the customizing process if they trust the service organization (Cho & Fiorito, 2008; Klein, 2007). Gill, Flaschner, and Shachar (2006) considered customization as one of the factors affecting the trust of a business client. The relationship is empirically examined in a bank-and-customer relationship, and a significant positive relationship is noted. The recurrence of trust-based customization experience would reduce interpersonal hindrances, raise comfort levels, and formulate positive attitudes (Coulter & Coulter, 2002; Doney & Cannon, 1997). Prior experience is positively related to trust because an experienced user was assured a safe, proper, and normal feeling (McKnight, Choudhury, & Kacmar, 2002).

The fourth dimension, perceived risk, is also well noted in literature. This dimension consisted of four items, explaining 6.86% of the total variance and has an eigenvalue of 2.538. The dimension examines whether using a particular system leads to losses. The advent of online service providers has rendered perceived risk as an inevitable element of online service because of the latter's distance and impersonal nature. Customers release personal or financial information without knowing whether the online service provider is "big or small, new or established, legitimate or illegitimate" (Hagel & Singer, 1999, pp. 10). De Ruyter et al. (2001) found that perceived risk negatively affects behavioral intentions toward using online services. Hence, possible false information from online services may lead to the inclusion of perceived risk as a possible factor for SST adoption.

The fifth and sixth dimensions are perceived behavior control and subjective norm. The former dimension comprised four items, explaining 4.65% of the total variance and has an eigenvalue of 1.721. The latter, consisting of four items, accounted for 4.077% of the total variance and acquired an eigenvalue of 1.508. Both dimensions were conceptualized by Fishbein and Ajzen (1975) from the TRA. This theory primarily asserts that human behavioral intention is affected by attitudes through subjective norms, and that intention influences behavior. However, researchers questioned the theory's limited explanatory power in instances wherein customers do not have volitional control over their behavior (Ajzen, 1991; Taylor & Todd, 1995). The TPB is then proposed to overcome the limitation of the TRA, thereby introducing the notion of perceived behavioral control into the model. Chiu (1998) asserted that time, information, financial consideration, self-confidence, and availability of other resources are required to make appropriate decisions. Hence, perceived behavioral control and subjective norm were salient factors in predicting web-based SST adoption.

The seventh dimension supported by focus group interviews and by the empirical data, WOM, was considered as a crucial factor affecting web-based SST adoption. The three scale items measuring the influence of general media on system adoption explained 3.596% of the total variance with an eigenvalue of 1.330. This dimension is particularly pivotal in the tourism and hospitality industry, whereas intangible products are difficult to evaluate prior to consumption. Perceived playfulness, the eighth factor, achieves the lowest total variance, accounting for 3.091% with an eigenvalue of 1.144. This dimension consisted of three items measuring the emotional issue of using a system. Liu and Arnett (2000) asserted the importance of playfulness in determining a website's success. Likewise, Lin et al. (2005) endorsed playfulness as an essential predictor of the online behavior of users. Moon and Kim (2001) found a significant positive relationship between perceived playfulness and attitude,

addressing the importance of considering both intrinsic and extrinsic motivational factors in the interface design of technology systems. However, focus group interviewees signified that their use of web-based SST was to "get the job done" and not to seek enjoyment. The divergence may be due to cultural differences because differences in perception and behaviors vary with nationality and cultural background (Kim & Prideaux, 2005).

Table 6. Exploratory Factor Analysis Results for Factors Affecting Adoption Intention (N=202)

Factor	Mean	Factor Loading	Communality	Eigen Value	Variance Explained (%)	Reliability Coefficient
Factor 1: Perceived Usefulness						
Using the system enables me to complete the check-in process quickly.	5.856	0.766	0.746	10.249	27.699	0.900
The system is convenient to use.	5.762	0.719	0.684			
Using the system enables me to check-in anytime.	5.545	0.718	0.636			
Using the system enables me to check-in anywhere.	5.718	0.779	0.689			
Using the system enables me to acquire accurate flight information.	5.366	0.610	0.559			
Using the system enhances efficiency of the check-in process.	5.693	0.801	0.762			
Using the system gives me greater control over the check-in process.	5.520	0.675	0.587			
Using the system saves my time.	5.832	0.750	0.665			
Factor 2: Perceived Ease of Use						
It is easy to locate the system link on the airline company webpage.	5.510	0.751	0.666	5.914	15.984	0.929
The instruction guiding the check-in procedure in the system is clear.	5.629	0.848	0.823			
Using the system does not require a lot of my mental effort.	5.668	0.824	0.798			
It is easy to complete the check-in process by using the system.	5.748	0.854	0.868			
It is easy to locate the information that I need in the system.	5.520	0.829	0.798			
Factor 3: Trustworthy and Customized Experience						
The airline company keeps promises in ensuring the completion of check-in process in the system.	5.579	0.644	0.680	2.923	7.900	0.862
The system is trustworthy.	5.629	0.683	0.679			
I trust the airline company because it keeps my best interest in mind, e.g. protecting my personal information.	5.277	0.611	0.576			
It is a good experience using the airline online check-in system.	5.371	0.569	0.659			
My past experience in using the airline online check-in system triggers me to use it again.	5.663	0.489	0.623			
The system is specifically designed in meeting my requests.	5.228	0.745	0.636			
The system is appealing because it provides a wide variety of services.	4.881	0.702	0.636			

Factor 4: Perceived Risk						
I am concerned that the system will crash during the check-in process.	3.926	0.873	0.819	2.538	6.860	0.908
I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent.	3.728	0.847	0.798			
Using the system would add uncertainty, e.g. unsuccessful check-in.	3.718	0.859	0.790			
Using the system exposes me to risk.	3.570	0.875	0.816			
Factor 5: Perceived Behavioral Control						
I am able to master the check-in procedure in the system.	5.322	0.663	0.518	1.721	4.652	0.811
I have the resources, e.g. Internet-connected computer or mobile phone, to check-in online.	5.871	0.719	0.629			
I have full computer knowledge in using the system.	5.837	0.807	0.739			
I am competent in using the system.	5.832	0.819	0.842			
Factor 6: Subjective Norm						
I use the system because of my close friends' recommendation.	3.327	0.820	0.831	1.508	4.077	0.938
I use the system because of the recommendation of people whose are important to me.	3.515	0.918	0.926			
I use the system because of the recommendation by people whose opinions I value.	3.485	0.906	0.900			
Factor 7: Word-of-mouth						
I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+.	2.901	0.806	0.826	1.330	3.596	0.926
I use the system because of bloggers' recommendation.	2.718	0.808	0.859			
Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system.	2.990	0.752	0.778			
Factor 8: Perceived Playfulness						
Using the system is entertaining.	3.406	0.819	0.838	1.144	3.091	0.925
Using the system is playful.	3.446	0.752	0.790			
The enjoyment derived from using the system triggers my future adoption.	3.470	0.837	0.858			

Kaiser-Meyer-Olkin (KMO) = 0.872; Barlett's Test of Sphericity = 5826.689 at *df* = 666 with a significance of 0.000. Principal component method with Varimax Rotation: Loading ≥ 0.40; 7-point Likert type scale was used, where 1 = *Strongly Disagree* and 7 = *Strongly Agree*.

Two separate EFA were conducted for the mediator (attitude) and the dependent variable (adoption intention), which the results were shown in Table 7 and Table 8. No single item had been dropped from the measures of attitude and adoption intention because no item exhibited low factor loadings (≤ 0.40), high cross-loading (≥ 0.40), or low communalities (< 0.50). In Table 7, the measuring items of attitude dimension accounted for 58.783% of the total variance, with the KMO value as 0.780, achieving the threshold of 0.6. The Barlett's test of sphericity was 635.979 with a significance of 0.000. Table 8 detailed that the measuring items of adoption intention dimension garnered 82.455% of the total variance. The KMO value was 0.702 and exceeded the threshold of 0.6. The Barlett's test of sphericity was 408.643 with a significance of 0.000.

Table 7. Exploratory Factor Analysis Results for Attitude Dimension (N=202)

Measuring Item	Mean	Factor Loading	Communality	Eigen Value	Variance Explained (%)	Reliability Coefficient
I have positive feelings towards using the system.	5.510	0.874	0.691	3.527	58.783	0.837
It would be a good idea to use the system.	5.654	0.831	0.763			
Using the system would be beneficial for me.	5.599	0.827	0.684			
Using the system delights my travel experience.	4.510	0.741	0.511			
Using the system is a popular trend.	5.411	0.655	0.529			
Using the system is satisfying.	5.3564	0.641	0.549			

Kaiser-Meyer-Olkin (KMO) = 0.780; Barlett's Test of Sphericity = 635.979 at *df* = 15 with a significance of 0.000. Principal component method with Varimax Rotation: Loading ≥ 0.40; 7-point Likert type scale was used, where 1 = *Strongly Disagree* and 7 = *Strongly Agree*.

Table 8. Exploratory Factor Analysis Results for Adoption Intention Dimension (N=202)

Measuring Item	Mean	Factor Loading	Communality	Eigen Value	Variance Explained (%)	Reliability Coefficient
I will keep using the system in the future.	5.817	0.940	0.868	2.474	82.455	0.880
I have strong intention in using the system in future.	5.767	0.932	0.884			
I will recommend others to use the system.	5.441	0.849	0.721			

Kaiser-Meyer-Olkin (KMO) = 0.702; Barlett's Test of Sphericity = 408.643 at *df* = 3 with a significance of 0.000. Principal component method with Varimax Rotation: Loading ≥ 0.40; 7-point Likert type scale was used, where 1 = *Strongly Disagree* and 7 = *Strongly Agree*.

5.1.3 Conceptual Model Development

With regard to the EFA findings, nine factors, namely, perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived risk, perceived behavioral control, subjective norm, WOM, perceived playfulness, and attitude, were confirmed and used to examine travelers' web-based SST adoption intention. Three dimensions, namely, prior experience, trust, and customization, were combined as one dimension as suggested by the EFA results. As a result, the hypotheses proposed in the previous section were modified as follows:

Hypothesis 1: Perceived usefulness positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 2: Perceived ease of use positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 3: Trustworthy and customized experience positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 4: Perceived risk negatively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 5: Perceived behavioral control positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 6: Subjective norm positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 7: WOM positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 8: Perceived playfulness positively influences travelers' intention to adopt web-based SST, mediated by attitude.

Hypothesis 9: Attitude positively influences travelers' intention to adopt web-based SST.

All factors were purified with the employment of EFA, and the reliability and validity of the measuring items were confirmed. Thus, the second objective of this thesis, which is to identify the underlying dimensions of web-based SST adoption intention in a tourism industry setting, was achieved. Figure 8 illustrates the confirmed conceptual model. A total of 46 measuring items were retained for the main survey questionnaire. Table 9 provides a clear summary of the measuring items removed and retained after the EFA.

Table 9. Final List of Web-based SST Adoption Intention Measurements

Construct and measuring items	Retained	Removed
Perceived Usefulness		
Using the system enables me to complete the check-in process quickly.	✓	
The system is convenient to use.	✓	
Using the system enables me to check-in anytime.	✓	
Using the system enables me to check-in anywhere.	✓	
Using the system enables me to acquire accurate flight information.	✓	
Using the system enhances efficiency of the check-in process	✓	
Using the system gives me greater control over the check-in process.	✓	
Using the system saves my time.	✓	
Perceived Ease of Use		
The system is simple to use.		×
The system is simple to use even for my first attempt.		×
It is easy to locate the system link on the airline webpage.	✓	
The instruction guiding the check-in procedure in the system is clear.	✓	
It is easy to complete the check-in process by using the system.	✓	
Using the system does not require a lot of my mental effort.	✓	
It is easy to locate the information that I need in the system.	✓	
Using the system is free of follow-up formalities, e.g. printing the boarding pass.		×
Trustworthy and Customized Experience		
The system allows me to specify my special requests, e.g. seat selection.		×
The system is specifically designed in meeting my requests.	✓	
The system is appealing because it provides a wide variety of services.	✓	
The system is trustworthy.	✓	
The airline company keeps promises in ensuring the completion of check-in process in the system.	✓	
I trust the airline company because it keeps my best interest in mind, e.g. protecting my personal information.	✓	
It is a good experience using the airline online check-in system.	✓	
I will use the system again even I had poor experience in using it.		×
My past experience in using the airline online check-in system triggers me to use it again.	✓	
Perceived Risk		
The system is not always reliable.		×
I am concerned that the system will crash during the check-in process.	✓	
I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent.	✓	
Using the system would add uncertainty, e.g. unsuccessful check-in.	✓	
Using the system exposes me to risk.	✓	

Perceived Behavioral Control		
I am able to master the check-in procedure in the system.	✓	
Using the system is entirely within my control.		×
I have resources, e.g. internet-connected computer or mobile phone, to check-in online.	✓	
I have full computer knowledge in using the system.	✓	
I am competent in using the system.	✓	
Subjective Norm		
I use the system because of influential travel experts' recommendation.		×
I use the system because of my close friends' recommendation.	✓	
I use the system because of the recommendation of people whose are important to me.	✓	
I use the system because of the recommendation of people whose opinions I value.	✓	
Word-of-mouth		
I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+.	✓	
I use the system because of bloggers' recommendation.	✓	
Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system.	✓	
Perceived Playfulness		
Using airline online check-in system is entertaining.	✓	
Using airline online check-in system is playful.	✓	
The enjoyment derived from using the system triggers my future use.	✓	
Attitude		
I have positive feelings towards using the system.	✓	
It would be a good idea to use the system.	✓	
Using the system would be beneficial to me.	✓	
Using the system delights my travel experience.	✓	
Using the system is a popular trend.	✓	
Using the system is satisfying.	✓	
Adoption Intention		
I will keep using the system in future.	✓	
I have strong intention in using the system in future.	✓	
I will recommend others to use the system.	✓	

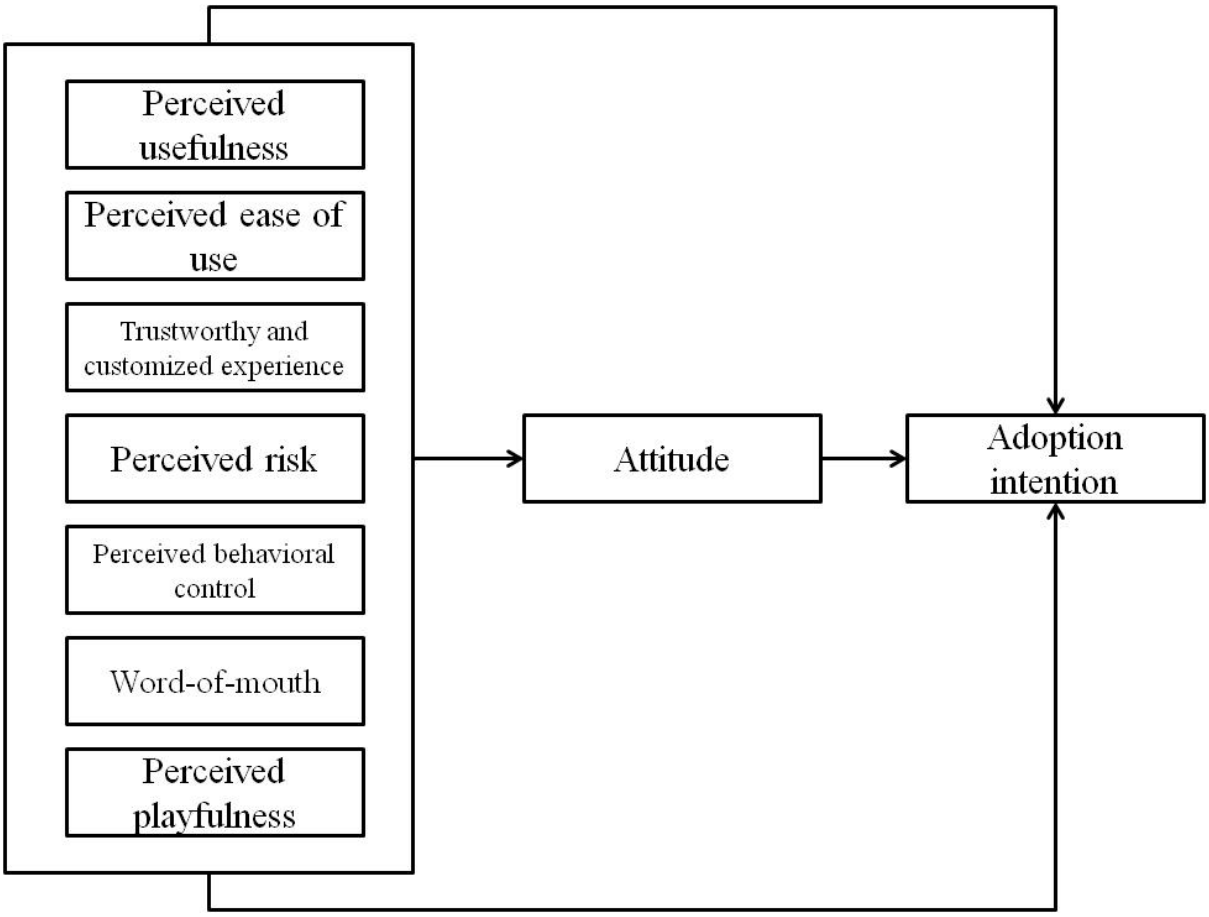

Figure 8. Web-based SST Adoption Intention Conceptual Model

5.2 Main Survey Findings

The main survey was conducted primarily to investigate the effects of the factors confirmed from the EFA findings and of attitude on web-based SST adoption intention by employing CFA and SEM. Hypotheses were tested to outline the direct effect of individual factors on adoption intention as well as the mediating effect of attitude.

