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The effects of website quality on customer satisfaction, use intention, and purchase intention: A comparison among three types of booking channels

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The effects of website quality on customer satisfaction, use intention, and purchase

intention: A comparison among three types of booking channels

by

Xiaowei Xu

A dissertation submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Hospitality Management

Program of Study Committee:
Thomas Schrier, Major Professor
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The student author and the program of study committee are solely responsible for the content of this dissertation. The Graduate College will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University

Ames, Iowa

2017

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DEDICATION

I would like to dedicate this dissertation to my grandfather, Zhikun Xu. I am sorry that I didn't get a chance to say goodbye to you, although one year and a half has passed since that sad day, I truly miss you and will always remember the memories that we share. I hope I make you proud as you have made me.

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ABSTRACT

There is no doubt that hotel distribution has changed dramatically since the advent of the Internet. Online travel agencies' (OTAs) and hotel websites have risen to reach a broader range of customers to generate more revenue. The latest in a series of disruptive innovations brought by the Internet, is the sharing economy business. This new wave of peer-to-peer businesses allow customers to make money from underused assets. In the hospitality industry, Airbnb is the best-known example of this phenomenon.

The proliferation of online accommodation booking websites has created the need for measurement criteria to evaluate the quality of website. It is important for hoteliers, hosts, and website designers to understand and compare what components comprise website quality and how website quality influences customers' purchase intention across three types of booking channels: OTA websites, hotel branded websites, and hospitality sharing economy platforms (HSEPs). This study identified what constituted website quality by regressing the perceived ease-of-use, information quality, privacy risk, and website aesthetics against overall website quality. This study also proposed a purchase intention model by adding customer satisfaction and use intention as two mediating variables.

Results from 973 online survey responses revealed the conceptualization of website quality varied across three types of booking websites and highlighted the importance of website aesthetics. It was suggested OTA website quality was assessed based on customers' experience in the information search process, while hotel website quality was evaluated with a focus on the technical adequacy. In the HSEP setting, it was noted that aesthetics was viewed as high-quality. Additionally, this study confirmed the inter-relationships among website quality, customer

satisfaction and purchase intention, and mapped the customers' search-purchase relationships in an online context. The mediating effects of customer satisfaction and use intention were also detected.

The contribution of this research is both academic and practical. First, given the rapid growth of sharing economy platforms, this research is among the first studies to investigate the impact of website quality on customers' intention to purchase on the HSEPs; and provides new insights in understanding this niche segment from customers' perspectives. Second, this study expands upon the current website quality measurements body of knowledge in a more accurate manner by assessing measurement invariance and regressing overall website quality against each proposed website quality dimension across three booking channels. The third contribution of study is through the inclusion of two types of behavioral intentions (use intention and purchase intention) and the examination of the relationship between these two constructs, which suggest the diminished value of the billboard effect. Lastly, this study helps hospitality industry practitioners better position their own websites by revealing and comparing the influential factors that determine online accommodation bookers' perceptions towards three types of booking channels.

CHAPTER I

INTRODUCTION

Background of Online Distribution Channels

The Internet has had a profound effect on the hospitality and tourism industry, particularly as a distribution channel (Buhalis & Law, 2008). Hotel websites and online travel agency (OTA) websites are two main online hotel booking channels. Since the 1990s, the initial return on investment in website development is a sign of success. Hilton Hotels and Marriott both reported more than \$1 million in direct online room booking revenue several months after launching their branded websites (Hird, 1997). Subsequently, big hotel chains including Hyatt, Wyndham, and InterContinental have all built up official websites to reflect their brand identity and provide valuable information to visitors.

The history of OTAs can be traced back to the 1960s, when computer reservation systems (CRS) were introduced as a main electronic interface to conduct transactions in the hospitality and tourism industry. The Global Distribution Systems (GDS) were initially developed by the airline industry, enabling booking and selling tickets for multiple airlines. The GDSs were later applied to other travel vendors including hotels and car rental companies. The GDS set a foundation for the emergence of OTA websites, also known as third-party websites, in the late 1990s. Some OTAs are considered online firms affiliated with GDSs. For example, Sabre owns Travelocity, while Galileo and Worldspan own Orbitz (Gourdie, 2013).

The rise of online distribution channels for travel needs provides hoteliers opportunities to generate online revenue. PhoCusWright, a research company, reported online booking now accounts for 43% of total travel sales in the United States and 45% in Europe ("Sun, sea and

surfing,” 2014). Statistics for the market share of each distribution channel was reported by TravelClick North American Distribution Review (NADR). NADR surmised that the share of transient rooms sold by hotel brand websites (Brand.com) in the second quarter of 2016 obtained the biggest share (35.3%), followed by hotel direct (calls directly to the hotel and walk-in customers) (19.1%), online travel agents (OTAs) (16.0%), global distribution systems (GDS) (15.8%), and central reservation offices channel (CRO) (13.8%) (TravelClick, 2016). Based on the above reported figures, reservations made directly through hotel brand websites and OTA websites occupied almost half of the market share, indicating a growing trend that substantial portions of room reservations are accounted for by online distribution channels. Compared to the first quarter of 2016, the OTA, hotel website, and GDS have experienced stable growth in the transient segment while hotel direct and the CRO channel decreased sharply. This indicated the Internet attracted a large market share away from conventional means (e.g., walk-ins, telephone, email).

A prior study, based on revenue managers’ survey responses, indicated hotel websites had the highest probability to survive into the future, while OTAs remained a mainstay of generating profit even though they were not considered as effective channels. Hotels have been preoccupied with using multi-channel distribution to sell their products and services, however, this phenomenon evoked problems of how hotels could maintain a balanced distribution and online sales environment (Kang, Brewer, & Baloglu, 2007). Morosan and Jeong (2008) subsequently pointed out that selling rooms on OTA websites might cause brand erosion and rate disparity issues. To avoid this, hotel companies pushed benefits for customers who booked directly from their website. The above-mentioned viewpoints coincided with hotel brand websites gain of the largest market share for leisure guests in the second quarter of 2016.

The Rise of the Hospitality Sharing Economy Platform (HSEP)

The sharing economy is a type of business built on fee-based sharing of products or services (Zervas, Proserpoi, & Byers, 2014). It is also labeled as a peer-to-peer online marketplace and the collaborative consumption (Botsman & Rogers, 2011). Factors motivating individuals to participate in a sharing economy include its sustainability, enjoyment of the activity, and economic incentive (Hamari, Sjöklint, & Ukkonen, 2015). Craigslist, Airbnb, Uber and Lyft are popular sharing economy websites; allowing individuals to purchase, rent, and share physical assets and services (Dillahunt & Malone, 2015). They are visibly taking share away from the hotel industry.

A research report from PriceWaterhouseCoopers (PWC) specifically regarding the HSEP showed 6% of the US population supported hospitality through the sharing economy as a customer and 1.4% served as a provider (“The sharing economy,” 2015). The main HSEPs in the market include Airbnb, CouchSurfing, and HomeAway. Among which, the growth of Airbnb is the fastest from its inception in 2008. From a customer perspective, benefits provided by Airbnb are affordable accommodations, unique accommodation types, and authentic experiences by connecting customers with local people. However, the issues of security, hygiene, and inconsistent service quality have been raised (“The sharing economy,” 2015). Also, Airbnb has had to confront regulatory and legal issues (Kaplan & Nadler, 2015). It was reported that customers familiar with the sharing economy are 34% more likely to trust chained-brand hotels than Airbnb (“The sharing economy,” 2015). In any case, some OTAs, such as Booking.com and Expedia, have started to cooperate with HSEP or list rental properties to protect their business from threatening competitors (“Hotel distribution report,” 2015).

The Benefits of Electronic Distribution

Before the appearance of the Internet, the hospitality industry operations encompassed three components: suppliers, intermediaries and customers (Buhalis & Zoge, 2007). Suppliers (e.g., airlines, hotels, car rental companies) used intermediaries such as tour operators and brick-and-mortar travel agencies to reach customers (Buhalis & Zoge, 2007). Since the invention of the Internet, hotels started to utilize a web strategy to market and advertise their products and services (Namkung, Shin, & Yang, 2007).

From a business perspective, Internet marketing reduced operating and labor costs; as no physical store was required to sell travel products and services. Connolly, Olsen, and Moore (1998a) provided evidence indicating the cost of processing reservations via the Internet was cheaper than taking a reservation via a toll-free line. Establishing a website allowed hotels to reach customers worldwide regardless of geographical locations, time zones and computer systems (Au Yeung & Law, 2004). It was reported that 60% of travel and hospitality companies describe the Internet as a tool to grow a substantial customer base (Mullen, 2000). Furthermore, using the Internet as a reservation method enables real time information (Kim & Kim, 2004), which made it much easier for hoteliers to update price, pictures, and daily activities (Milović, 2012).

From a customer perspective, one advantage of online booking was convenience (Oakley, n.d.). Customers were able to make reservations via the Internet without time and geographical constraints. It was also simple for customers to change or cancel online reservations by clicking the mouse instead of waiting for a customer service representative to complete the cancellation process. OTA websites also allowed customers to compare prices, check hotel ratings, and read comments written by previous customers. These information-seeking behaviors helped

customers reduce the uncertainty of making incorrect purchase decisions (Hirschman & Wallendorf, 1982).

The Importance of Website Quality

Website quality is regarded as an important determinant of an operation's online presence. It is defined as the extent to which a website's features meet customers' needs and reflect overall superiority of the website (Chang & Chen, 2008). Previous studies demonstrated high quality websites attracted more customers than low quality websites (Parasuraman, Zeithaml, & Malhotra, 2004) and were regarded as an indicator of business success (Lee & Kozar, 2006). According to Cunliffe (2000), "Poor web design will result in a loss of 50 percent of potential sales due to users being unable to find what they want, and a loss of 40 percent of potential repeat visits due to initial negative experience" (p. 297). Hanson (2000) asserted that a well-defined website could "build trust and confidence in the company; reinforce an image of competence, functionality, and usefulness; alert the visitor to the company's range of products and services' and point out local dealers, upcoming special events, and reasons to come back again" (p.44).

There is a growing body of research emphasizing the importance of website quality as customers' perceived quality influences their trust-building process, satisfaction level, attitudinal loyalty (e.g., brand or product preference) and behavioral loyalty (e.g., actual use, willingness to pay) (Bai, Law, & Wen, 2008; Hur, Ko, & Valacich, 2011; Lin, 2007).

Academics highlighted the fit between tourism / hospitality businesses and website usage (Vich-i-Martorell, 2004). With the increase of accommodation booking websites, it is important for hospitality operators to know what factors motivate customers to use these websites and

make subsequent purchases. An understanding of customers' perceptions of the most important website attributes will help hospitality operators develop better online marketing strategies, enhance websites' user experience, and ultimately maximize the total room revenues by increasing the share of online sales (Ali, 2016; Wong & Law, 2005).

Problem Statement

With an explosive growth of electronic booking channels, hotels and third-party companies needed to understand what circumstances caused customers to use and make purchases on their website (Morosan & Jeong, 2008) and how different factors influenced online booking channel selection (Liu & Zhang, 2014). Previous scholars focused on comparing the differences in users' perceptions of OTA websites and hotel branded websites; however, no known attempt was made to investigate customers' perceptions of HSEPs. To understand why sharing economy websites are getting prevalent, as well as why OTA websites continue to gain market share in online hotel bookings, it was necessary to compare customers' perceptions of website quality. Website quality influenced customer decisions when booking through these three types of booking websites.

Although previous studies examined the impact of website quality on customers' intention to adopt and purchase on travel-related websites (Bai et al., 2008; Jeong, 2004; Sam & Tahir, 2009), each dimension of website quality was directly adopted from previous study and was proposed to have direct impacts on outcome variables. No statistical test was conducted to determine whether these constructs actually reflected the customers' subjective judgments about the websites' overall quality. To address this issue, this study aimed to examine whether four dimensions, based on Loiacono's (2000) four-category framework, was directly associated with

customer perceived website quality of an accommodation booking website. This was important because OTAs, hotel websites, and HSEPS are three different types of booking channels in terms of business models and services offered. The analysis on website quality measurement helped address whether website quality across three contexts was driven by the same mechanisms as proposed, or whether it was reflected by a conceptually different measurement that needed to be treated separately by researchers and hospitality practitioners.

Furthermore, researchers in the tourism and hospitality industry have long appreciated the impact of website quality on customers' behavioral intention (e.g., Wong & Law, 2005; Morosan & Jeong, 2008). However, more research endeavors are needed to understand whether customer satisfaction plays a mediating role while examining the website quality-behavioral intention relationship (Bai et al., 2008).

Last but not least, in previous studies, either purchase intention or use intention was frequently used to inspect website quality and e-service quality (e.g., Bai et al., 2008; Morosan & Jeong, 2008). Use intention and purchase intention should be studied separately, as previous study found that use/search intention, which occurred in the pre-purchase stage, led to online purchase intention (Shim, Eastlick, Lotz, & Warrington, 2001). Thus, to differentiate these two concepts, this study included both use intention and purchase intention in the model and examined the relationship between two these two constructs.

Purpose of the Study

The purpose of the study was to examine the impact of website quality and customer satisfaction on customers' behavioral intention towards three types of online booking channels: OTAs, hotel brand websites and HSEPs.

More specifically, the objectives of this study were:

- 1) To identify factors that contribute significantly to customers' perception of website quality.
- 2) To examine relationships among variables of determinants of website quality, perceived website quality, customer satisfaction, use intention and purchase intention toward an accommodation booking website.
- 3) To investigate differences in customers' perceptions of website quality of three types of accommodation booking website.

Research Contribution

This study was expected to make both academic and practical contributions. First, this study was among the first to examine and compare customers' perceptions and preferences toward three types of online accommodation booking channels featured with two different business models (business-to-customer and peer-to peer). Second, this study empirically investigated the factors influencing perceived website quality by adding a path between the perceived website quality scales and the overall measure of website quality. Third, this study validated whether the quality-satisfaction-behavioral intention linkage in the offline service industry could be applied to the context of online booking. In addition, previous study on behavioral intention formation emphasized on either use intention or purchase intention. This study exclusively examined use intention and purchase intention together as well as the relationship between them.

From a practical standpoint, by identifying the factors for customers' usage of online booking websites, this study could be used as a customer-determined mean for website

developers and hoteliers to assess their website quality. First, this study's results provided insights and feedback for website developers, hosts, and hotel managers on how to maintain high customer satisfaction levels by increasing website quality. Potential improvements could be made on improving data privacy, increasing ease-of-use, and enhancing the appearance of web pages. Second, comparing customers' perceptions across three different booking channels could help website developers and hospitality service providers better understand the advantage of their competitors and better position their own websites. Third, this study would help hoteliers understand whether customers' use intention was a valuable research tool for predicting the probability of online booking.

Definition of Terms

This study utilized the following terms specific to the application and utilization of online booking websites:

Customer satisfaction: Users' evaluations of website performance based on their needs and expectations (Oliver, 1980).

E-Commerce: Deployment of computer-mediated tools to buy and sell information, products and services (Kalakota & Whinston, 1996).

Hotel brand website: Website established by hotel chains to drive direct bookings.

Information quality: The extent to which using a website can provide a good source of information and help a user get updated, accurate, and detailed information (Ho & Lee, 2007; Park, Gretzel, & Sirakaya-Turk, 2007; Wen 2012).

Online distribution channel: An intermediary through which a hospitality service provider could reach the end customer.

Online travel agency: E-business providers who specialize in offering comprehensive travel-related services and/or products (Tsang, Lai, & Law, 2010).

Perceived ease-of-use: The degree to which a person believes it is easy to find relevant information on a website (Park et al., 2007).

Perceived privacy risk: The extent to which customers believe making transactions on a website will be free from billing information and financial losses (Ponte, Carvajal-Trujillo, & Escobar-Rodríguez, 2015).

Perceived website aesthetics: The extent to which the proper usage of color, graphics, image and animations of a website yields an impression of beauty (Park et al., 2007).

Purchase intention: The user's intention to establish an online information exchange relationship and have online transactions with a web retailer (Zwass, 1988).

Sharing economy: Peer-to-peer business allowing customers to share properties or resources through online platforms (Hamari et al., 2015).

Use intention: The extent to which users feel they would use a specific technology to retrieve information (Gefen & Straub, 2000).

Website quality: Users' evaluation of a website's features meeting their needs and reflecting overall superiority of the website (Aladwani & Palvia, 2002).

Chapter Summary

This chapter provided background for Internet applications in the lodging industry as well as a brief introduction of the new sharing economy phenomenon in the hospitality sector. The theoretical and practical contributions of this study, followed by an overview of the terms used in this study, were also discussed. The following chapter expands on ideas outlined in this chapter

and discusses in more detail how the Internet influences the hospitality industry and how accommodation booking channels have evolved in recent decades. In addition, the process of model construction will be illustrated by reviewing the literature related to website quality, customer satisfaction, and behavioral intentions.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to review research on three online booking channels used in the hospitality industry: hotel brand websites, OTAs and HSEPs. In addition, this chapter introduces the exogenous variables and endogenous variables of interest, and presents the proposed model along with the hypothesized relations between variables. Antecedents of purchase intention will be identified. Four dimensions (perceived information quality, perceived risk, perceived aesthetics, and perceived ease-of-use) measuring website quality will be discussed. This chapter also reviews the literature regarding the relationship among website / e-service quality, customer satisfaction and behavioral intentions.

The Role of the Internet in the Contemporary Hospitality and Tourism Industry

With the unprecedented development and success of the Internet, traditional communication markets, like oral, print, telephone, radio, and television, are transitioning to an online format (Batinić, 2013). Since the mid-1990s, the Internet turned the business world upside down and created new opportunities for businesses commonly referred to as e-business or e-commerce (Benson & Standing, 2008; Wirtz, Schilke, & Ullrich, 2010).

The hospitality and tourism industry was among the very first to be tremendously influenced by the advent of the Internet (Siguaw, Enz, & Namiasivayam, 2000; Standing, Tang-Taye, & Boyer, 2014). Hospitality-related businesses recognized the expansion of public access to this media and started to promote their services and products through the Internet (Au & Ekiz, 2009). Customers were allowed to search and purchase travel-related services and products directly from suppliers via the Internet without time and geographic restrictions (Olmeda &

Sheldon, 2001). Combes and Patel (1997) described the Internet-based customer environment for travel services as a convenient and ubiquitous shopping experience. Customers easily compared price and features of travel products and services without speaking to a travel agent. Bonn, Furr, and Susskind (1998) pointed out at an earlier time, that travel and tourism-related products and services were well suited for Internet marketing because they generally engaged in a higher price, higher level of involvement and differentiation than other tangible commodities.

There is no doubt that advancements in the Internet have received increasing research interest. Standing et al. (2014) reviewed articles exploring the impact of the Internet on the tourism industry over the past 10 years and classified study topics into seven areas. Among which, information search, website analysis, and Internet marketing were the three most popular topics. The remarkable changes in the hospitality and tourism industry made by the Internet are discussed as follows.

The rise to e-commerce

The tourism market has successfully integrated online booking systems into the business systems including travel agencies, hotel chains, airlines, car rental companies, and cruise industries (Batinić, 2013). Integrating online booking systems into websites contribute to the success of tourism electronic-commerce (e-commerce). E-commerce is comprised of three types of business models: business to customer (B2C), business-to-business (B2B), and consumer-to-consumer (C2C). The tourism industry is regarded as a leading sector in the B2C markets (Werthner & Ricci, 2004).

The pervasiveness and importance of e-commerce has been widely accepted by academics, travelers, and suppliers (Morrison & King, 2002). From suppliers' perspectives, web-

based communities became an effective and low-cost distribution channel for selling products and services (Law, Leung, & Buhalis, 2009). Additionally, effective distribution channel management helped reduce the labor costs by using a centralized way to take care of multiple channels (“Glossary of hotel terminology,” n.d.). Since a lot of information can be accessed in real time via the Internet, revenue managers adjusted the room rates across multiple distribution channels by simply clicking their mouse (Forgacs, 2010).

Although the implementation of e-commerce enabled hospitality operators to gain a competitive advantage by reaching worldwide customers at a low cost, e-commerce adoption brought up privacy and trust issues concerning the protection of personal information, credit card number and financial data (Nyheim & Connolly, 2011).

Disintermediation

The Internet boosts new intermediaries (e.g., social media platforms, search engines), which start to bypass the traditional intermediaries (e.g., wholesalers, brick-and-mortar travel agents). According to Law, Chan, and Goh (2007), social channels and meta-search engines are two dominated tourism intermediaries affecting the way tourists obtain information about the price and quality of tourism products and services.

The traditional travel agencies are one of the sectors facing the problem of disintermediation. It is widely acknowledged that the Internet dramatically transformed the way people book a trip. Long gone are the days of depending on a travel agent to purchase an airline ticket or book a hotel. Making online reservations could be less expensive than booking through other traditional channels, especially when commissions are included (Kim, Ma, & Kim, 2006).

The rise of the online travel agency has posted a great threat to the brick-and-mortar travel agency (Novak & Schwabe, 2009).

Since tourism experienced the unprecedented growth in online sales, traditional travel agencies need to think about how to avoid the threat of disintermediation (Anckar, 2003; Dilts & Prough, 2002). Novak and Schwabe (2009) pointed that traditional travel agencies should develop a new strategy to differentiate their products from the offerings provided by the Internet. They also suggested traditional travel agencies should take advantage of interactive technologies and Internet channels to enable an online travel advisory, which might be a value-added feature (Novak & Schwabe, 2009).

Increased competition

The Internet provides a platform for conducting market research as well as gathering competitors' marketing strategies and operational information in an effective manner (Batinić, 2013). The Internet is a powerful tool to gain information about the competitors. Operations have to deal with competitors that offer a lower price (Bidgoli, 2010). OTA websites such as Expedia.com and Hotel.com buy hotel rooms, air tickets, and travel packages at wholesale prices and resell these products to customers at a higher rate. As such, the prices offered by these wholesale businesses tend to be lower than those offered by the hotel's official brand websites (Angwin & Rich, 2003). However, the rate-parity agreement contracts between hotels and OTAs prevent OTAs from competing for market share through discounting (Haynes & Egan, 2015).

To stay competitive without reducing price, hotel chains such as Marriott and Hilton offer exclusive benefits for customers who directly book through their hotel websites and join loyalty

programs. Examples of these benefits include: selecting a room via online check-in, free breakfasts, and free Wi-Fi (Kessler & Weed, 2015).

In July 2015, with the aim to establish a transparent competitive environment for the distribution of travel products and services, Booking.com, an OTA website, cancelled its price, availability, and booking conditions parity policies against other OTAs throughout Europe. This commitment allowed hotel companies to offer different prices and booking policies (e.g., non-cancellation, including breakfast) through different OTAs (“Booking.com amend rate parity,” 2015). Expedia later joined Booking.com to amend rate parity agreements with hoteliers in Europe (“Expedia amends rate-parity,” 2015). A recent study showed the removal of rate parity policy increased competitive forces in two aspects: 1) increasing the competition among platforms because price-sensitive customers will shop around to find accommodations with the lowest price, and 2) lowering the barriers to enter into third-party online distribution channel markets by allowing small agents to use the penetration pricing strategy (Haynes & Egan, 2015). It was suggested branded hotels faced a more fragmented market and the threat of price war (Haynes & Egan, 2015).

Improved information technology (IT) adoption and implementation

The transformational impact of the Internet on information technology was left unmentioned by Batinić (2013). Modern travelers’ increasing demand for high quality travel products and services drove the widespread adoption of information technologies (IT) in hospitality and tourism industries (Law, Leung, & Wong, 2004). Multinational hotel chains and travel agencies, for example, used IT for electronic distribution, reservation, customer service management, and yield management (Standing et al., 2014). Usage of the Internet for services as

an intermediary, facilitating the IT adoption, is firmly established as a competitive and effective marketing tool between suppliers and customers in offering travel-related information and providing online transaction support (Law, Qi, & Buhalis, 2010; Ting, Wang, Bau, & Chiang, 2013).

IT in the lodging industry rapidly developed since the early 1970s (Collins & Cobanoglu, 2008). Bilgihan, Okumus, Nusair, and Kwun (2011) summarized six competitive advantages of IT adoption in hotel companies: 1) low cost: hotel companies provided services/products at a low cost via a yield management system; 2) value-added: hotels improved competitiveness by installing innovative technologies that are differentiated from their competitors; 3) speed: the installation of IT improved the efficiency of each department and provided faster services and products to hotel customers; 4) agility: hotels changed their strategy faster than a competitor using decision support systems; 5) innovation: IT adoption helped hotels develop new products and innovative businesses; and 6) customer service: hotels provided customized services/products to customers based on their needs.

The Evolution of Hospitality Electronic Distributions

Traditional travel agencies

Traditional travel agencies, also referred to as brick and mortar travel agencies or offline travel agencies, first appeared in the 19th century using telephone and travel handbooks as tools to achieve their sales (Cheung & Lam, 2009). Traditional travel agencies sold hospitality and tourism-related services on behalf of suppliers, such as airlines, cruises, hotels, and car rentals. In addition, they provided customized vacation packages. Before the emergence of electronic distributions, Bitner (1981) regarded a travel agency as a key facilitator for both travelers and

suppliers as it served as a main platform for travel booking and planning. Bitner and Booms (1982) further indicated the role of travel agents shifted from acting as salesmen to professional travel counselors who have sufficient knowledge about travel products and destinations.

Driven by the power of the Internet, the emergence of a large number of Internet travel markets has threatened the continued existence of the travel agencies (Law et al., 2004). In terms of the U.S. travel market, Weber (2013) reported traditional travel agency retail locations dropped from its peak of 34,000 in the mid-1990s to 13,000 today; indicating new types of online intermediaries overtook traditional travel agencies. However, evidence exists showing people in support of traditional travel agencies. For example, Weber (2013) found there was a large amount of offline bookings in northern Asian countries such as Japan, China, and Korea. Travel agents are especially needed when first-time customers travel to countries where they do not speak the language. Collins (2015) reported the percentage of American travelers who used traditional travel agents in 2014 increased by 5% compared to the previous year. The author also indicated millennials seeking adventurous trips tended to use travel agents instead of OTA; as they needed a third party to make detailed plans for them. Sheivachman (2016) reported the same trend, indicating millennials were more willing to spend money to receive personalized treatment from a travel agent than any other U.S. demographic.

Main online distribution channels in the travel and tourism markets

Central reservation systems (CRS) of the 1960s and global distribution systems (GDS) of the 1980s are two main electronic interfaces in the travel and tourism markets. The evolution of telecommunication technologies introduced public interfaces such as Expedia, Orbitz, Priceline, and direct reservation sites operated by hotel companies to CRS and GDS.

Central reservation system and global distribution system

When the market for booking travel online reached its maturity, it was essential for hoteliers to connect with a central system to gain more customers (“Benefits of using CRS,” 2013). A central reservation system (CRS), originally applied in the airline industry in the 1960s, was a computerized office system used to distribute products or services by eliminating the physical distances between the suppliers and customers (O’Connor & Frew, 2002; Schulz, 1996). Later, CRSs were extended to other tourism and hospitality businesses including travel agencies and hotels. A hotel CRS enabled hotel managers to administrate room rates, online channels to see room availability, as well as managed and evaluated all incoming bookings including reservations originating from the call center (Pizam, 2005).

In the mid-1980s, CRS developed into a more comprehensive and global system named global distribution system (GDS). GDS is a computerized reservation network allowing hotels to connect with online websites and travel agencies to provide travel-related services and products to customers. Different from a CRS, which focused on separate travel sector, GDS is an integrated information system incorporating all travel product types including flights, hotels, car rentals, activities, and even packaged tours. Primary customers of GDS are either online or offline travel agencies. It is important to note that GDS does not hold inventory. Inventory is held by a hotel or flight company itself.

Although the implementation of GDS links customers and suppliers with hotels, airlines, and car rental services in one system, its commission charge deserves attention. Besides travel agency commissions, GDS booking fees are also a major component of the cost of the distribution. In the hotel industry, it is estimated OTA commissions cost \$2.7 billion and \$1.3

billion are paid to the bookings through the GDS. The prospect of paying double commissions caused potential revenue loss to hotels (Green & Lomanno, 2012).

The switch between CRS and GDS was created as a bidirectional electronic link providing data communication and reformatting services. The switch mechanisms allowed the hotel CRS systems to distribute their inventory to GDS providers using a single and compatible interface (Bowie & Buttle, 2004).

Online travel agency

The hospitality industry witnessed a progressive shift from traditional reservation channels to online distributions (Kasavana & Singh, 2001). Brewer, Feinstein, and Bai (2006) conducted a series of focus group discussions and identified four challenges of using electronic channels of distribution: rate parity, control of distribution channels, control of inventory, and customer service and loyalty.

Online travel agency (OTA), also known as third-party booking site, was a main driving force for streamlining electronic distributions (Caroll & Siguaw, 2003). Clemons, Hann, and Hitt (1998) stated OTAs for air travel industry provided “a point of connect via the World Wide Web (WWW) to enable customers to search for appropriate flights, fares and make a selection, which is then booked and ticketed by the OTA,” (p.5). In the same manner, OTAs also allowed customers to find the best deal on hotel rooms by browsing hotel products and comparing rates across multiple booking websites.

OTA websites are broken down into two categories: integrated transparent sites and integrated opaque sites (McGee, 2003). Transparent sites (e.g., Expedia, Orbitz, Travelocity) offer multiple products from different hotel companies at varying rates. The name and rates of

hotels are provided to the consumer prior to booking. In contrast, opaque sites (e.g. Priceline, Hotwire) are featured with obscure booking models. The opaque, or bidding pricing, provides deep discounts to travelers willing to make nonrefundable purchases before knowing the names of the hotels (Higgins, 2009).

Hotel brand website

Morosan and Jeong (2008) indicated selling rooms on OTA websites could cause brand erosion and room disparity across different distribution channels. As such, hotel brands like Marriott, Hilton, Starwood, and Wyndham established their own branded websites and encouraged customers to make direct online reservation. The website strategy served two main purposes: attracting more people to visit the websites and converting these website visitors to hotel guests (Duran, 2015).

Hotel websites have become a critical marketing tool as they present the hotel directly to consumers (Amrahi, Radzi, & Nordin, 2013). Among all the online booking channels, a hotel brand website is reported to have the lowest cost a hotel pays to acquire a new customer (Duran, 2015). Direct booking saves intermediaries' fees including commissions (5%- 10%) levied by travel agencies, and \$3 to \$5 per transaction fees charged by global distribution system (GDS) (Carroll & Siguaw, 2003). Using Southwest Airlines as an example, they have a lower cost of ticket distribution as they sell fares mostly on a Southwest Airlines website instead of having a third-party sell their fares (Jacobs, 2011).

The benefits of direct booking go beyond the reduction of distribution cost. It is also preferred by hotels as a means to learn from data mining. That is, hotel operators gain detailed hotel guests' profiles comprising of preferences, purchase data, and behaviors.

The HSEP: The case of Airbnb

Founded in August 2008, Arbnb.com is a popular online marketplace facilitating short-term rentals ranging from shared rooms to entire homes and apartments. Penn State University conducted a study on 12 major U.S. cities, showing monthly host revenues increased 59.2% to 124.3 million in September 2015 compared with 78.1 million in the same period last year (O'Neill & Ouyang, 2016). Airbnb's successful listings-by-owner model is comprised of three customer segments: 1) hosts, who own the property; 2) travelers, who book the listed available spaces from hosts; and 3) freelance photographers, who take high-definition pictures of the property. Airbnb earns revenue from two sources: 10% commission from hosts and 3% booking transaction charges from travelers (Deep, 2015). Although Airbnb is facing multiple legal issues, it remains a competitive threat to U.S. hotels as its unprecedented growth in the online marketplace could seize a sizable amount of market share from hotel operators and OTAs (Winkler & Macmillan, 2015).

Airbnb offers cheap options to travelers. According to Priceonomics, a web data analytics company, the median cost to stay at an Airbnb private room is almost 50% cheaper, and for an entire apartment is 21.2% less expensive than the median price of a hotel room for two people in dozens of US cities ("Airbnb vs Hotels," 2013). Huston (2015) further reported more than one-third of Airbnb users are less than 30 years old, compared to 16% for OTAs. Airbnb users are also more price-sensitive and take more trips than users of OTA (Huston, 2015).

Besides the price, another big difference between traditional hotels and Airbnb is that Airbnb offers different room types, such as entire home/apartments, private rooms in a shared apartment, and even shared rooms, as well as different property types including villa, loft, cabin, tree house, castles, geodesic domes and boats (Mayock, 2014). Additionally, Airbnb

accommodations offer more authentic experiences of the area or the city. Airbnb guests get easy access to residential neighborhoods and make new connections with the hosts (Peltier, 2015).

Zervas et al. (2014) estimated the impact of Airbnb on the hotel industry and found Airbnb's penetration into the Texas market had a negative impact on hotel room revenue. The revenue of the most vulnerable hotels decreased about 8% to 10% over the past five years. The results also suggested the most heavily affected hotels included independent hotels, hotels that do not cater to business travelers, and lower-end hotels.

Figure 1 summarizes how tourists are connected to different types of accommodation providers (see *Figure 1*). This landscape is adapted and modified from Fuchs and Höpken (2009).

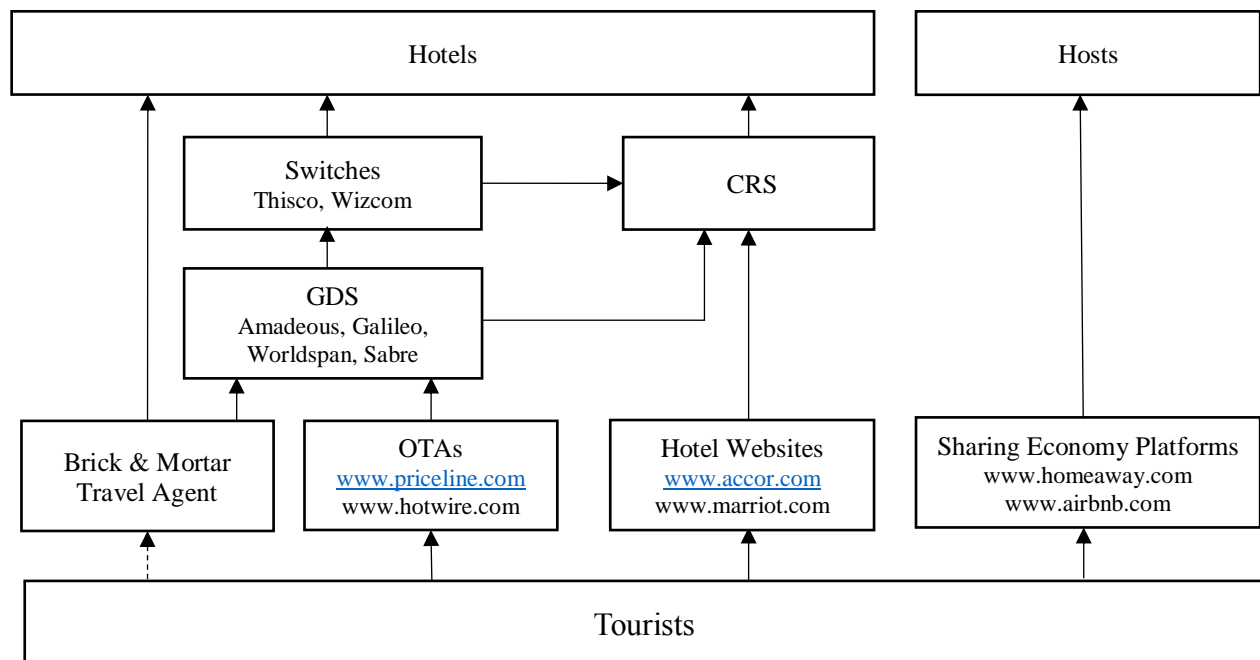


Figure 1. Hospitality Online Distribution Channels

Note. -----> non-electronically; GDS = Global Distribution System; CRS=Central Reservation System

An Overview of Studies Regarding Online Travel-Related Websites

Existing literature investigated the following five types of websites: 1) hotel-branded / resort, 2) OTA, 3) bed & breakfast (B&B), 4) airline, and 5) travel-related websites in general. These studies emphasized the following four main aspects: 1) developing and testing a website evaluation instrument encompassing the system, information, or service aspects; 2) proposing a framework of factors affecting customers' attitudes, perceived value, customer satisfaction, use intention, and purchase intention as well as recommendation intention; 3) comparing users' perceptions of different types of hotel booking channels (hotel branded websites vs. OTA websites; OTA vs. online travel suppliers); and 4) examining perceptions of customers with different demographic and behavioral characteristics (e.g., Chinese vs. American; online users vs. non-online users; browsers vs. purchasers) toward online travel purchase.

To summarize, the majority of studies on travel websites regarded purchase intention as an exogenous variable. Frequently examined mediators include customer satisfaction and trust. Table 1 presents an overview of studies regarding travel-related websites and online purchase behavior.

Table 1. *Summary of Studies Regarding Customers' Perceptions of Travel-Related Websites*

Authors (Year)	Service setting	Research Purpose	Country	Core Variables Examined	Outcome Variables
Kaynama & Black (2000)	OTA websites	<ul style="list-style-type: none"> Develop an assessment tool to evaluate the service quality of online travel services 	United States	Content and purpose; Accessibility; Navigation; Design and Presentation; Responsiveness; Background; Personalization and customization	
Jeong & Lambert (2001)	Lodging websites	<ul style="list-style-type: none"> Evaluate information quality of lodging websites; 	United States	Perceived usefulness; Perceived ease-of-use; Perceived accessibility; Attitudes	Intention to use information; Information use; Intention to recommend
Perdue (2001)	Resort website	<ul style="list-style-type: none"> Develop and test a conceptual model for evaluating overall resort websites quality 	United States	Speed and quality of accessibility; Ease of navigation; Visual attractiveness; Quality of information content	Overall resort quality
Chung & Law (2003)	Hotel booking websites	<ul style="list-style-type: none"> Propose a model to evaluate information quality of hotel websites Investigate the differences in website performance among the luxurious, mid-priced, and budget hotel websites 	Hong Kong	Facilities information; Customer contact information; Reservations information; Surrounding area information; Management of website	
Jeong, Oh, & Gregoire (2003)	Lodging websites	<ul style="list-style-type: none"> Conceptualize website quality Compare website quality in four lodging segments (i.e., luxury, upscale, mid-scale, and economy) 	United States	Information accuracy; Information clarity; Information completeness; Perceived ease-of-use; Navigational quality; Color combination	Information satisfaction*; Purchase intention
Kline, Morrison, & John (2004)	Bed & Breakfast websites	<ul style="list-style-type: none"> Evaluate Bed & Breakfast (B&B) websites 	United States	User friendliness; Site attractiveness; Marketing effectiveness; Technical qualities	

Table 1 (continued). *Summary of Studies Regarding Customers' Perceptions of Travel-Related Websites*

Authors (Year)	Service setting	• Research Purpose	Country	Core Variables Examined	Outcome Variables
Kim & Kim (2004)	Hotel booking websites	<ul style="list-style-type: none"> Investigate determinants that explain customers' online reservation intention Compare determinants between customers who have past online purchase experience and who have no past online purchase experience 	Korea	Convenience; Ease of information search; Transaction; Information credibility; Price; Safety	Hotel reservation intention
Kim & Lee (2004)	OTA websites and online travel suppliers	<ul style="list-style-type: none"> Identify the underlying dimensions of web service quality Compare customers' perceptions toward OTA websites and online travel suppliers 	Korea	Structure and ease-of-use; Information content; Responsiveness and personalization; Reputation and security; Usefulness	Customer satisfaction
Jeong (2004)	Bed & Breakfast websites	<ul style="list-style-type: none"> Identify factors influencing customers' intention to use a B&B website 	United States	Information quality; Ease-of-use; Response time	Customer satisfaction*; Use intention
Wong & Law (2005)	Hotel branded websites	<ul style="list-style-type: none"> Identify dimensions influencing purchase intention 	Hong Kong	Information quality; Sensitivity content; Time	Purchase intention
Chiang & Jang (2006)	Hotel booking websites	<ul style="list-style-type: none"> Identify factors influencing purchase intention 	United States	Perceived price; Brand image; Perceived quality; Trust	Perceived value; Purchase intention
Cho & Agrusa (2006)	OTA websites	<ul style="list-style-type: none"> Identify factors influencing perceived ease-of-use and perceived usefulness Determine how ease-of-use and usefulness affect attitudes and customer satisfaction 	United States	Perceived ease-of-use; Perceived usefulness; External variables (Information; price; product and service; technology and usability; brand name; promotion; entertainment)	Degree of involvement*; Attitudes; Customer satisfaction
Kim et al. (2006)	Hotel booking websites	<ul style="list-style-type: none"> Identify factors affecting customers' online reservation intention 	Mainland China	Information needs; Service performance & reputation; Convenience; Price benefits; Technological inclination; Safety	E-satisfaction; Purchase intention

Table 1 (continued). *Summary of Studies Regarding Customers' Perceptions of Travel-Related Websites*

Authors (Year)	Service setting	• Research Purpose	Country	Core Variables Examined	Outcome Variables
Ho & Lee (2007)	Travel-related websites	• Identify the dimensions of e-service quality	Taiwan	Website functionality; Responsiveness and fulfillment; Customer relationships; Information quality; Security	
Park et al. (2007)	OTA websites	• Propose a model measuring website quality	United States	Fulfillment; Ease-of-use; Security/Privacy; Information/content; Responsiveness; Visual appeal	Use intention
Bai et al. (2008)	Travel-related websites	• Identify the dimensions of website quality • Examine the impact of website quality on customer satisfaction and purchase intention	Hong Kong	Functionality; Usability	Customer satisfaction*; Purchase intention
Law & Bai (2008)	Travel-related websites	• Examine the relationship between website quality, customer satisfaction and purchase intention • Compare the perceptions of browsers and buyers	Hong Kong	Functionality; Usability	Customer satisfaction; Purchase intention
Law, Bai, & Leung (2008)	Travel-related websites	• Examine the relationship between website quality, customer satisfaction and purchase intention • Compare the perceptions of travelers from the United States and China	Hong Kong	Functionality; Usability	Customer satisfaction; Purchase intention
Morosan & Jeong (2008)	Hotel branded websites and OTA websites	• Identify the determinants of users' intention to use reservation websites • Compare the perceptions of OTA website users and hotel website users	United States	Perceived ease-of-use; Perceived usefulness; Perceived playfulness	Attitudes; Use intention
Tsang et al. (2010)	OTA websites	• Identify the underlying dimensions to evaluate e-service quality of OTA websites	Hong Kong	Website functionality; Information content and quality; Fulfillment and responsiveness; Safety and Security; Appearance and Presentation; Customer relationship	

Table 1 (continued). *Summary of Studies Regarding Customers' Perceptions of Travel-Related Websites*

Authors (Year)	Service setting	• Research Purpose	Country	Core Variables Examined	Outcome Variables
Wen (2012)	Travel-related websites	• Test a model of factors influencing customers' purchase intentions for travel products	United States	Convenience; Merchandise options; Value; System quality; Information quality; Service quality; Trust	Satisfaction*; Purchase intention
Forgas, Palau, Sánchez, & Huertas-García (2012)	Airline websites	• Develop an e-quality scale • Identifying the determinants of airlines' websites loyalty • Examine differences among users belonging to the Y, X, and baby boomer generations	Spain	Easy-of-use; Security and privacy; Information; Responsive; Offline perceived value; E-trust	Affective loyalty; Conative loyalty
Liu & Zhang (2014)	Hotel branded websites and OTA websites	• Propose an online hotel booking intention model • Compare the perceptions of hotel website users and OTA website users	Hong Kong & Mainland China	Product price; Hotel brand; Conditions; Product review; Product variety; Information quality; Service quality; Accessibility; Trust & Privacy; Payment; Previous experience; Loyalty program	Information search intention; Purchase intention
Amaro & Duarte (2015)	Travel-related websites	• Propose a model to explore factors influencing purchase intention	Portugal	Trust; Perceived risk; Perceived relative advantage; Complexity; Communicability; Compatibility; Perceived behavioral control	Attitudes*; Purchase intention;
Lien, Wen, Huang, & Wu (2015)	Hotel booking websites	• Examine factors influencing customers' booking intentions • Compare the gender differences in online hotel booking	Taiwan	Brand image; Perceived price*; Trust*	Perceived value*; Purchase intention
Ponte et al. (2015)	Travel-related websites	• Propose a model for the formation of online purchase intention	Spain	Predispositions; Security/privacy signals; Perceived privacy; Information Quality; Perceived security; Trust	Perceived value; Purchase intention

Table 1 (continued). *Summary of Studies Regarding Customers' Perceptions of Travel-Related Websites*

Authors (Year)	Service setting	Research Purpose	Country	Core Variables Examined	Outcome Variables
Wang, Law, Guillet, Hung, & Fong (2015)	Hotel booking websites	• Examine the mediating role of eTrust in the relationship between online website quality and online booking intention	United States	Usability; Functionality; Security and privacy; Integrity; Benevolence; Ability; Trust*	Book intention
Dedeke (2016)	Travel-related websites	• Examine the relationship between website design, website's content, and purchase intent	United States	Innovativeness; Design and visual appeal; Product quality; Informational-task fit	Purchase intention
Ye, Fu, & Law (2016)	OTA website	• Examine how customers evaluate OTA websites	Mainland China	Customer relationship; Information; Security; Function	Customer satisfaction
Jeon & Jeong (2016)	Lodging website	• Identify key determinants of lodging website quality	United States	Ease-of-use; Accessibility; Privacy/security; Aesthetic/design; Customization/personalization	Perceived service quality
Leung, Law, & Lee (2016)	Hotel website	• Propose an evaluation model for assessing the functionality of hotel websites	Hong Kong	Hotel reservation information; Hotel facilities information; Hotel contact information; Peripheral information; Hotel surrounding area information	Impulse buying
Rezaei, Ali, Amin & Jayashree (2016)	Website selling tourism products	• To examine the factors influencing online impulse buying of tourism products	Asian	Website personality (Solidity; Enthusiasm; Genuine; Sophisticated; Unpleasant); web browsing* (Utilitarian web browsing; Hedonic web browsing)	
Ali (2016)	Hotel website	• To examine the relationships between hotel website quality, perceived flow, customer satisfaction and purchase intentions	United States	Website Usability; Functionality; Security & Privacy; Perceived flow*	Customer satisfaction; Purchase intention

Note. * indicates this variable serves as a mediator in proposed model

Model Development and Hypotheses

Theoretical framework

This study model is founded on the theories related to information systems and marketing industry. WebQual (Loiacono, 2000) and quality-satisfaction-behavioral intentions linkage (Baker & Crompton, 2000) were utilized and adapted to conform to this study context. To determine the pertinent dimensions of customers' intention to use and purchase via online booking websites, the overall process included two parts:

- 1) Literature related to management information systems (MIS), online marketing, and hospitality and tourism industries. Revealing the existing constructs in measuring website quality is discussed.
- 2) The concept of customer satisfaction is introduced and evidence suggesting the strength between quality and behavioral intention mediated by customer satisfaction is presented.

User-focused website quality research

The evolution of WebQual and its underlying structure

WebQual is an instrument developed to measure e-commerce website quality. The WebQual instrument underwent several iterative refinement processes since early 1998 and has been tested in different e-commerce and e-government domains (Barnes & Vidgen, 2002). The first version of the WebQual (WebQual 1.0) instrument was developed by Barnes and Vidgen (2000), who assessed the website quality in the domain of UK business schools from the perspective of the voice of the customer. To extend the applicability of WebQual in the context of B2C websites, Barnes and Vidgen (2001a) developed the second version of WebQual (WebQual 2.0) to evaluate Internet bookshop websites. WebQual 2.0 included an interaction-

quality perspective based on SERVQUAL proposed by Parasuraman, Zeithaml and Berry (1988). The third version of WebQual (WebQual 3.0) was a combination of WebQual 1.0 and WebQual 2.0 and has been tested in the context of online auctions. Three dimensions emerged from WebQual 3.0: website quality, information quality, and service interaction quality (Barnes & Vidgen, 2001b). The fourth version of WebQual (WebQual 4.0) substituting website quality, emerged in WebQual 3.0 with usability as Barnes and Vidgen (2002) regarded that usability “reflects better on the level of abstraction of the other two dimensions of WebQual-information and service interaction,” (p. 115). Dimensions of usability were adapted from the literature in the field of human computer interaction and web usability (Barnes & Vidgen, 2002). The WebQual 4.0 was successfully validated in the context of UK Internet bookshops.