5.2.1 Demographic Profile of Main Survey Respondents

In the main survey, a total of 479 usable questionnaires were collected. The demographic information of respondents is recorded in Table 10. The proportion of male and female was equally distributed at 54.70% male respondents and 45.30% female respondents. Over 60% of the respondents were between 21 to 40 years old, and around 30% were 41 years old or above. As for nationality, 47.4% of respondents were Asians, the specific nationalities of which included mainland Chinese, Korean, Japanese, Thai, and Hong Kong Chinese. The remaining respondents were Westerners of American, British, French, and Australian backgrounds. Half of the respondents reported monthly household incomes ranging from USD2,001 to USD6,000, followed by USD10,000 or above (15.03%), USD6,001 to USD8,000 (12.94%), USD2,000 or below (11.48%), and USD8,001 to USD10,000 (10.23%).

Table 10. Demographic Profile of Main Survey Respondents (N=479)

	Frequency	Percentage
Gender		
Male	262	54.70
Female	217	45.30
Age Group		
20 or below	33	6.89
21-25	79	16.49
26-30	87	18.16
31-35	67	13.99
36-40	57	11.90
41-45	54	11.27

46-50	49	10.23
51-55	18	3.76
56-60	19	3.97
61 or above	16	3.34
Nationality		
Australia	34	7.10
Belgium	1	0.21
Canada	41	8.56
France	18	3.76
Germany	23	4.80
Greece	1	0.21
Hong Kong	34	7.10
India	6	1.25
Indonesia	15	3.13
Ireland	1	0.21
Italy	7	1.46
Japan	13	2.71
Macau SAR	11	2.30
Mainland China	69	14.41
Malaysia	10	2.09
Middle East	3	0.63
Netherland	1	0.21
New Zealand	10	2.09
Pakistan	1	0.21
Peru	1	0.21
Philippines	8	1.67
Poland	1	0.21
Romania	2	0.42
Russia	6	1.25
S&C America	3	0.63
Singapore	14	2.92
Slovakia	1	0.21
South Africa	5	1.04
South Korea	9	1.88
Taiwan	17	3.54
Thailand	9	1.88
Turkey	1	0.21
United Kingdom	72	15.03
United States of America	31	6.47
Monthly household income		
Less than USD2,000	55	11.48
USD2,001- USD4,000	138	28.81
USD4,001- USD6,000	103	21.50
USD6,001- USD8,000	62	12.94
USD8,001- USD10,000	49	10.23
USD10,001 or above	72	15.03

5.2.2 Trip Profile of Main Survey Respondents

This section documents the trip profile of respondents (as shown in Table 11). Over half of the respondents (53.03%) used the airline online check-in system to check-in their flights for 1 to 5 times within the past two years, followed by 6 to 10 times (25.05%), 16 times or above (13.15%), and 11 to 15 times (8.77%). Regarding their purpose of the last trip, nearly half of the respondents traveled for leisure, and over one-third of them traveled for business purpose. 57.62% of respondents had a long-haul flight (more than 4 flying hours), and 42.38% of them were engaged in a short-haul trip. As for the airline company that they traveled with for their last trip, a scatter distribution was noted. Approximately a quarter of respondents (23.95%) flied with Cathay Pacific Airways, followed by Dragon Air (6.89%), Air Asia (6.26%), and Qantas Airways (6.26%).

Table 11.Trip Profile of Main Survey Respondents (N=479)

	Frequency	Percentage
Times of using the system to check-in within the past 2 years		
1-5	254	53.03
6-10	120	25.05
11-15	42	8.77
16 or above	63	13.15
Purpose of the last trip		
Leisure	227	47.39
Business	175	36.53
Visiting friends and relatives	48	10.02
Education	29	6.05
Engagement in short-/long-haul flight of the last trip		
Short-haul	203	42.38
Long-haul	276	57.62
Travel accompany of the last trip		
Self	214	44.68
Parents, brother(s) or sister(s)	39	8.14
Spouse or children	100	20.88
Friends and relatives	79	16.49
Colleagues	47	9.81

Airline companies traveled with for the last trip		
AirAsia	30	6.26
Air China	19	4.00
Air Canada	24	5.01
Air France	8	1.67
Air India	3	0.63
Air New Zealand	11	2.30
All Nippon Airways	4	0.84
British Airwards	29	6.05
Cathay Pacific Airways	113	23.59
Cebu Pacific Air	2	0.42
China Airlines	13	2.71
China Southern Airlines	10	2.09
China Eastern Air	11	2.30
Continental Airlines	3	0.63
Delta Airlines	5	1.04
Dragon Air	33	6.89
EasyJet	4	0.84
Emirates	19	3.97
EVA Airways	12	2.51
Garuda Indonesia	1	0.21
Hong Kong Airlines	3	0.63
Japan Airlines	4	0.84
Jet Blue	2	0.42
JetStar	6	1.25
KLM Royal Dutch Airlines	5	1.04
Korean Air	1	0.21
Lufthansa Germany	27	5.64
Malaysia Airlines	3	0.63
Philippine Airlines	2	0.42
Qantas Airways	30	6.26
Ryanair	1	0.21
Singapore Airlines	15	3.13
Thai Airways	5	1.04
Turkish Airlines	1	0.21
United Airlines	6	1.25
Virgin Atlantic Airways	10	2.09
Virgin Blue Airlines	4	0.84

5.2.3 Measurement Model Testing

The data of the entire sample were screened for missing values, normality, and outliers to fulfill the requirement for SEM analysis. The measurement model for each construct was assessed using CFA before testing the structural model.

5.2.3.1 Data Screening

5.2.3.1.1 Missing values

Handling missing data is imperative because non-random missing data create bias in the statistical results (Hair et al., 2010). As missing data yield different results, the ideal approach is to employ SEM using a complete data set without any missing observations (Kline, 2011). During the data entry process, an initial screening of questionnaires was carried out. A returned questionnaire was discarded if it had missing values; thirty-one questionnaires were eventually excluded. A summary of descriptive statistics was employed in SPSS. The results revealed that the number of observations for all items were 479, indicating no missing value in the data set.

5.2.3.1.2 Normality

An assumption in the conduct of SEM analysis is that the data are of multivariate normal distribution (Arbuckle, 2007). Checking whether this criterion has been met before employment the analysis is therefore critical. The Chi-square and comparative fit index (CFI) fluctuate significantly if the variation from normal distribution is too large (Bentler, 1990). Finney and DiStefano (2006) suggested three indicators of variable distribution evaluation, namely, univariate skewness, univariate kurtosis, and multivariate kurtosis. In the present research, descriptive analysis was carried out to test the normality of the variables. The skewness statistics ranged from -1.456 to 0.449, and the kurtosis statistics ranged from -1.177 to 2.497. As suggested by Kline (2005), if data with absolute values of univariate skewness were greater than 3.0, and the absolute values of kurtosis statistics exceeded 8.0, the dataset is regarded as extremely non-normal. Hair et al. (2010) asserted that all variables achieving univariate normality help attain multivariate normality, and the large sample size with a

minimum number of 200 diminishes the detrimental effects of non-normality. Given that all variables were of univariate normal distribution, and that the sample size was 479, the data was considered of normal distribution.

5.2.3.1.3 Outliers

Outliers are substantially different between scores of cases and all other cases in the data set (Byrne, 2010). Hair et al. (2010) suggested that outliers should be checked from univariate and multivariate perspectives. Kline (2005) asserted that the former has an extreme score on a single variable, whereas the latter has extreme scores on two or more variables. Outliers, no matter the type, bias the mean, which in turn affects the normal distribution of data (Field & Hole. 2003).

Descriptive analysis was used to check the minimum and maximum scores, which should be 1 and 7 because the study used a seven-point Likert-type scale to measure the scores. Two cases had values of 44 and 77, which were extremely higher than the measurement scale. The data set was cross-checked with the questionnaire copies, and the researcher found that the outliers were caused by typographical errors. The values should have been 4 and 7 instead; the necessary corrections were made immediately. Therefore, no univariate outlier in the data set was ensured. With regard to the checking for multivariate outliers, the computation of the squared Mahalanobis distance for each case was employed. Byrne (2010) suggested that an outlying case has a Mahalanobis distance value that stands distinctively from other Mahalanobis distances. A review of the AMOS finding summary showed minimal evidence of multivariate outliers.

5.2.3.2 Goodness-of-fit indices

Several goodness-of-fit indices are commonly used to judge how well the specified model fits with the observed data. The indices are different from each other, but they do complement each other. The following are the indices used to assess model fit and the general acceptable cut-off point.

5.2.3.2.1 Chi-square (X^2)

The chi-square value is the basic and traditional measure for evaluating overall model fit. According to Hu and Bentler (1999, p.2), the chi-square value "assesses the magnitude of discrepancy between the sample and fitted covariances matrices." To evaluate the chi-square value, the ratio to the degrees of freedom (i.e. X^2/df) is calculated. The ratio ranging from 2.0 to 5.0 is recommended by scholars (Tabachnick & Fidell, 2007; Wheaton, Muthen, Alwin & Summers, 1977). In the present research, X^2 was 1210.842, whereas the degrees of freedom was 515. In other words, the ratio of the chi-square value to degrees of freedom was acceptable at 2.351.

However, the chi-square measure has several limitations. The chi-square value is very sensitive to sample size, as it rejects models with large sample sizes (Jöreskog & Sörbom, 1993). With more indicators added to the model, using chi-square to assess model fit becomes difficult (Hair et al., 2010). For these reasons, the chi-square test is not generally used as the sole measure of goodness-of-fit.

5.2.3.2.2 Tucker–Lewis index

The Tucker–Lewis index (TLI) calculates and compares the normed chi-square values for the null and specified model (Hair et al., 2010). The possible range of TLI is from zero to

one, and higher values represent better model fit. In this research, the TLI index was close to 1 at 0.939, indicating that the model is regarded as good fit.

5.2.3.2.3 Root Mean Square Error of Approximation

The root mean square error of approximation (RMSEA) measures how well the model fits the population covariance matrix (Byrne, 2009). RMSEA addresses the shortcomings of the chi-square measure, particularly in rejecting large sample sizes (Cohen & Cohen, 1983). The threshold of the RMSEA value of less than 0.05 indicates good fit, and values as high as 0.08 indicate reasonable errors of approximation in the population (Browne & Cudeck, 1993). The RMSEA value in this research was 0.053, representing a good model fit.

5.2.3.2.4 Normed Fit Index and Comparative Fit Index

The normed fit index (NFI) assesses the model by comparing the chi-square values of the hypothesized model with those of the null model. A critical drawback of NFI is its sensitivity to sample size, particularly in underestimating fit in small samples (Byrne, 2009). The CFI, a revised form of NFI, takes this factor into account, making it effective in assessing small samples. As stated by Bentler (1992), NFI and CFI values higher than 0.9 are considered representative of a well-fitting model. In this research, the NFI and CFI values were 0.912 and 0.947, respectively, indicating good model fit.

5.2.3.2.5 Goodness-of-fit Index

The goodness-of-fit (GFI) index, an alternative to chi-square, calculates the proportion of variance accounted by the estimated population covariance (Tabachnick & Fidell, 2007). The possible range of GFI is from zero to one, with higher values representing

better model fit. In this research, the GFI index is 0.870, where is close to one and is regarded as good fit.

Overall, the measurement model was confirmed to have good model fit, because it reached the threshold of all the goodness-of-fit indices, including the ratio of chi-square value to degrees of freedom (2.351), TLI (0.939), RMSEA (0.056), NFI (0.912), CFI (0.947) and GFI (0.870).

5.2.3.3 Confirmatory Factor Analysis Results

Confirmatory factor analysis was conducted to analyze the main survey results. This analysis method is the only available technique in testing unidimensionality and in providing a confirmatory assessment of construct validity (Gerbing & Anderson, 1988). Hair et al. (2010) suggested that the rule of thumb for ideal factor loading is 0.7 or higher. Thus, 11 measuring items out of 46 that had factor loadings below 0.7 were deleted. Three items were deleted from the perceived usefulness construct, four from the trustworthy and customized experience construct, one from the perceived behavioral control construct, and three from the attitude construct.

Table 12 shows the standardized factor loadings, t-value, squared multiple correlations (SMC) for individual measuring items, and the composite reliability values for the constructs. Diamantopoulos and Siguaw (2000) explained that the higher the SMC value, the greater the joint explanatory power of the exogenous variables. All SMC values exceeded 0.5, suggesting that the latent factor could explain a majority of the item variances. In terms of composite reliability, all constructs exhibited high levels of composite reliability with values greater than 0.8. Diamantopoulos and Siguaw (2000) recommended that a composite

reliability value above 0.6 is desirable, and a value above 0.7 or higher suggests strong composite reliability. Therefore, strong latent factor reliabilities for all constructs were noted.

Construct validity is useful in validating the measurement model. Campbell and Fiske (1959) recommended two main components in evaluating construct validity, namely, convergent and discriminant validity. The Cronbach's alpha value is commonly adopted to measure the internal consistency of convergent validity. Hair et al. (2010) suggested a threshold of construct reliability value of 0.7 or higher to indicate good reliability, whereas values between 0.6 and 0.7 are acceptable levels. The Cronbach's alpha values of the perceived usefulness construct was 0.886; perceived ease of use was 0.909, trustworthy and customized experience was 0.854, perceived risk was 0.840, perceived behavioral control was 0.875, subjective norm was 0.904, WOM was 0.872, perceived playfulness was 0.874, attitude was 0.918, and adoption intention was 0.910. The Cronbach's alpha values of all constructs exceeded 0.7. Therefore, the convergent validity was established.

Discriminant validity is measured by examining correlations among constructs. Table 13 shows the correlations (squared correlations), reliability, average variance extracted (AVE), mean, and standard deviation of all constructs. Assessing discriminant validity can be done in two ways. As a rule of thumb, a 0.85 or higher correlation indicates poor discriminant validity (Park, 2009). The findings from Table 13 show that none of the correlations exceeded 0.85, indicating an adequate discriminant validity of the measurement. Moreover, an AVE test can also examine the discriminant validity. AVE measures the explained variance of the construct. Discriminant validity is confirmed if the AVE values are larger than any correlation values among any pair of latent constructs, implying that the constructs explain more variance than other constructs (Zait & Bertea, 2011; Fornell & Larcker, 1981). As shown in Table 13, all AVE values are greater than the squared correlation coefficients for the corresponding constructs, confirming satisfactory discriminant validity.

Table 12. Results of Overall Measurement Model

Factors	Std. Factor Loading	C.R. (t-value)	Squared Multiple Correlation	Composite Reliability
Factor 1: Perceived Usefulness				0.888
Using the system enables me to complete the check-in process quickly.	0.765	17.770	0.586	
The system is convenient to use.	0.835	19.770	0.697	
Using the system enhances efficiency of the check-in process.	0.778	18.143	0.606	
Using the system gives me greater control over the check-in process.	0.754	17.442	0.568	
Using the system saves my time.	0.779	NA	0.607	
Factor 2: Perceived Ease of Use				0.911
It is easy to locate the system link on the airline company webpage.	0.719	18.479	0.517	
The instruction guiding the check-in procedure in the system is clear.	0.824	22.947	0.679	
Using the system does not require a lot of my mental effort.	0.784	21.132	0.615	
It is easy to complete the check-in process by using the system.	0.902	26.988	0.813	
It is easy to locate the information that I need in the system.	0.862	NA	0.743	
Factor 3: Trustworthy and Customized Experience				0.854
It is a good experience using the airline online check-in system.	0.826	19.554	0.682	
My past experience in using the airline online check-in system triggers me to use it again.	0.836	19.280	0.698	
The system is specifically designed in meeting my requests.	0.776	NA	0.602	
Factor 4: Perceived Risk				0.841
I am concerned that the system will crash during the check-in process.	0.721	14.817	0.520	
I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent.	0.729	14.978	0.532	
Using the system would add uncertainty, e.g. unsuccessful check-in.	0.810	16.367	0.656	
Using the system exposes me to risk.	0.757	NA	0.573	
Factor 5: Perceived Behavior Control				0.879
I have the resources, e.g. Internet-connected computer or mobile phone, to check-in online.	0.717	19.073	0.515	
I have full computer knowledge in using the system.	0.881	27.148	0.776	

I am competent in using the system.	0.917	NA	0.842	
Factor 6: Subjective Norm				0.909
I use the system because of my close friends' recommendation.	0.774	22.432	0.599	
I use the system because of the recommendation of people whose are important to me.	0.919	30.783	0.845	
I use the system because of the recommendation by people whose opinions I value.	0.931	NA	0.868	
Factor 7: Word-of-mouth				0.877
I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+.	0.822	19.079	0.675	
I use the system because of bloggers' recommendation.	0.908	20.699	0.824	
Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system.	0.783	NA	0.613	
Factor 8: Perceived Playfulness				0.876
Using the system is entertaining.	0.821	19.608	0.675	
Using the system is playful.	0.878	20.842	0.771	
The enjoyment derived from using the system triggers my future adoption.	0.812	NA	0.660	
Factor 9: Attitude				0.921
I have positive feelings towards using the system.	0.811	25.638	0.657	
It would be a good idea to use the system.	0.927	36.258	0.858	
Using the system would be beneficial to me.	0.933	NA	0.870	
Factor 10: Adoption Intention				0.921
I will keep using the system in future.	0.957	24.692	0.915	
I have strong intention in using the system in future.	0.928	23.755	0.861	
I will recommend others to use the system.	0.781	NA	0.611	
Goodness of Fit Indices				
X^2/df = 2.351				
TLI = 0.939				
RMSEA = 0.056				
CFI = 0.947				
NFI = 0.912				
GFI = 0.870				

All factor loadings are significant at $p<0.000$. Parameter fixed at 1.0 for the maximum-likelihood estimation. Thus, t-values were not obtained (NA) for those fixed to 1 for identification purpose.

Table 13. Correlations (Squared Correlations), Reliability, AVE and Mean

	PU	PE	TCE	PR	PBC	SN	WOM	PP	A	BI
PU	1.00									
PE	0.712(0.507)	1.00								
TCE	0.735(0.540)	0.698(0.487)	1.00							
PR	-0.202(0.041)	-0.238(0.057)	-0.178(0.032)	1.00						
PBC	0.657(0.432)	0.604(0.365)	0.600(0.360)	-0.197(0.039)	1.00					
SN	-0.003(0.000)	-0.032(0.001)	0.080(0.006)	0.181(0.033)	-0.178(0.032)	1.00				
WOM	-0.180(0.032)	-0.150(0.023)	-0.081(0.007)	0.251(0.063)	-0.288(0.083)	0.516(0.266)	1.00			
PP	0.105(0.011)	0.087(0.008)	0.218(0.048)	0.202(0.041)	-0.067(0.004)	0.452(0.204)	0.490(0.240)	1.00		
A	0.741(0.549)	0.639(0.408)	0.761(0.579)	-0.245(0.060)	0.650(0.423)	0.019(0.000)	-0.182(0.033)	0.110(0.012)	1.00	
BI	0.735(0.540)	0.735(0.540)	0.754(0.569)	-0.215(0.046)	0.657(0.432)	-0.003(0.000)	-0.180(0.032)	0.105(0.011)	0.822(0.676)	1.00
AVE	0.613	0.673	0.661	0.570	0.710	0.770	0.704	0.701	0.796	0.796
Mean	5.736	5.462	5.482	3.644	4.311	3.313	2.851	3.367	5.663	5.688
SD	1.101	1.122	1.182	1.463	0.940	1.860	1.649	1.558	1.188	1.303

PU=Perceived Usefulness, PE=Perceived Ease of Use, SN=Subjective Norm, TCE= Trustworthy and Customized Experience, PP=Perceived Playfulness, PR=Perceived Risk, PBC=Perceived Behavioral Control, WOM=Word-of-mouth, A=Attitude, BI=Behavioral Intention, AVE=Average Variance Extracted, SD=Standard Deviation. Mean value are based on 7-point Likert-type scales. All correlations are significant at $p<0.000$.

5.2.4 Structural Model Testing

Given that the overall measurement model was found to be acceptable with the model fit indices and parameter estimates, the structural model was tested using the same sample (N=479). As proposed in the conceptual framework of this research, the structural model aims to assess the hypothesized theoretical relations among the factors, namely, perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived risk, perceived behavioral control, subjective norm, WOM, perceived playfulness, attitude, and behavioral intention. Perceived ease of use, trustworthy and customized experience, perceived risk, perceived behavioral control, subjective norm, WOM, and perceived playfulness were exogenous variables, whereas perceived usefulness, attitude, and behavioral intention were endogenous variables.

The proposed structural model was tested using AMOS software. Model fit indices are the first determinant in evaluating a model's overall fit prior to examining the hypotheses (Bollen & Long, 1993). The model fit indices (χ^2/ df = 2.497, TLI = 0.933, RMSEA = 0.056, NFI = 0.906, CFI = 0.941, GFI = 0.862) in the present study indicated that the overall model fit was adequate based on the goodness-of-fit indices threshold. Moreover, all standardized factor loadings exhibited negligible changes with the factor loadings in the measurement model, and they were all above the ideal threshold of 0.7 (as shown in Table 14). As the overall model fit was satisfactory, the path coefficients were subsequently examined.

This study further evaluated the direct effects subsumed in the proposed model to obtain a closer look into the process of attitude and adoption intention (as shown in Table 15). For the direct effect of factors on attitude, five out of eight factors, namely, perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived risk, and perceived behavioral control, were found to be significant. Trustworthy and customized

experience held the strongest positive coefficient (0.54) with attitude, followed by perceived usefulness (0.45) and perceived behavioral control (0.23). By contrast, perceived ease of use and perceived risk had negative effects on attitude. For the direct effect of the factors on adoption intention, only trustworthy and customized experience and perceived behavioral control had significant and positive effects. Figure 6 demonstrates the structural model with all estimated path coefficients.

Table 14. Results of Overall Structural Model

Factors	Std. Factor Loading	C.R. (t-value)	Squared Multiple Correlation
Factor 1: Perceived Usefulness			
Using the system enables me to complete the check-in process quickly.	0.768	17.824	0.590
The system is convenient to use.	0.836	19.772	0.699
Using the system enhances efficiency of the check-in process.	0.775	18.014	0.600
Using the system gives me greater control over the check-in process.	0.750	17.310	0.562
Using the system saves my time.	0.782	NA	0.612
Factor 2: Perceived Ease of Use			
It is easy to locate the system link on the airline company webpage.	0.714	18.338	0.510
The instruction guiding the check-in procedure in the system is clear.	0.816	22.589	0.665
Using the system does not require a lot of my mental effort.	0.775	20.781	0.604
It is easy to complete the check-in process by using the system.	0.897	26.816	0.805
It is easy to locate the information that I need in the system.	0.860	NA	0.740
Factor 3: Trustworthy and Customized Experience			
It is a good experience using the airline online check-in system.	0.821	19.284	0.674
My past experience in using the airline online check-in system triggers me to use it again.	0.832	19.615	0.693
The system is specifically designed in meeting my requests.	0.786	NA	0.618
Factor 4: Perceived Risk			
I am concerned that the system will crash during the check-in process.	0.721	14.814	0.520
I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent.	0.729	14.975	0.532
Using the system would add uncertainty, e.g. unsuccessful check-in.	0.810	16.359	0.656
Using the system exposes me to risk.	0.757	NA	0.573
Factor 5: Perceived Behavior Control			
I have the resources, e.g. Internet-connected computer or mobile phone, to check-in online.	0.717	19.044	0.514
I have full computer knowledge in using the system.	0.881	27.094	0.775
I am competent in using the system.	0.918	NA	0.843

Factor 6: Subjective Norm			
I use the system because of my close friends' recommendation.	0.774	22.435	0.599
I use the system because of the recommendation of people whose are important to me.	0.909	30.779	0.845
I use the system because of the recommendation by people whose opinions I value.	0.931	NA	0.867
Factor 7: Word-of-mouth			
I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+.	0.822	19.085	0.675
I use the system because of bloggers' recommendation.	0.908	20.700	0.824
Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system.	0.783	NA	0.613
Factor 8: Perceived Playfulness			
Using the system is entertaining.	0.822	19.602	0.675
Using the system is playful.	0.878	20.834	0.772
The enjoyment derived from using the system triggers my future adoption.	0.812	NA	0.659
Factor 9: Attitude			
I have positive feelings towards using the system.	0.804	NA	0.646
It would be a good idea to use the system.	0.923	24.702	0.852
Using the system would be beneficial to me.	0.930	24.957	0.865
Factor 10: Adoption Intention			
I will keep using the system in future.	0.955	24.250	0.913
I have strong intention in using the system in future.	0.926	23.337	0.857
I will recommend others to use the system.	0.776	NA	0.603
Goodness of Fit Indices			
X^2/df = 2.351			
TLI = 0.933			
RMSEA = 0.056			
CFI = 0.941			
NFI = 0.906			
GFI = 0.862			

All factor loadings are significant at $p<0.000$. Parameter fixed at 1.0 for the maximum-likelihood estimation. Thus, t-values were not obtained (NA) for those fixed to 1 for identification purpose.

Table 15. .Path Analysis Results for Structural Model

Path Analysis	Coefficient	t-value
From Factors to Attitude		
Perceived usefulness → Attitude	0.45	3.651**
Perceived ease of use → Attitude	-0.27	-2.845**
Trustworthy and customizaed experience → Attitude	0.54	6.410**
Perceived risk → Attitude	-0.09	-2.554**
Perceived behavioral control → Attitude	0.23	4.358**
Subjective norm → Attitude	0.06	1.603
Word-of-mouth → Attitude	-0.05	-1.234
Perceived playfulness→ Attitude	0.00	-0.054
From Factors to Adoption Intention		
Perceived usefulness → Adoption intention	0.08	1.252
Perceived ease of use → Adoption intention	0.07	0.779
Trustworthy and customizaed experience → Adoption intention	0.20	2.496**
Perceived risk → Adoption intention	0.02	0.858
Perceived behavioral control → Adoption intention	0.10	2.100*
Subjective norm → Adoption intention	-0.01	-0.429
Word-of-mouth → Adoption intention	-0.04	-1.190
Perceived playfulness→ Adoption intention	-0.01	-0.293

Notes: * Parameter estimates significant at $p<0.05$.
** Parameter estimates significant at $p<0.01$.

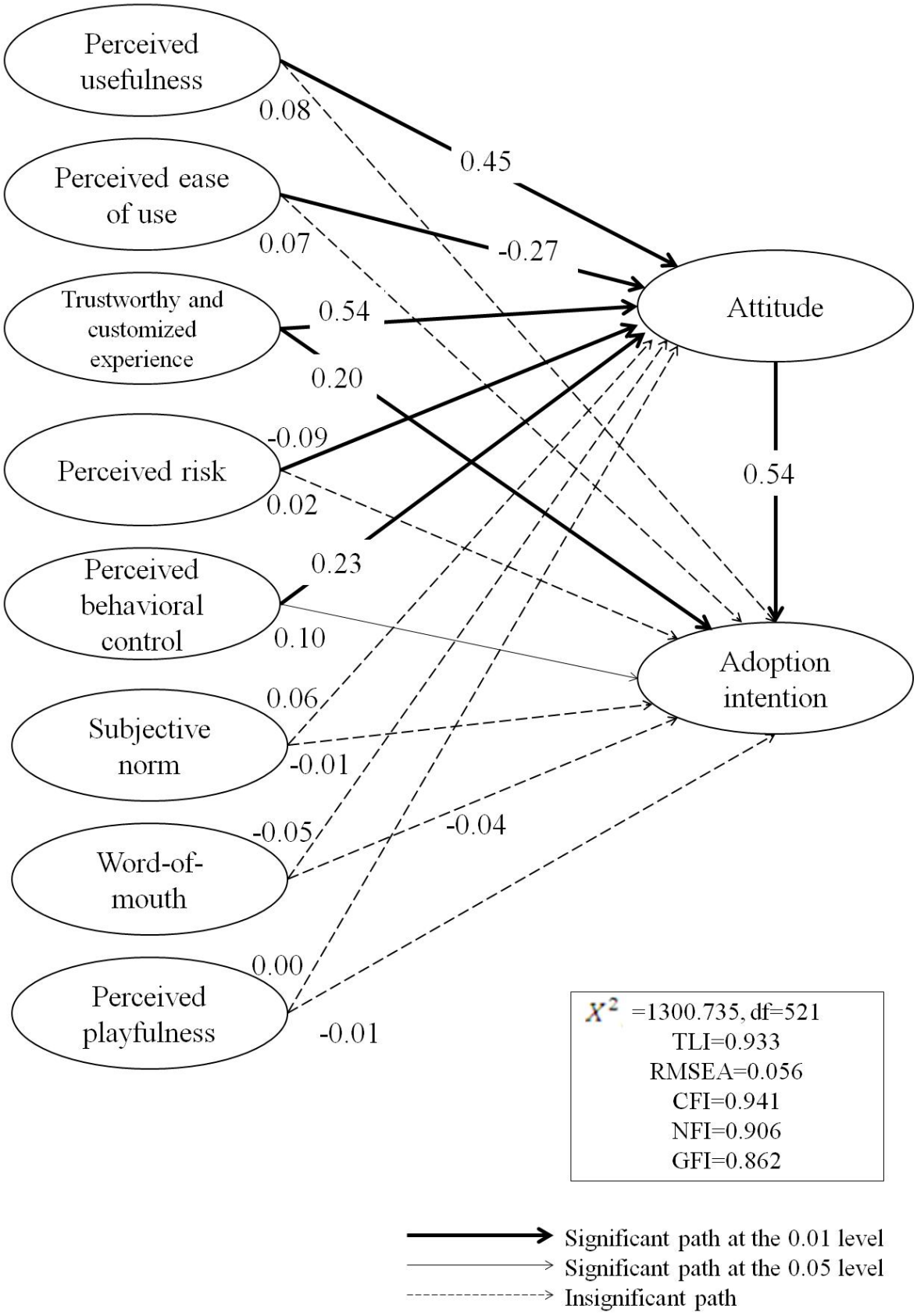

Figure 9. Structural Model with Estimated Path Coefficient

5.2.5 Hypotheses Testing

The hypotheses proposed in the section on pilot test findings were scrutinized to determine whether they were supported or rejected. Path analysis measuring the direct effect of an exogenous variable on an endogenous variable was tested for the last hypothesis (Ducan, 1966). Sobel test, a statistically rigorous method in assessing mediation effect, was employed from the first to eighth hypotheses (Sobel, 1982). This test was found to have greater statistical power over other formal methods assessing mediation, such as the Baron and Kenny approach (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). The mediating effect, also known as the indirect effect, was calculated by multiplying the path coefficient between the exogenous variable and the mediator and the path coefficient between the mediator and the outcome. Significant level was calculated using the Sobel test. Table 16 shows all the structural path estimates. Six out of nine structural path estimates were statistically significant because t-values were larger than 1.96 (absolute value).

Table 16. Hypotheses Testing

Hypotheses	Coefficient	t-value	Results
H1: PU → A → AI	0.243	4.845**	Supported
H2: PEOU → A → AI	-0.146	-2.749**	Not Supported
H3: TCE → A → AI	0.292	4.628**	Supported
H4: PR→ A → AI	-0.049	-2.967*	Supported
H5: PBC → A → AI	0.124	4.075**	Supported
H6: SN → A → AI	0.032	2.616**	Supported
H7: WOM → A → AI	-0.027	-1.615	Not Supported
H8: PP → A → AI	0.000	0.000	Not Supported
H9: A → AI	0.540	7.690**	Supported

Notes: * Parameter estimates significant at $p<0.05$.
** Parameter estimates significant at $p<0.01$.
PU=perceived usefulness; PEOU=perceived ease of use; TCE=trustworthy and customized experience; PR= perceived risk; PBC= perceived behavioral control; SN=subjective norm; WOM=word-of-mouth; PP= perceived playfulness; A=attitude; AI=adoption intention.

H1: Perceived usefulness positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between perceived usefulness and users' web-based SST usage intention. The mediating effect of attitude was calculated. The indirect effect coefficient was 0.243 with a t-value of 4.845 ($p < 0.01$), indicating that the indirect path connecting perceived usefulness and intention was significant and positive. Therefore, Hypothesis 1 was supported.

H2: Perceived ease of use positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between perceived ease of use and users' web-based SST usage intention. Calculating the mediating effect of attitude, the indirect effect coefficient was significant with a p-value less than 0.01 and with a t-value (-2.749) exceeding 1.96. A negative relationship was noted between perceived ease of use mediated by attitude and adoption intention. Although the hypothesis was statistically significant, the construct was proposed to have a positively influence on adoption intention. Thus, Hypothesis 2 was rejected.

H3: Trustworthy and customized experience positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between trustworthy and customized experience and users' web-based SST usage intention. The indirect effect of attitude was calculated. The results (indirect effect coefficient = 0.292, t-value = 4.628, p-value < 0.01) demonstrated evidence of the mediating effect of attitude on trustworthy and customized experience and users' usage intention. Thus, Hypotheses 3 was supported.

H4: Perceived risk of use negatively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between perceived risk and users' web-based SST usage intention. The indirect effect coefficient (-0.049) was proved to be significant (t-value = -2.967, p-value < 0.05). Therefore, Hypothesis 4 was supported.

H5: Perceived behavioral control positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between perceived behavioral control and users' web-based SST usage intention. The indirect effect of attitude was calculated. The results (indirect effect coefficient = 0.124, t-value = 4.075, p-value < 0.01) demonstrated a significant mediating effect of attitude on perceived behavioral control and users' usage intention. Hypothesis 5, therefore, was supported.

H6: Subjective norm positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between perceived usefulness and users' web-based SST usage intention. The mediating effect of attitude was calculated. The indirect effect coefficient was 0.032 with a t-value of 2.616 ($p < 0.05$), indicating that the indirect path connecting subjective norm and intention was significant. Thus, Hypothesis 6 was supported.

H7: Word of mouth positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between WOM and users' web-based SST usage intention. Calculating the mediating effect of attitude, the indirect effect coefficient was found to be insignificant (t-value -1.615, $p > 0.05$). A negative relationship was found based on the result of the path coefficient (-0.027). Therefore, Hypothesis 7 was rejected.

H8: Perceived playfulness positively influences travelers' intention of adopting web-based SST, mediated by attitude.

Attitude was hypothesized to mediate the relationship between perceived playfulness and users' web-based SST usage intention. The indirect effect was calculated and found to be insignificant (indirect coefficient = 0.000, t-value = 0.000, p-value > 0.05). Hypothesis 8 was rejected.

H9: Attitude positively influences users' web-based SST usage intention.

The hypothesis was tested by examining the path coefficient between attitude and intention. The path coefficient was found to be positive and significant (path coefficient = 0.540, t-value = 7.690, $p < 0.01$). Thus, Hypothesis 9 was supported.