Loiacono (2000) later argued a comprehensive measure from the customer perspective for general website usage was needed. As such, WebQualTM was developed based on two theories in the field of information system: theory of reasoned action (TRA) and technology acceptance model (TAM). Four distinct dimensions of website quality were generated: ease-of-use, usefulness in gathering information, usefulness in carrying out transactions, and entertainment value. Table 2 summarizes the dimensions included in each WebQual version.

Table 2. *Summary of Five Prevalent WebQual Version*

Version	Authors	Context	Sample Size	Dimensions	Sub-Dimensions
WebQual 1.0	Barnes & Vidgen (2000)	Websites of four UK business schools	46 Students	Ease-of-use	Navigation; General ease-of-use
				Experience	Visual impact; Individual impact
				Information	Finding information; Information content
				Communication & Integration	External integration; Communication
WebQual 2.0	Barnes & Vidgen (2001a)	UK-based Internet bookshops	54 Students	Tangibility	Aesthetics; Navigation
				Reliability	Reliability; Competence
				Responsiveness	Responsiveness; Access
				Assurance Empathy	Credibility; Security Communication; Understanding the individual
WebQual 3.0	Barnes & Vidgen (2001b)	Auction sites	39 Students	Site quality	Site navigation; Site look and feel
				Information quality	Information
				Interaction quality	Trustworthiness; Customer relationship
				Auction quality	Selling; Buying
WebQual 4.0	Barnes & Vidgen (2002)	UK-based Internet bookshops	376 Students	Usability	Usability; Design
				Information quality	Information
				Service interaction quality	Trust; Empathy
WebQual™	Loiacono (2000)	U.S.-based Websites within product/service categories	1157 Students	Ease-of-use	Ease of understanding; Intuitive operations
				Usefulness in gathering information	Information quality; Tailored communication
				Usefulness in carrying out transactions	Functional fit-to-task; Trust; Response time; Consistent image; Online completeness; Relative advantage; Customer service
				Entertainment value	Visual appeal; Innovativeness; Emotional appeal

The goal of this study was to examine online booking websites from a customer perspective. The framework introduced by Loiacono (2000) fits this context better as the scales of website quality were developed not only based on customers' perceptions of websites in product categories (CDs and books), but also websites in service categories (hotel and airline

reservation websites). Although Barnes and Vidgen (2000, 2001a, 2001b, 2002) developed four versions of WebQual, the applicability of these frameworks was only validated in the context of business school websites, auction sites, and Internet bookshops rather than hospitality and tourism-related websites. In addition, the Loiacono's (2000) WebQual™ is developed based on two influential IT theories: TAM and TRA. The validity of these two solid theoretical models extends to other consumer technology use contexts. However, the major limitation of WebQual™ is that it was only tested with college students. As such, this study aims to develop a measurement model of website quality on the basis of WebQual™ to a boarder sample of website users.

Dimensions of website quality in the context of online booking

Searching for the key dimensions of online booking websites quality began with WebQual™ four-category framework: ease-of-use, usefulness in gathering information, usefulness in carrying out transactions, and entertainment value. To better refine this framework in a parsimonious manner, unlike Loiacono (2000) who proposed multiple dimensions under each category, this study identified only one dimension under each category based on the management information system (MIS) literature, marketing literature, and literature in the hospitality and tourism sector.

Dimensions relating to ease-of-use

Perceived ease-of-use was originally proposed by Davis (1985) in the MIS field as a construct in TAM. It is defined as the extent to which a person believes that using a technology will be free of effort (Davis, 1985). In the 1990s, studies applied TAM to predict the usage of

software as an office automation tool, such as word processor, email, voice mail, fax, and spreadsheet and software packages. Not until the 21st century did business sectors start to use more complex information and communication technologies, including Internet-based information technology. As such, the concept of perceived ease-of-use in the late 20th century was used to measure whether the displays of information were easy to read and understand (Loiacono, 2000). The emergence of the website was upending the traditional idea of perceived ease-of-use, as researchers started to lay more emphasis on website navigation tools enabling customers to easily locate products and related information (e.g., Aladwani & Palvia, 2002; Baloglu & Pekcan, 2006; Casaló, Flavián, & Guinalíu, 2008; Ranganathan & Ganapathy, 2002). Given the above discussion related to ease-of-use, this study proposed ease-of-use focusing on the aspects of finding information. Wolfinbarger and Gilly (2003) noted some website quality dimensions were expressed using different terms denoting the same construct. For example, previous studies used ‘navigability’ (Baloglu & Pekcan, 2006; Palmer, 2002), ‘organization of the site’ (Chen & Wells, 1999; Venkatesh, Ramesh, & Massey, 2003), and ‘usability’ (Casaló et al., 2008) to reflect ease-of-use.

Previous studies showed the more complexity users felt when using the technology, the less likely they were to adopt it (Kwon, Bae, & Blum, 2013). In the context of retail business, it was revealed that customers’ satisfaction with the purchase experience and purchase intention was predicted by website ease-of-use (Belanche, Casoló, & Guinalíu, 2012). In the studies investigating customer perceptions of travel websites usage, ease-of-use proved to be a significant factor influencing customers’ revisit intentions and purchase intentions (e.g., Jeong & Lambert, 2001; Jeong, Oh, & Gregoire, 2001; Kim & Kim, 2004).

Dimensions relating to usefulness in gathering information

In the context of tourism, information search and acquisition have a great impact on tourists' travel decisions (Jacobsen & Munar, 2012). Information quality, frequently proposed in the MIS literature (e.g., DeLone & McLean, 1992; Wang & Strong, 1996), was regarded as a criterion to evaluate website quality in travel industry (e.g., Ho & Lee, 2007; Jeong & Lambert, 2001; Law & Leung, 2002). According to Loiacono (2000), providing accurate, relevant, and complete information made a website useful. As such, information quality was proposed as a relevant dimension to usefulness in gathering information.

According to Michnik and Lo (2009), there was no universal definition of information quality, and its definition varies depending on the context in which the information was generated and used (Shanks & Corbitt, 1999). In the e-business context, the criteria used to evaluate website quality included relevance, currency, and understandability (Lee & Kozar, 2006). Other criteria included fit-to-task, accuracy, usefulness, and completeness (Aladwani & Palvia, 2002; Loiacano, Watson, & Goodhue, 2002). Jeong et al. (2001) investigated customer perceptions of hotel websites and regarded current, accurate, and complete information as high quality information.

The importance of information quality was highlighted in previous IT and online retail studies. Information quality was found to influence user satisfaction (McKinny, Yoon, & Zahedi, 2002), purchase decisions (Park & Stoel, 2005), business relationship building (Hoffman & Novak, 1996), and information technologies use intent (Lin & Lu, 2000). When it was studied in the context of a hotel website, information quality proved to be an important indicator in the success of a hotel website (Au Yeung & Law, 2003). Similarly, studies showed information

quality was the most significant factor motivating travelers' intention to use and reserve rooms via lodging websites (Perdue, 2001; Jeong & Lambert, 2001; Wong & Law, 2005).

Dimensions relating to usefulness in carrying out transactions

Carrying out transactions on a website is the next step after gathering information. A customer's perceived risk was the main barrier preventing customers from making an online purchase (Kim, Ferrin, & Rao, 2008). The concept of perceived risk was first introduced by Bauer (1960), and was defined as an uncertain consequence resulting from risky consumer behavior. Perceived risk surfaced frequently in marketing literature and was categorized into different types (Jacoby & Kaplan 1972; Peter & Ryan, 1976). Among which, financial risk associated with technological error, product risk, and information risk associated with security and privacy were the three predominant types of risk (Bhatnagar, Misra, & Rao, 2000). However, little consensus was reached regarding the influence of specific types of perceived risk on online purchase decisions (Dai, Forsythe, & Kwon, 2014).

Numerous studies examined the role of perceived risk in a retail environment (e.g., Chang & Tseng, 2013; Nepomuceno, Laroche, & Richard, 2014). Cox and Rich (1964) defined perceived risk as "the nature and amount of risk perceived by a consumer in completing a particular purchase decision" (p.33). Customers were often hesitant to make purchase decisions, as they were uncertain about whether the value of the products or services met their buying goals (Roselius, 1971). In other words, customers went through a certain degree of risk in most purchase decision-making processes (Cox & Rich, 1967). With the rapid growth of e-commerce, perceived risk became one of the barriers preventing customers from purchasing online (Forsythe & Shi, 2003).

Cunningham, Gerlach, Haper and Young (2005) investigated customers' use of Internet airline reservation services and contended customers experienced a higher level of perceived risk when purchasing online than at a brick and mortar store. Online purchasing environments were characterized as having "distance, virtual identity, and lack of regulation" (Sam & Tahir, 2009, p.5). In the lodging industry, online booking websites' ownership of consumer data was a critical issue (Connolly, Olsen, & Moore, 1998b). Customers were more likely to be attentive to the privacy risk since reported credit card data breaches occurred in 2013 involving 14 hotels including Marriott, the Westin, Hilton and Radisson (Sutton & Yan, 2014). Thus, in this study context, customers' awareness about the potential privacy issues triggered from online transactions was examined under the category of usefulness in online transactions.

Perceived privacy risk on website was found to be negatively associated with consumer's information search behavior (Gursoy & McCleary, 2004) and online purchase intention (Garbarino & Strahilevitz, 2004; Miyazaki & Fernandez, 2001). Hence, an effective risk-reduction strategy improved transactional efficiencies and customer satisfaction (Featherman & Pavlou, 2003).

Dimensions relating to entertainment value

Studies in the e-retailing field showed customers' online shopping motivation included both utilitarian and hedonic dimensions (e.g., Childers, Carr, Peck, & Carson, 2001; Overby & Lee, 2006; To, Liao, & Lin, 2007). Research in MIS field increasingly recognized users' needs go beyond usability and have shifted study focus towards an experiential perspective (Moshagen & Thielsch, 2010). That is to say, to satisfy both the information and entertainment needs of

customers, a successful website should be able to produce both hedonic and utilitarian outcomes (Huang, 2003; Liu & Arnett, 2000).

Prior studies used enjoyment and playfulness to embody the hedonic motivation (e.g., Barnes, 2011; Liu & Arnett, 2000). This study proposed website aesthetics to examine the hedonic value as an aspect of website quality. Web aesthetics was defined as “how different elements and attributes are combined to yield an impression of beauty” (Wang, Minor, & Wei, 2011, p.46). According to Norman (2004), aesthetics acted as the bridge between product designs and emotional responses. “Animated images, colors, sounds, and esthetically appealing visual layouts” were all considered as a hedonic emotional stimulus on a website (Barnes, 2011, p. 314).

E-commerce is booming and the website is the primary interface between customers and online suppliers. Evidence in support of the importance of the website aesthetics has also emerged in the last decades. Given the fact that aesthetics enhances users’ perception of usability and credibility (Seckler, Opwis, & Tuch, 2015; Robins & Holmes, 2008; Tuch, Roth, Hornbæk, Opwis, & Bargas-Avila, 2012), many companies started to take the aesthetics of their website into account to improve performance and stay competitive (Gefen, Karahanna, & Straub, 2003; Wang et al., 2011). Fogg et al. (2003) found over 46.1% of consumers made judgments about the credibility of web sites based upon the design look of the site including layout, color scheme and font size. Lingaard, Fernandes, Dudek, and Brown (2006) demonstrated that it took individuals 50 milliseconds to make a first impression on a web page. Robins and Holmes (2008) further found it only took users 3.42 seconds to evaluate the credibility of the website content based on its appearance. Summarized by Moshagen and Thielsch (2010), the importance of website

aesthetics was evidenced by its positive impact on usability, credibility, customer satisfaction, as well as revisit intention.

In the context of hospitality, some studies used the terms “attractiveness” and “visual appearance” as interchangeable with “aesthetics” (Douglas & Mills, 2005; Kline et al. 2004; Park & Gretzel, 2007; Perdue, 2001). Underlying dimensions of hotel website aesthetics included layout, graphic, background paired with contrasting text, and multimedia (Au Yeung & Law, 2003; Chan & Law, 2006; Kline et al., 2004; Qi, Law, & Buhalis, 2014). It should be noted that a lot of emphasis was placed on Hong Kong-based hotel websites, and created a necessity for researchers to carry out more studies in other geographical areas.

In conclusion, four dimensions of website quality were identified: perceived ease-of-use, information quality, perceived risk, and website aesthetics. These four dimensions were also highlighted in the study of Chiou, Lin, and Pergn (2010), who did a literature review of 83 articles and summarized these four dimensions as the most frequently used criteria for website evaluation. The major sources for identifying these four dimensions are listed in Table 3.

Table 3. *Website Quality Constructs' Major Sources*

WebQual™ framework	Proposed Constructs	Major Sources		
		Information System	E-Retailing	Hospitality and Tourism Industry
Dimension relating to ease-of-use	Ease-of-use	Aladwani & Palvia (2002); Davis (1985)	Ahn, Ryu, & Han (2007); Casaló et al. (2008)	Ho & Lee (2007); Morosan & Jeong (2004); Park et al. (2007)
Dimension relating to usefulness in gathering information	Information Quality	Delone & McLean (2003); Lee, Strong, Kahn, & Wang (2002); Lin & Lu (2000)	Kim & Niehm (2009); Park & Stoel (2005)	Jeong & Lambert (2001); Park et al. (2007); Perdue (2001); Wen (2012)
Dimension relating to usefulness in carrying out transactions	Perceived Risk	Featherman & Pavlou (2003)	Pavlou (2003); Stone & Grønhaug (1993)	Lin, Jones, & Westwood (2009); Ponte et al. (2015); Wang & Wang (2010)
Dimension relating to entertainment value	Website Aesthetics	De Angeli, Sutcliffe, & Hartmann (2006); Robins & Holmes (2008)	Tractinsky & Lowengart (2007); Wang et al. (2011)	Musante, Bojanic, & Zhang (2009); Perdue (2001)

Conceptualization of website quality construct

Ahn et al. (2007) indicated website quality was a complex multi-dimensional construct. Although previous studies conceptualized website quality as a multidimensional construct, their emphasis was placed on examining the direct impact of each website quality dimension on users' perceptions. Few studies operationalized website quality as a unitary construct and explicitly tested for hierarchically arranged dimensions of this construct. As suggested by Wolfinbarger and Gilly (2003), rather than apply a pre-existing model or conduct a factor analysis on a list of variables, it was more appropriate to understand a construct by investigating how customers themselves conceptualized the relationship between construct dimensions and higher level constructs. As such, this study proposed a structural model (see *Figure 2*) testing the hypotheses that four dimensions (perceived ease-of-use, information quality, perceived privacy risk, and website aesthetics) impacted the overall measure of website quality. It was hypothesized that:

H1: Website quality is as a multi-dimensional construct

H1a: Perceived ease-of-use contributes significantly to website quality.

H1b: Perceived information quality contributes significantly to website quality.

H1c: Perceived privacy risk contributes significantly to website quality.

H1d: Perceived website aesthetics contributes significantly to website quality.

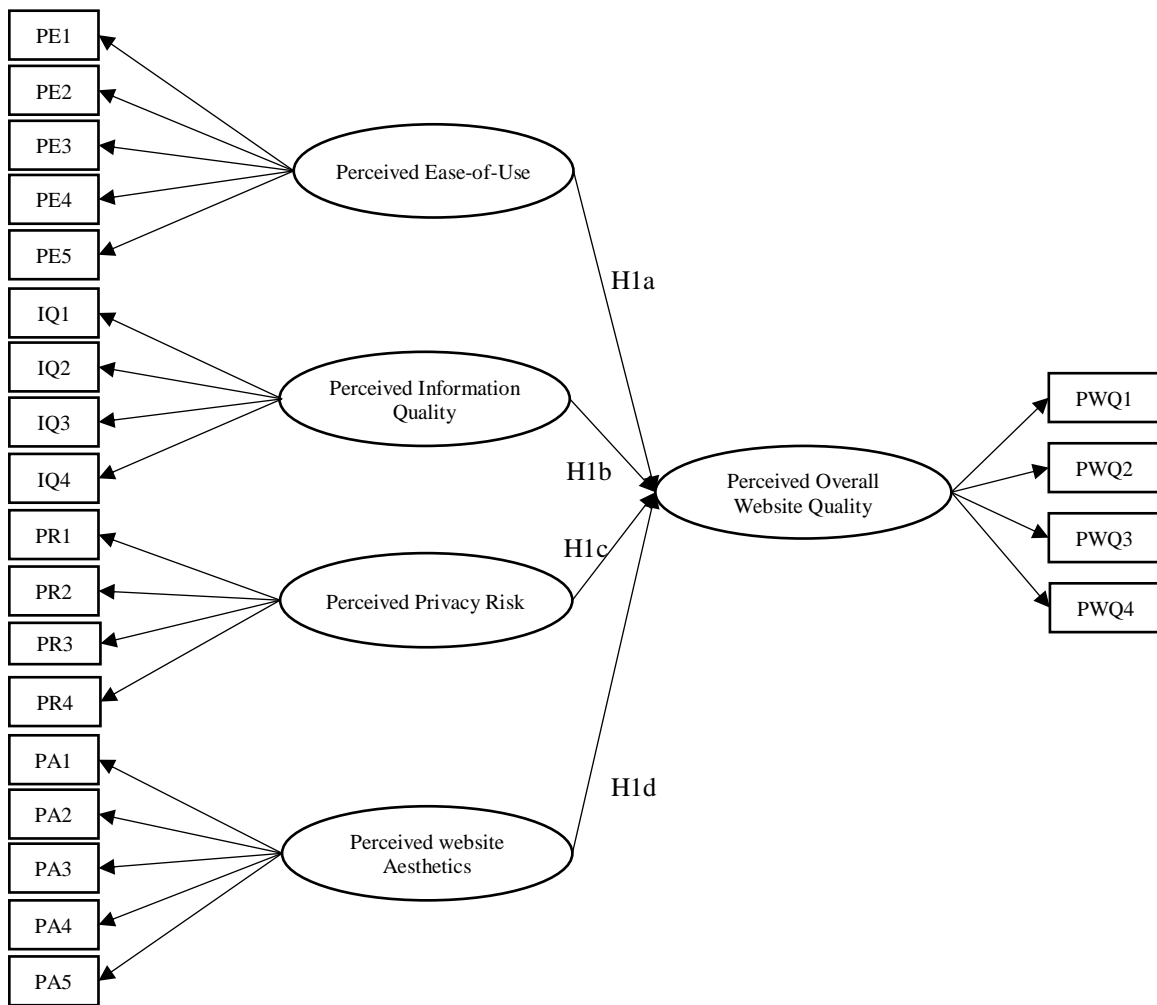


Figure 2. Structural model of the relationships between perceived overall website quality and its four dimensions

Conceptualization of customer satisfaction

Customer satisfaction is an important and well-studied concept in marketing (Kotler & Armstrong, 2004). Academia does not agree on the true definition of customer satisfaction. Tse and Wilton (1988, p.204) defined customer satisfaction as “consumer’s response to the evaluation of the perceived discrepancy between prior expectation and the actual performance of the product as perceived after its consumption.” Giese and Cote (2000, p.15) postulated that customer satisfaction was “identified by a response (cognitive or affective) that pertains to a particular focus (i.e. a purchase experiences and/or the associated product) and occurs at a certain time (i.e. post-purchase, post-consumption)”. Most researchers suggested customer satisfaction is an outcome variable of service quality (Anderson & Sullivan, 1993; Oliver, 1993; Zeithmal, Bitner, & Gremler, 2006) and an antecedent of customer loyalty (Choi & Chu, 2001; Kandampully & Suhartanto, 2003).

With the increased use of Web 2.0 technologies, a lot of research efforts were made on customer satisfaction in online environments; also referred to as e-satisfaction (Isfandyari-Moghaddam, 2014). It was essential to find out how to measure e-satisfaction as studies linked e-satisfaction with two outcome variables contributing to the success of e-business: repeat purchase intentions and purchase behavior (Kim, 2005).

Anderson and Srinivasan (2003) defined e-satisfaction as “the contentment of the customer with respect to his or her prior purchasing experience with a given electronic commerce firm” (p.125), while Kim (2005) referred e-satisfaction to “the customer’s psychological evaluation of accumulated purchase process experience and product usage experience” (p.53). In terms of the online environment in the travel industry, Wen (2012) developed an online travel purchase intention model and demonstrated that customers’

satisfaction was a response linked to customers' purchase experiences. Based on the definition of e-satisfaction given by Wen (2012), this study attempted to define customer's level of satisfaction from two perspectives: 1) customers' satisfaction with the browsing and searching experience on a specific booking website; and 2) customers' satisfaction with the purchase process on a specific booking website.

Conceptualization of behavioral intention

The concept of behavioral intention was rooted in attitude theory and was widely discussed in the context of psychology and consumer behaviors. According to Ajzen's (1985) theory of planned behavior (TPB), behavioral intention was an immediate antecedent of actual behavior. Earlier hospitality scholars pointed out ease in collecting data on behavioral intention rather than actual behavior contributed to its wide application in hospitality and tourism research (Buttle & Bok, 1996).

As concluded by Morosan and Jeong (2008), previous studies attempting to examine users' adoption of electronic distribution channels mainly focused on two directions: 1) online information search as a stage in the consumer decision process, and 2) online purchase intention and channel selection, which implied that prior studies proposed either use intent or purchase intent as exogenous variables. However, it was pointed out that customers' psychological processes of channel choice and browsing versus booking were not fully understood (Morosan & Jeong, 2008). Thus, there was a lack of studies capturing both variables, and even fewer studies examining the relationship between these two variables.

Previous studies emphasized using a website for information seeking and making purchases are not interchangeable. Loiacono, Watson, and Goodhue (2002) pointed out that

website visitors were divided into two types based on their search purposes: customers who seek information to facilitate a purchase decision and customers who perform ongoing search independent of specific purchase purposes. Using websites to seek information and making purchases are two separate behaviors. Rossiter (2007) criticized the measurement of behavioral intention in previous e-retail studies, and pointed out that this variable should be clearly specified and analyzed separately because repurchase intention, WOM intention, and revisit intention represented different behaviors. Herrero and Martín (2012) held the same opinion that using websites to search information and using websites to make an online reservation were two types of usage, and required “an independent yet integrated analysis” (p.1179). In the same line, Liu and Zhang (2014) examined the impact of use intent on purchase intent to fill the gap in the literature with regards to the conceptual dissimilarities between use intent and purchase intent. They treated use intention and purchase intention as two separate aspects under the umbrella term behavioral intention.

This study also explored the relationship between these two variables. It was found that intention to use websites for information searches led to purchase intention in both OTA and hotel website settings. This was contradicted by an earlier study conducted by Nielsen, reporting 53% of surveyed respondents searched information on a website to assist their decision making, however, only 15% of them completed the transaction online (Connolly et al., 1998a). More recently, Skift (2015) reported shopping cart abandonment remained a major concern across online travel, especially for OTAs that suffered from 89% abandoned cart rates, indicating information search intent does not necessary lead to purchase intent in the context of OTAs. Due to the fact that the goodness of fit of Liu and Zhang’s (2014) proposed model was not ideal and needed to be improved, this study attempted to confirm the relationship between use intention

and purchase intention across three types of booking channels. Additionally, the mediating effect of information search intention was observed between three exogenous variables (attitude, perceived behavioral control, and internet purchase experience) as well as intention to purchase. Although this study utilized different antecedents of use intention, it was worth examining whether use intention still played a role of a mediator in the effects of perceived website quality on purchase intention, as well as the effects of customer satisfaction on purchase intention.

Inter-relationships among website quality, satisfaction, and behavioral intention

Using service quality along with satisfaction to predict behavioral intention was well presented in the marketing literature (e.g., Bitner, 1990; Cronin & Taylor, 1992; Lee, Graefe, & Burns, 2004). In the hotel industry, Olorunniwo, Hsu, and Udo (2006) found indirect effect via customer satisfaction was much stronger than the direct impact of service quality on behavioral intentions since the hotel industry involves fewer direct customer-service employee encounters. It was suggested there were still other non-employee based sources affecting a customers' decision-making process.