Concluding the hypotheses testing section, one direct path specified in the hypothesized model was found to be statistically significant and validated. This path indicated a significant effect of attitude on intention. Five indirect paths were also statistically proven to be significant. These paths reflected that attitude was found to mediate the relationship among the factors of perceived usefulness, trustworthy and customized

experience, perceived risk, perceived behavioral control, subjective norm, and adoption intention.

5.2.6 Independent Sample T-tests

The fifth objective of this research is to explore the differences between Asians and Westerners in terms of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting. To determine whether significant differences existed in adoption intention factors between the two populations, independent sample t-tests were performed, and the results are shown in Table 17. The Levene's test had a probability level greater than 0.05 across all factors; hence, equal variances were assumed between the two populations.

Table 17 shows that three factors, namely, subjective norm, WOM, and perceived playfulness had significant values below 0.05, whereas the significant values of other factors exceeded the 0.05 threshold. As a result, significant differences in the aforementioned factors were observed between the Easterners and the Westerners, but no difference was noted in the remaining factors. In terms of the factors with significant differences, Easterners were likely more influenced by subjective norm, WOM, and perceived playfulness when they adopted web-based SST compared with Westerners because the mean scores of the former were higher than those of the latter in relation to the three factors.

Table 17. Independent Samples T-test Results

Web-based SST adoption intention factors	Overall		Easterners		Westerners		p-value
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
Perceived usefulness	5.736	1.101	5.752	1.018	5.721	1.171	0.76
Perceived ease of use	5.462	1.122	5.39	1.074	5.525	1.161	0.191
Trustworthy and customized experience	5.482	1.182	5.435	1.096	5.521	1.252	0.428
Perceived risk	3.644	1.463	3.713	1.406	3.584	1.511	0.336
Perceived behavioral control	4.311	0.940	4.26	0.859	4.354	1.004	0.276
Subjective norm	3.313	1.860	3.565	1.875	3.095	1.823	0.006*
Word-of-mouth	2.851	1.649	3.243	1.616	2.512	1.604	0.000*
Perceived playfulness	3.367	1.558	3.536	1.471	3.221	1.618	0.027*

Notes: * Parameter estimates significant at $p<0.05$.

S.D.=standard deviation

7-point Likert type scale was used, where 1 = *Strongly Disagree* and 7 = *Strongly Agree*

CHAPTER 6. DISCUSSION

This chapter discusses the results of the present research. The first section discusses the conceptual model development for the technology adoption intention of web-based SST in a tourism industry setting, thereby addressing the third objective. The second section discusses the structural relations of technology adoption intention dimensions of attitude and adoption intention to address the fourth objective. The last section sheds some light on the differences between Asians and Westerners in terms of web-based SST adoption intention dimensions in a tourism industry setting to focus on the fifth objective.

6.1 Overall Web-based SST Adoption Intention Conceptual Model

This study employed a rigorous procedure in developing a conceptual framework for web-based SST adoption intention based on the five-step instrument development approach suggested by Churchill (1979). The Etic-Emic approach, including the literature review and the four focus group interviews, was adopted to complete the first two steps, namely, to specify the domain of constructs and to generate a sample of items. Expert panel assessment was consequently carried out to check the content validity of the measuring items (Zaichkiwsky, 1985). After the rephrasing and modification of the items by the panel of experts, a list of 11 factors, namely, perceived usefulness, perceived ease of use, trust, prior experience, customization, perceived behavioral control, perceived risk, subjective norm, WOM, and perceived playfulness, were generated with 54 measuring items. The last three steps of the Churchill (1979) approach included purifying the measure, assessing reliability and validity through pilot testing, and conducting EFA. Based on the findings of the pilot test, the preliminary scale was reduced from 54 items to 43 items after conducting the EFA. A nine-factor underlying structure was identified, including perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived risk, perceived behavioral control, subjective norm, WOM, perceived playfulness, and attitude. During the scale

refining process, the researcher found that a relatively stable underlying structure was achieved. Majority of the items were loaded into the original factors. Only trust, prior experience, and customization were combined into one factor. As mentioned previously, all dimensions were extensively researched using previous literature.

Consequently, the main survey was conducted, and 35 measuring items were retained in fulfillment of the high factor loading of 0.7 as suggested by Hair et al. (2010). CFA and SEM results indicated good model fit based on the main survey findings, indicating that the purified measurement had good reliability and validity. In summary, the dimensions of web-based SST adoption intention extracted from the pilot test findings were corroborated by the main survey findings. CFA revealed that all eight dimensions showed a high level of internal consistency, and all AVE values were greater than the squared correlation coefficients for the corresponding constructs. The adequate convergent and discriminant validity confirmed the conceptually distinct trait of the constructs in the research model.

Reviewing various goodness-of-fit indices for the measurement model, the values of TLI (0.939), RMSEA (0.053), NFI (0.912), and CFI (0.947), and the ratio of chi-square to the degree of freedom (2.351) were within the acceptable values. Although the three out of the nine proposed hypotheses (i.e., the proposed paths from percevied ease of use, WOM, and perceived playfulness to adoption intention, mediated by attitude) were not statistically significant, the goodness-of-fit measures indicated that the model was a parimonsious one and fits well with the data. This result demonstrated the applicability of the proposed model in measuring technology adoption intention toward web-based SST in a toursim industry setting. In other words, the proposed model can be universally applied across populations.

6.2 Effects of Factors on Attitude and Adoption Intention

The derived dimensions in the structural model showed similarities to and differences with prior technology acceptance studies. The following discussion delves deeper into the structural relations of technology adoption intention dimensions of attitude and of adoption intention.

Perceived usefulness, accounting for the second largest path coefficient (0.243) of an indirect effect on adoption intention with the mediation by attitude, was found to be a profound factor affecting web-based SST adoption. This construct also accounted for the largest proportion of total variance from the pilot testing. Scholars (Moon & Kim, 2001; Igbaria, Schiffman, & Wieckowski, 1994) empirically tested and confirmed that significant predictive power of perceived usefulness on attitude. Comparing the two fundamental constructs of the TAM, perceived usefulness was more imperative than perceived ease of use when determining whether to use a particular technology (Keil, Beranek, & Konsynski, 1995). This empirical finding echoed the perspectives of the focus group interviewees when they mentioned the convenience and functionality merits of airline online check-in systems. Hence, this dimension, with the mediation of attitude, demonstrated a significant impact web-based SST adoption intention in a tourism industry setting.

A surprising finding was the negative relationship between perceived ease of use and attitude, as well as the insignificant effect of perceived ease of use on adoption intention. The finding contradicted the results of previous literature (Fusilier & Durlabhji, 2005; Moon & Kim, 2001), probably because the study setting was not limited to any specific airline company or airline online check-in system. The ease of use level of the airline online check-in system varies across different airline companies, and the respondents did not indicate their ease of use perception based on a common ground. Thus, the result was most likely affected,

thereby indicating the negative impact of the dimension on the web-based SST adoption intention in a tourism industry setting.

Trustworthy and customized experience was determined the most important factor affecting users' adoption intention toward web-based SST based on the structural model result and the hypothesis testing. The path coefficients between the construct to the direct effect attitude (0.54) and adoption intention (0.2), as well as the indirect effect of adoption intention (0.292), were consistently the highest among all the factors. The result was in line with past literature. Coulter and Coulter (2002) confirmed that a trust-based and customized experience raises individuals' comfort levels, resulting in a positive attitude toward a particular service provider, and consequently, a positive purchasing decision. In addition, the empirical testing result concurred with the perception of the focus group interviewees. The customization feature of airline online check-in systems was the prime reason of interviewees' adoption of web-based SST. They also signified the importance of trust toward the airline companies and the system when adopting web-based SST because of the potential risk involved during the online check-in process. Their pleasant check-in experience was affected by the customization feature of the system, and a trust-based antecedent constituted a good experience, which can positively influence the future adoption of web-based SST in the tourism industry.

Perceived risk appeared to have a significantly negative impact on attitude and adoption intention, corroborating the research finding of Van der Heijden, Verhagen and Creemers (2001), and Golmohammadi, Jahandideh, and O'Gorman (2012). During the adoption of airline online check-in system, travelers were aware of the potential risk involved. Focus group interviewees explained the potential risk of leaking personal information, such as passport number and frequent flyer information, and of failing to complete the check-in process. Perceived risk is a critical factor in an online setting because the issue of privacy has

received substantial attention, and the problem of information leakage has been persistent in the online context (Caudill & Murphy, 2000; Milne & Culnan, 2004).

Perceived behavioral control appeared to have a significant, positive, and direct relationship with attitude and adoption intention, as well as a significant, positive, and indirect relationship with adoption intention. The magnitude of the relationships reported in this study was consistent with previous literature (Kang, Hahn, Fortin, Hyun, & Eom, 2006). As the respondents were experienced in using the airline online check-in system, they were believed to possess the general competence, capability, and resources to perform the tasks involved in the process. This dimension is particularly essential in web-based SST setting because the availability of equipment, such as an Internet-connected mobile and computer, and related knowledge are necessary in web-based SST adoption.

Subjective norm seemingly had a significant, positive, and indirect impact on adoption intention, mediated by attitude. Empirically supported by literature (Kim, Kim, & Shin, 2009; Lee, Qu, & Kim, 2007), the findings showed that the subjective norm was the antecedent of attitude and adoption intention in an online tourism setting. This result implied that travelers tend to rely heavily on internal referents in decision making. Karahanna, Straub, and Chervany (1999) revealed that subjective norm is more essential during the early stage of usage of a certain system. The airline online check-in system has only been in existence for 13 years, and comments from internal referents still play an important role in influencing travelers' technology adoption intention. This reality explains the rationale behind the significant and positive relationship between subjective norm and web-based SST adoption intention with the mediation of attitude.

WOM has no significant effect on attitude, and has a negative effect on adoption intention. The construct was likely negligible in users' adoption of web-based SST, which is

contradictory to the results of previous research on the role of WOM on information system acceptance (Schepers & Wetzels, 2007; Davis et al., 1989). In the context of airline check-in system, WOM is just a post-purchase service, and no transaction is involved. Alternatives are also available, such as checking in through the counter and the self check-in kiosk at the airport. The respondents likely developed independent evaluations on the web-based SST adoption and placed less concern on the perceptions of bloggers and of other passengers. Thus, the effect of WOM on adoption intention might differ between web-based SST and other information systems.

Perceived playfulness was confirmed to have an insignificant relationship with attitude and adoption intention toward web-based SST. This finding seemed contradictory to the previous discussion, but was consistent with the focus group findings. As stated by focus group respondents, their aim for checking in using the online system was to "get things done" or "to complete the check-in process." Previous studies investigating the effect of perceived playfulness on attitude or adoption intention were examined in the online contexts of leisure or transaction activities, including internet shopping (Maignan & Lukas, 1997), commercial websites (Eighmey & McCord, 1998), and the World Wide Web in general (Moon & Kim, 2001). The nature of the studied contexts was distinct from the setting explored in this research. Thus, level of enjoyment is not likely important in a web-based SST setting, as suggested by the finding of this research.

Attitude was tested to be a significant mediator between the technology adoption dimensions and adoption intention because majority of the hypotheses supported its mediating effect. This factor also exhibited a strong direct effect on adoption intention. The relationship between attitude and intention has been extensively studied in TRA and TPB research, wherein a strong association was noted between the two (Armitage & Conner, 2001). This finding further corroborated the discussion on Chapter 4. Attitude was found to

be a significant predictor of adoption intention, and an important mediating variable between constructs, such as perceived usefulness, trustworthy and customized experience, perceived risk, perceived behavioral control, and subjective norm. Katz (1960) discerned that attitude is a perceptual symbol internally formulated by an individual, whereas Atkinson (1964) further addressed that attitude is constructed by considerable cognition factors and consequently affects the intensity of intention. Ajzen and Fishhbein (1980) shared a similar philosophy, indicating that a person's attitude is the ultimate determinant of behavioral intention.

In summary, perceived usefulness, trustworthy and customized experience, perceived behavioral control, subjective norm, and perceived risk were found to be critical determinants of attitude toward technology adoption. They exhibited significant influences on individual formation of adoption intention toward web-based SST in the tourism industry. Attitude was also found to have an influential effect on individual adoption intention. The relations are outlined in Figure 10. Hypotheses testing also indicated that perceived ease of use, WOM, and perceived playfulness represented negligible impact on technology adoption intention toward web-based SST in a tourism industry setting.

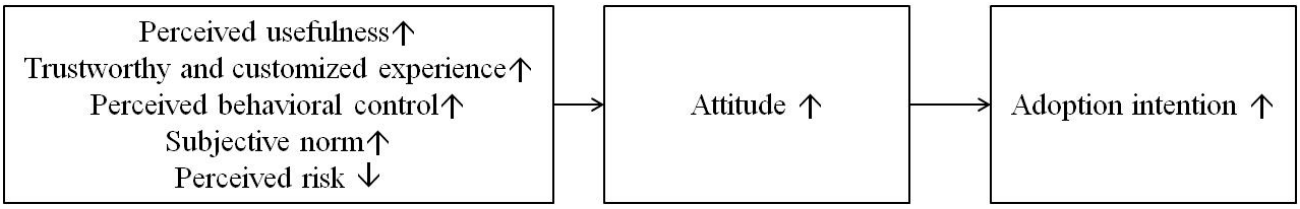

Figure 10. The Relationship between Technology Adoption Intention Dimensions and Adoption Intention

6.3 Divergence between Easterners and Westerners

According to the research findings, statistically significant differences were noted between Asians and Westerners in terms of the three dimensions affecting web-based SST adoption intention, namely, WOM, subjective norm, and perceived playfulness. These factors were likely applicable to Asians because of the difference in cultural values. Although the previous section indicated the insignificant effect of WOM and perceived playfulness on web-based SST adoption intention, these two dimensions were found to be influential in previous adoption decisions, but not in future adoption intention. The perceptions of the focus group interviewees and the results of past literature supported this finding.

Cultural value collectivism, proposed by Hofstede (1980), explains why societies differ, and this difference is rooted in the Asian mind (Sun, Horn & Merritt, 2004; Maheswaran & Shavitt, 2000). Cultural value collectivism refers to the extent an individual integrates into groups and establishes his/her judgment based on group norms. People from collectivistic cultures acknowledge their interdependence with the inner group interdependence, and they focus on the collective nature of social obligation (Hofstede & Bond, 1988). In other words, they are prone to valuing the opinions of their group members because they are eager to be identified with the group and to respect group decision. By contrast, Westerners have individualistic mindsets, which represent the loose emotional ties between individuals and society (Hofstede, 1980; Takano & Osaka, 1999). People with an individualistic mindset tend to be self-reliant, and they are less concerned about group norm. Thus, WOM plays a critical role in the decision-making process of Asians. This research finding is consistent with the findings in existing literature (Triandis, 2001; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988).

The impact of power distance, another cultural value proposed by Hofstede (1980), explains the divergence between the two groups in terms of subjective norm. Power distance

refers to the degree that an individual believes organizational and societal powers should be unequally distributed (Hofstede, 1980; Carl, Gupta, & Javidan, 2004). An individual with high power distance orientation is likely to legitimize the power differences between leaders and subordinates. Consequently, they are prone to defer to supervisors and are submissive to leaders' decisions (Kirkman, Chen, Farh, Chen, & Lowe, 2009; Bochner & Hesketh, 1994; Lian, Ferris, & Brown, 2012). Asians have high power distance orientation, whereas Westerners have low power distance orientation (Birnik, Birnik, & Sheth, 2010; Brew & Cairns, 2004). Under the influence of the cultural value of power distance, Asians tend to consult authority or people they value before making decisions, whereas Westerners are more self-reliant. Scholars in various disciplines also demonstrated similar findings (Dutta-Bergman & Wells, 2002; Richardson & Smith, 2007). Hence, Asians are more concerned about subjective norms than Westerners.

Asians exhibited a higher tendency to value perceived playfulness as a determinant of their web-based SST adoption intention. Shin (2010) surveyed Koreans and Americans to determine the motivational factors that drive them to use online social networking services. The results highlighted the difference between the two populations; Korean users were more likely to be influenced by perceived playfulness than American users. Unlike in Western countries, web-based SST, particularly airline online check-in systems have only emerged in Asian countries recently. For instance, a major airline company in Asia, Cathay Pacific Airways, launched the online check-in system in 2001 (Swire Pacific, 2001). As Asians were relatively unfamiliar and inexperienced with the online SST system, they might find it enjoyable and interesting during early attempts, whereas their Western counterparts were already experienced in using the system and found it customary when making travel arrangements. Therefore, Asians demonstrated a higher degree of perceived playfulness than Westerners in the present study.

On the other hand, no significant differences were found between the two counterparts in terms of the other five dimensions, including perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived risk and perceived behavioral control, affecting web-based SST adoption intention. With regards perceived usefulness and perceived ease of use, the measuring items of these two dimensions were most likely referring to the system-wise features, such as the designs and functions. It could be explained that Asians and Westerners may have resembling perception on these two dimensions. In addition, the online privacy issue has been arisen due to the growth and importance of the Internet. Substantial news reported personal information being misused and stolen from online system (e.g. Riley, 2011; Gladdis, 2012). It reflected that leaking of personal information and confidentiality concerns existed since the emersion of the Internet, concerning with all Internet users across cultures. As a result, no significant different applied to the two populations in terms of trustworthy and customized experience, as well as perceived risk.

Furthermore, technology affected every facet of people's lives and was essential in today's computer-savvy world (Gupta, 2006). According to the figures reported by International Telecommunication Union (2011), 2.45 billion people, one third of the world population, were connected to the Internet. Internet users in developing countries recorded an increment from 44% in 2006 to 62% in 2011.The figures implied that nowadays increasing number of people were computer literacy – having "knowledge of how computer systems operate and of the general ways in which computers can be used" (U.S. Government Printing Office, 1984, pp.233). Respondents from the main survey also had past experience in using the airline online check-in system. No significant difference, therefore, was noted between the populations in terms of perceived behavioral control.