A notable study attempted to examine this linkage in the events context was conducted by Baker and Crompton (2000). They pointed out inter-relationships of quality and satisfaction and their relative impact on subsequent behavior had seldom been examined when both variables were included in a model. The authors filled this literature gap by investigating the relationships among performance quality at a festival, attendees' satisfaction, and two subsequent behavioral intentions: willingness to pay more, and loyalty to festival. Results suggested that although performance quality had a stronger effect on behavioral intention than satisfaction, evaluation efforts should be made to assess both performance quality and satisfaction; as satisfaction does

increase the explanatory power of quality. Following this, Thrane (2001) found similar results within a jazz festival context. A later study on a wine festival revealed festival quality did not appear to affect behavioral intentions without mediating effects of satisfaction (Yuan & Jang, 2008). However, Lee, Petrick, and Crompton (2007) held the opposite opinion; finding no mediation effect between quality and festival attendees' behavioral intention.

This significant linkage also extended to an online environment (e.g., Belenche, Casaló, & Guinalíu, 2012; Hsu, Chang, Chen, 2012; Udo, Bagchi, & Kris, 2010). However, as observed by Bai et al. (2008), studies related to travel websites that devoted testing to the impact of website quality on customer satisfaction and purchase intention were scarce. Jeong et al. (2003) attempted to conceptualize website quality, and proposed information satisfaction and purchase-related behavioral intentions were two consequences of lodging website quality. They also stressed customer purchase-related intentions were not fully understood without measuring customer satisfaction with website information (Jeong et al., 2003). Bai et al. (2008) later verified website quality-satisfaction-behavioral intention linkage using Chinese samples. An overview of literature showed the relationship between website quality, customer satisfaction, and loyalty was not validated and compared in the specific context of OTAs, hotel websites, or HSEPs. As such, this study aimed to examine the website quality-satisfaction-behavioral intention linkage in the context of three different types of online booking channels: OTAs, hotel websites, and HSEPs. Based on propositions put forwarded by Olorunniwo et al. (2006), this study assumed both the direct effect of website quality on behavioral intention and the indirect effect of website quality on behavioral intention through customer satisfaction explained customers' behavioral intentions to use and purchase on accommodation booking websites.

Table 4 is the summary of literature linking quality, satisfaction, and behavioral intentions in the context of travel-related websites.

Based on the above discussion, the following hypotheses were put forward:

H2: Website quality has a significant impact on customer satisfaction.

H3: Website quality has a significant impact on use intention.

H3a: Website quality has an indirect impact on use intention mediated by customer satisfaction.

H4: Website quality has a significant impact on purchase intention.

H4a: Website quality has an indirect impact on purchase intention mediated by customer satisfaction.

H4b: Website quality has an indirect impact on purchase intention mediated by use intention.

H5: Customer satisfaction has a significant impact on use intention.

H6: Customer satisfaction has a significant impact on purchase intention.

H6a: Customer satisfaction has an indirect impact on purchase intention mediated by use intention.

H7: Use intention has a significant impact on purchase intention.

Table 4. *Literature on hospitality and tourism websites linking quality, satisfaction, and behavioral intentions*

Source	Context	Country	Findings
Jeong et al. (2003)	Lodging websites	United States	Website quality → Customer satisfaction* → Purchase intention
Jeong (2004)	Bed & Breakfast websites	United States	Website quality → Customer satisfaction* → Use intention
Kao, Louvieris, Powell-Perry, & Buhalis (2005)	National Tourism Organizations websites	Taiwan	Information/System quality → Customer satisfaction → Reuse/recommend/visit intention
Bai et al. (2008)	Travel-related websites	Hong Kong	Website quality → Customer satisfaction* → Purchase intention
Forgas et al. (2012)	Airline websites	Spain	Website quality → Customer satisfaction → Repeated purchase intention
Wen (2012)	Travel-related website	United States	Website quality → Customer satisfaction* → Purchase intention

Note. * indicates this variable serves as a mediator in proposed model

Research Model

This study model built on efforts to determine the relative importance of the four dimensions in influencing customers' overall website quality perceptions and examine the relationship between website quality, customer satisfaction, and behavioral intentions. The proposed model is shown in *Figure 3*.

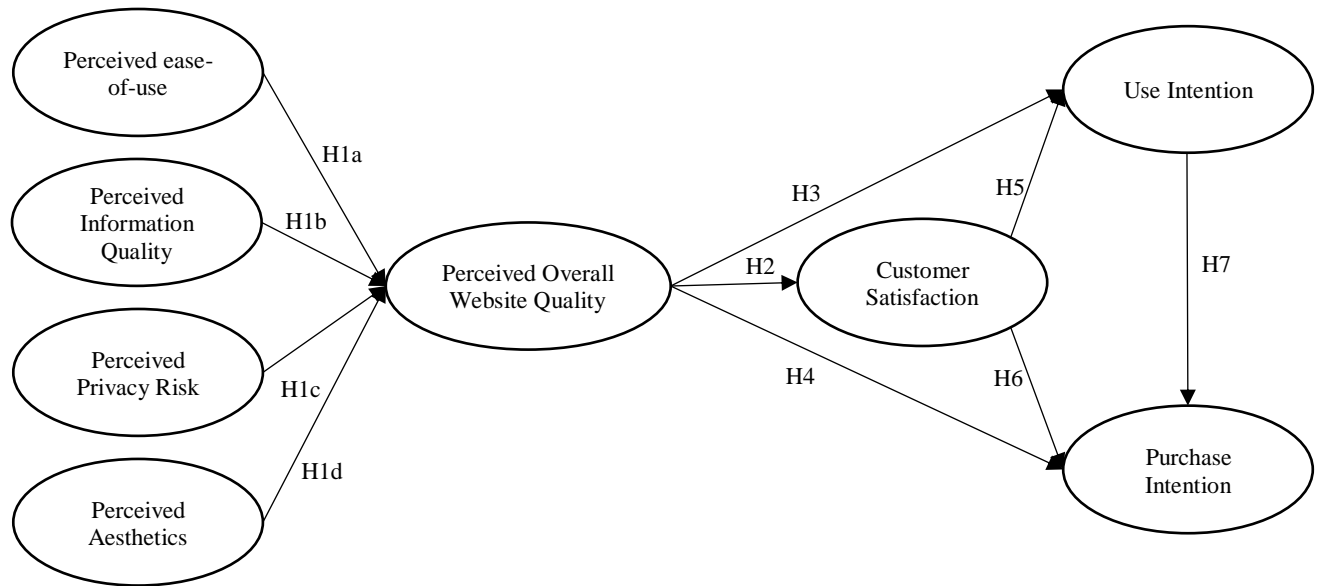


Figure 3. The proposed model examining the factors influencing customers' intention to purchase

Research Questions

As seen from the review of literature on website quality in the hospitality industry, there were gaps in the research investigating the relationships between website quality, customer satisfaction and behavioral intentions across three types of booking channels, especially in the HSEPs setting. This article sought to address this gap within the realm of both business-to-consumer and customer-to-customer websites, by reporting on the development of a formative instrument to measure website quality. Based on the purpose of this study, the research questions guiding this study were as follows:

- 1) What are the factors that contribute significantly to customer perceptions of overall website quality?
- 2) Is website quality interpreted similarly across three types of accommodation booking websites?

- 3) Are there any relationships among website quality, customer satisfaction, and two types of behavioral intentions?
- 4) Is there a relationship between use intention and purchase intention?
- 5) Are interrelations among website quality, customer satisfaction and behavioral intentions different cross three types of booking websites?

Chapter Summary

In this chapter, the researcher explicated the role the Internet played in promoting the development of online accommodation reservation approaches. To develop a conceptual framework, this chapter stated the following procedures: 1) provided an overview of theories related to website quality, assessment, and discussed the underlying dimensions of website quality, 2) examined the literature related to the relationships among website quality, satisfaction, and behavioral intention, 3) presented the hypotheses under investigation, 4) proposed the study model, and 5) addressed the research questions. The following chapter will discuss the methodology used in this study.

CHAPTER III

METHODOLOGY

This chapter describes the research design, data collection, and data analysis used to identify the factors influencing customers' intention to use and make purchases on three different types of booking websites: OTAs, hotel websites, and HSEPs. This chapter starts with a discussion of sampling design, data collection procedures, questionnaire development, and scales utilization; followed by a series of data analysis procedures including data screening, testing for measurement invariance, confirmatory factor analysis, and structural equation modeling.

Sample and Data Collection

Upon approval from the Institutional Review Board (IRB) of Iowa State University (Appendix B), data was collected from April 6, 2016 to May 23, 2016 via the Amazon Mechanical Turk (MTurk) platform, which permitted individuals to post their survey online for respondents to complete for a fee. An online survey method was chosen due to its advantages in saving time, easy access to unique populations, and relatively inexpensive cost compared to traditional paper and pencil surveys (Wright, 2005). The survey was launched on the MTurk platform due to its large and scalable workforce, relatively low cost, response speed, and response accuracy (Buhrmester et al., 2011; Dedeker, 2016). For this study, the participants had to be in the United States and had a task-acceptance rating of 80% or higher. In addition, only participants who utilized the following three types of online booking websites in the last 12 months: OTAs, hotel websites, and HSEPs qualified for the study.

The survey was divided into three categories of online booking channels. Three blocks corresponding to each type of online booking channel were set up in Qualtrics. Based upon

answers to questions in the beginning of the survey, asking participants to indicate the type of online booking channel they most recently used; the participants were allocated to the corresponding block. Based on Dillman's (2007) suggestion that a sample size of approximately 400 is considered to be suitable for estimating true population values at a 95% confidence interval with plus or minus 5% margin of error, 1200 participants (400 per block) were requested from MTurk. Qualtrics' quota functions were used to provide balance across three different online booking channels. Once the quota for the booking channel participants indicated they have most recently used was reached, survey participants were terminated from the survey and their responses were not recorded. Each participant was only allowed to take the survey once. \$0.50 was paid to each participant who completed the survey.

Survey Instrument

The questionnaire was constructed with four sections. The first section contained three screening questions to distinguish respondents 1) whether they were over 18 years old, 2) whether they booked any overnight accommodations online in the last 12 months, and 3) whether they booked through the following three types of online booking channel: OTAs, hotel branded websites, and HSEPs.

The second section contained individual characteristics questions such as online purchase frequency, travel type, number of travel companions to understand respondents' previous travel experience and online purchase experience.

The third section consisted of eight parts: 1) perceived ease-of-use, 2) perceived information quality, 3) perceived privacy risk, 4) perceived website aesthetics, 5) perceived overall website quality, 6) customer satisfaction, 7) use intention, and 8) purchase intention. The

level of website quality was determined by perceived ease-of-use, information quality, perceived privacy risk, and website aesthetics. The consequences of customer perceived website quality were customer satisfaction, use intention, and purchase intention.

Demographic information such as gender, age, income, education, and ethnicity, was included in the last section of the questionnaire. Measurement items for all variables were developed based on previous studies and modified to fit the context of this study. Respondents were asked to rate each measurement item on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Additionally, three attention check questions were designed to rule out participants who were not paying attention to survey content. Each attention check question required participants to click on a certain response and were randomly dispersed throughout the questionnaire.

Measurement and Definitions of Variables

Measurement of ease-of-use

In the domain of information systems, perceived ease-of-use is defined as customers' perceptions of ease of performing a task (Davis, 1985). In terms of e-service without interpersonal interactions and physical entity, customers find information and choose merchandise by themselves (Ho & Lee, 2007). In a study identifying the dimensions of e-travel service quality, ease-of-use dealt with three parts: navigation, information access and transactional function (Ho & Lee, 2007). Similarly, Park et al. (2007) found similar attributes for ease-of-use. Expanding upon the work of Ho and Lee (2007) and Park et al., (2007), ease-of-use in this study context concentrated on the following aspects: 1) ease of finding accommodation-related information (e.g., contact information, amenities, address, room pictures); and 2) ease of

navigation in terms of time required to accomplish a task. Five measurement items of ease-of-use were adapted from Park et al. (2007). Table 5 shows the items used to measure ease-of-use.

Table 5. *Measurement of Ease-of-Use*

Construct	Scale Items	Source
Perceived Ease-of-Use	I can find what I want with a minimum number of clicks I can go to exactly what I want quickly The search functions on this website are helpful This website has well-arranged categories This website does not waste my time	Park et al. (2007)

Measurement of information quality

Measurement items of information quality for this study were adapted from three sources and are shown in Table 6. Two measurement items were adapted from the study of Wen (2012), one measurement item was adapted from Park et al. (2007) and one measurement item was adapted from Ho and Lee (2007). Drawing on previous definitions, information quality in this study context was defined as the extent to which online booking websites were regarded as good sources of information and provided customers with accurate, detailed information (Ho & Lee, 2007).

Table 6. *Measurement of Information Quality*

Construct	Scale Items	Source
Information Quality	This website presents up-to-date information of accommodation This website provides accurate information of accommodation (e.g., room availability, room pictures) This website provides in-depth descriptions of accommodation and its services (e.g., room amenities, facility information, location, surrounding area information) This website is a very good source of information	Ho & Lee (2007) Wen (2012) Park et al. (2007)

Measurement of perceived privacy risk

This study mainly focused on information risk, which dealt with transaction security and privacy (Kim et al., 2008). For example, there was potential that a customer could suffer from

online credit card fraud and personal information misuse after a payment transaction on these booking websites. Four items measuring perceived privacy risk were derived from Ponte et al. (2015), who examined the effect of perceived privacy risk on the formation of online purchase intention. In this study context, perceived risk was proposed and defined as the extent to which customers believe making transactions on a website will be free from billing information and financial losses. Table 7 shows the measurement items of perceived privacy risk.

Table 7. *Measurement of Perceived Privacy Risk*

Construct	Scale Items	Source
Privacy Risk	I am concerned about the privacy of my personal information during a transaction	Ponte et al. (2015)
	I am concerned that unauthorized persons have access to my personal information	
	I am concerned that this website will use my personal information for other purposes without my authorization	
	I am concerned that this website will sell my personal information to others without my permission	

Measurement of perceived website aesthetics

This study utilized the five measurement items of aesthetics developed by Park et al. (2007), who insisted a visually attractive website could influence customers' revisit intention. Based on the elements of website aesthetics provided by Park et al. (2007) and the definition of website aesthetics given by Wang et al. (2011), aesthetics in this study context was referred to as the extent to which the proper usage of color, graphics, image and animations of a website yields an impression of beauty. Measurement items of website aesthetics are shown in Table 8.

Table 8. *Measurement of Perceived Website Aesthetics*

Construct	Scale Items	Source
Perceived Aesthetics	This website looks attractive	Park et al. (2007)
	This website looks organized	
	This website uses colors properly	
	This website uses fonts properly	
	This website uses multimedia features properly	

Measurement of overall website quality

Four items measuring the overall website quality were adapted from Everard and Galletta (2005-6), who examined factors influencing users' level of perceived quality of an online store's website. The four reflective items shown in Table 9, enabled this study to assess the contribution of four proposed website quality dimensions to an overall perception of website quality.

Table 9. *Measurement of Perceived Overall Website Quality*

Construct	Scale Items	Source
Perceived overall Website Quality	This website is of high quality	(Everard & Galletta, 2005-6)
	The likely quality of this website is extremely high	
	This website must be of very good quality	
	This website appears to be of very poor quality *	

Note. * indicates reverse-coded item

Measurement of customer satisfaction

This study measured the customer satisfaction construct with four items adapted and modified from Ho and Lee (2007), who examined customers' evaluation of their prior purchase experience on a travel-related website. Customer satisfaction in this study focused on customers' accommodation booking experiences. Items measuring customer satisfaction are shown in Table 10.

Table 10. *Measurement of Customer Satisfaction*

Construct	Scale Items	Source
Customer Satisfaction	I truly enjoyed booking an overnight accommodation from this website	Ho & Lee (2007)
	The choice to book an overnight accommodation from this website was a wise one	
	I am satisfied with most recent decision to book an overnight accommodation from this website	
	I am happy with the most recent accommodation booking on this website	

Measurement of behavioral intentions

Two dimensions of behavioral intentions were measured in this study: behavioral intention to use and behavioral intention to purchase. Jeong and Lambert (2001) suggested behavioral intention to use information on a lodging website was formed between two stages: after evaluating the information presented on the website and prior to actually using the information. In this study context, use intention measured the level at which users felt they would utilize the online booking website to fulfill their information needs. Three items measuring behavioral intention to use were modified and adapted from Gefen and Straub (2000), who focused on customers' intention to use the websites to retrieve information.

Four items were directly adapted from Ponte et al. (2015) to measure purchase intention. Purchase intention was defined as the probability the customer will book accommodations on the website. Measurement items of use intent and purchase intent are shown in Table 11.

Table 11. *Measurement of Behavioral Intentions*

Construct	Scale Items	Source
Behavioral intention to use	I would use this website to search for information on accommodations	Gefen & Straub (2000)
	I would use this website to inquire about accommodation ratings	
	I would use this website to check accommodation reviews	
	I would use this website to compare similar, competitive accommodations	Newly added Item
Behavioral intention to purchase	The probability that I would consider to book an accommodation from this website is high	Ponte et al. (2015)
	If I were to book an accommodation, I would consider booking it from this website	
	The likelihood of my booking an accommodation from this website is high	
	My willingness to book an accommodation from this website is high	

Pilot Study

A Pilot study was conducted on April 1, 2016 to refine the survey. Graduate students and faculties in the department of Apparel, Events, and Hospitality Management at Iowa State University were asked to participate in the pilot study and provide feedback to ensure the following issues were addressed prior to the final data collection: 1) survey instructions were comprehensible, 2) words used in the survey were clear and understandable, 3) skip and display logics in the survey were appropriately used, and 4) measurement items were valid and reliable. Based on the feedback of 20 participants, one more option - "I was traveling alone" was added to the question asking for the number of people who traveled with you last time.

Data Analysis Method

Data screening

Data screening was comprised of two steps: 1) detecting and treating missing data, and 2) checking for normality. SPSS 23.0 was employed to identify the patterns and mechanism of missing data and to check the normality at both univariate and multivariate levels. Skewness and kurtosis were reported to identify the normality problem at a univariate level. Next, multivariate normality was accessed using Mardia's (1974) test.

Descriptive statistics

Descriptive statistics, including percentages, means, standard deviations, and frequencies were performed using SPSS 23.0 to describe measured variables, respondents' demographic information, and individual characteristics including previous travel and Internet experience.

Reliability and validity

Warwick and Lininger (1975) pointed out there were two basic rules to make a good questionnaire: 1) obtain the information relevant to the study purpose; and 2) collect the information in a reliable and valid manner. This statement drew researchers' attention when establishing the validity and reliability of a research instrument.

Reliability was determined by Cronbach's (1951) alpha, composite reliability (CR), and Rho reliability. Discriminant validity was first assessed in a traditional way by comparing the square root of AVEs and the correlation of that construct with all other constructs, and reconfirmed by using the heterotrait-monotrait (HTMT) ratio of correlations. Henseler, Ringle, and Sarstedt (2015) claimed the HTMT assessment of discriminant validity was superior to the Fornell-Larcker criterion. If the value of the HTMT was higher than the threshold of .90, one can conclude there was a lack of discriminant validity (Gold, Malhotra, & Segars, 2001). While the presence of convergent validity was indicated by significant factor loadings of each measurement item on the appropriate construct, composite reliability (CR) exceeded .70 and average variance extracted (AVE) exceeded .50 (Fornell & Larcker, 1981).

Testing the invariance of website quality across different user types

Testing measurement invariance was an important prerequisite if researchers wanted to make group comparisons (Byrne & Watkins, 2003). Chen, Sousa, and West (2005) pointed out meaningful comparisons of means and regression coefficients could only be made when the measures were comparable across different groups. Measurement invariance was assessed by following the general succession of tests proposed by Brown (2006): 1) test the confirmatory factor analysis (CFA) model separately in each group (the equality of the factor structure); 2)

conduct the test of equal form (identical factor structural); 3) test the equality of factor loadings; and 4) test the equality of indicator intercepts. The test for equality of indicator residual variances was optional and was not conducted in this study because this type of invariance was difficult to achieve (Brown, 2006; Chen et al., 2005). It was generally believed meaningful comparison across different groups could be made by satisfying the minimum requirements of equal factor loadings and equal indicator intercepts (Hair, Black, Babin, Anderson, & Tathan, 2006). Since this study has three different user types, three pair-wise invariance tests were conducted for each pair of user groups (OTA vs. Hotel; OTA vs. HSEP; Hotel vs. HSEP).

This study used four indices to assess the measurement model fit: chi-square statistic (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). The criterion used for reliability and validity testing is concluded in Table 12. An insignificant chi-square fit statistic was used to confirm the model's cross-channel invariance. Throughout the tests, Mplus 7.0 with maximum likelihood method was used.

Table 12. *Model Fit Indices and Their Criterion*

Fit Indices	Acceptable Threshold Levels
χ^2/df	< 3 (Kline, 2005)
Root Mean Square Error of Approximation (RMSEA)	< 0.08 (MacCallum, Browne, & Sugawara, 1996)
Tucker-Lewis index (TLI)	>0.90 (Hair et al., 1998)
Comparative fit index (CFI)	>0.90 (Hair et al., 1998)

Common method bias

Common method bias (CMB) was regarded as a main systematic source of measurement error (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Systematic measurement error was a more serious problem than random measurement error as it “provides an alternative explanation for the observed relationships between measures of different constructs that is independent of the one hypothesized,” (Podsakoff et al., 2003, p. 879). Herman's single factor test was one of the

most widely used statistical remedies to test the presence of CMB (Podsakoff et al., 2003). It required all variables to load into an exploratory factor analysis (EFA), using the unrotated factor solution to determine the number of factors accounting for the variability in the data. If a single factor emerged from factor analysis or a factor is found to explain the majority of covariance among the variables, than a large amount of common method variance was detected.

Structural equation modeling

Structural equation modeling (SEM) is a statistical methodology used to develop and test theories in the studies of social behavior, education, and marketing; as well as biology and economics (Anderson, 1987; Raykov & Marcoulides, 2006). SEM is widely applied in social and behavioral sciences due to its ability to account for measurement error in observed variables (Raykov & Marcoulides, 2006). Additionally, indirect and direct effects involved in a given model could be obtained straightforwardly (Raykov & Marcoulides, 2006). SEM involves two steps: 1) examination of a measurement model; and 2) examination of a structural model (Byrne, 1998).

Mplus 7.0 was used to test measurements and structural models. First, since the measurement model fit of website quality was assessed in the invariance testing, the study proceeded to examine the relationship between four dimensions and their corresponding variable perceived website quality across three subsamples (e.g., OTAs users, hotel website users, and HSEPs users). Second, the measurement and structural model proposing the inter-correlations among website quality, customer satisfaction, and behavioral intentions were examined separately in each subsample. An evaluation of model fit was carried out by reporting and interpreting the model fit indices shown in Table 12. As long as all criterion for fit indices were

met, the relationships among variables were examined using standardized path coefficients. If the standardized path coefficients were significantly larger than zero there was statistical support for the hypothesized relationships. The squared coefficient of multiple correlation, denoted as R^2 , was reported to explain the fraction of variances of the endogenous variables that were explained by latent variables.

Chapter Summary

Chapter III described the research methodologies used in this study. This chapter began by presenting the research design; including sampling selection, data collection method, and questionnaire development. The second section provided a series of data procedures; such as data screening, test for normality, test for reliability and validity, validation of a second-order formative construct, and structural equation modeling. The following chapter will provide an analysis of the results from the data collected.

CHAPTER IV

ANALYSIS AND RESULTS

The purpose of this chapter is to present the results from this study. First, a description of respondent characteristics including socio-demographic information, previous purchase experience, and travel experience is given. Second, the results of the confirmatory factor analysis (CFA) for the entire sample are presented. This is followed by the results of description statistics for each extracted factor and its measurement items in terms of means, standard deviations, skewness, kurtosis, and validity and reliability. The final section includes the results of the structural equation modeling (SEM) analysis on the data. The structural model was evaluated in both direct and indirect effects.

Sample Demographics

This study collected survey responses using quotas, a completed size of 1200 responses (400 per group) were collected. After eliminating 227 participants who failed at least one attention check, a total of 973 responses were kept for further analysis. The valid response rate was 81.08%. Of these respondents, 327 indicated they most recently booked an overnight accommodation on an OTA website in the last 12 months, 321 indicated they most recently booked on a hotel website in the last 12 months, and 325 respondents indicated they most recently booked on a HSEP in the last 12 months.