CHAPTER 7.CONCLUSION AND IMPLICATION

7.1 Overview of the Study

Tourists' acceptance of technology such as various information systems has been a well-explored area in tourism literature. Tourism research on technology acceptance has been limited in terms of its application in similar information systems its culturally biased perspective, and its main focus on quantitative investigation. This thesis attempted to fill the knowledge gap by addressing the objectives with corresponding means shown in Table 18.

Table 18. Research Objectives and Corresponding Means in Achieving Objectives

Objectives	Mean(s) to achieve objective
1. To investigate the factors affecting technology adoption intention from an Asian perspective	- Conduct focus group interviews with Asians
2. To identify the underlying dimensions of web-based SST adoption intention in a tourism industry setting	- Consolidate factors affecting web-based SST adoption intention from Etic-Emic approach - Employ pilot test (EFA was conducted)
3. To construct and test a conceptual model of technology adoption intention toward web-based SST in a tourism industry setting	- Employ main survey (CFA and SEM were conducted)
4. To determine the impact on attitude and adoption intention of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting	- Employ main survey (Sobel test was conducted to examine the hypotheses)
5. To explore the differences between Asians and Westerners in terms of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting	- Employ main survey (Independent samples t-test was conducted to explore the difference between Asians and Westerners)
6. To discuss implications and to offer recommendations for tourism practitioners with regard to improving existing web-based SST	- Discussions and implications were recommended based on the findings

To achieve the objectives, a mixed method approach, which combines qualitative and quantitative methods, was implemented, and an Etic-Emic approach was implemented. The entire research followed the Churchill (1979) instrument development procedure to accomplish the key objectives.

To address the cultural limitation of the TAM, the first objective centered on investigating the factors that affect web-based SST adoption intention from the Asian perspective. As the original TAM was established purely from a Western perspective, focus group interviews with Asians were conducted to attain the technology adoption factors. Literature review was performed to collect the insights from Westerners' viewpoint. Consolidating all the technology adoption factors from both perspectives, 11 factors influencing web-based SST adoption intention in a tourism setting were outlined: perceived usefulness, perceived ease of use, perceived behavioral control, perceived risk, trust, perceived playfulness, subjective norm, prior experience, customization, WOM, and attitude. Attitude served as the mediator of all the factors and of adoption intention. A conceptual model was proposed to guide the hypothesis testing in terms of the relations between key constructs. The focus group interview developed two new dimensions. A preliminary list of measuring items was generated from the literature and from the focus group interviews. Expert panel assessment was consequently conducted to assess and modify the measuring items and the questionnaire to ensure content reliability and validity.

Subsequently, pilot testing was employed to achieve the second objective, which is to identify the underlying dimensions of web-based SST adoption intention in a tourism industry setting. Pilot testing also helped to purify the measures, assessing their reliability and validity, as suggested by Churchill (1979). The pilot testing was conducted from September 2011 to November 2011, and a total 202 cases were collected from an online survey. EFA was conducted to analyze the pilot test data, and nine factors were confirmed to affect web-

based SST adoption intention: perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived behavioral control, perceived risk, perceived playfulness, WOM, subjective norm, and attitude.

The main survey was then conducted to empirically test the relations between key constructs. The survey performed in March 2012 generated 479 valid questionnaires. The Hong Kong International Airport was selected as the venue for the survey, wherein quota sampling was employed. The data were analyzed using confirmatory factor analysis and structural equation modeling to fulfill the third and fourth objectives. A conceptual model was then constructed and tested with empirical data. The impact of each dimension on attitude and adoption intention was also investigated. The five dimensions, namely, perceived usefulness, trustworthy and customized experience, perceived risk, perceived behavioral control, and subjective norm, were found to be significant factors affecting adoption intention, mediated by attitude. Attitude was also confirmed to be a critical determinant of technology adoption intention.

The fifth objective of this thesis was to explore the differences between Asians and Westerners in terms of the dimensions of technology adoption intention toward web-based SST in a tourism industry setting. The main survey data were analyzed using independent sample t-tests to identify the difference between the two populations. Asians were more concerned with WOM, subjective norm, and perceived playfulness than their Western counterparts. To achieve the sixth objective, recommendations and tips for tourism practitioners are discussed next.

7.2 Implications

7.2.1 Theoretical Implications

In the tourism industry, considerable attention has been placed on tourists' online behavior, most especially with the emergence of the World Wide Web. With the prevailing trend of globalization, understanding the perspectives of different cultural groups regarding travelers' technology adoption behavior has become imperative. Through the implementation of an emic approach, two new dimensions, namely, customization and WOM, were identified from an Asian perspective. The empirical testing employed in the exploration of the different perceptions of Asians and Westerners in terms of technology adoption dimensions also reflected that Asians were more concerned with WOM, perceived playfulness, and subjective norm. These important findings added knowledge and understanding for cross-cultural research, especially in tourism-related technology studies. Brandtzæg (2010) stated that culture affects the way people communicate and interact with technologies. The empirical findings confirmed that culture affects web-based SST adoption intention in the tourism industry.

The TAM is the conceptual model frequently adopted by tourism scholars to determine the factors relating to tourists' adoption intention. Previous literature usually incorporated the constructs in the TRA, TPB, and TAM models and examined them in diverse settings. However, such approach was found to be limited in terms of knowledge contribution. Exerting a synthetic review of previous technology acceptance studies, this thesis devoted an exploratory attempt to identify factors influencing web-based SST adoption intention in a tourism industry setting from a more holistic perspective, for which a conceptual model was developed following the systematic scale development process suggested by Churchill (1979). Nine underlying dimensions of technology adoption intention encompassing 52 items were identified from the factor analysis: perceived usefulness,

perceived ease of use, trustworthy and customized experience, perceived risk, subjective norm, perceived behavioral control, perceived playfulness, WOM, and attitude. The identification of the nine factors contributed to existing technology acceptance literature by offering empirical support for the measurement of technology adoption intention through a reliable and valid conceptual model.

Addressing the critique of the universal application of the TAM, the perceptions of both Asians and Westerners on technology adoption intention were equally investigated and addressed in this thesis via an Etic-Emic approach. This approach minimized the cultural bias present in the original TAM and enhanced the explanatory power of the model. The goodness-of-fit indices from the measurement model confirmed that the conceptual model was a parimonsious one and fits well with the data. The goodness-of-fit indices demonstrated the applicablity of the model in measuring web-based SST adoption intention in a toursim industry setting, as well as its universal application across populations.

The application of the TAM in similar information systems and contexts is a shortcoming of previous studies on technology acceptance. The present thesis endeavored to investigate technology adoption intention in a web-based SST context, which has long been overlooked by scholars. Given the proliferation of the Internet and the advantages of web-based SST, further research can be done to ascertain travelers' perceptions and behaviors about this overlooked yet unique setting.

7.2.2 Practical Implications

This study investigated the structural relations of factors affecting web-based SST adoption intention and examined the cultural difference between Asians and Westerners. Several practical implications could be derived to assist general airline company marketers,

tourism industry practitioners, and web-based SST programmers in improving and launching better marketing campaigns to boost usage of web-based SST.

7.2.2.1 Practical Implications to Airline Industry Practitioners

Nine dimensions affecting web-based SST adoption intention were identified from the Etic-Emic approach and the initial data analysis from the pilot test: perceived usefulness, perceived ease of use, trustworthy and customized experience, perceived risk, perceived behavioral control, subjective norm, WOM, perceived playfulness, and attitude. Among the nine dimensions, only five dimensions, namely, perceived usefulness, trustworthy and customized experience, perceived risk, perceived behavioral control, subjective norm, and attitude, had significant effects on web-based SST adoption intention. The following discussion elaborates on the practical implications to practitioners of improving current web-based SST based on these five facets.

Perceived usefulness is defined as enhancing the performance of a specific system (Davis, 1989). Tourism industry practitioners should bear in mind the importance of perceived usefulness so as to provide more effective, convenient, and value-added service to tourists through web-based SST channels. To foster tourists' adoption of the airline online check-in system, airline companies can enhance the functions and services of the current system. Web-based check-in application can be made available to smartphones, which can enable air passengers to complete the check-in process in a more convenient manner, as Internet-connected smartphone applications are popular nowadays. Focus group interviewees mentioned that destination information, such as weather forecast, time difference, car rental, travel tips, and accommodation, can be provided and be made available in the reservation system. Such improvement can add a personal touch to the service provided for the air

passengers, especially leisure travelers, and consequently create profitable business opportunities for destination suppliers. The system can be used as a tool to improve the air passengers' in-flight experience by offering menu selection and reserving commercial products for in-flight shopping. The added service is beneficial for effective cost control, and it also induces consumption and meets customer expectations.

Trustworthy and customized experience is another key factor influencing air passengers' adoption intention toward web-based SST. To construct a trustworthy experience, service providers must guarantee the confidentiality of personal information, such as passport number, name, and frequent flyer program details. Terms and conditions should be placed at a prominent position on the webpage to immediately inform air passengers of the online security effort. A short message service or email can be sent to air passengers to confirm their flights' check-in details. Personal touch functions can be added to the system, such as vegetarian menu selection. Advanced seat selection functions, such as requesting for extra space or seats located at the exit, and brief description of sceneries at the left and right hand side of the plane during the air travel can be recommended.

Perceived behavioral control is a major factor affecting web-based SST adoption. The dimension determines how well a person can execute actions to deal with specific situations (Bandura, 1982). Airline companies can integrate more support to air passengers into the online check-in system to boost customer confidence. A video demonstrating the online check-in process in multiple languages can be helpful in visualizing the entire check-in process, enabling air passengers to follow the procedure step by step. Real-time communication with air passengers, such as online messenger or hotline for handling online check-in inquires on the airline companies' webpages, is also essential in offering instant and interactive support to customers. The long-term use of these measures can be helpful in

educating air passengers and equipping them with competency and knowledge in the use of web-based SST.

Perceived risk appeared to be a significant factor affecting web-based SST adoption intention. Airline companies should carry out system monitoring periodically to prevent the system from crashing or from being hacked. System security measures should be employed comprehensively, including allowing only a limited number of associates to access the system. These acts can help minimize leaks of confidential information and unethical behavior, such as selling travelers' information to third parties.

Subjective norm was found to be a determinant of web-based SST adoption intention. In other words, travelers who use airline online check-in systems rely heavily on internal references, such as family, friends, and people they value, when deciding whether to adopt the system. Airline companies should turn their attention to referents as they affect travelers' adoption behavior. Strategies include allowing group check-ins with travel parties because people may travel with their internal referents. Pop-out messages can also be displayed to encourage their travel accompanies to use the online check-in system after the completion of the online check-in. Travel expert endorsement may also be helpful in boosting the usage, as well as spreading positive WOM marketing strategies, especially in Asian markets.

7.2.2.2 Practical Implications to Improve Capture of Asian Markets

Empirical testing in this thesis showed that Asians and Westerners viewed web-based SST adoption differently in terms of subjective norm, WOM, and perceived playfulness. Despite the insignificant impact of WOM and perceived playfulness on the structural model, Asians were still observed to assign greater value to the three factors compared with their Western counterparts. The practical implication addressing subjective norm has already been

elaborated in the previous section. The following discusses the practical implication for WOM and perceived playfulness.

WOM is the process of allowing customers to share information about the brands and services to direct other buyers' behavior (Hawkins et al., 2004). Hence, promotion and publicity campaigns can be employed to encourage customer relationship marketing in promoting the utilization of airline online check-in systems. The promotion campaigns can emphasize the novel features and functions of the system, and highlight its benefits. As the focus group interviewees proposed that passengers' comments on social media websites and blogs were accountable, the measuring items were developed to measure WOM accordingly. Thus, the promotion campaigns can be placed on travel-related social media websites and blogs.

In addition, perceived playfulness was found to be preferred by Asian air passengers. Systems with artistic and beautiful designs and layouts may be appealing to Asian tourists and can enhance their level of enjoyment while using the system. During the information or webpage loading process, a mini game or a cartoon animation can be made available for entertainment. Airline companies, particularly those based in Asia, should take the findings and corresponding recommendations as a reference to attract more air passengers to utilize the airline online check-in system.

7.3 Limitations and Future Research Directions

This study offers a breadth of valuable, theoretical, and practical findings, but several limitations were associated with this research. The following section elaborates on the main limitations, including the demerit of snowball sampling, the method of recruiting respondents for the pilot test, memory decay, and the generalization of the results.

Snowball sampling method was employed in locating participants for the focus group interviews. Since it was hard to obtain suitable interviewees and being available to participate in the focus group interviews, majority of participants were Hong Kong Chinese. A limitation of snowball sampling is that the interviewees may not be representatives of the entire community of interest, as they can only provide information based on their own social, economic, and network levels (Sligo & Jameson, 2000). Homogenous profile of focus group members is another limitation of the study. All 24 focus group interviewees were leisure travelers who had never engaged in any business trips, so their viewpoints cannot be generalized for all types of travelers. Business travelers may have different opinions and usage intentions. Random sampling and quota sampling methods as well as the inclusion of focus group members with more diversified traits can provide a more holistic picture for future studies.

The second limitation concerns the method of recruiting pilot test respondents. For the pilot testing, online survey was conducted by posting the survey link on nine travel review websites and 38 airlines and travel-related Facebook pages. The method raises questions about limiting the survey to those who belong to the active, online-savvy population because not everyone reviews or participates in online travel forums. Therefore, the sample may not be representative of the entire target population. Future research should strive to replicate these results with samples that represent the broader population of web-based SST users.

The questionnaires used in the pilot testing and the main survey were based on respondents' memory of their experience in using the airline online check-in system over the past 12 months. They might not clearly recall the entire picture of their experience, or their opinions could be mixed with the perception from a different airline online check-in system. As a result, memory decay may affect the accuracy of their responses and lead to bias. This problem is well acknowledged by the author. The study emphasized that the major questions

were based on the latest online check-in experience of the respondents, whereas the questions regarding the trip profiles of the respondents were based on their travel experience in the past 12 months. Future research should consider this issue to minimize the memory decay problem. Furthermore, respondents were asked to indicate their nationalities on the questionnaires of pilot testing and main survey. Place of origin would be a better choice of word because it reflects respondents' ethnic groups and cultures, while nationality only shows the legal relationship between an individual human and a country. Future research should enquire respondents' place of origin rather than nationality.

The generalization of the findings in the present study is constrained by the examined context. Airline online check-in system was employed as the examined context in this research. The system serves as a post-purchase service of a tourism product, and no transaction or payment is involved during the adoption of this system. In general, majority of the web-based SST in the tourism context involves tourism product consumption and purchasing decision making. Such setting invites the question on the extent to which the findings can be generalized. The findings in the current research serve as a basis for further investigation or for cross validation in various settings, such as web-based SST with and without the involvement of transaction.

Furthermore, this thesis explored the differences between Asians and Westerners in terms of the dimensions of web-based SST adoption intention in a tourism industry setting. The investigation of the factor structures toward technology adoption intention enhances the explanatory power of the developed model. Future studies may employ a multigroup analysis to examine the invariance of the latent actors across the two populations. In addition, by comparing demographic characteristics and trip profile patterns showing different levels of constraint factors, more theoretical contributions can be provided to the identification of viable cohorts in these populations. A further examination of the demographic and trip

profiles may also be helpful for tourism industry practitioners in formulating specific marketing activities to capture more markets.

APPENDICES

Appendix 1. Questionnaire for Focus Group Interviews

Focus Group Interview

Thank you for your participation in today focus group interview! The interview consists of 2 sections. The first section is a free-flow discussion on various factors affecting the technology usage behavioral intention for tourism and hospitality industry online self-service technology (SST), while the second section aims to seek for your comments in assessing the degree of representation of the measuring item identified from previous literatures.

Objectives of the study:

1. To investigate the reason affecting the technology usage behavioral intention; and
2. To develop a technology adoption intention conceptual model for tourism and hospitality industry online self-service technology (SST).

I will take the airline online check-in system as an example of tourism and hospitality industry online SST to facilitate our discussion. The airline online check-in system allows passenger to select seats, access updated flight information and frequent flyer information, make special request, and order merchandise.

Section 1. Investigation of Factors Affecting Technology Usage Behavioral intention.

1. Why do you use airline online check-in?

2. Do you like or dislike using airline online check-in system?

3. Why do you like/ dislike using airline online check-in system?

Section 2. Examination of the degree of representation of the measuring items.

Please indicate your viewpoint on the degree of representation of the following attributes in measuring the related factors (1=Not representative; 2=somewhat representative; 3=clearly representative).