Analysis of the demographic data of three types of online bookers is presented in Table 13. Regarding OTA website users, respondents were roughly evenly distributed in terms of gender, with 43.1% female to 56.9% male. The average age of the respondents was 33 years old; and approximately 55% of the respondents were 25 to 34 years old. The majority of respondents

(74.8%) indicated they had earned a higher education degree from some college (22.0%), university degree (39.8%), or graduate degree (13.4%). Slightly higher than 30% of the respondents earned between \$20,000 and \$39,999; and around 24% made between \$40,000 and \$59,999. Nearly three-fourth of the respondents were Caucasian, followed by Asian (9.5%), and African American (7.1%). The majority of respondents were currently resident in the United States (97.2%).

The hotel website subsample consisted of approximately 64.4% males and 35.6% females. The average age of this group was 37 years old; and more than half of the respondents were aged between 25 to 44 years old. The distribution of educational attainment, ethnicity, and household income was similar to those of the OTA group. The majority of respondents were currently resident in the United States, with the rest residing in India.

The HSEP subsample gender demographics included more females (63.4%) than males (36.6%). In terms of age, the HSEP sample was relatively younger than the previous two groups. The average age of the sample was 31 years old; and approximately half of the respondents were aged between 25 to 34 years old. For education level, 36.6% of the sample finished high school, 45.8% acquired a university degree, and the rest obtained an advanced degree. Nearly 73.8% of the respondents were Caucasian. In terms of income, 62.7% of respondents had an income of \$40,000 or greater. Like the previous two groups, the majority of respondents were currently resident in the United States.

Table 13. *Demographic Profile of the Respondents for Each Subsample*

Demographic Characteristics	OTA Subsample (n=327)		Hotel Subsample (n=321)		HSEP Subsample (n=325)	
	n	%	n	%	n	%
Gender						
Female	141	43.1	206	64.4	206	63.4
Male	186	56.9	114	35.6	119	36.6
Age						
18-24	48	14.7	35	10.9	73	22.5
25-34	178	54.4	123	38.3	169	52.0
35-44	65	19.9	94	29.3	51	15.7
45-54	30	9.2	36	11.2	19	5.9
55 and over	16	4.7	33	10.3	13	4.0
Highest Education						
Some High school	1	.3	1	.3	0	0.0
High School Degree / G.E.D.	35	10.7	23	7.2	17	5.3
Associates Degree	41	12.5	36	11.3	32	9.9
Some College	72	22.0	63	19.8	69	21.4
Bachelor College / University Degree	130	39.8	122	38.4	148	45.8
Graduate Degree	44	13.4	73	23.0	57	17.7
Ethnicity						
Caucasian / White	242	74.5	256	79.8	240	73.8
Asian	31	9.5	30	9.3	24	7.4
African American / Black	23	7.1	21	6.5	31	9.5
Hispanic / Latino	20	6.2	7	2.2	22	6.8
Native American / Alaska Native	4	1.2	3	0.9	3	.9
Other	5	1.5	4	1.2	5	1.5
Household Annual Income						
Under \$19, 999	29	8.9	29	9.1	43	13.2
\$20,000-\$39,999	100	30.7	68	21.1	78	24.0
\$40,000-\$59,999	78	23.9	65	20.2	68	20.9
\$60,000-\$79,999	46	14.1	59	18.4	52	16.0
\$80,000-\$99,999	30	9.2	43	13.4	33	10.1
More than \$100,000	43	13.2	57	17.7	51	15.7
Country of Residence						
The United States	317	97.2	314	97.8	319	98.2
India	8	2.5	7	2.2	1	.3
Other	1	.3	-	-	5	1.5

Note. n represents frequency; % represents percentage; Percentage may not add up to 100% due to rounding

Table 14 shows respondents' travel characteristics for each subsample. Fifty-eight percent of respondents in the OTA subsample indicated the purpose of their most recent trip was for pleasure, followed by visiting family / relatives / friends, business, and education. Similarly, 53.3% of the respondents who booked their overnight accommodations on a hotel website travelled for pleasure purposes. In terms of the HSEP subsample, the proportion of respondents

whose purpose of most recent trip was for pleasure (67.7%) was higher than other two groups. Approximately 20% of the respondents in all three subsamples indicated they were traveling alone for their most recent trip. Respondents who traveled with a companion had the highest proportions, with the percentage of 49.8%, 42.7%, and 45.2% for OTA, hotel, and HSEP subsamples respectively.

Table 14. *Descriptive Statistics of Travel Characteristics for Each Subsample*

Variable	OTA Subsample (n=327)		Hotel Subsample (n=321)		HSEP Subsample (n=325)	
	n	%	n	%	n	%
Primary Purpose of Most Recent Trip						
Pleasure	189	58.0	171	53.3	220	67.7
Visiting Family, relatives, or friends	75	23.0	70	21.8	50	15.4
Business	44	13.5	51	15.9	32	9.8
Education	10	3.1	15	4.7	17	5.2
Health	2	.6	3	.9	1	.3
Religion	1	.3	3	.9	0	0.0
Other	5	1.5	8	2.5	5	1.5
Number of People Who Were Traveling with You Last Time						
I was traveling alone	70	21.5	66	20.6	66	20.3
2	162	49.8	137	42.7	147	45.2
3	42	12.9	49	14.3	42	12.9
More than 3	51	15.7	69	21.4	70	21.5

Regarding respondents' online purchase and booking experience (see Table 15), approximately half of the sample in each group shopped online once a month. Of the respondents who had most recently booked on OTA websites, 63.3% indicated they searched for accommodation information on two or three websites, compared to the 52.3% for the hotel subsample and 48.8% for the HSEP subsample. The majority of respondents (83.1%, 83.2%, and 88.6% for OTAs, hotel websites, and HSEPs respectively) indicated they booked overnight accommodations online at least two times in the last 12 months. Based on respondents' indications of the websites they most recently used to book accommodations, the most frequently used OTA websites were Expedia.com and Priceline.com. These results aligned with a report showing Expedia and Priceline gained the largest market share among OTAs (King, 2015). In

terms of hotel websites, Hotels.com, Marriott.com, Hilton.com, and HolidayInn.com were the top three online hotel booking sites; while Airbnb.com, VBRO.com, and HomeAway.com were the top three popular HSEPs (see Table 16).

Table 15. *Descriptive Statistics of Online Purchase / Booking Experience*

Variable	OTA Subsample (n=327)		Hotel Subsample (n=321)		HSEP Subsample (n=325)	
	n	Percent	n	Percent	n	Percent
Frequency of Online Purchases in the last 12 months						
Once or Twice	30	9.3	14	4.4	29	8.9
3-6 times	87	26.9	93	29.1	86	26.5
Monthly	163	50.3	165	51.6	165	50.8
At least weekly	44	13.6	48	15.0	44	13.5
Number of Booking Websites Used to Search for Overnight Accommodations for Most Recent Stay						
0	0	0.0	2	.6	0	0.0
1	42	12.8	56	17.4	24	7.4
2	91	27.8	77	24.0	71	21.9
3	116	35.5	91	28.3	87	26.9
4	35	10.7	43	13.4	60	18.5
5	24	7.3	24	7.5	52	16.0
6	5	1.5	10	3.1	6	1.9
7	7	2.1	8	2.5	8	2.5
8	2	.6	1	.3	6	1.9
9	1	.3	2	.6	1	.3
10	2	.6	0	0.0	2	.6
More than 10	1	.3	7	2.2	7	2.2
Number of overnight accommodation bookings made in the last 12 months						
1	55	16.9	54	16.8	37	11.4
2	83	25.5	82	25.5	62	19.2
3	58	17.8	48	15.0	61	18.9
4	49	15.1	43	13.4	47	14.6
5	23	7.1	26	8.1	29	9.0
6	22	6.8	17	5.3	26	8.0
7	4	1.2	7	2.2	10	3.1
8	6	1.8	8	2.5	6	1.9
9	2	.6	2	.6	5	1.5
10	1	.3	5	1.6	6	1.9
More than 10	22	6.8	29	9.0	34	10.5

Table 16. *Name of Website Most Recently Used to Book an Overnight Accommodation*

Name of Booking Website	n	Percent		n	Percent
OTA					
Expedia.com	104	31.8	Kayak.com	19	5.8
Priceline.com	49	15.0	Orbitz	17	5.2
Hotels.com	44	13.5	Hotwire.com	16	4.9
Booking.com	27	8.3	Others	30	9.2
Tripadvisor.com	21	6.4			
Hotel Website					
Marriott.com	66	20.6	RedRoof.com	4	1.2
Hilton.com	59	18.4	ExtendedStayAmerica.com	3	.9
HolidayInn.com	36	11.2	Fairmont.com	3	.9
BestWestern.com	24	7.5	StarwoodHotels.com	3	.9
Hyatt.com	21	6.5	Travelodge.com	3	.9
ChoiceHotels.com	20	6.2	MicrotelInn.com	2	.6
Wyndham.com	12	3.7	OmniHotels.com	2	.6
DaysInn.com	9	2.8	InterContinental.com	1	.3
Super8.com	6	1.9	MandarinOriental.com	1	.3
Radisson.com	5	1.6	Raffles.com	1	.3
CrownePlaza.com	4	1.2	Others	36	11.2
HSEP Platform					
Airbnb.com	230	70.8	HouseTrip.com	3	.9
VBRO.com	28	8.6	Travelmob.com	2	.6
HomeAway.com	26	1.8	HomeExchange.com	1	.3
CouchSurfing.com	17	5.2	MyTwinPlace.com	1	.3
FlipKey.com	6	1.8	LoveHomeSwap.com	1	.3
HomeStay.com	4	1.2	Others	6	1.8

Descriptive Statistics and Normality Analysis

SPSS 23.0 was employed to analyze the missing data pattern. For the OTA subsample, of 35 measurement items, only one measurement item (PI4) was found to have a missing response; resulting in a missing rate of .01%. In terms of the hotel subsample, one case was found to have missing responses on four measurement items of use intention (UI1-UI4); resulting in a missing rate of .04%. However, no missing value was found in the HSEP subsample. The Little's (1988) chi-square statistic indicated data was missing completely at random (MCAR), indicating the absence of this observation was independent of other observed variables and the variable itself (McDonald & Ho, 2002). The full information maximum likelihood (FIML) estimation approach

was used to handle missing values; and was found to perform better than traditional methods (e.g., pairwise deletion) with structural equation models (Enders & Bandalos, 2001).

The mean value of each measurement item for each group ranged from 2.39 to 4.32, 2.38 to 4.26, 2.38 to 4.50 and the standard deviation ranged from .64 to 1.16, .64 to 1.14, and .62 to 1.16 for OTAs, hotel websites, and HSEPs respectively, showing around 0.5 disperse range. The overall skewness was lower than ± 2.0 , indicating overall a normal distribution of data (George & Mallery, 2001). Additionally, the no kurtosis values were smaller than -2.0. Overall, data of each group was considered to be in an acceptable distribution range at the univariate level. Mardia's (1970) multivariate skewness and kurtosis coefficients were used to check the distribution at the multivariate level. However, results indicated the data was not multivariate normal, which was consistent with Micceri's (1989) viewpoint that a significant amount of behavioral science data violated this assumption.

The internal consistency of measurement items was assessed using Cronbach's alpha. Cronbach's alpha for all variables was higher than .70 except for perceived website quality ($\alpha = .67$). This was most likely due to the negative wording of the PWQ4-*This website appears to be of very poor quality*. After deleting this item, the Cronbach's alpha values of perceived website quality for each group were all above the suggested level of .70 (Nunnally, 1978). Finally, 34 measurement items were kept for further analysis. The descriptive statistics, test results for normality, and reliabilities for each indicator and construct for three subsamples are shown in Table 17-19.

Table 17. Means, Standard Deviations, Normality and Reliabilities of Indicators for OTA Subsample

Variables	Cronbach's α	Mean	S.D.	Skewness	Kurtosis
Ease-of-Use	.87				
PE1		4.08	.75	-.93	1.58
PE2		4.11	.74	-.67	.49
PE3		4.16	.67	-.57	.75
PE4		4.08	.73	-.70	1.05
PE5		4.06	.76	-.74	1.14
Information Quality	.83				
IQ1		4.24	.64	-.55	.64
IQ2		4.11	.73	-.65	.57
IQ3		4.09	.74	-.69	.62
IQ4		4.18	.71	-.75	1.18
Privacy Risk	.91				
PR1		2.52	1.16	.62	-.47
PR2		2.46	1.13	.65	-.44
PR3		2.39	1.09	.66	-.34
PR4		2.53	1.14	.51	-.61
Website Aesthetics	.88				
PA1		3.96	.66	-.67	1.74
PA2		4.06	.70	-.90	2.07
PA3		3.98	.68	-.56	1.17
PA4		4.01	.64	-.57	1.69
PA5		3.92	.70	-.60	1.09
Perceived Web Site Quality	.82				
PWQ1		4.04	.70	-.33	-.08
PWQ2		3.87	.81	-.45	.00
PWQ3		3.99	.77	-.91	1.88
PWQ4* (dropped)		4.13	1.08	-1.31	.94
Customer Satisfaction	.88				
SF1		3.96	.78	-.30	-.25
SF2		4.13	.76	-.98	1.98
SF3		4.18	.69	-.93	2.51
SF4		4.20	.69	-.95	2.19
Use Intention	.86				
UI1		4.25	.71	-1.02	2.05
UI2		4.07	.84	-1.09	1.70
UI3		4.06	.83	-1.03	1.64
UI4		4.19	.77	-1.20	2.54
Purchase Intention	.93				
PI1		4.32	.67	-1.17	3.40
PI2		4.27	.73	-1.42	3.94
PI3		4.17	.72	-.92	1.96
PI4		4.25	.69	-1.05	2.74

Note. * reverse-coded item

Table 18. *Means, Standard Deviations, Normality and Reliabilities of Indicators for Hotel Subsample*

Variables	Cronbach's α	Mean	S.D.	Skewness	Kurtosis
Ease-of-Use	.89				
PE1		3.98	.74	-.77	1.20
PE2		3.98	.80	-.71	.59
PE3		3.98	.70	-.36	.09
PE4		4.01	.73	-.55	.65
PE5		4.00	.82	-.66	.12
Information Quality	.85				
IQ1		4.11	.70	-.65	.87
IQ2		4.05	.75	-.70	.85
IQ3		4.11	.71	-.75	1.40
IQ4		4.09	.71	-.82	1.95
Privacy Risk	.92				
PR1		2.41	1.12	.71	-.22
PR2		2.38	1.07	.65	-.27
PR3		2.38	1.06	.65	-.22
PR4		2.41	1.07	.56	-.56
Website Aesthetics	.87				
PA1		4.01	.66	-.54	.95
PA2		4.09	.68	-.59	.84
PA3		4.05	.69	-.52	.54
PA4		4.08	.64	-.29	.29
PA5		3.92	.73	-.46	.56
Perceived Web Site Quality	.85				
PWQ1		4.03	.71	-.37	-.03
PWQ2		3.85	.83	-.21	-.64
PWQ3		3.95	.74	-.33	-.16
PWQ4* (dropped)		3.98	1.10	-1.29	1.06
Customer Satisfaction	.86				
SF1		3.76	.83	-.05	-.73
SF2		4.13	.69	-.46	.23
SF3		4.27	.64	-.67	1.07
SF4		4.25	.65	-.77	1.93
Use Intention	.81				
UI1		4.10	.72	-.87	1.63
UI2		3.68	1.02	-.52	-.56
UI3		3.50	1.06	-.36	-.86
UI4		3.51	1.14	-.60	-.61
Purchase Intention	.93				
PI1		4.19	.73	-.84	1.21
PI2		4.22	.68	-.80	1.68
PI3		4.13	.74	-.83	1.54
PI4		4.18	.67	-.79	1.82

Note. * reverse-coded item

Table 19. Means, Standard Deviations, Normality and Reliabilities of Indicators for HSEP Subsample

Variables	Cronbach's α	Mean	S.D.	Skewness	Kurtosis
Ease-of-Use	.87				
PE1		4.02	.82	-.91	1.07
PE2		3.99	.84	-.64	-.03
PE3		4.26	.65	-.45	.10
PE4		4.14	.73	-.60	.26
PE5		4.08	.76	-.43	-.31
Information Quality	.83				
IQ1		4.15	.71	-.86	1.39
IQ2		4.18	.66	-.35	-.23
IQ3		4.16	.68	-.62	.74
IQ4		4.23	.63	-.29	-.25
Privacy Risk	.91				
PR1		2.59	1.16	.46	-.76
PR2		2.52	1.13	.58	-.52
PR3		2.42	1.10	.53	-.58
PR4		2.38	1.11	.54	-.65
Website Aesthetics	.88				
PA1		4.25	.68	-.77	.98
PA2		4.29	.60	-.48	.77
PA3		4.23	.70	-.62	.20
PA4		4.21	.68	-.59	.40
PA5		4.14	.74	-.56	.03
Perceived Web Site Quality	.82				
PWQ1		4.31	.70	-.74	.15
PWQ2		4.14	.76	-.53	-.25
PWQ3		4.19	.69	-.38	-.43
PWQ4* (dropped)		4.12	1.15	-1.42	1.17
Customer Satisfaction	.90				
SF1		4.26	.72	-.63	-.14
SF2		4.33	.67	-.73	.53
SF3		4.37	.67	-.91	.99
SF4		4.40	.63	-.72	.23
Use Intention	.86				
UI1		4.43	.64	-.97	1.18
UI2		4.34	.71	-1.07	1.65
UI3		4.36	.71	-1.06	1.19
UI4		4.30	.81	-1.42	2.72
Purchase Intention	.93				
PI1		4.50	.65	-1.22	1.52
PI2		4.47	.62	-.99	1.06
PI3		4.37	.70	-1.14	2.06
PI4		4.38	.69	-.94	.80

Note. * reverse-coded item

ANOVA was conducted to examine the differences of customers' perceptions towards three types of booking websites: OTA, hotel, and HSEP websites. As shown in Table 20, the results of ANOVA and Bonferroni's post-hoc analysis indicated no significant differences

among three user groups in the perceptions of perceived ease-of-use, information quality, and perceived risk. However, the different perceptions of perceived aesthetics, perceived website quality, customer satisfaction, use intention, and purchase intention across three groups were detected. HSEP users reported significantly higher scores on these five dimensions than OTA and hotel website users. Additionally, in terms of use intention, results also showed a significant difference between hotel website users and OTA users.

Table 20. *Different Perceptions of Booking Website Quality by User Groups*

Variables	User Group	Mean	S. D.	F value	Sig
PE	OTA	4.09	.59	3.34	.04
	Hotel	3.99	.63		
	HSEP	4.10	.59		
IQ	OTA	4.15	.57	2.22	.11
	Hotel	4.09	.59		
	HSEP	4.18	.53		
PR	OTA	2.47	1.01	.75	.47
	Hotel	2.39	.97		
	HSEP	2.48	.98		
PA	OTA	3.99 ^a	.55	17.33	.00
	Hotel	4.03 ^a	.55		
	HSEP	4.22 ^b	.55		
PWQ	OTA	3.97 ^a	.66	16.95	.00
	Hotel	3.94 ^a	.67		
	HSEP	4.21 ^b	.63		
SF	OTA	4.12 ^a	.62	15.90	.00
	Hotel	4.10 ^a	.59		
	HSEP	4.34 ^b	.59		
UI	OTA	4.14 ^a	.66	75.78	.00
	Hotel	3.70 ^b	.80		
	HSEP	4.36 ^c	.61		
PI	OTA	4.25 ^a	.64	13.53	.00
	Hotel	4.18 ^a	.64		
	HSEP	4.43 ^b	.60		

Note. ^{a b c} indicates there is a significant difference between different user groups

Common Method Bias

An assessment for common method bias (CMB) was conducted for each subsample as this study used self-report variables. Harman's single factor test was performed by running an exploratory factor analysis using an unrotated solution with all variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). No single factor emerged in each subsample; which indicated CMB was not presented in this study.

Different Perceptions of Accommodation Booking Website Quality by User Types

Correlations among variables

The correlations among the dimensions are presented in Table 21. First, correlations among four dimensions of perceived website quality were examined. Positive correlation examined among perceived ease-of-use, perceived information quality, and perceived aesthetics, suggested customers who held a favorable perception of any dimension of website quality tended to perceive other dimensions favorably. Meanwhile, perceived risk was negatively correlated with three other dimensions, indicating customers who perceived a high level of risk of using booking websites tended to have unfavorable attitudes about the three other website quality dimensions. In terms of OTA subsamples, the correlation between information quality and perceived ease-of-use was high ($r=.75$). The weakest correlation existed between perceived risk and perceived aesthetics ($r=-.18$). Regarding hotel subsamples, relatively strong correlations were found between perceived ease-of-use and information quality ($r=.76$), while the weakest correlations emerged between perceived risk and perceived ease-of-use ($r=-.22$). The HSEP subsample exhibited the highest correlation between perceived ease-of-use and information quality ($r=.73$), and the weakest correlation between perceived risk and perceived aesthetics

($r=-.31$). Subsequently, the associations between perceived website quality dimensions and the perceived website quality of an accommodation booking website were examined. All four website quality dimensions were found to have significant correlation with perceived website quality. All three subsamples exhibited the similar correlation pattern, with the highest correlation between perceived website quality and perceived aesthetics, followed by perceived ease-of-use, perceived information quality and perceived aesthetics. The correlation between perceived website aesthetics and website quality was relatively high in both the HSEP subsample and OTA subsample, indicating HSEP and OTA users' perception of the quality of booking website was transferable to their aesthetic judgments of a website.

Table 21. *Correlation among Four Website Quality Dimensions and Perceived Overall Website Quality*

OTA Subsample (N=327)							
	PE	IQ	PR	PA	PWQ	CR	AVE
1. PE	.75					.87	.57
2. IQ	.75	.75				.83	.56
3. PR	-.34	-.33	.83			.90	.69
4. PA	.61	.51	-.18	.75		.87	.57
5. PWQ	.61	.60	-.24	.74	.78	.82	.61
Hotel Subsample (N=321)							
1. PE	.77					.88	.60
2. IQ	.76	.77				.85	.59
3. PR	-.22	-.37	.84			.90	.70
4. PA	.66	.59	-.27	.73		.85	.54
5. PWQ	.77	.62	-.29	.83	.82	.86	.67
HSEP Subsample (N=325)							
1. PE	.72					.84	.52
2. IQ	.73	.71				.81	.51
3. PR	-.39	-.28	.80			.88	.64
4. PA	.65	.60	-.31	.74		.86	.55
5. PWQ	.63	.62	-.30	.84	.81	.85	.65

Note. Correlations between constructs are shown in lower-left off-diagonal, and the square roots of AVEs are along the diagonal; CR=Composite Reliability; AVE=Average Variance Extracted

Testing for measurement invariance across the OTA, hotel, and HSEP subsamples

As a first step to assess measurement invariance, CFAs were conducted to assess fit across each group, which was referred to as a loose validation examining the most fundamental invariance (MacCallum, Rosnowski, Mar, & Reith, 1994). Before conducting CFA, convergent and discriminant validity were examined to determine the validity of the reflective constructs. As represented in Table 21, all the factor loadings of each measurement item on the appropriate construct were significant. The composite reliability in the measurement model of three subsamples ranged from .805 to .900, which was above the recommended cutoff value of .70 (Fornell & Larcker, 1981). Additionally, all AVE values exceeded the recommended cutoff value of .50 (Fornell & Larcker, 1981), which confirmed the measurement model had convergent validity. In terms of discriminant validity, two sets of variables (PE and IQ; PA and PWQ) were found to violate the discriminant validity across all three user groups; and PE and PWQ failed to establish discriminant validity in the context of hotel websites. However, the HTMT ratios of the correlation between PE and IQ across three contexts were .76, .77, and .74, while the HTMT ratios of the correlation between PA and PWQ were .75, .89, and .85, for OTAs, hotel websites, and HSEPs respectively. The HTMT ratio of the correlation between PE and PWQ in the hotel website setting was .78. These values were all lower than the threshold value of .90, which confirmed discriminant validity.

Subsequent CFAs were conducted separately for each subsample. In terms of the OTA subsample, results indicated the initial model did not fit the sample well: χ^2 (179, N = 327) = 557.038, $p = .000$, NNFI = .893, CFI = .909, and RMSEA = .080. The modification indices suggested the measurement error of PR3- “I am concerned that this website will use my personal information for other purposes without my authorization,” and PR4- “I am concerned that this

website will sell my personal information to others without my permission,” should be correlated. Previous literature indicated these two items measured concerns of unauthorized use (Hong & Thong, 2013). Additionally, it was suggested that PA3- “the website uses colors properly” and PA4 - “the website uses fonts properly” should have correlated errors. Based on the study finding of Hill and Scharff (1997), color and font was used to assess the readability of websites. As such, based on previous studies, these measurement errors were allowed to covary in the modified model. The modified measurement model fit was significantly improved: χ^2 (177, N = 327) = 348.787, $p = .000$, NNFI = .951, CFI = .958, and RMSEA = .054.

The initial measurement model of the hotel subsample also did not fit the data well: χ^2 (179, N = 321) = 556.458, $p = .000$, NNFI = .893, CFI = .909, and RMSEA = .080. The modification indices suggested the same remedies to improve this model fit. The modified model fit the data reasonably well: χ^2 (177, N = 321) = 374.145, $p = .000$, NNFI = .948, CFI = .956, and RMSEA = .059. Like the previous two subsamples, the measurement model fit of HSEP subsample needed improvement as well: χ^2 (179, N = 325) = 573.416, $p = .000$, NNFI = .881, CFI = .898, and RMSEA = .082. After making the same model modification, the measurement model fit indices presented indicated an acceptable fit: χ^2 (177, N = 325) = 319.175, $p = .000$, NNFI = .956, CFI = .963, and RMSEA = .050. As shown in Table 22, overall fit statistics for each group were consistent with good model fit. Among three groups, all freely estimated factor loadings were statistically significant and salient with completely standardized factor loadings ranging from .58 to .96.

Table 22. *Standardized Factor Loadings in Each Indicator for Corresponding Website Quality Factors*

Indicators	Standardized Factor Loadings ^a		
	OTA	Hotel	HSE
PE1	.72	.74	.58
PE2	.75	.78	.77
PE3	.78	.76	.72
PE4	.76	.80	.77
PE5	.76	.81	.74
IQ1	.67	.70	.66
IQ2	.74	.78	.73
IQ3	.76	.82	.75
IQ4	.80	.77	.71
PR1	.90	.87	.89
PR2	.96	.96	.94
PR3	.74	.78	.71
PR4	.70	.71	.63
PA1	.81	.78	.77
PA2	.75	.73	.71
PA3	.70	.81	.77
PA4	.76	.69	.74
PA5	.75	.65	.71
PWQ1	.79	.77	.80
PWQ2	.79	.85	.83
PWQ3	.76	.83	.78

Note. ^a All factor loadings are significant at $p < .001$

Next, the analysis of equal form was conducted and the solution provided an acceptable fit to the data. This result served as the baseline model for subsequent tests of measurement invariance. The next analysis evaluated whether the factor loadings were equivalent across three groups. This was a critical step in evaluating measurement invariance as it determined whether the measures had the same meaning and structure for different users (Brown, 2006). The equal factor loadings model fit the data well in each group and the equality of factor loadings were supported for the OTA vs. Hotel comparison ($\chi^2_{diff}(16) = 14.10, p = .59$), the OTA vs. HSEP comparison ($\chi^2_{diff}(16) = 18.90, p = .27$), and the hotel vs. HSEP comparison ($\chi^2_{diff}(16) = 25.84, p = .06$). It was concluded that the indicators evidenced comparable relationships to the latent construct of website quality across three contexts.

The fourth stage of analysis involved examination of equal indicator intercepts. The result demonstrated the non-equivalence of indicator intercepts across three groups. The chi-square difference tests were significant for all three pairwise comparisons, which indicated the intercepts associated with at least some items of these scales were non-invariance across each pairwise comparison. Therefore, the sequential analysis for partial scalar invariance was conducted by constraining the intercept of a single invariant item one at a time (Cheung & Rensvold, 1999). In terms of the OTA and Hotel comparison, examination of the modification indices (MI) revealed the significant increase in χ^2 value was due to the lack of scalar invariance of the indicator PE3- “The search functions on this website are helpful.” After relaxing this constraint, the χ^2 difference was not statistically significant and confirmed partial scalar invariance ($\chi^2_{diff}(15) = 22.35, p = .10$). Regarding the OTA and HSEP comparison, the MI indicated that PR4 - “I am concerned that this website will sell my personal information to others without my permission,” IQ1 - “This website presents up-to-date information of accommodation,” and PE2- “I can go to exactly what I want quickly,” were the likely sources of invariance. Relaxing these three constraints yielded substantial and statistically significant improvement in fit; and the partial scalar invariance was achieved for the OTA vs. HSEP comparison ($\chi^2_{diff}(15) = 22.35, p = .10$). The OTA and HSEP comparison imposed the same constraint PE3 as the OTA and hotel comparison to establish partial scalar invariance ($\chi^2_{diff}(15) = 20.89, p = .14$). The results of invariance testing of the model are shown in Table 23.

Table 23. *Results of Invariance Testing of the Model*

	χ^2	<i>df</i>	χ^2_{diff}	Δdf	RMSEA (90% CI)	SRMR	CFI	TLI
Single Group Solution								
OTA (n=327)	348.787	177	-	-	.054 (.046-.063)	.042	.958	.951
Hotel (n=321)	374.145	177	-	-	.059 (.051-.067)	.042	.956	.948
HSEP (n=325)	319.175	177	-	-	.050 (.041-.058)	.044	.963	.956
OTA vs. Hotel								
Measurement invariance								
Equal form	721.985	354	-	-	.057 (.051-.063)	.044	.957	.950
Equal factor loadings	736.086	370	14.101	16	.055 (.049-.061)	.044	.958	.952
Equal indicator intercepts	765.387*	386	29.301	16	.055 (.049-.061)	.047	.956	.952
Equal indicator intercepts except PE3	758.438	385	22.352	15	.055 (.049-.060)	.047	.957	.953
Population Heterogeneity								
Equal latent mean	770.538	390	13.930	5	.055 (.049-.061)	.049	.956	.953
OTA vs. HSEP								
Measurement invariance								
Equal form	667.015	354	-	-	.052 (.046-.058)	.045	.961	.954
Equal factor loadings	685.916	370	18.901	16	.051 (.045-.057)	.049	.960	.955
Equal indicator intercepts	736.490***	386	50.574	16	.053 (.047-.059)	.056	.956	.952
Equal indicator intercepts except PR4, IQ1, PE2	699.846	383	13.93	13	.050 (.044-.056)	.052	.960	.957
Population Heterogeneity								
Equal latent mean	742.864***	388	43.018	6	.053 (.047-.059)	.064	.956	.952
Equal latent mean except PA and PWQ	702.547	386	2.701	3	.050 (.044-.056)	.053	.960	.957
Hotel vs. HSEP								
Measurement invariance								
Equal form	693.320	354	-	-	.054 (.048-.060)	.045	.960	.952
Equal factor loadings	719.160	370	25.840	16	.054 (.048-.060)	.050	.958	.953
Equal indicator intercepts	768.337***	386	49.177	16	.055 (.050-.061)	.058	.955	.951
Equal indicator intercepts except PE3	740.052	385	20.892	15	.053 (.048-.059)	.056	.958	.954
Population Heterogeneity								
Equal latent mean	783.394***	390	43.342	5	.056 (.050-.062)	.066	.953	.950
Equal latent mean except PWQ, PA and PR	744.408	387	4.356	2	.053 (.048-.059)	.057	.957	.954

Note. * $p < .05$; *** $p < .001$

Although full metric and scalar invariance was not achieved across three subsamples, Byrne, Shavelson, and Muthen (1989) argued meaningful comparisons could also be conducted based on the partial scalar invariance. As such, latent mean was compared across three user groups. It led to the conclusion that there were no latent mean differences between OTA and

hotel subsamples. However, OTA and HSEP subsamples had different latent means in perceived aesthetics and perceived website quality, while Hotel and HSEP subsamples had different latent means in perceived aesthetics, perceived risk, and perceived website quality. After a series of tests in configural, metric, scalar, and latent mean invariance, the structural relationships between four dimensions of website quality and perceived overall website quality were examined.

Testing a structural model of website quality

An SEM structural model was used to capture the causal influences of the four exogenous variables (perceived ease-of-use, perceived information quality, perceived risk, and perceived aesthetics) on the endogenous construct (perceived overall website quality). The structural analysis results of OTA subsample revealed a good model fit: $\chi^2 (327, N = 327) = 348.787, p = .000$, NNFI = .951, CFI = .958, and RMSEA = .054 (90% CI: [.046-.063]). It was found information quality ($\beta = .24, t = 2.72, p < .01$) and perceived aesthetics ($\beta = .64, t = 10.27, p < .001$) had a significant impact on perceived website quality, supporting hypotheses H1b and H1d. However, contrary to what was expected, hypotheses H1a and H1c were not accepted as perceived ease-of-use and perceived risk did not significantly contribute to perceived website quality. The model explained 65.4% of variance in perceived website quality (see *Figure 4*).

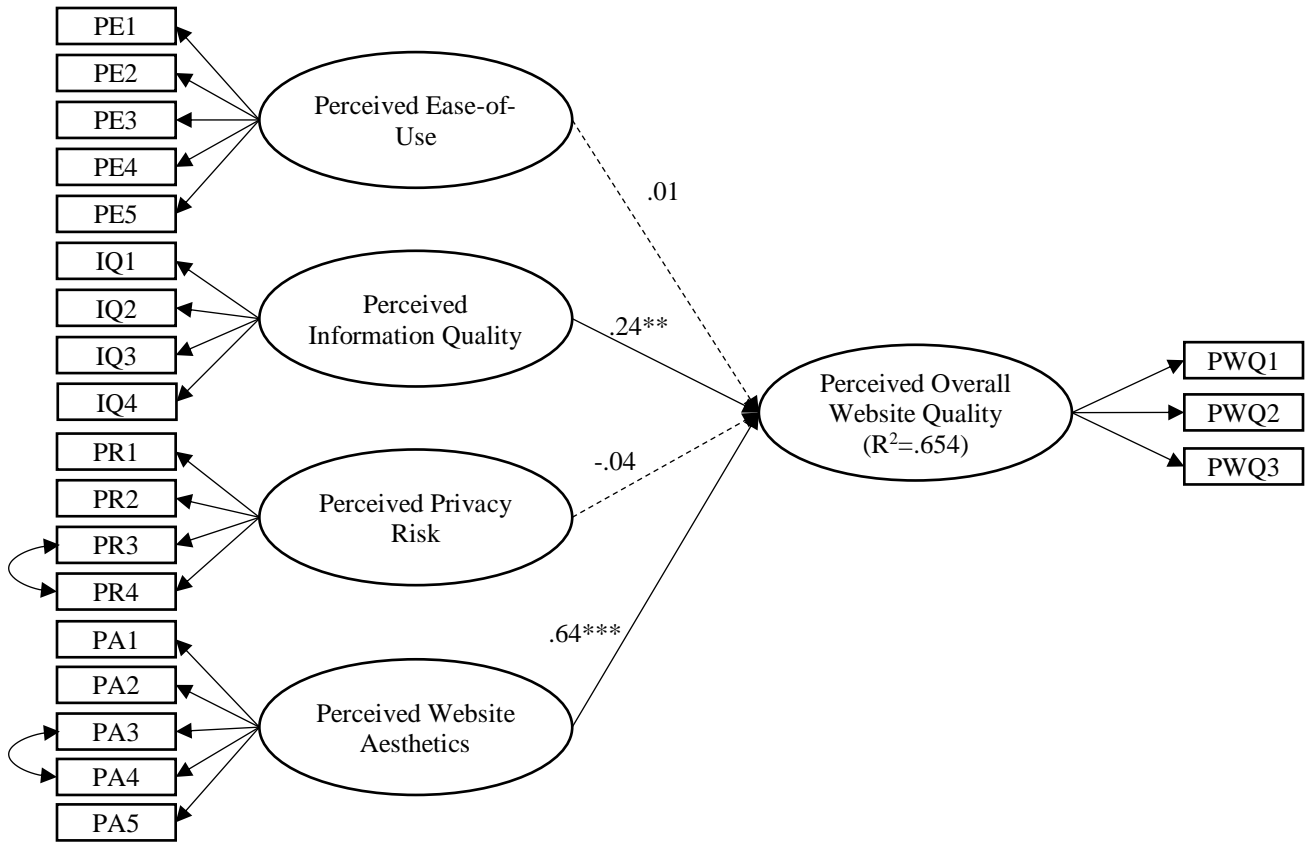


Figure 4. The results of the structural model testing the antecedents of OTA website quality

Note. -----> Non-significant path; ———> Significant path; ** $p < .01$; *** $p < .001$

Regarding the hotel subsample, the structural model fit was satisfactory: $\chi^2 (177, N = 321) = 374.145$, $p = .000$, NNFI = .948, CFI = .956, and RMSEA = .059 (90% CI: [.051-.067]). The result indicated perceived ease-of-use ($\beta = .34$, $t = 4.08$, $p < .001$), perceived risk ($\beta = -.09$, $t = 2.04$, $p < .05$), and perceived aesthetics ($\beta = .64$, $t = 10.34$, $p < .001$) significantly influenced perceived website quality, supporting *H1a*, *H1c*, and *H1d* respectively. However, unlike the result from the OTA subsample, perceived information quality became an insignificant predictor of perceived website quality. 80.5% of variance in perceived website quality was explained by the model (see Figure 5).

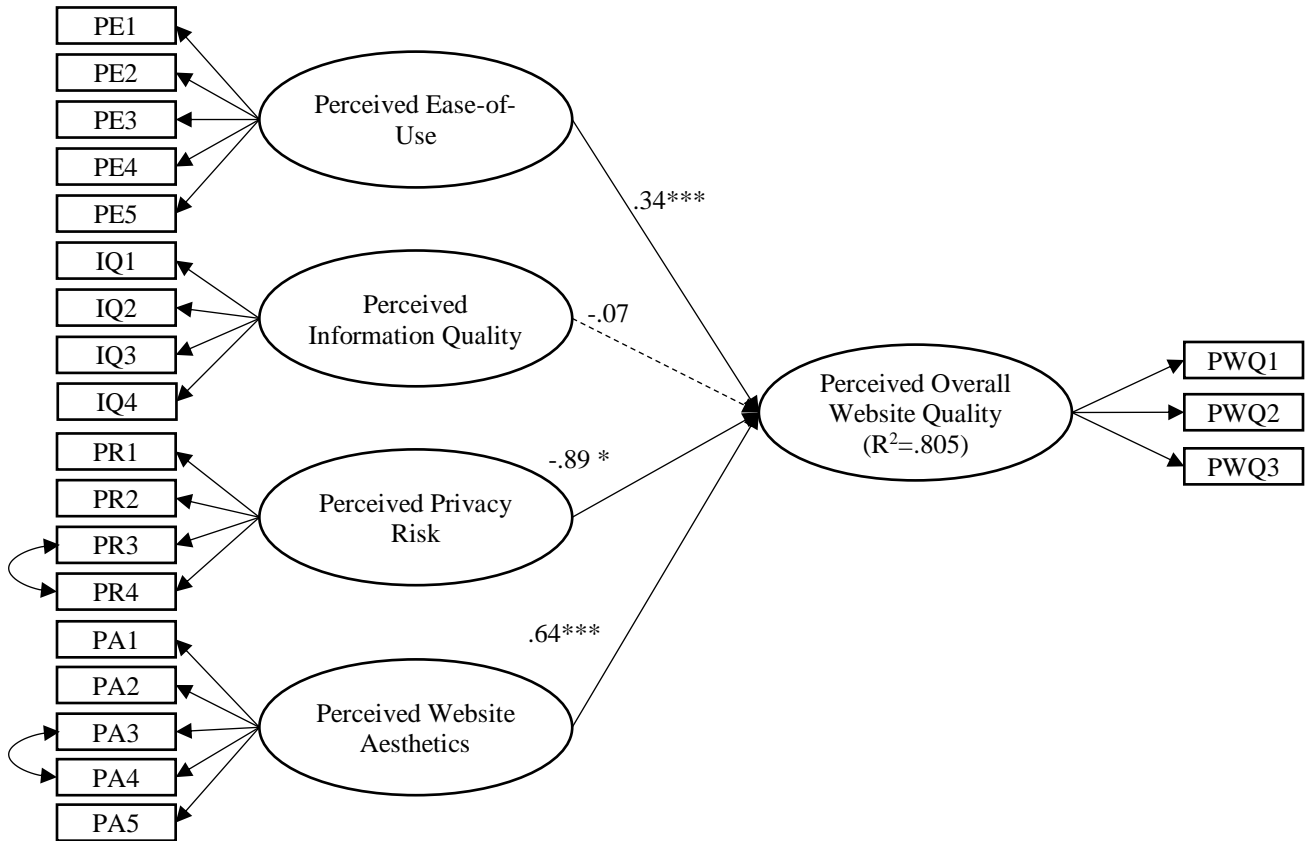


Figure 5. The results of the structural model testing the antecedents of Hotel website quality
 Note. -----> Non-significant path; ———> Significant path; *** $p < .001$

In terms of the HSEP subsample, its structural model fit exceeded cut-off criteria: χ^2 (177, $N = 325$) = 319.175, $p = .000$, NNFI = .956, CFI = .963, and RMSEA = .050 (90% CI: [.041-.058]). The result revealed only perceived aesthetics had a significant impact on perceived website quality ($\beta = .79$, $t = 12.65$, $p < .001$), which lent support to H1d. Seventy-seven percent of variance in perceived website quality was explained by the model (see Figure 6). Table 24 summarizes the SEM results for the causal relationships between each dimension of website quality and perceived overall website quality.

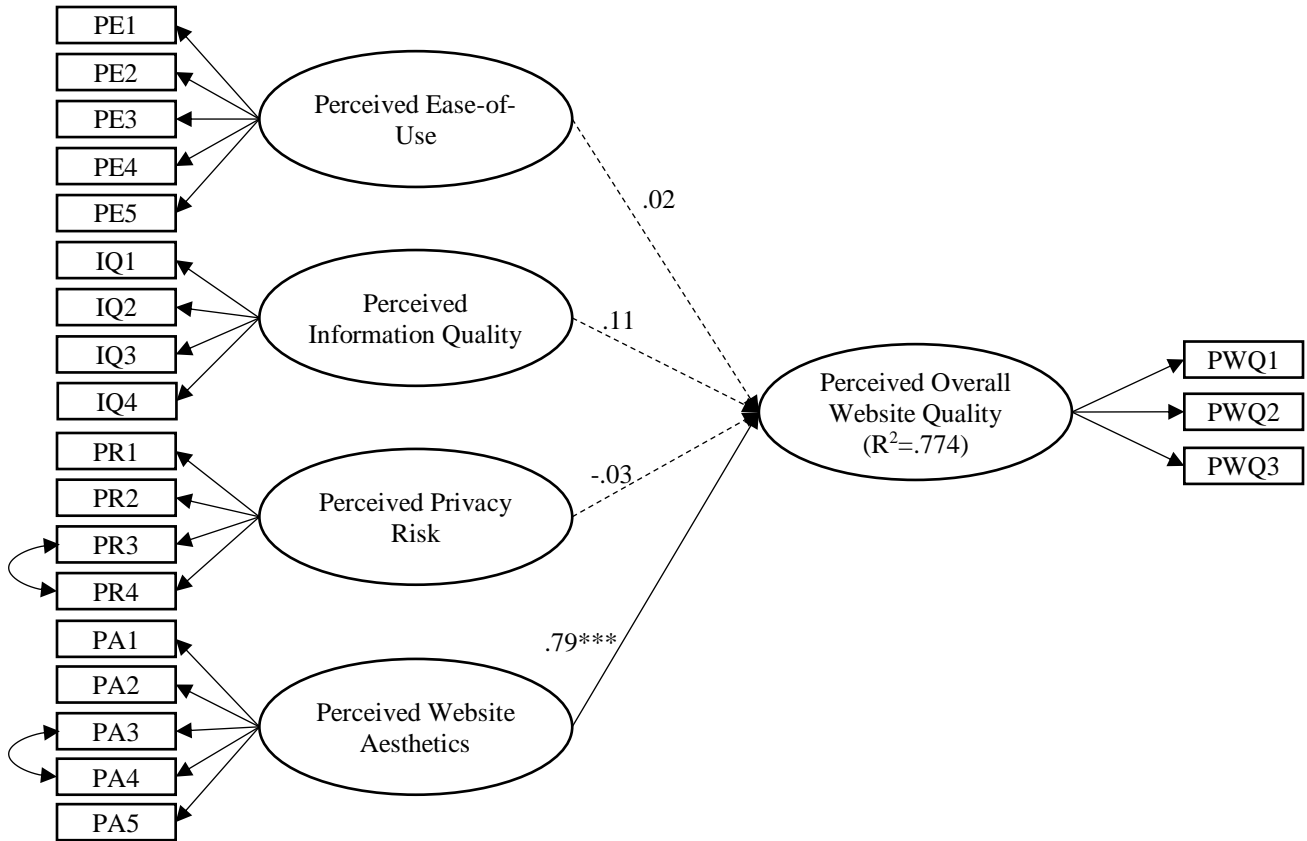


Figure 6. The results of the structural model testing the antecedents of HSEP website quality
 Note. -----> Non-significant path; ———> Significant path; *** $p < .001$

Table 24. Summary of the SEM Results for Conceptualizing Website Quality across Three User Groups

	OTA Subsample		Hotel Subsample		HSEP Subsample	
	β	t	β	t	β	t
H1a: PE→PWQ	.07	.03	.34	4.08***	.02	.09
H1b: IQ→PWQ	.24	2.72**	-.07	.08	.11	1.38
H1c: PR→PWQ	-.04	.04	-.09	2.04*	-.03	.05
H1d: PA→PWQ	.64	10.27***	.64	10.34***	.79	12.65***
R ²	.654		.805		.774	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

The Examination of Website Quality-Customer Satisfaction-Behavioral Intention Linkage

The examination of the inter-relationship among website quality, customer satisfaction, and behavioral intention involved two steps: confirmatory factor analysis and structural equation modeling. PR3 and PR4, and PA3 and PA4 remained correlated in the following analysis.

The structural analysis on the OTA subsample

The correlations between different constructs are shown in Table 25. The fit indices indicated the measurement model fit data well and thus verified the presence of these distinct constructs: $\chi^2(465, N = 327) = 1063.10, p = .000$, TLI = .912, CFI = .923, and RMSEA = .063 (90% CI: [.058-.068]). Convergent validity was met based on the three criteria suggested by Fornell and Larcker (1981): 1) all indicator factor loadings were significant at $p = .001$ (see Table 28); 2) construct reliabilities all exceeded .70; and 3) all AVE values exceeded 0.5. In terms of discriminant validity, PA and PWQ, IQ and SF, and SF and PI were problematic based on the Fornell-Larcker criterion. However, the corresponding HTMT ratio for OTA, hotel websites and HSEPs were .72, .80, and .83 respectively; which were lower than 0.9 and suggested all factors were distinct from each other.

Table 25. *Bivariate Correlations between the Four Website Quality Dimensions and Four Outcome Variables in the Context of OTA Website*

	PE	IQ	PR	PA	PWQ	SF	UI	PI	CR	AVE
PE	.76								.87	.57
IQ	.75	.75							.83	.56
PR	-.33	-.32	.83						.90	.69
PA	.63	.54	-.17	.76					.87	.57
PWQ	.61	.60	-.23	.78	.78				.82	.61
SF	.69	.78	-.29	.54	.60	.82			.89	.67
UI	.63	.70	-.13	.54	.51	.67	.78		.86	.61
PI	.62	.67	-.36	.54	.49	.83	.67	.87	.93	.76

Note. Correlations between constructs are shown in lower-left off-diagonal, and the square roots of AVEs are along the diagonal; CR = composite reliability; AVE = averaged variance extracted

However, the structural model of the OTA subsample poorly fit the data: χ^2 (477, N = 327) = 1231.18, p = .000, TLI = .892, CFI = .903, and RMSEA = .070 (90% CI: [.065-.074]). The model modification index suggested that UI2- “I would use this website inquire about accommodation ratings” and UI3- “I would use this website to check accommodation reviews” had correlated errors. This was due to similar item content as customers’ reviews and ratings normally appear in the same place. Frequently on OTA websites, customer reviews appeared in the form of several lines of texts accompanied by a star/numerical rating. OTA customers generally assumed ratings were a numeric representation of text sentiments (Hu, Koh, & Reddy, 2014). After allowing their residuals to be correlated, the modified model fit the data well: χ^2 (476, N = 327) = 1138.79, p = .000, TLI = .905, CFI = .914, and RMSEA = .065 (90% CI: [.060-.070]).