Perceived Usefulness Definition: The extent of a person perceived that using a specific system would enhance job performance (Davis, 1989).			
1. I think that the airline online check-in system enables me to accomplish tasks more quickly.	1	2	3
2. I think that the airline online check-in system enables me to access a lot of information.	1	2	3
3. I think that the airline online check-in system enables me to access the most updated information.	1	2	3
4. I think that the airline online check-in system enables me to acquire high quality information.	1	2	3
5. I think that the airline online check-in system enhances effectiveness of check-in process.	1	2	3
6. I think that airline online check-in system gives me greater control over the check-in process.	1	2	3
7. I think that airline online check-in system saves my time.	1	2	3
8. Overall, I think that airline online check-in system is very useful.	1	2	3
Perceived Ease of Use Definition: The degree of a person believes using a specific system is “free of effort” (Davis, 1989).			
9. I find that the airline online check-in system is simple to use, even when using it for the first time.	1	2	3
10. I find that the airline online check-in system is clear and understandable.	1	2	3
11. Using the system does not require a lot of my mental effort.	1	2	3
12. I find that it easy to get the system to do what I want it to do.	1	2	3
13. I find it easy to locate the information that I need in the system.	1	2	3
Comment			

Subjective Norm Definition: Decision makers' subjective norm relating to their internal referent, such as family and friends (Ajzen, 1991).			
14. Experts whose comments I rely on for the use of airline online check-in system have provided supporting evidence for use.	1	2	3
15. My friends whose opinions I think important for the use of airline online check-in system have provided supporting evidence for use.	1	2	3
16. People who are important to me think that I should use airline online system to check-in.	1	2	3
17. People whose opinions I value prefer that I should use airline online system to check-in.	1	2	3
18. People who influence my behavior think that I should use the system.	1	2	3
Attitude Definition: A person's negative or positive evaluations of performing the target behavior (Ajzen & Fishbein, 1980).			
19. I have positive feelings towards online flight check-in.	1	2	3
20. The thought of online flight check-in is appealing to me.	1	2	3
21. It would be a good idea to check-in online.	1	2	3
22. I think checking in online would be beneficial for me.	1	2	3
Perceived Playfulness Definition: Emotional issue as it comprises cognitive, social, physical spontaneity, joy and sense of humor (Webster & Martocchio, 1992).			
23. Using airline online check-in system is entertaining.	1	2	3
24. Using airline online check-in system is enjoyable.	1	2	3
25. Using airline online check-in system is fun.	1	2	3
Comment			

Perceived Behavioral Control Definition: Judgment of how well one can execute required actions to deal with specific situations (Bandura, 1982).			
26. I would be able to use the airline online check-in system well for online check-in.	1	2	3
27. Using airline online check-in system was entirely within my control.	1	2	3
28. I had the resources, knowledge, and ability to use airline online check-in system.	1	2	3
Prior Experience Definition: A component of a knowledge stage that impacts the formation of attitudes and decision to adopt an innovation (Morosan & Jeong, 2006)			
29. I have past experience in checking in online.	1	2	3
30. It is a good experience checking in via the online system.	1	2	3
Perceived Risk Definition: Customer's subjective belief of suffering a loss in pursuit of a desired outcome (Pavlou, 2003).			
31. I consider that online check-in will not perform as expected.	1	2	3
32. As I consider online check-in, I become concerned about whether the airline company will commit fraud and will swindle.	1	2	3
33. The airline online check-in system will not fit in well with my self-image or self-concept.	1	2	3
34. Using airline online check-in system would add great uncertainty.	1	2	3
35. Using airline online check-in system exposes me to an overall risk.	1	2	3
Comment			

Trust Definition: The willingness of a trustor to be vulnerable to the actions of a trustee (Mayer, Davis & Schoorman, 1995).			
36. I believe that the airline online check-in system is trustworthy.	1	2	3
37. I believe that the airline company keeps promises and commitments.	1	2	3
38. I trust the airline company because they keep my best interest in mind.	1	2	3
Behavioral Intention			
39. I will keep use of this Web site in the future	1	2	3
40. I expect to use airline online check-in in future	1	2	3
41. I will recommend others to use this Web site	1	2	3
Comment			

Demographic Information

Name:

Gender:

Age:

Education Level:

Nationality:

Appendix 2. Questionnaire for Expert Panel Assessment

THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

School of Hotel & Tourism Management 酒店及旅遊業管理學院

Dear sir/ madam,

WEB-BASED SELF-SERVICE TECHNOLOGY ADOPTION

The School of Hotel & Tourism Management, The Hong Kong Polytechnic University, is now pursuing a study on travelers' web-based self-service technology adoption factors. It would be appreciated if you could please spend 10-15 minutes to complete this survey and answer all the questions. Anonymity and confidentiality of all data is guaranteed, and it is solely for academic use.

If you would like to receive an executive summary of the survey findings, or if you have any enquiries regarding the questionnaire, please feel free to contact Louisa Lee at 3400-2326 or send an e-mail to lee.louisa@ . Thank you very much for your co-operation and participation.

Yours sincerely,
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敬启者：

网上自助服务系统之采用

香港理工大学酒店及旅游业管理学院正进行一项有关旅客对网上自助服务系统采用原因的研究，敬希阁下能拨冗十至十五分钟完成问卷，并填妥所有问题。本研究是以不记名方式进行，所有数据均会保 密并供作学术研究。

若阁下欲取得研究结果的摘要，或对是次研究有任何疑问，欢迎致电 3400-2326 或电邮至 lee.louisa@ 与李绮芯联络。 仅此致谢阁下的参与及支持。

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Section I. Screening Question. 第一部份. 筛选问题

Please tick the appropriate box. 请在适当的空格内打勾。

1. Have you used any airline online check-in systems for flight check-in within the past 12 months?
   请问您于过去十二个月内是否曾经使用网上预办登机系统?

☐ Yes (Please proceed to Section II) 曾经使用 (请跳至问卷第二部份)

☐ No (End of survey, thank you!) 未曾使用(问卷完成，谢谢！)

Section II. Factors Affecting Airline Online Check-in System Adoption
第二部份. 使用网上预办登机系统的因素

This section aims to understand the factors affecting your adoption of airline online check-in system. Please indicate the level of representation with each of the following statements by circling the corresponding number (1-Not representative; 2- Somewhat representative; 3-Clearly representative). The word 'system' shown below refers to 'airline online check-in system'.

这部份的目的是了解影响你使用网上预办登机系统的因素。请选出您对下列每项陈述的代表性(1-不能代表；2-代表；3-清楚代表)。下列所提及的「系统」两字意指「网上预办登机系统」。

	Statement 陈述			
1	Using the system enables me to complete the check-in process quickly. 使用该系统让我迅速地完成预办登机过程。	1	2	3
2	The system is convenient to use. 使用该系统是方便的。	1	2	3
3	Using the system enables me to check-in anytime. 使用该系统可让我不受时间限制地预办登机手续。	1	2	3
4	Using the system enables me to check-in anywhere. 使用该系统可让我不受地域限制地预办登机手续。	1	2	3
5	Using the system enables me to acquire accurate flight information. 使用该系统让我获取准确的航班数据。	1	2	3
6	Using the system enhances effectiveness of the check-in process. 使用该系统让预办登机的过程更有效率。	1	2	3
7	Using the system gives me greater control over the check-in process. 使用该系统让我完全掌握整个预办登机的过程。	1	2	3
8	Using the system saves my time. 使用该系统是省时的。	1	2	3
9	The system is simple to use. 该系统操作简便。	1	2	3
10	The system is simple to use even for my first attempt.	1	2	3

	即使是第一次使用，我认为该系统是容易操作的。			
11	It is easy to locate the system link on the airline company webpage. 我很容易在航空公司网页上找到该系统的连结。	1	2	3
12	The instruction guiding the check-in procedure in the system is clear. 在该系统中，预办登机手续的指引是清晰的。	1	2	3
13	Using the system does not require a lot of my mental effort. 我不需要花很多精力去使用该系统。	1	2	3
14	It is easy to complete the check-in process by using the system. 我于系统中很容易地完成预办登机的手续。	1	2	3
15	It is easy to locate the information that I need in the system. 我于系统中很容易地找到我所需要的资讯。	1	2	3
16	Using the system is free of follow-up formalities, e.g. printing the boarding pass. 使用该系统省却繁琐的手续，如：打印登机证。	1	2	3
17	I use the system because of influential travel experts' recommendation. 我使用该系统是由于具影响力的旅游专家推荐。	1	2	3
18	I use the system because of my close friends' recommendation. 我使用该系统是由于好朋友的推荐。	1	2	3
19	I use the system because of the recommendation of people whose are important to me. 我使用该系统是由于对我重要的人的推荐。	1	2	3
20	I use the system because of the recommendation by people whose opinions I value. 我使用该系统是由于我重视他们意见的人的推荐。	1	2	3
21	Airline online check-in system is trustworthy. 该系统是可信赖的。	1	2	3
22	The airline company keeps promises in ensuring the completion of check-in process in the system. 航空公司遵守承诺，让我透过该系统完成预办登机手续。	1	2	3
23	I trust the airline company because it keeps my best interest in mind, e.g. protecting my personal information. 我信任航空公司会保障我的权益，如：保障我的个人资料。	1	2	3
24	It is a good experience using the airline online check-in system. 使用该系统是一个美好的经验。	1	2	3
25	I will use the system again even I had poor experience in using it. 尽管我以往于使用该系统时有不好的经验，我日后将会继续使用它。	1	2	3

26	My past experience in using the airline online check-in system triggers me to use it again. 以往使用该系统的经验令我日后会继续使用它。	1	2	3
27	Using the system is entertaining. 使用该系统是具娱乐性的。	1	2	3
28	Using the system is playful. 使用该系统是有趣的。	1	2	3
29	The enjoyment derived from using the system triggers my future adoption. 使用该系统带给我的乐趣，是令我日后会继续使用的原因。	1	2	3
30	The system is not always reliable. 该系统并非总是可靠。	1	2	3
31	I am concerned that the system will crash during the check-in process. 我担心在网上预办登机手续时，该系统出现故障。	1	2	3
32	I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent. 我担心航空公司会作出诈骗行为，如：未经当事人同意向第三者出售乘客的个人资料。	1	2	3
33	Using the system would add uncertainty, e.g. unsuccessful check-in. 使用该系统会增加变数，如：不能成功地预办登机手续。	1	2	3
34	Using the system exposes me to risk. 使用该系统令我面临风险。	1	2	3
35	I am able to master the check-in procedure in the system. 我能于系统中主导预办登机的过程。	1	2	3
36	Using the system is entirely within my control. 使用该系统是完全在我掌握之中。	1	2	3
37	I have the resources, e.g. internet-connected computer or mobile phone, to check-in online. 我有足够的资源于网上预办登机，如：连接互联网的电脑或流动电话。	1	2	3
38	I have full computer knowledge in using the system. 我有足够的电脑知识去使用该系统。	1	2	3
39	I am competent in using the system. 我有能力去使用该系统。	1	2	3
40	The system allows me to specify my special requests, such as seat selection. 该系统让我指定一些特别要求，如：选择机舱座位。	1	2	3
41	The system is specifically designed in meeting my requests. 该系统是经过精心设计，能够满足我的要求。	1	2	3

42	The system is appealing because it provides a wide variety of services. 该系统提供不同范畴的服务，令我感到该系统是吸引的。	1	2	3
43	I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+. 我使用该系统是由于其它乘客于网上平台的推荐，如：facebook 和 Google+。	1	2	3
44	I use the system because of bloggers' recommendation. 我使用该系统是由于网上博客的推荐。	1	2	3
45	Social media, e.g. newspaper and magazine, affects my intention in using airline online check-in system. 大众传媒，如：报纸及杂志，影响我使用该系统的意向。	1	2	3

Section III. Attitude and Intention in Using Airline Online Check-in System
第三部份. 使用网上预办登机系统的态度及意向

This section aims to understand your attitude and intention. Please indicate the level of representation with each of the following statements by circling the corresponding number (1-Not representative; 2-Somewhat representative; 3-Clearly representative). The word 'system' shown below refers to 'airline online check-in system'.

这部份是有关您使用网上预办登机系统的态度及意向。请圈选出您对下列每项陈述的代表性(1-不能代表；2-代表；3-清楚代表)。下列所提及的「系统」两字意指「网上预办登机系统」。

	Statement 陈述			
1	I have positive feelings towards using the system. 我对使用该系统有正面的感觉。	1	2	3
2	It would be a good idea to use the system. 使用该系统是一个不错的意念。	1	2	3
3	Using the system would be beneficial for me. 使用该系统对我有利。	1	2	3
4	Using the system delights my travel experience. 使用该系统令我的旅游体验增添乐趣。	1	2	3
5	Using the system is a popular trend. 使用该系统是一个流行的趋势。	1	2	3
6	Using the system is satisfying. 使用该系统令我感到满意。	1	2	3
7	I will keep using the system in the future. 我将会继续使用该系统。	1	2	3

8	I have strong intention in using the system in future. 将来我有强烈的意向会继续使用该系统。	1	2	3
9	I will recommend others to use the system. 我会推荐别人使用该系统。	1	2	3

Section IV. Follow-up Questions 第四部份. 补充问题

This section aims to understand your travel behavior. Please fill in the blanks or tick the appropriate boxes. 这部份目的在于了解你外游的相关行为。请在横线填上资料或在空格内打勾。

1. How many times did you use the system to check-in within the past 2 years?
   过去二年内使用网上预办登机系统的次数

   _____

2. Responding to the first question, what was the mostly primary purpose of traveling for those trips within the past 2 years?
   承接第一题，你于过去二年内主要旅游的目的是甚么?
   ☐ Leisure 休闲 ☐ Business 商务
   ☐ Visiting friends and relatives 探望亲友

3. Responding to the first question, did you engage mostly in short-haul or long-haul flight for those trips within the past 2 years?
   承接第一题，你于过去二年内主要乘搭短途还是长途的航班?
   ☐ Short-haul flight (4 hours or less of duration) 短途航班 (飞行时间少于四小时)
   ☐ Long-haul flight (more than 4 hours of duration) 长途航班(飞行时间多于四小时)

4. Responding to the first question, whom did you travel with the most for those trips within the past 2 years?
   承接第一题，你于过去二年内大多乘搭航机的同伴是?
   ☐ Self 自己
   ☐ Parents, brothers or sisters 父母、兄弟或姊妹
   ☐ Spouse or children 伴侣或小孩
   ☐ Friends and relatives 亲友
   ☐ Colleagues 工作伙伴

5. Responding to the first question, which of the following airline(s) that you have used the company online check-in system(s)? (you can tick more than one boxes)
   过去二年内，你曾经使用下列那间航空公司的网上预办登机系统? (可复选)

   ☐ Air Canada 加拿大航空 ☐ Emirates 阿联酋航空
   ☐ Air France 法国航空 ☐ EVA Airways 长荣航空

☐ Air New Zealand 新西兰航空
☐ All Nippon Airways 全日空航空
☐ British Airways 英国航空
☐ Cathay Pacific Airways 国泰航空
☐ China Airlines 中华航空
☐ Continental Airlines 美国大陆航空
☐ Dragon Air 港龙航空
☐ Japan Airlines 日本航空
☐ Lufthansa Germany 德国汉莎航空
☐ Mandarin Airlines 华信航空
☐ Qantas Airways 澳洲航空
☐ Singapore Airlines 新加坡航空
☐ United Airlines 联合航空
☐ Virgin Atlantic Airways 维珍航空
☐ Others 其它 (Please specify 请注明: _____)

Section V. Demographic Information 第五部份.受访者个人资料

Please tick the appropriate boxes. 请在适当的空格内填上打勾。

1. Gender 性别
   ☐ Male 男
   ☐ Female 女

2. Age Group 年龄组别
   ☐ 20 or below 20 或以下
   ☐ 21 – 25
   ☐ 26 – 30
   ☐ 31 – 35
   ☐ 36 – 40
   ☐ 41 – 45
   ☐ 46 – 50
   ☐ 51 – 55
   ☐ 56 – 60
   ☐ 61 or above 61 或以上

3. Nationality 国籍
   ☐ Australia 澳洲
   ☐ France 法国
   ☐ India 印度
   ☐ Italy 意大利
   ☐ Macau SAR 澳门特区
   ☐ Malaysia 马来西亚
   ☐ New Zealand 新西兰
   ☐ S&C America 南美及中美
   ☐ South Africa 南非
   ☐ Taiwan 台湾
   ☐ United Kingdom 英国
   ☐ Canada 加拿大
   ☐ Germany 德国
   ☐ Indonesia 印度尼西亚
   ☐ Japan 日本
   ☐ Mainland Chinese 中国大陆
   ☐ Middle East 中东
   ☐ Philippines 菲律宾
   ☐ Singapore 新加坡
   ☐ South Korea 南韩
   ☐ Thailand 泰国
   ☐ United States of America 美国
   ☐ Others 其它 (Please specify 请注明: _____)

4. Monthly Household Income 家庭每月总收入

- ☐ Less than USD2,000 二千美金或以下
- ☐ USD2,001-USD4,000 二千零一美金至四千美金
- ☐ USD4,001-USD6,000 四千零一美金至六千美金
- ☐ USD6,001-USD8,000 六千零一美金至八千美金
- ☐ USD8,001-USD10,000 八千零一美金至一万美金
- ☐ USD10,001 or above 一万零一美金或以上

THE END. THANK YOU VERY MUCH!
问卷完成，谢谢！

Appendix 3. Questionnaire for Pilot Test

Block 9

School of Hotel & Tourism Management 酒店及旅遊業管理學院

POLYTECHNIC UNIVERSITY 香港理工大學

WEB-BASED SELF-SERVICE TECHNOLOGY ADOPTION

The School of Hotel & Tourism Management, The Hong Kong Polytechnic University, is now pursuing a study on travelers' web-based self-service technology adoption factors. It would be appreciated if you could please spend 10-15 minutes to complete this survey and answer all the questions. Anonymity and confidentiality of all data is guaranteed, and it is solely for academic use

If you would like to receive an executive summary of the survey findings, or if you have any enquiries regarding the questionnaire, please feel free to contact Louisa Lee at lee.louisa@ Thank you very much for your co-operation and participation

网上自助服务系统之采用

香港理工大学酒店及旅遊业管理学院正进行一项有关旅客对网上自助服务系统采用原因的研究，敬希阁下能拨冗十至十五分钟完成问卷，并填妥所有问题。本研究是以不记名方式进行，所有数据均会保密并供作学术研究。

若阁下欲取得研究结果的摘要，或对是次研究有任何疑问，欢迎电邮至lee louisa@ 与李绮芯联络。仅此致谢阁下的参与及支持。

Part I.