The results reconfirmed only perceived information quality and perceived website aesthetics (β = .39, t = 4.97, p < .001 and β = .56, t = 9.78, p < .001, respectively) significantly influenced perceived overall website quality, supporting *H1b* and *H1d*. In addition, perceived overall website quality had a significant impact on customer satisfaction (β = .73, t = 19.47, p < .001), which lent support to hypothesis *H2*. In terms of the relationship between perceived website quality and behavioral intention, it was found perceived overall website quality had a significant impact on use intention (β = .37, t = 4.35, p < .001). Hence, the hypothesis *H3* was supported. However, the hypothesis *H4* suggesting the direct effect of perceived overall website quality on purchase intention, was not supported. The findings also supported for two hypotheses (*H5* and *H6*) suggesting customer satisfaction significantly influences use intention (β = .44, t = 5.42, p < .001) and purchase intention (β = .62, t = 9.67, p < .001). Furthermore, use intention significantly influenced purchase intention (β = .34, t = 5.13, p < .001), supporting *H7*.

Regarding the mediating effect of customer satisfaction, the findings provided empirical evidence for two hypotheses (*H3a* and *H4a*) that customer satisfaction mediated the relationship between perceived overall website quality and use intention ($\beta = .32$, $t = 5.48$, $p < .001$), as well as the relationship between perceived overall website quality and purchase intention ($\beta = .45$, $t = 8.27$, $p < .001$). Also, *H4b* and *H6a* were supported, showing use intention mediated the relationship between perceived overall website quality and purchase intention ($\beta = .12$, $t = 3.12$, $p < .01$) as well as the relationship between customer satisfaction and purchase intention ($\beta = .15$, $t = 3.94$, $p < .001$).

Subsequently, a more rigorous supplementary test of the hypothesized mediation model using the bootstrapping analysis recommended by Preacher and Hayes (2008) was conducted. The analysis of 5000 bootstrap samples supported the mediating effect of customer satisfaction. The indirect effect of website quality on use intention, mediated through customer satisfaction was significant, with a 95% bias-corrected bootstrap CI of 0.20 to 0.55. Also, customer satisfaction mediated the website quality-purchase intention relationship with a 95% CI: .32 - .72. Additionally, use intention mediated the relationship between customer satisfaction and purchase intention as the 95% bootstrap CI was .03 to .27. On the contrary, use intention failed to mediate the perceived overall website quality-purchase intention relationship as the CI included zero.

Perceived website quality explained 52.8% of variance in customer satisfaction. Perceived website quality and customer satisfaction together explained 55.9% of variance in use intention. The 73.6% of variance in purchase intention was explained by perceived website quality, customer satisfaction, and use intention. The results of structural model analysis are illustrated in *Figure 7*.

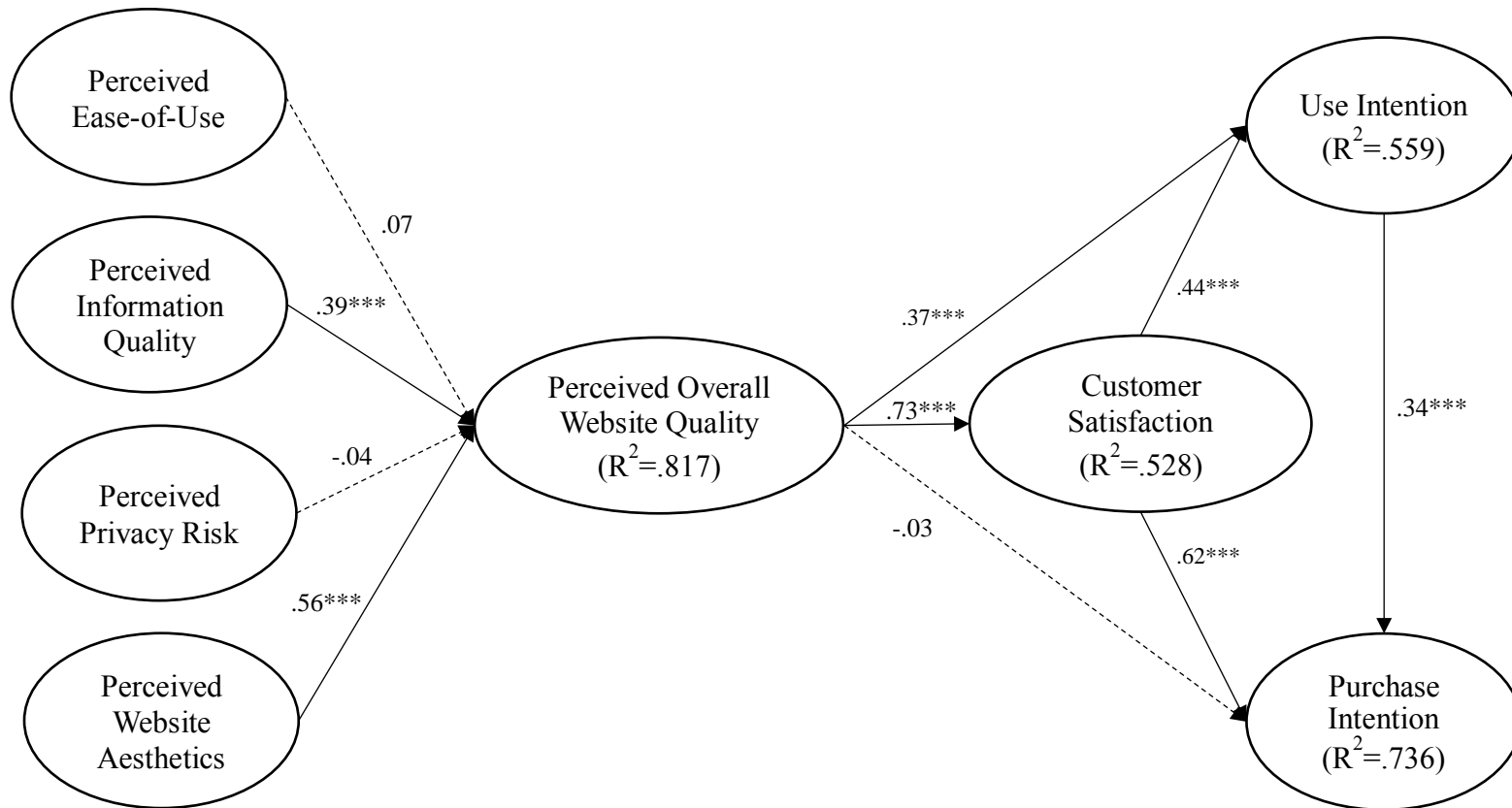


Figure 7. OTA subsample structural model with factor loadings and variances explained

Note. —————> significant path - - - - -> insignificant path; *** $p < .001$

The structural analysis on the hotel subsample

In terms of the hotel subsample, the measurement model was a good fit to data: χ^2 (465, $N = 321$) = 1071.84, $p = .000$, TLI = .911, CFI = .921, and RMSEA = .064 (90% CI: .059~.069). As shown in Table 28, all indicators loaded significantly onto their hypothesized latent variables. Construct reliability and AVE values shown in Table 26 exceeded 0.8 and 0.5 respectively, which confirmed convergent validity. In terms of discriminant validity, it was found that PA and PWQ did not meet Fornell-Larcker's criteria. However, the HTMT ratio was .85, which confirmed the discriminant validity.

Table 26. *Bivariate Correlations between the Four Website Quality Dimensions and Four Outcome Variables in the Context of Hotel Website*

	PE	IQ	PR	PA	PWQ	SF	UI	PI	CR	AVE
PE	.78								.88	.61
IQ	.76	.77							.85	.59
PR	-.24	-.37	.84						.90	.70
PA	.71	.62	-.27	.74					.85	.54
PWQ	.77	.62	-.32	.87	.82				.86	.67
SF	.69	.72	-.28	.58	.75	.81			.88	.65
UI	.33	.33	-.04	.34	.34	.31	.75		.83	.56
PI	.54	.61	-.33	.54	.58	.75	.39	.88	.93	.77

Note. Correlations between constructs are shown in lower-left off-diagonal, and the square roots of AVEs are along the diagonal; CR = composite reliability; AVE = averaged variance extracted

After confirming the measurement model, the structural model was estimated. The structural model represented a good fit to the data: χ^2 (477, $N = 321$) = 1159.188, $p = .000$, TLI = .902, CFI = .912, and RMSEA = .067 (90% CI: .062~.072). Consistent with previous structural analysis of website quality and its dimensions, perceived ease-of-use ($\beta = .34$, $t = 4.38$, $p < .001$), perceived privacy risk ($\beta = -.08$, $t = -1.99$, $p < .05$), and perceived website aesthetics ($\beta = .58$, $t = 9.83$, $p < .001$) were three predictors of website quality, which respectively supported hypotheses *H1a*, *H1c*, and *H1d*. Website quality had a significant impact on customer satisfaction ($\beta = .73$, $t = 21.93$, $p < .001$). In addition, findings provided support for hypothesis *H3* that website quality

significantly influenced use intention ($\beta = .28$, $t = 2.92$, $p < .01$). However, hypothesis *H4* suggesting the direct effect of website quality on purchase intention was not supported.

Regarding the relationships between customer satisfaction and two behavioral intention constructs, customer satisfaction was only found to be a significant antecedent of purchase intention ($\beta = .63$, $t = 9.49$, $p < .001$), which lent support to *H6*. Finally, use intention had a significant impact on purchase intention ($\beta = .16$, $t = 3.40$, $p < .01$), supporting *H7*.

In terms of mediating effect, perceived overall website quality had an indirect impact on purchase intention mediated by customer satisfaction ($\beta = .46$, $t = 8.21$, $p < .001$), supporting *H4a*. However, customer satisfaction did not mediate the relationship between perceived website quality and use intention. The bootstrapping analysis yielded the same result that customer satisfaction only mediated the relationship between website quality and purchase intention with a 95% bias-corrected bootstrap CI of 0.28 to 0.78. Use intention only mediated the relationship between perceived overall website quality and purchase intention ($\beta = .05$, $t = 2.11$, $p < .05$). However, bootstrapping analysis revealed a 95% CI: -.01~.10; which included zero and failed to accept *H4b*.

It was revealed that 53.9% of variances in customer satisfaction were explained by website quality and customer satisfaction together with website quality explained 13.6% of variances in use intention. The proposed model explained 60.4% of variances in purchase intention. The model, along with standardized regression coefficients and variances, explained is presented in *Figure 8*.

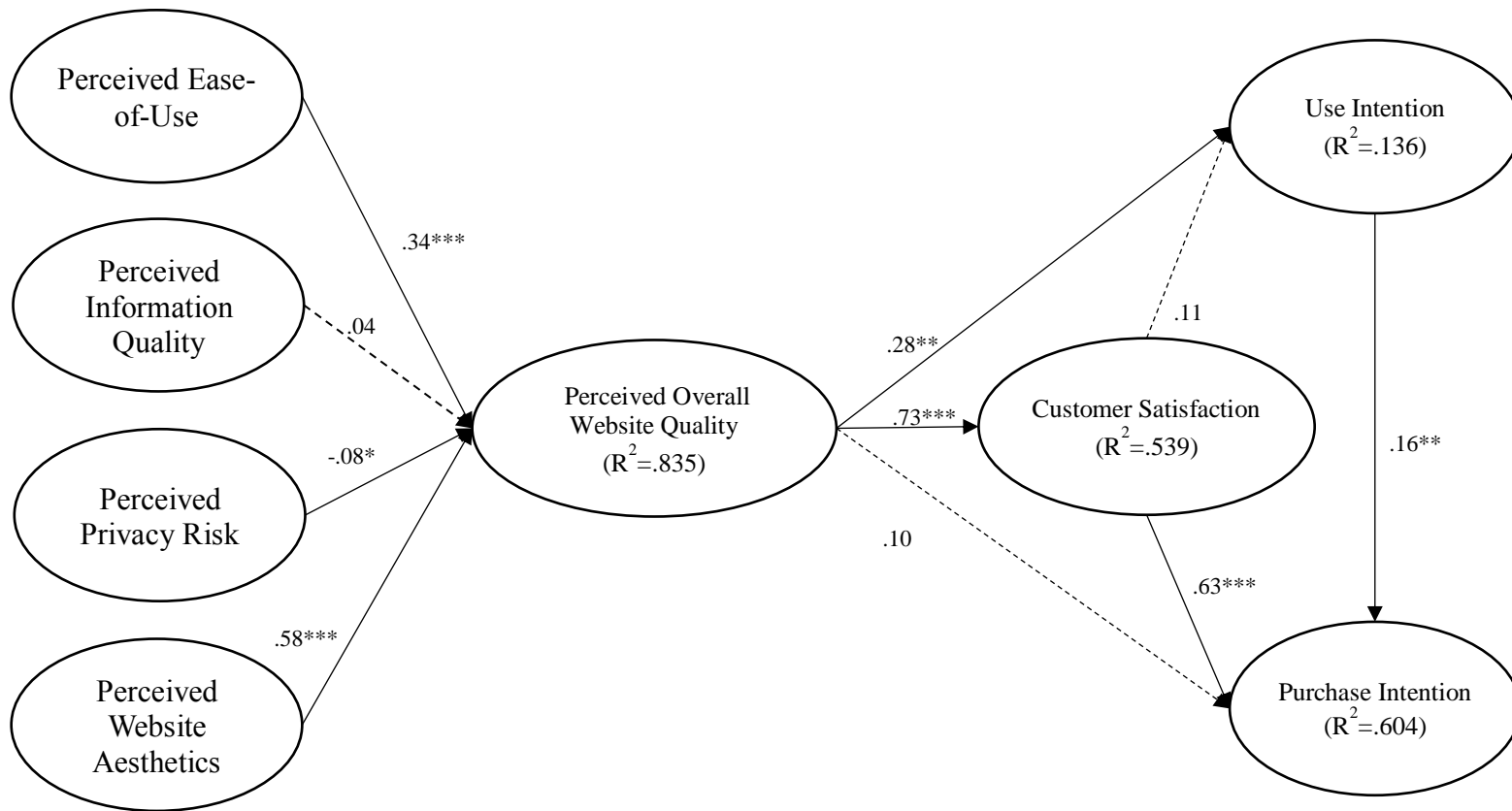


Figure 8. Hotel subsample structural model with factor loadings and variances explained
 Note. —————> significant path —————> non-significant path; * $p < .05$; ** $p < .01$; *** $p < .001$

The structural analysis on the HSEP subsample

The measurement model of the HSEP subsample fit reasonably well to the data: χ^2 (465, $N = 325$) = 856.178, $p = .000$, TLI = .940, CFI = .947, and RMSEA = .048 (90% CI: [.046~.056]). Results supported the convergent validity as all measurement items loaded significantly on each factor (see Table 28), and each construct's AVE and CR were respectively larger than 0.5 and 0.7 (see Table 27). The Fornell-Larker's (1981) discriminant validity test indicated PE and IQ, PA and PWQ, and SF and PI displayed insufficient discriminant validity. However, the HTMT ratio for each set of two constructs above was .74, .85, and .87, which demonstrated discriminant validity.

Table 27. *Bivariate Correlations between the Four Website Quality Dimensions and Four Outcome Variables in the Context of HSEP*

	PE	IQ	PR	PA	PWQ	SF	UI	PI	CR	AVE
PE	.72								.84	.52
IQ	.73	.71							.80	.51
PR	-.36	-.27	.80						.88	.64
PA	.67	.62	-.25	.74					.86	.55
PWQ	.64	.62	-.27	.87	.81				.85	.65
SF	.62	.59	-.34	.69	.69	.84			.90	.70
UI	.46	.51	-.11	.54	.56	.61	.79		.87	.63
PI	.50	.48	-.32	.63	.62	.86	.66	.87	.93	.76

Note. Correlations between constructs are shown in lower-left off-diagonal, and the square roots of AVEs are along the diagonal; CR = composite reliability; AVE = averaged variance extracted

The analysis of the structural model also revealed a good model fit: χ^2 (477, $N = 325$) = 904.22, $p = .000$, TLI = .94, CFI = .94, and RMSEA = .052 (90% CI: .047~.058). In terms of the relationships among variables, the results confirmed *H1d* that perceived overall website quality was only predicted by perceived aesthetics ($\beta = .77$, $t = 13.65$, $p < .001$). Moreover, the results revealed a significant relationship between perceived overall website quality and customer satisfaction ($\beta = .74$, $t = 23.09$, $p < .001$), which supported hypothesis *H2*. The findings also supported hypothesis *H3* that perceived overall website quality had a significant impact on use

intention ($\beta = .31$, $t = 3.65$, $p < .001$). However, unexpected results showed website quality did not lead to purchase intention.

In line with the analysis results of the OTA subsample, customer satisfaction significantly influenced both use intention ($\beta = .39$, $t = 4.68$, $p < .001$) and purchase intention ($\beta = .74$, $t = 12.94$, $p < .001$), supporting *H5* and *H6* respectively. Hypothesis *H7*, suggesting use intention had a significant impact on purchase intention, was also supported ($\beta = .21$, $t = 4.27$, $p < .001$).

In terms of mediating effect, customer satisfaction mediated the relationship between perceived website quality and use intention ($\beta = .29$, $t = 4.58$, $p < .001$) as well as the relationship between perceived website quality and purchase intention ($\beta = .55$, $t = 10.47$, $p < .001$), thus supporting *H3a* and *H4a*. Furthermore, use intention was found to mediate the perceived overall website quality - purchase intention relationship ($\beta = .07$, $t = 2.60$, $p < .01$) and customer satisfaction – purchase intention relationship ($\beta = .08$, $t = 3.41$, $p < .01$), supporting *H4b* and *H6a*, respectively. The mediating role of customer satisfaction was verified by the bootstrapping analysis with a 95% CI: .15 ~ .42 for *H4b*, and 95% CI: .40 ~ .69 for *H6a*. However, the mediating role of use intention was only verified by the bootstrapping analysis in the relationship between customer satisfaction and purchase intention.

In terms of the amount of variances explained, 55.0% of the variances in customer satisfaction were explained by perceived website quality. The variance in use intention and purchase intention explained by the proposed model was 41.6% and 76.5% respectively. The results of structural model analysis are shown in *Figure 9*.

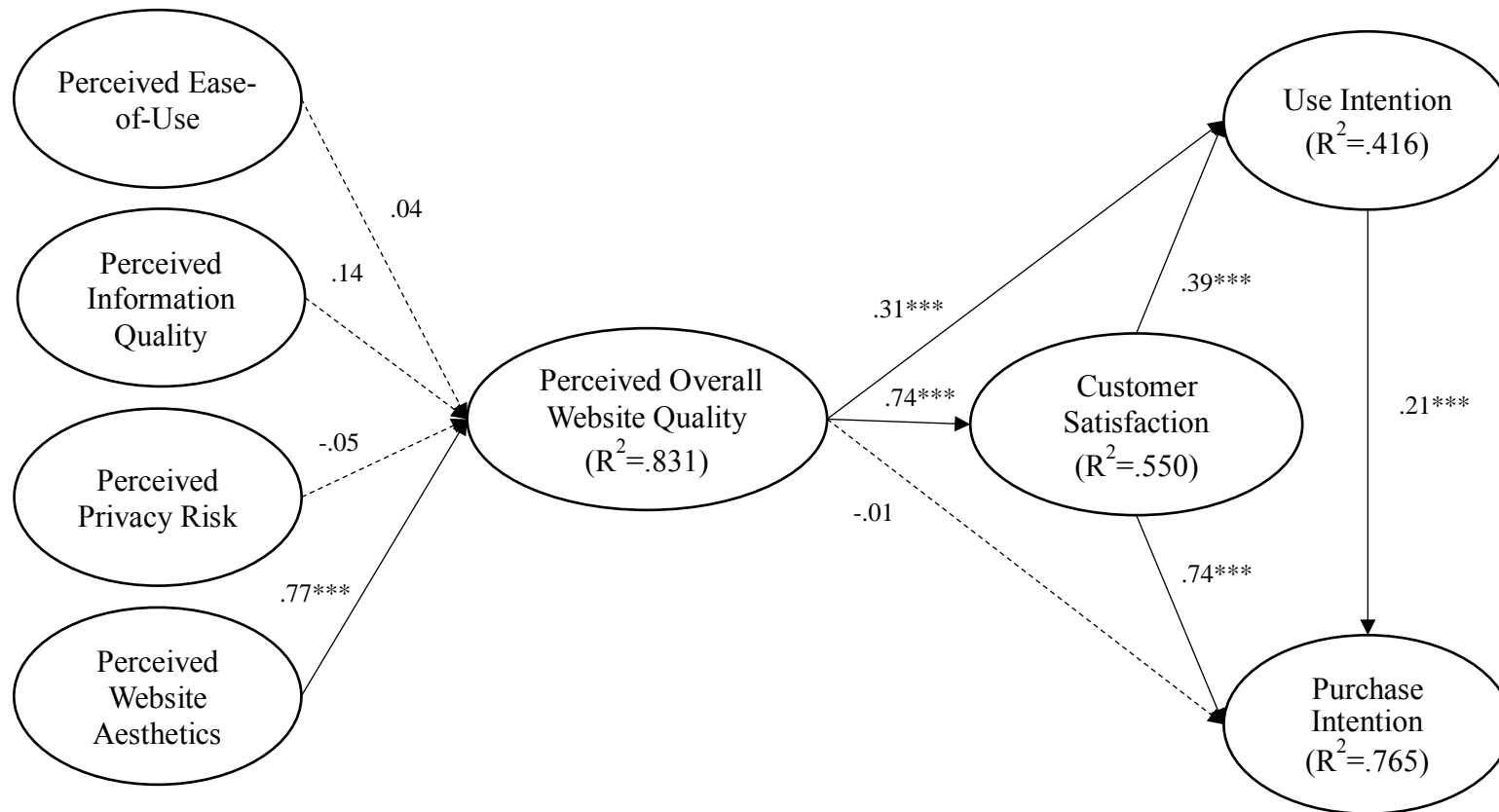


Figure 9. HSEP Subsample Structural model with Factor Loadings and variances explained
 Note. —————> significant path - - - - -> insignificant path; * $p < .05$; *** $p < .001$;

Table 28. *Standardized Factor Loadings in Each Indicator for Corresponding Factors Proposed in the Model*

Indicators	Standardized Factor Loadings ^a		
	OTA	Hotel	HSEP
PE1	.72	.74	.59
PE2	.76	.78	.77
PE3	.78	.76	.72
PE4	.76	.80	.77
PE5	.76	.82	.74
IQ1	.67	.70	.66
IQ2	.74	.77	.73
IQ3	.76	.82	.75
IQ4	.81	.77	.71
PR1	.90	.87	.89
PR2	.96	.96	.93
PR3	.74	.78	.71
PR4	.70	.71	.63
PA1	.81	.78	.78
PA2	.75	.81	.77
PA3	.70	.73	.71
PA4	.77	.69	.75
PA5	.75	.65	.70
PWQ2	.80	.85	.83
PWQ3	.76	.83	.78
SF1	.62	.60	.76
SF2	.81	.82	.87
SF3	.91	.90	.88
SF4	.89	.87	.84
UI1	.76	.46	.81
UI2	.78	.69	.82
UI3	.81	.87	.85
UI4	.78	.88	.70
PI1	.87	.83	.83
PI2	.88	.90	.91
PI3	.90	.88	.93
PI4	.84	.89	.82

Note. ^a All factor loadings are significant at $p < .001$

Table 29. *Regression Coefficient for Each Direct Effect and Indirect Effect Across Three Subsamples*

	OTA		Hotel		HSEP	
<i>Direct Effects</i>	β	t	β	t	β	t
H1a: PE→PWQ	.07	.77	.34***	4.38	.04	.53
H1b: IQ→PWQ	.39***	4.97	.04	.54	.14	1.9
H1c: PR→PWQ	-.04	-.85	-.08*	-1.99	-.05	-1.15
H1d: PA→PWQ	.56***	9.78	.58***	9.83	.77***	13.65
H2: PWQ→SF	.73***	19.47	.73***	21.93	.74***	23.09
H3: PWQ→UI	.37***	4.35	.28**	2.92	.31***	3.65
H4: PWQ→PI	-.03	-.85	.10	1.41	-.01	-.22
H5: SF→UI	.44***	5.42	.11	1.10	.39***	4.68
H6: SF→PI	.62***	9.67	.63***	9.49	.74***	12.94
H7: UI→PI	.34***	5.13	.16**	3.40	.21***	4.27
<i>Indirect Effects</i>						
H3a: PWQ→SF→UI	.32***	5.48	.08	1.1	.29***	4.58
H4a: PWQ→SF→PI	.45***	8.27	.46***	8.21	.55***	10.47
H4b: PWQ→UI→PI	.12**	3.12	.05*	2.11	.07**	2.6
H6a: SF→UI→PI	.15***	3.94	.02	1.09	.08**	3.41
<i>Indirect Effects Using 5000 Bootstrapping Analysis^a</i>						
H3a: PWQ→SF→UI	.32***	3.93	.08	.82	.29***	4.09
	[.16 ~ .48]		[-.11 ~ .21]		[.15 ~ .42]	
H4a: PWQ→SF→PI	.45***	5.53	.46***	4.47	.55***	7.31
	[.29 ~ .61]		[.26 ~ .67]		[.40 ~ .69]	
H4b: PWQ→UI→PI	.12	1.57	.05	1.60	.07	1.88
	[-.03 ~ .28]		[.01 ~ .15]		[-.00 ~ .13]	
H6a: SF→UI→PI	.15*	2.39	.02	.81	.08*	2.42
	[.03 ~ .27]		[-.02 ~ .09]		[.02 ~ .15]	

Note. ^a95% bootstrap confidence intervals are shown in parentheses; * $p < .05$; ** $p < .01$; *** $p < .001$;

Chapter Summary

In this chapter, factors influencing perceived overall website quality were examined across three subsamples. Also, the proposed model examining the relationship between website quality, customer satisfaction, and behavioral intention was tested in each subsample. The next chapter will revisit and discuss the findings of the study. In addition, theoretical and practical implications, as well as study limitations, and suggestions for future research will be provided.