Section I. Screening Question. 第一部份. 筛选问题
Please tick the appropriate box. 请在适当的空格内打勾。

1. Have you used any airline online check-in systems for flight check-in within the past 12 months?
请问您于过去十二个月内是否曾经使用网上预办登机系统?

- ◯ Yes 曾经使用
- ◯ No (End of survey, thank you!) 未曾使用(问卷完成，谢谢！)

Part II_1-10

Section II. Factors Affecting Airline Online Check-In System Adoption
第二部份. 使用网上预办登机系统的因素

This section aims to understand the factors affecting your adoption of airline online check-in system. Please indicate your level of agreement with each of the following statements based on your most recent experience. There is no right or wrong answer. The word 'system' shown below refers to 'airline online check-in system'.

这部份的目的是了解影响你使用网上预办登机系统的因素。根据你最近一次使用网上预办登机系统的经验，请选出您对下列每项陈述的认同。所有问题均没有对或错的答案。下列所提及的「系统」两字意指「网上预办登机系统」

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Using the system enables me to complete the check-in process quickly. 使用该系统让我迅速完成预办登机过程。	◯	◯	◯	◯	◯	◯	◯
The system is convenient to use. 使用该系统是方便的。	◯	◯	◯	◯	◯	◯	◯

Using the system enables me to check-in anytime. 使用该系统可让我随时预办登机手续。	○	○	○	○	○	○	○
Using the system enables me to check-in anywhere. 使用该系统可让我不受地域限制地预办登机手续。	○	○	○	○	○	○	○
Using the system enables me to acquire accurate flight information. 使用该系统让我获取准确的航班数据。	○	○	○	○	○	○	○
Using the system enhances efficiency of the check-in process. 使用该系统让预办登机的过程更有效率。	○	○	○	○	○	○	○
Using the system gives me greater control over the check-in process. 使用该系统让我更能掌握整个预办登机的过程。	○	○	○	○	○	○	○
Using the system saves my time. 使用该系统可节省我的时间。	○	○	○	○	○	○	○
The system is simple to use. 该系统操作简便。	○	○	○	○	○	○	○
The system is simple to use even for my first attempt. 即使是第一次使用，我认为该系统是容易操作的。	○	○	○	○	○	○	○

Part II_11-20

Section II. Factors Affecting Airline Online Check-in System Adoption (Continue)
第二部份. 使用网上预办登机系统的因素 (续上)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
It is easy to locate the system link on the airline company webpage. 我很容易在航空公司网页上找到该系统的连结。	○	○	○	○	○	○	○
The instruction guiding the check-in procedure in the system is clear. 在该系统中，预办登机手续的指引是清晰的。	○	○	○	○	○	○	○
Using the system does not require a lot of my mental effort. 我不需要花很多精力去使用该系统。	○	○	○	○	○	○	○
It is easy to complete the check-in process by using the system. 我于系统中很容易地完成预办登机的手续。	○	○	○	○	○	○	○
It is easy to locate the information that I need in the system. 系统让我容易找到所	○	○	○	○	○	○	○

需信息。							
Using the system is free of follow-up formalities, e.g. printing the boarding pass. 使用该系统省**却**繁琐的手续，如：打印登机证。	○	○	○	○	○	○	○
I use the system because of influential travel experts' recommendation. 我使用该系统是由于具影响力的旅游专家推荐。	○	○	○	○	○	○	○
I use the system because of my close friends' recommendation. 我使用该系统是由于好朋友的推荐。	○	○	○	○	○	○	○
I use the system because of the recommendation of people whose are important to me. 我使用该系统是由于对我重要的人的推荐。	○	○	○	○	○	○	○
I use the system because of the recommendation by people whose opinions I value. 我使用该系统是由于我重视他们意见的人的推荐。	○	○	○	○	○	○	○

Part II_21-30

Section II. Factors Affecting Airline Online Check-in System Adoption (Continue)
第二部份. 使用网上预办登机系统的因素 (续上)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Airline online check-in system is trustworthy. 该系统是可信赖的。	○	○	○	○	○	○	○
The airline company keeps promises in ensuring the completion of check-in process in the system. 航空公司遵守承诺，让我透过该系统完成预办登机手续。	○	○	○	○	○	○	○
I trust the airline company because it keeps my best interest in mind, e.g. protecting my personal information. 我信任航空公司**会**保障我的权益，如：保障我的**个**人资料。	○	○	○	○	○	○	○
It is a good experience using the airline online check-in system. 使用该系统是一**个**美好的经验。	○	○	○	○	○	○	○
I will use the system again even I had poor experience in using it.**尽**管我以往使用该系统之经验不佳，我日后仍**会**继续使用它。	○	○	○	○	○	○	○
My past experience in using the airline online check-in system triggers me to use it							

again. 以往使用该系统的经验令我日后会继续使用它。	○	○	○	○	○	○	○
Using the system is entertaining. 使用该系统是具娱乐性的。	○	○	○	○	○	○	○
Using the system is playful. 使用该系统是有趣的。	○	○	○	○	○	○	○
The enjoyment derived from using the system triggers my future adoption. 使用该系统带给我的乐趣，是令我日后会继续使用的原因。	○	○	○	○	○	○	○
The system is not always reliable. 该系统并非总是可靠。	○	○	○	○	○	○	○

Part II_31-40

Section II. Factors Affecting Airline Online Check-in System Adoption (Continue)
第二部份. 使用网上预办登机系统的因素 (续上)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I am concerned that the system will crash during the check-in process. 我担心在网上预办登机手续时，该系统出现故障。	○	○	○	○	○	○	○
I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent. 我担心航空公司会作出诈骗行为，如：未经当事人同意向第三者出售乘客的个人资料。	○	○	○	○	○	○	○
Using the system would add uncertainty, e.g. unsuccessful check-in. 使用该系统会增加变数，如：不能成功地预办登机手续。	○	○	○	○	○	○	○
Using the system exposes me to risk. 使用该系统令我面临风险。	○	○	○	○	○	○	○
I am able to master the check-in procedure in the system. 我能于系统中主导预办登机的过程。	○	○	○	○	○	○	○
Using the system is entirely within my control. 使用该系统是完全在我掌握之中。	○	○	○	○	○	○	○
I have the resources, e.g. Internet-connected computer or mobile phone, to check-in online. 我有足够的资源于网上预办登机，如：连接互联网的电脑或流动电话	○	○	○	○	○	○	○
I have full computer knowledge in using the							

system.我有足够的电脑知识去使用该系统。	○	○	○	○	○	○	○
I am competent in using the system. 我有能力去使用该系统。	○	○	○	○	○	○	○
The system allows me to specify my special requests, such as seat selection. 该系统让我指定一些特别要求，如：选择机舱座位。	○	○	○	○	○	○	○

Part II_41-45

Section II. Factors Affecting Airline Online Check-in System Adoption (Continue)
第二部份. 使用网上预办登机系统的因素 (续上)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
The system is specifically designed in meeting my requests. 该系统是经过精心设计，能够满足我的要求。	○	○	○	○	○	○	○
The system is appealing because it provides a wide variety of services. 该系统吸引之处在于提供广泛服务。	○	○	○	○	○	○	○
I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+. 我使用该系统是由于其它乘客于网上平台的推荐，如：facebook和Google+。	○	○	○	○	○	○	○
I use the system because of bloggers' recommendation. 我使用该系统是由于网上博客的推荐。	○	○	○	○	○	○	○
Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system. 大众传媒，如：报纸及杂志，影响我使用该系统的意向。	○	○	○	○	○	○	○

Part III.

Section III. Attitude and Intention in Using Airline Online Check-in System
第三部份. 使用网上预办登机系统的态度及意向

This section aims to understand your attitude and intention. Please indicate your level of agreement with each of the following statements based on your most recent experience. There is no right or wrong answer. The word 'system' shown below refers to 'airline online check-in system'.
这部份是有关您使用网上预办登机系统的态度及意向。根据你最近一次使用网上预办登机系统的经验，，请选出您对下列每项陈述的认同。所有问题均没有对或错的答案，而下列所提及的「系统」两字意指「网上预办登机系统」。

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

I have positive feelings towards using the system. 使用该系统给我正面的感受。	○	○	○	○	○	○	○
It would be a good idea to use the system.使用该系统是一个好主意。	○	○	○	○	○	○	○
Using the system would be beneficial for me. 使用该系统对我有利。	○	○	○	○	○	○	○
Using the system delights my travel experience.使用该系统令我的旅游体验平添乐趣。	○	○	○	○	○	○	○
Using the system is a popular trend.使用该系统是一个流行的趋势。	○	○	○	○	○	○	○
Using the system is satisfying.使用该系统令我感到满意。	○	○	○	○	○	○	○
I will keep using the system in the future. 我将会继续使用该系统。	○	○	○	○	○	○	○
I have strong intention in using the system in future.将来我有强烈的意向会继续使用该系统。	○	○	○	○	○	○	○
I will recommend others to use the system.我会推荐别人使用该系统。	○	○	○	○	○	○	○

Part IV.

Section IV. Follow-up Questions 第四部份. 补充问题

This section aims to understand your travel behavior. Please fill in the blanks or tick the appropriate boxes. 这部份目的在于了解你外游的相关行为。请在横线填上资料或在空格内打勾。

1. How many times have you used the system to check-in within the past 2 years?
过去二年内使用网上预办登机系统的次数

- ○ 1-5 一至五次
- ○ 6-10 六至十次
- ○ 11-15 十一至十五次
- ○ 16 or above 十六次或以上

2. What was the primary purpose of traveling for your last trip?
你上一次旅遊的主要目的是甚么?

- ○ Leisure 休闲
- ○ Business 商务
- ○ Visiting friends and relatives 探望亲友

3. Did you engage in short-haul or long-haul flight for your last trip?
你上一次旅遊乘是搭短途还是长途的航班?

- ◯ Short-haul flight (4 hours or less of duration) 短途航班 (飞行时间少于四小时)
- ◯ Long-haul flight (more than 4 hours of duration) 长途航班(飞行时间多于四小时)

4. Whom did you travel with for your last trip?
你上一次旅遊乘搭航机的同伴是?

- ◯ Self 自己
- ◯ Parents, brothers or sisters 父母、兄弟或姊妹
- ◯ Spouse or children 伴侣或小孩
- ◯ Friends and relatives 亲友
- ◯ Colleagues 工作伙伴

5. Which of the following airline that you have used the company online check-in system(s) for your last trip? 你最近曾经使用下列那间航空公司的网上预办登机系统?

- ◯ Air China 中國國際航空公司
- ◯ Air Canada加拿大航空
- ◯ Air France 法国航空
- ◯ Air New Zealand新西兰航空
- ◯ All Nippon Airways 全日空航空
- ◯ British Airways英国航空
- ◯ Cathay Pacific Airways 国泰航空
- ◯ China Airlines 中华航空
- ◯ China Eastern Air 中国东方航空
- ◯ Continental Airlines 美国大陆航空
- ◯ Dragon Air 港龙航空
- ◯ Emirates 阿联酋航空
- ◯ EVA Airways 长荣航空
- ◯ Japan Airlines 日本航空
- ◯ Lufthansa Germany 德国汉莎航空
- ◯ Mandarin Airlines 华信航空
- ◯ Qantas Airways 澳洲航空
- ◯ Singapore Airlines 新加坡航空
- ◯ United Airlines 联合航空
- ◯ Virgin Atlantic Airways 维珍航空
- ◯ Others, please specify 其它,请注明:

Part V.

Section V. Demographic Information 第五部份.受访者个人资料

Please tick the appropriate boxes. 请在适当的空格内填上打勾。

1. Gender 性别

- ◯ Male 男
- ◯ Female 女

2. Age Group 年龄组别

- ◯ 20 or below 二十岁或以下
- ◯ 21 – 25 二十岁至二十五岁
- ◯ 41 – 45 四十一岁至四十五岁
- ◯ 46 – 50 四十六岁至五十岁

- ◯ 26 – 30 二十六岁至三十岁
- ◯ 31 – 35 三十一岁至三十五岁
- ◯ 36 – 40 三十六岁至四十岁
- ◯ 51 – 55 五十一岁至五十五岁
- ◯ 56 – 60 五十六岁至六十岁
- ◯ 61 or above 六十一岁或以上

3. Nationality 国籍

- ◯ Australia 澳大利亚
- ◯ Canada 加拿大
- ◯ France 法国
- ◯ Germany 德国
- ◯ Hong Kong SAR 香港特区
- ◯ India 印度
- ◯ Indonesia 印度尼西亚
- ◯ Italy 意大利
- ◯ Japan日本
- ◯ Macau SAR 澳门特区
- ◯ Mainland Chinese 中国大陆
- ◯ Malaysia 马来西亚
- ◯ Middle East 中东
- ◯ New Zealand 新西兰
- ◯ Philippines 菲律宾
- ◯ S&C America 南美及中美
- ◯ Singapore 新加坡
- ◯ South Africa 南非
- ◯ South Korea 南韩
- ◯ Taiwan 台湾
- ◯ Thailand 泰国
- ◯ United Kingdom 英国
- ◯ United States of America 美国
- ◯ Vietnam 越南
- ◯ Others, please specify 其它,请注明:

4. Monthly Household Income家庭每月总收入

- ◯ Less than USD2,000 二千美金或以下
- ◯ USD2,001-USD4,000 二千零一美金至四千美金
- ◯ USD4,001-USD6,000四千零一美金至六千美金
- ◯ USD6,001-USD8,000六千零一美金至八千美金
- ◯ USD8,001-USD10,000八千零一美金至一万美金
- ◯ USD10,001 or above一万零一美金或以上

The End

THE END. THANK YOU VERY MUCH!

问卷完成，谢谢！

Appendix 4. Questionnaire for Main Survey

THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

School of Hotel & Tourism Management 酒店及旅遊業管理學院

Dear sir/ madam,

WEB-BASED SELF-SERVICE TECHNOLOGY ADOPTION

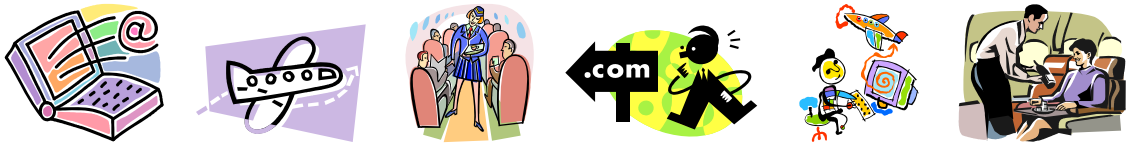
The School of Hotel & Tourism Management, The Hong Kong Polytechnic University, is now pursuing a study on travelers' web-based self-service technology adoption factors. It would be appreciated if you could please spend 10-15 minutes to complete this survey and answer all the questions. Anonymity and confidentiality of all data is guaranteed, and it is solely for academic use.

If you would like to receive an executive summary of the survey findings, or if you have any enquiries regarding the questionnaire, please feel free to contact Louisa Lee at 3400-2326 or send an e-mail to lee.louisa@ . Thank you very much for your co-operation and participation.

Yours sincerely,

Louisa Lee
Research Student (MPhil)
School of Hotel and Tourism Management,
The Hong Kong Polytechnic University,
17 Science Museum Road,
TST East, Kowloon, Hong Kong
Tel: (852) 3400-2326
Fax: (852) 2362-9362
E-mail: lee.louisa@

Nelson Tsang
Assistant Professor
School of Hotel and Tourism Management,
The Hong Kong Polytechnic University,
17 Science Museum Road,
TST East, Kowloon, Hong Kong
Tel: (852) 3400-2159
Fax: (852) 2362-9362
E-mail: hmnelson@



敬启者：

网上自助服务系统之采用

香港理工大学酒店及旅游业管理学院正进行一项有关旅客对网上自助服务系统采用原因的研究，敬希阁下能拨冗十至十五分钟完成问卷，并填妥所有问题。本研究是以不记名方式进行，所有数据均会保密并供作学术研究。

若阁下欲取得研究结果的摘要，或对是次研究有任何疑问，欢迎致电 3400-2326 或电邮至 lee.louisa@ 与李绮芯联络。 仅此致谢阁下的参与及支持。

此致

李绮芯
硕士研究生
酒店及旅游业管理学院
香港理工大学
科学馆道十七号
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传真：(852) 2362-9362
电邮：lee.louisa@

曾纪富
助理教授
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传真：(852) 2362-9362
电邮：hmnelson@

Section I. Screening Question. 第一部份. 筛选问题

Please tick the appropriate box. 请在适当的空格内打勾。

1. Have you used any airline online check-in systems for flight check-in within the past 12 months?
   请问您于过去十二个月内是否曾经使用网上预办登机系统?

☐ Yes (Please proceed to Section II) 曾经使用 (请跳至问卷第二部份)

☐ No (End of survey, thank you!) 未曾使用(问卷完成，谢谢！)

Section II. Factors Affecting Airline Online Check-in System Adoption
第二部份. 使用网上预办登机系统的因素

This section aims to understand the factors affecting your adoption of airline online check-in system. Please indicate your level of agreement with each of the following statements by circling the corresponding number (1-Strongly Disagree; 2-Disagree; 3-Somewhat Disagree; 4-Neutral; 5-Somewhat Agree; 6-Agree; 7-Stronlgy Agree) based on your most recent experience. There is no right or wrong answer. The word 'system' shown below refers to 'airline online check-in system'.

这部份的目的是了解影响你使用网上预办登机系统的因素。根据您最近一次使用网上预办登机系统的经验，请圈选出您对下列每项陈述的认同 (1-非常不认同；2-不认同；3-有点不认同；4-中立；5-有点认同；6-认同；7-非常认同)。所有问题均没有对或错的答案，下列所提及的「系统」两字意指「网上预办登机系统」。

	Statement 陈述	Level of agreement 认同程度						
1	Using the system enables me to complete the check-in process quickly. 使用该系统让我迅速完成预办登机过程。	1	2	3	4	5	6	7
2	The system is convenient to use. 使用该系统是方便的。	1	2	3	4	5	6	7
3	Using the system enables me to check-in anytime. 使用该系统可让我随时预办登机手续。	1	2	3	4	5	6	7
4	Using the system enables me to check-in anywhere. 使用该系统可让我不受地域限制地预办登机手续。	1	2	3	4	5	6	7
5	Using the system enables me to acquire accurate flight information. 使用该系统让我获取准确的航班数据。	1	2	3	4	5	6	7
6	Using the system enhances efficiency of the check-in process. 使用该系统让预办登机的过程更有效率。	1	2	3	4	5	6	7
7	Using the system gives me greater control over the check-in process. 使用该系统让我更能掌握整个预办登机的过程。	1	2	3	4	5	6	7
8	Using the system saves my time. 使用该系统可节省我的时间。	1	2	3	4	5	6	7

9	It is easy to locate the system link on the airline company webpage. 我很容易在航空公司网页上找到该系统的连结。	1	2	3	4	5	6	7
10	The instruction guiding the check-in procedure in the system is clear. 在该系统中，预办登机手续的指引是清晰的。	1	2	3	4	5	6	7
11	Using the system does not require a lot of my mental effort. 我不需要花很多精力去使用该系统。	1	2	3	4	5	6	7
12	It is easy to complete the check-in process by using the system. 我于系统中很容易地完成预办登机的手续。	1	2	3	4	5	6	7
13	It is easy to locate the information that I need in the system. 系统让我容易找到所需信息。	1	2	3	4	5	6	7
14	I use the system because of my close friends' recommendation. 我使用该系统是由于好朋友的推荐。	1	2	3	4	5	6	7
15	I use the system because of the recommendation of people whose are important to me. 我使用该系统是由于对我重要的人的推荐。	1	2	3	4	5	6	7
16	I use the system because of the recommendation by people whose opinions I value. 我使用该系统是由于我重视他们意见的人的推荐。	1	2	3	4	5	6	7
17	The airline company keeps promises in ensuring the completion of check-in process in the system. 航空公司遵守承诺，让我透过该系统完成预办登机手续。	1	2	3	4	5	6	7
18	The system is trustworthy 该系统是可信赖的。	1	2	3	4	5	6	7
19	I trust the airline company because it keeps my best interest in mind, e.g. protecting my personal information. 我信任航空公司会保障我的权益，如：保障我的个人资料。	1	2	3	4	5	6	7
20	It is a good experience using the airline online check-in system. 使用该系统是一个美好的经验。	1	2	3	4	5	6	7
21	My past experience in using the airline online check-in system triggers me to use it again. 以往使用该系统的经验令我日后会继续使用它。	1	2	3	4	5	6	7
22	The system is specifically designed in meeting my requests. 该系统是经过精心设计，能够满足我的要求。	1	2	3	4	5	6	7
23	The system is appealing because it provides a wide variety of services. 该系统吸引之处在于提供广泛服务。	1	2	3	4	5	6	7
24	Using the system is entertaining. 使用该系统是具娱乐性的。	1	2	3	4	5	6	7

25	Using the system is playful. 使用该系统是有趣的。	1	2	3	4	5	6	7
26	The enjoyment derived from using the system triggers my future adoption. 使用该系统带给我的乐趣，是令我日后会继续使用的原因。	1	2	3	4	5	6	7
27	I am concerned that the system will crash during the check-in process. 我担心在网上预办登机手续时，该系统出现故障。	1	2	3	4	5	6	7
28	I am concerned about whether the airline company will swindle, e.g. selling passengers' information to third party without passengers' consent. 我担心航空公司会作出诈骗行为，如：未经当事人同意向第三者出售乘客的个人资料。	1	2	3	4	5	6	7
29	Using the system would add uncertainty, e.g. unsuccessful check-in. 使用该系统会增加变数，如：不能成功地预办登机手续。	1	2	3	4	5	6	7
30	Using the system exposes me to risk. 使用该系统令我面临风险。	1	2	3	4	5	6	7
31	I am able to master the check-in procedure in the system. 我能于系统中主导预办登机的过程。	1	2	3	4	5	6	7
32	I have the resources, e.g. internet-connected computer or mobile phone, to check-in online. 我有足够的资源于网上预办登机，如：连接互联网的电脑或流动电话。	1	2	3	4	5	6	7
33	I have full computer knowledge in using the system. 我有足够的电脑知识去使用该系统。	1	2	3	4	5	6	7
34	I am competent in using the system. 我有能力去使用该系统。	1	2	3	4	5	6	7
35	I use the system because of passengers' comment placed on user-generated content websites, e.g. facebook or Google+. 我使用该系统是由于其它乘客于网上平台的推荐，如：facebook 和 Google+。	1	2	3	4	5	6	7
36	I use the system because of bloggers' recommendation. 我使用该系统是由于网上博客的推荐。	1	2	3	4	5	6	7
37	Mass media, e.g. newspaper and magazine, affects my intention in using airline online check-in system. 大众传媒，如：报纸及杂志，影响我使用该系统的意向。	1	2	3	4	5	6	7

Section III. Attitude and Intention in Using Airline Online Check-in System
第三部份. 使用网上预办登机系统的态度及意向

This section aims to understand your attitude and intention. Please indicate your level of agreement with each of the following statements by circling the corresponding number (1-Strongly Disagree; 2-Disagree; 3-Somewhat Disagree; 4-Neutral; 5- Somewhat Agree; 6-Agree; 7-Stronlgy Agree) based on your most recent experience. There is no right or wrong answer. The word 'system' shown below refers to 'airline online check-in system'.

这部份是有关您使用网上预办登机系统的态度及意向。根据您最近一次使用网上预办登机系统的经验，请圈选出您对下列每项陈述的认同(1-非常不认同；2-不认同；3-有点不认同；4-中立；5-有点认同；6-认同；7-非常认同)。所有问题均没有对或错的答案，而下列所提及的「系统」两字意指「网上预办登机系统」。

	Statement 陈述	Level of agreement 认同程度						
1	I have positive feelings towards using the system. 使用该系统给我正面的感受。	1	2	3	4	5	6	7
2	It would be a good idea to use the system. 使用该系统是一个好主意。	1	2	3	4	5	6	7
3	Using the system would be beneficial for me. 使用该系统对我有利。	1	2	3	4	5	6	7
4	Using the system delights my travel experience. 使用该系统令我的旅游体验平添乐趣。	1	2	3	4	5	6	7
5	Using the system is a popular trend. 使用该系统是一个流行的趋势。	1	2	3	4	5	6	7
6	Using the system is satisfying. 使用该系统令我感到满意。	1	2	3	4	5	6	7
7	I will keep using the system in the future. 我将会继续使用该系统。	1	2	3	4	5	6	7
8	I have strong intention in using the system in future. 将来我有强烈的意向会继续使用该系统。	1	2	3	4	5	6	7
9	I will recommend others to use the system. 我会推荐别人使用该系统。	1	2	3	4	5	6	7

Section IV. Follow-up Questions 第四部份. 补充问题

This section aims to understand your travel behavior. Please fill in the blanks or tick the appropriate boxes. 这部份目的在于了解您外游的相关行为。请在横线填上资料或在空格内打勾。

6. How many times have you used the system to check-in within the past 2 years?
   过去二年内使用网上预办登机系统的次数

   ☐ 1-5 一至五次　　☐ 6-10 六至十次

   ☐ 11-15 十一至十五次　　☐ 16 or above 十六次或以上

7. What was the primary purpose of traveling for your last trip?
您上一次旅游的主要目的是甚么?

- [ ] Leisure 休闲
- [ ] Business 商务
- [ ] Visiting friends and relatives 探望亲友
- [ ] Education 留学/进修

8. Did you engage in short-haul or long-haul flight for your last trip?
您上一次旅游乘搭短途还是长途的航班?

- [ ] Short-haul flight (4 hours or less of duration) 短途航班 (飞行时间少于四小时)
- [ ] Long-haul flight (more than 4 hours of duration) 长途航班(飞行时间多于四小时)

9. Whom did you travel with for your last trip?
您上一次旅游乘搭航机的同伴是?

- [ ] Self 自己
- [ ] Parents, brothers or sisters 父母、兄弟或姊妹
- [ ] Spouse or children 伴侣或小孩
- [ ] Friends and relatives 亲友
- [ ] Colleagues 工作伙伴

10. Which of the following airline that you have used the company online check-in system for your last trip?
您上一次旅游曾经使用下列那间航空公司的网上预办登机系统?

- [ ] AirAsia 亚洲航空
- [ ] Air China 中国国际航空公司
- [ ] Air Canada 加拿大航空
- [ ] Air France 法国航空
- [ ] Air New Zealand 新西兰航空
- [ ] All Nippon Airways 全日空航空
- [ ] British Airways 英国航空
- [ ] Cathay Pacific Airways 国泰航空
- [ ] China Airlines 中华航空
- [ ] China Southern Airlines 中国南方航空公司
- [ ] China Eastern Air 中國東方航空
- [ ] Continental Airlines 美国大陆航空
- [ ] Dragon Air 港龙航空
- [ ] EasyJet 易捷航空
- [ ] Emirates 阿联酋航空
- [ ] EVA Airways 长荣航空
- [ ] Japan Airlines 日本航空
- [ ] Jet Blue
- [ ] Lufthansa Germany 德国汉莎航空
- [ ] Mandarin Airlines 华信航空
- [ ] Qantas Airways 澳洲航空
- [ ] Singapore Airlines 新加坡航空
- [ ] United Airlines 联合航空
- [ ] Virgin Atlantic Airways 维珍航空
- [ ] Others 其它 (Please specify 请注明: _____)

Section V. Demographic Information 第五部份.受访者个人资料

Please tick the appropriate boxes. 请在适当的空格内填上打勾。

5. Gender 性别

☐ Male 男 ☐ Female 女

6. Age Group 年龄组别

☐ 20 or below 20 或以下 ☐ 41 – 45

☐ 21 – 25 ☐ 46 – 50

☐ 26 – 30 ☐ 51 – 55

☐ 31 – 35 ☐ 56 – 60

☐ 36 – 40 ☐ 61 or above 61 或以上

7. Nationality 国籍

☐ Australia 澳洲 ☐ Canada 加拿大

☐ France 法国 ☐ Germany 德国

☐ India 印度 ☐ Indonesia 印度尼西亚

☐ Italy 意大利 ☐ Japan 日本

☐ Macau SAR 澳门特区 ☐ Mainland Chinese 中国大陆

☐ Malaysia 马来西亚 ☐ Middle East 中东

☐ New Zealand 新西兰 ☐ Philippines 菲律宾

☐ S&C America 南美及中美 ☐ Singapore 新加坡

☐ South Africa 南非 ☐ South Korea 南韩

☐ Taiwan 台湾 ☐ Thailand 泰国

☐ United Kingdom 英国 ☐ United States of America 美国

☐ Others 其它 (Please specify 请注明: _____)

8. Monthly Household Income 家庭每月总收入

☐ Less than USD2,000 二千美金或以下

☐ USD2,001-USD4,000 二千零一美金至四千美金

☐ USD4,001-USD6,000 四千零一美金至六千美金

☐ USD6,001-USD8,000 六千零一美金至八千美金

☐ USD8,001-USD10,000 八千零一美金至一万美金

☐ USD10,001 or above 一万零一美金或以上

THE END. THANK YOU VERY MUCH!

问卷完成，谢谢！

Appendix 5. Survey Permit from Airport Authority Hong Kong

香港 國際機場 | HONG KONG INTERNATIONAL AIRPORT

ATTN	Ms Lousia Lee School of Hotels & Tourism Management, The Hong Kong Polytechnic University	FAX NO. TEL NO.	2362 9362 3400 2326
CC	Gillian Ng, AOCC L7 CSC		2182 3926, 2182 2075 2182 2063
FROM	Jo Sung Assistant Manager, Branding and Communications	FAX NO. TEL NO.	2188 7120 2188 7373
DATE	16 March 2012	REF NO.	ACL/12/F/8241

PAGE(S) 1 OF 3
IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL IMMEDIATELY

Dear Ms Lee,

SURVEY PERMIT

Survey Conducted at the Hong Kong International Airport by School of Hotels & Tourism Management, The Hong Kong Polytechnic University

The Airport Authority is pleased to inform you that your application for the captioned survey to be conducted at the Hong Kong International Airport (the "Airport") is approved, subject to the following terms and conditions:

SCOPE OF SURVEY

Fieldwork dates	:	10, 11, 17, 18, 23, 24, 25 March 2012
Time	:	10:00 – 18:00
Research Agency	:	School of Hotels & Tourism Management, The Hong Kong Polytechnic University
No. of interviewers	:	10
Location	:	Survey should be conducted at L5 and M&G hall. No activity should be conducted at the vicinity of exits of Hall A & B. No activity should be conducted inside check-in aisles. No activity should be conducted at the vicinity of security check points.
Sample size	:	500
Interview duration	:	Around 5 mins

LAWS & REGULATIONS

(1) School of Hotels & Tourism Management, The Hong Kong Polytechnic University ("the company") shall comply with all applicable laws, ordinances, statutes, requirements, rules, regulations, by-laws and other provisions (by whatever name called) of and for the time being applicable in Hong Kong.

香港 HONG KONG
國際機場 INTERNATIONAL AIRPORT

(2) The company shall comply with all the rules, regulations, directions and instructions issued by the Airport Authority (the "AA") in relation to the management and operation of the Airport or the captioned survey.

SAFETY AND SECURITY

The company shall ensure that the captioned survey shall be conducted in a safe and proper manner, having full regard to the safety of all persons and any property in or in the vicinity of the location of the survey. Without prejudice to the foregoing or any of its liabilities, the company shall take remedial action (at its own cost and expense and to the satisfaction of the AA) to immediately rectify any loss or damage to any property arising out of the captioned survey.

LIABILITY AND INDEMNITY

The company shall indemnify the AA from and against all claims, losses, costs, actions and liability whosoever arising from or in connection with the captioned survey and/or breach of this Survey Permit.

INSURANCE

(1) The company has placed and at all times maintains during the term, public liability insurance in the amount specified on the certificate of the Policy Schedule with Policy No. ZTT0068969ZC issued by Zurich Insurance Company Limited dated 13 Mar 2012. against claims for personal injury, death or loss arising out of the conduct or execution of the company or any of his agents, employees or servants; such insurance shall be with a company or companies acceptable to AA and all policies for such insurance shall be in a form satisfactory to AA.

(2) The company shall not do or omit to do or suffer anything to be done or omitted to be done on the Airport which will in any way impair or invalidate such policy or policies.

DEPOSIT

This Survey Permit is conditional upon the company's payment to the AA of **HKD$5,000.00** as deposit (the "Deposit") for conducting the captioned survey in due performance and observance of all the terms and conditions herein. If there is any breach of any of the said terms and conditions by the company, AA shall be entitled to forfeit the Deposit or deduct from the Deposit the amount of any cost, loss, damage or expense incurred by the AA as a direct or indirect result of such breach without prejudice to any of AA's rights or remedies against the company. The Deposit or the balance thereof shall be returned (without interest) to the company within [30] days of the company's submission of the final survey report(s) to the AA or (as the case may be) within [30] days of early termination of this Survey Permit by the AA for any reason other than the company's default.

香港 HONG KONG
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CANCELLATION

The captioned survey may be terminated or suspended at any time by AA in case of emergency requirements or operational needs of the Airport (as conclusively determined by the AA). Without prejudice to any of the company's obligations or liabilities, the AA may terminate this Survey Permit forthwith in the event of the company's material breach of any terms or conditions of this Survey Permit.

ADDITIONAL CONDITIONS

1 Your 10 Interviewers have to report to the AA's **Customer Services Counter** at Level 7 of the Passenger Terminal Building **before** and **after** conducting the captioned survey on the fieldwork date(s).

2 A working permit will be issued to each interviewer after his/her identification is verified. Interviewers **MUST** wear the working permit(s) during the survey period for identification purpose. All the working permits must be returned to the Customer Service Counter after use.

3 The company shall **ONLY** use the questionnaire as previously approved by the AA for the captioned survey.

4 Your interviewers shall only interview passengers who have given consent to you for conducting the captioned survey. Interviewers have to give a "Smile Sticker" to each of the interviewees after finishing the interview for identification purpose. The company shall purchase a sufficient number of "Smile Stickers" from the AA before the captioned survey starts.

5 The interviewers shall be presentable and wear identification labels of School of Hotels & Tourism Management, The Hong Kong Polytechnic University

6 Your interviewers shall bring along a copy of this Survey Permit to the Airport during the survey period.

7 The interviewers shall maintain, at all times, a free passage for other users of the Airport and shall not obstruct any of the users' access to any of the Airport facilities.

8 Upon completion of the captioned survey, a copy of the final survey report(s) shall be sent to the AA for reference or record.

9 In case of emergency, AA will advise your field coordinator_____at_____on actions to take.

Yours sincerely,

Jo Sung
Assistant Manager,
Branding and Communications
Corporate Communications
Airport Authority Hong Kong

Accepted by:

Louisa Lee
For and on behalf of
School of Hotels & Tourism Management,
The Hong Kong Polytechnic University
Company chop

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