CHAPTER V

DISCUSSION AND CONCLUSION

Chapter five discusses and summarizes the major findings of this study and contains three parts. The first part of the chapter will review study results. The second part will discuss theoretical and practical implications. The third part will present the limitations of this study and give recommendations for future research.

Demographics of MTurk Workers

The gender splits of hotel website users and HSEP website users were similar to previous studies that reported slightly more females than males (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). However, the OTA users showed a more male skew, which was consistent with a more recent study of Casler, Bickel, and Hackett (2013). The OTA quota took the shortest time to fill, which mitigated concerns that the day of the month might be a systematic predictor of the gender composition. This finding was consistent with Ipeirotis' (2015) report showing there was gender variability on different hours of the day and day of the week.

In terms of age distribution, the average age of OTA and HSEP users coincided with the finding of Berinsky, Huber, and Lenz (2012), who showed the average age of the respondents recruited on MTurk was 32.5. Hotel website users skewed older than what was reported in previous MTurk demographic surveys, which also implied participants' age might vary with time and day.

No substantial differences were found in the distribution of household income, levels of education, and ethnicity. Similar to Ross, Irani, Silberman, Zaldivar and Tomlinson (2010)

findings, this survey also suggested MTurk workers were highly educated, and had low levels of annual household income. Given that this study screened workers by establishing a qualification to only allow workers currently residing in the United States to answer the survey, the majority of MTurk workers for this study were Caucasian. The significant fraction of Indian workers were un-witnessed in this study.

Regarding demographics of HSEP users, this MTurk sample did not match the gender demographic of the respondents recruited in the study of Hamari et al (2015), who reported more male collaborative consumption users. However, it matched Smith's (2017) report that there were more female Airbnb guests. This implied the gender distribution of MTurk workers were similar to sharing economy platform users in the hospitality sector only. The average age of MTurk workers who self-reported as HSEP users was close to the study of Lee and Kim (2017), who sampled 300 Airbnb users and reported an average age of 32.86. In addition, Lee and Kim (2017) indicated individuals with bachelor degrees comprised the largest group (41.9%). This study using MTurk workers showed a similar proportion (45.8%). However, MTurk workers reported a relatively lower household annual income than Lee and Kim's (2017) participants.

This study was the first to conduct measurement invariance assessments of website quality across three types of user groups. The study results provided evidence of the dimensional, configural, and metric invariance of perceived overall website quality and its dimensions across three user groups. Results suggested users of different accommodation booking channels interpreted and reported on the website quality scales in similar manners (Gregorich, 2006). However, the equality of intercepts did not hold; meaning the indicators of website quality were measured on different scales across three groups. Further analysis showed differences in intercepts appeared to be most evident for PE3 – "The search functions on this booking website

are helpful” for the OTA vs. hotel comparison, and the hotel vs. HSEP comparison. PE3 of OTA and HSEP groups had higher intercepts than that of the hotel group. The cross-group differences in the means of perceived ease-of-use might not be due to differences in the means of PE3.

Direct hotel booking websites are used less than OTAs and HSEPs during the research phase; as 67% of customers did not know which hotel they would select (“Price, location, and reviews”, 2010). Compared to the other two booking channels, users might perceive the search functions on hotel websites to be less helpful; but that may not mean the website was hard-to-navigate. The scalar invariance problem between the OTA and HSEP user groups did not apply to the following three separate constructs equally. One information quality item (IQ1- “The website presents up-to-date information of accommodation”) showed substantial measurement non-invariance. In addition, the intercepts of PE2 - “I can go to exactly what I want quickly” and PR4 - “I am concerned that this website will sell my personal information to others without my permission” were non-invariant. In these cases, the estimated parameters were slightly higher in the OTA group. Findings indicated these intercepts were biased and not the best to use in assessing perceived ease-of-use and perceived risk across the OTA and HSEP user groups.

Additionally, this study employed a multi-group CFA approach to re-compare the latent mean differences after ANOVA; providing more robust statistical evidence by avoiding the attenuation bias due to measurement error (Vandenberg & Lance, 2000). The examination of latent mean differences in perceived overall website quality and its four predictors suggested HSEPs were performing better in perceived website aesthetics and perceived overall website, but needed improvement and solutions in reducing privacy risks.

Factors Influencing Customers' Perceptions of Overall Website Quality

Unlike previous studies directly examining the impact of each dimension of website quality on its outcome variables, such as attitudes and use intention, this study empirically examined what constituted a customers' overall website quality perception. Study results implied online bookers' assessments of website quality differed according to the type of booking website. This was an anticipated result as researchers noted dimensions of website quality were expected to differ based on the website function (Kim & Stoel, 2004).

Although different types of website users have different criterion to assess website quality, website aesthetics were found to have common factors, which was consistent with previous studies regarding visual appeal as a website quality attribute (Field, Heim, & Sinha, 2004; Loiacono, 2000; Wolfinbarger & Gilly, 2003). Comparing regression coefficients for each website quality dimension within each subsample showed website aesthetics had the largest effect on website quality. This was consistent with the results of bivariate correlation analyses, suggesting customers' judgement of overall website quality was based on websites' aesthetics elements such as color, font, multimedia and layout. Results confirmed and extended previous findings, demonstrating web appearance / design was the most dominant factor of website quality in an online booking website, retail setting (Kim & Stoel, 2004; Wolfinbarger & Gilly, 2003). Additionally, as indicated by Wolfinbarger and Gilly (2003), website design was especially important in predicting online retail quality for experiential users (who stay longer on a site than goal-oriented users) and frequent buyers. It was inferred OTA and hotel website users were more likely frequent buyers; and HSEP users were experiential. because a HSEP is a relatively new booking platform. It was also inferred customers' perceptions of overall website

quality were formed quickly. It only takes customers 50 milliseconds to make aesthetic impressions of web pages and these impressions remain highly stable (Lindgaard et al., 2006).

It was unexpected that perceived privacy risk did not significantly contribute to website quality among OTA and HSEP users. From a users' perspective, feeling safe and secure on websites did not mean they were of high quality. This finding was contrary to previous website quality research in both tourism and non-tourism areas (Loiacono, 2000; Park et al., 2007). Although perceived risk was found to be a significant predictor in the context of hotel websites, its impact on perceived overall website quality was weak ($\beta = -.09$). As indicated by Wolfinbarger and Gilly (2003), the role of perceived security / privacy was overshadowed by other variables (e.g., website design, fulfillment, customer service) and not significant in predicting website quality except among a website's frequent buyers. As such, it was inferred that hotel websites users were hotel loyalty program members and frequently booked their stays on hotel websites. Additionally, based on the explanation given by Cenfetelli and Bassellier (2009), another potential reason for this weak and unexpected result was perceived risk may fall under a separate construct umbrella. Previous studies conceptualized perceived privacy risk and its conceptually similar terms (e.g., perceived security) as predictors of website service quality (e.g., Collier & Bienstock, 2006; Hernon & Calvert, 2005; Zeithaml, Parasuraman, & Malhotra, 2002). Although Cao, Zhang, and Seydel (2005) suggested service quality, system quality, information quality, and attractiveness captured the overall e-commerce website quality and Wen (2012) validated service quality as part of travel-oriented website quality, this study result called for caution in proposing perceived service quality as a predictor of perceived overall website quality. In a study investigating the impact of website quality factors on customer satisfaction, it was found that most of SERVQUAL constructs were not critical to website success (Lee &

Kozar, 2006). As such, it was possible that when customers were evaluating the quality of a website, they tended to be attentive to tangible clues (e.g., appearance of the website, company reputation) on the website rather than its services which were inherently intangible. Another potential explanation of the significant impact of perceived risk in the hotel contexts only might be due to customer awareness of the dozen hotel data breaches reported since 2010.

In addition to perceived risk, perceived information quality and perceived ease-of-use also showed inconsistent impacts across user groups. Perceived information quality was found to be a significant predictor of website quality in the OTA setting only, challenging the model proposed by Liu and Zhang (2014) who viewed information quality as part of website quality in both OTA and hotel contexts. Similarly, an earlier study examining the impact of travel website quality on customers' purchase intention also held the opinion that information quality fell under the website quality construct (Bai et al., 2008). This study implied customers evaluated the quality of an OTA website based on its ability to present up-to-date, in-depth, and accurate information. As noted by O'Connor (2003), customers commonly consulted several booking websites for hotel rates before making their hotel purchases. Compared to hotel websites, OTA websites provided better sources of information; such as guest reviews, hotel ratings, as well as prices of different hotel brands. OTA websites made searches easier for online bookers to obtain hotel information, which somewhat explained why bookers considered information quality as an evaluation criteria of website quality.

In contrast, the non-significant impact of information quality in the hotel subsample was due to hotel website bookers looking for information consistency, especially price, rather than information accuracy, conciseness, and timeliness. Although many hotel booking websites have advertised best rate guarantees, a recent report showed 75% of customers said they believed

OTA rates were cheaper (Freed, 2016). O'Connor (2003) pointed out customers tended to be more tolerant of rate change in response to changing supply/demand conditions than different rates across different booking channels. As such, hotel website bookers spent time comparing the rates across different channels to ensure hotel websites maintained consistent rates for the same room type. Furthermore, it was unexpected that the role of information quality was eclipsed among HSEP bookers as well. Kim and Niehm (2009) found customers' assessment of the information presented by the website was initiated after they perceived the website was visually pleasing. In this context, it was important to note website aesthetics was the only predictor of website quality; and website aesthetics was highly correlated to perceived website quality. Therefore, HSEP users viewed information quality as an outcome variable of website quality.

Interestingly, perceived ease-of-use was only valued by hotel website users while assessing the website quality. There were two potential reasons for this finding: sample population and Airbnb design. According to the demographic information, only 49.2% of hotel website users aged between 18 to 34 years old, compared to 74.5% in the HSEP subsample and 69.1% in the OTA subsample; suggesting HSEP and OTA subsamples were relatively young. This group of people is regarded as Millennials, who are often characterized as tech-savvy and fast learners (Gursoy, Maier, & Chi, 2008). Therefore, learning to book accommodations via new types of booking channels was generally considered easy, and perceived ease-of-use was not an essential criterion to evaluate website quality. Second, of 325 HSEP subsamples, three quarters indicated they had most recently used Airbnb to book overnight accommodations. Airbnb.com is distinguished from other websites in its easy-to-navigate design. Instead of using traditional tabs, Airbnb uses the vertical space of the website, allowing users to scroll through content on one long page without clicking through multiple pages and waiting for each to load. Since the most

frequently used HSEP is characterized as a user-friendly website, customers shifted their focus to other website quality assessment criteria.

In conclusion, OTA website quality was determined by textual and visual cues, which were two components most likely to be experienced in the information acquisition process. Different from OTA users, hotel website users tended to evaluate websites from a more comprehensive perspective. In addition to the visual appeal, website hotel users also focused on technical aspects of the system, including perceived ease-of-use and perceived risk. As suggested by Chau, Hu, Lee, and Au (2007), customers had privacy-related concerns during the purchase stage. Therefore, it was inferred that hotel websites were evaluated by customers throughout the entire decision-making process. The evaluation of a HSEP was solely on the basis of website aesthetics, which extended the catchphrase “what is beautiful is good” (Dion, Berscheid, & Walster, 1972) from the psychology literature into the information system literature. It was implied customers’ perception of HSEPs were formed in the initial website interaction. Moreover, HSEP websites relied on the trust of a peer-to-peer relationship, which is a central driver, motivating individuals to engage in the process of transaction and product exchange (Botsman & Rogers, 2011; Schor & Fitzmaurice, 2015). Users relied heavily on aesthetic elements to form the first impressions of website and further induce trustworthiness (Fang & Salvendy, 2003).

The Relationships among Website Quality, Customer Satisfaction, and Behavioral Intentions

OTA subsample structural model

Findings of the OTA subsample indicated a positive relationship between website quality, customer satisfaction, and two types of behavioral intentions; which extended Bai et al.'s (2008) findings by adding use intention. This is noteworthy because findings confirmed the quality-customer satisfaction-behavioral intention linkage, which surfaced frequently in an offline service setting, could also be applied to an online setting. Study results also highlighted mediating roles of customer satisfaction in the link between website quality and behavioral intention. This result supported the Dabholkar, Shepherd, and Thorpe (2000) idea that people form an affective evaluation (satisfaction) based on their attitudes about the characteristics or performance of the products. This affective evaluation subsequently translated into intention-based loyalty.

Contrary to what was expected, no direct link from website quality to purchase intention was present, contradicting prior travel website research (Dedeke, 2016; Wen, 2012) and suggested website quality may not guarantee customers' purchase intention. Thus, the focus of management attention should be on customer satisfaction as it was the only significant and direct determinant of purchase intention in the proposed model. Besides website quality, other drivers of customer satisfaction to be taken into account were service quality, price fairness, and product characteristics.

Furthermore, use intention led to purchase intention, suggesting individuals who searched for accommodation information on OTAs would proceed to make a final purchase, supporting Liu and Zhang's (2014) findings that the intention of search in one channel, influenced purchase intention on that channel. Study results also indicated a diminishing OTA billboard effect.

Billboard effect is defined as "a generalization of the visibility a service firm attains via participating in (providing inventory to) OTAs"(Anderson, 2009, p.6). Anderson (2009) explained customers tended to visit the OTA websites to search for hotels' location, price, brands, and rates and then made their bookings at the hotel's website. However, a most recent report by the hotel consulting firm Kalibri Labs, contradicts Anderson's (2009) viewpoint; indicating the incidence of customers going back to the brand site had dramatically decreased (Chipkin, 2015).

Use intention was also found to mediate relationships between purchase intention and its antecedent variable: customer satisfaction. This evidence confirmed previous consumer behavior research in the tourism industry, indicating customers engage in different stages to make decisions on what to purchase (Crotts, 1999). However, use intention did not mediate the perceived overall website quality-purchase intention; implying it was more likely to turn browsers into buyers by providing satisfying online searching and booking experiences.

Hotel subsample structural model

In the hotel subsample, conceptual linkage of the impact of website quality on customer satisfaction and purchase intentions were established; and the mediating role of customer satisfaction was verified. However, the analysis on the customer satisfaction-use intention relationship using the hotel subsample yielded different results from the OTA subsample. This non-significant finding was inconsistent with findings of Belanche et al. (2012) in an e-retailing sites setting. Results showed customers' intention to use hotel branded websites were directly influenced by website quality only; which challenged Liao, Chen, and Yen's (2007) opinion that customers' behavioral intention was mainly determined by customer satisfaction. This study's

results implied even though customers were not satisfied with the browsing or purchasing experience on hotel websites, they would still perform searches on hotel websites of high quality. Only 13.6% of variance in use intention was explained by website quality, indicating other determinants of use intention should be explored. Liu and Zhang (2014) suggested loyalty programs significantly influenced customers' intention to search on hotel websites, which was a reasonable explanation, as customers used hotel branded websites to accumulate or redeem reward points. Another potential reason included customers who used hotel websites to perform searches were satisfied with the hotel brand or hotel service quality, rather than user experience of the website.

Additionally, use intention was found to be a significant predictor of purchase intention. Anderson (2009) pointed out hotel properties generated their revenues from loyal and frequent customers. As such, those who used hotel branded websites to search for information were most likely loyal customers with a high probability to make purchases on the website. Furthermore, the mediating role of use intention was not detected in this context. There were two potential explanations: 1) The proportion of hotel website bookers who travelled for business is slightly higher than the other two groups and 2) hotel website bookers performed searches on other booking channels before making a purchase.

HSEP subsample structural model

All direct paths in the HSEP subsample were supported except the relationship between website quality and purchase intention. Website quality had a significant impact on customer satisfaction, and subsequently influenced both use intention and purchase intention, validating the quality-satisfaction-behavioral intention theoretical linkage. Also, this study demonstrated

website quality directly contributed to use intention. The mediating role of customer satisfaction was also verified and was found to mediate the relationship between website quality and two types of behavioral intention. Results led to the conclusion that website quality influenced use intention directly; while website quality's influence on purchase intention was indirect through customer satisfaction.

The relationship between use intention and purchase intention was significant. On one hand, as a HSEP is peer-to-peer based without hotel brand involvement, the billboard effect did not exist. Hence, it was likely to convert HSEP browsers into buyers. On the other hand, a HSEP is a relatively new form of collaborative business and has established itself as an economical way to travel, enabling curiosity-driven individuals to browse and explore their websites. In the case of Airbnb, it offers a lot of unique accommodations ranging from boats, tree houses, to castles, it is likely that customers use Airbnb to take a look at photos of these intriguing rentals.

Compared to the other two subsamples, customer satisfaction had a relatively stronger impact on purchase intention in the HSEP setting. One reason for this differential effect was that the HSEPs facilitated trust between hosts and guests. Using Airbnb as an example, it promoted trust by requiring customers to verify their IDs or simply linking their profile to a social media account. As indicated by Anderson and Srinivasan (2003), the relationship between e-satisfaction and e-loyalty appeared to be stronger when customers had a higher level of trust in the e-business.

In conclusion, the antecedents of website quality varied across user groups. The results highlighted the importance of website aesthetics, which was the most important factor contributing to overall website quality across three user groups. However, a non-significant to weak association between perceived risk and website quality was detected. Furthermore, this

study verified the inter-relations among website quality, customer satisfaction, and purchase along with the mediating effect of customer satisfaction.

Additionally, the website quality - customer satisfaction - use intention relationship was validated in all settings except for hotel websites, indicating customers were largely concerned with website quality when they used hotel branded websites to search for information. Although customer satisfaction mediated the relationship between website quality and use intention, customers were more likely to be directly influenced by website quality in the other two contexts.

Furthermore, the relationship between use intention and purchase intention was consistent among all three contexts, supporting Shim et al.'s (2001) claim that customers perceived searching and purchasing through a single channel as less costly than searching via one channel and purchasing via another channel. The result also supported Engel, Blackwell, and Miniard's (1995) proposition that information sources' nature influenced purchase decisions.

Theoretical Contributions

This study contains several main contributions. First, much of the literature on website quality does not clarify the difference between dimensions of website quality and factors influencing purchase intention. To explicitly conceptualize and measure website quality from customer perspective, this study generated an overall website quality index and regressed each dimension of website quality on the overall website quality. It is worth noticing users' perceived quality of three different booking websites has not reached a consensus, suggesting website quality is perceived differently across different booking channels.

Second, despite the fact that all measurement items (except one item from use intention) were adopted from previous studies, future researchers should be aware some aforementioned measurement items have correlate residuals and partial measurement invariance. Relevant items (e.g., PE3; PR4; PA3) should be cautiously used in future studies.

Third, previous studies focused solely on purchase intention. This study developed a model including both information searches and purchase stages, and examined their causal relationships. Theoretically, results revealed search-purchase patterns in the travel industry, suggesting using a website for an information search and making a decision to purchase via this website were two dependent processes.

Fourth, this study successfully corroborated the service quality - customer satisfaction - behavioral intention relationship flow to an online setting by substituting service quality for website quality. Although the analysis of the hotel subsample revealed an exception to the quality - customer satisfaction - behavioral intention link that customer satisfaction did not lead to use intention, this relationship was validated in the other two subsamples. This study also generalized the finding of Bai et al. (2008), who successfully confirmed website quality - customer satisfaction - purchase intention linkage using Chinese online visitors, to the broader U.S. population.

Lastly, this study may be the first attempt to assess the dimensions of website quality as well as relative impact and inter-relationships of website quality and satisfaction constructs in the context of the hospitality sharing economy business. With the growing popularity of sharing economy platforms, this study provided a meaningful approach and foundation regarding the perspectives of online users in a hospitality context.

Practical Implications

The proposed website quality index can greatly assist hoteliers, hosts, and website designers in understanding how their customers assess the quality of websites. Two basic issues were addressed: 1) what defines website quality perceptions, and 2) how customers' intention to purchase is formed. The results suggested hospitality practitioners should place emphasis on website aesthetics, as it has a strong and consistent effect on the website quality of three booking channels. Website aesthetics is the first impression the customer receives when engaging in an online booking website. Components of aesthetics that could be improved include, but are not limited to, colors, text, font, and multimedia (Dickinger & Stangl, 2013). Hotel and room images could either encourage or discourage customers from booking a room. As such, professional photographers should be hired to ensure pictures taken are of high quality and high resolution. In addition to website aesthetics, OTA hotel booking website designers should enhance websites' user-friendliness by adding highly visible search bars, faceted navigation, and increasing the speed of the site. Hotel website developers should focus on the quality of website content by ensuring websites have all the details guests want regarding location, rooms, services, in-house dining, local transportation, local events, and more. Guests' reviews are also a source of information. As such, hotel websites could either create a review system or embed reviews from websites like TripAdvisor. Additionally, although the impact of perceived risk on website quality is weak, it is significant. Studies show the presence of privacy statements help customers alleviate their privacy concerns (O'Connor, 2008). Hotel website quality could potentially be enhanced by providing well-located and easily understood privacy policy statements.

Furthermore, customers' use and purchase intention on booking websites is closely linked to the levels of satisfaction with previous website interactions. Online marketers could consider

incorporating more website features such as live chat or virtual tours to create an enjoyable searching and booking environment. As suggested by Toufaily, Ricard, and Perrien's study (2013), emphasis should also be placed on product/service attributes (e.g., product price, product variety, product review, customer relationship), e-retailer characteristics (e.g., company reputation), as well as environmental characteristics (e.g., culture, social presence, legal structure) to enhance customer satisfaction.

Use intention was found to influence purchase intention across all three subsamples, suggesting the number of hotel guests who switch over to book on hotel websites after searching for rooms on OTAs is falling. In other words, hotel marketers could avoid OTA commission fees by recapturing those OTA reservations through direct bookings. It is recommended that hospitality online marketers should invest in optimizing search engines (e.g., Google, Yahoo) results to increase website traffic and subsequently boost booking rate.

The quota for HSEP took the longest to meet, which suggests that, although HSEP is on the rise, its popularity and frequency of use have not yet reached the level of OTA and hotel websites. Hotel owners should be particularly delighted with this result, as it indicates the prevalence of HSEPs have not posed a serious threat to the traditional hotel industry. However, results of the latent mean differences and ANOVA indicated HSEP subsamples scored significantly higher on perceived aesthetics, perceived overall website quality, customer satisfaction, use intention, and purchase intention; implying HSEPs' accelerated growth cannot be underscored. Compared to OTA and hotel websites, HSEPs normally provide more benefits like relatively low prices, the feeling of being 'home,' and access to practical residential amenities (Guttentag, 2015). To stay competitive, OTA websites should expand into apartment

and villa rentals. It is also recommended private rental brands could to enter the GDS and cooperate with OTA websites.

The quickest fulfilled quota group was the OTA subsample, suggesting OTAs continue to gain market share in online hotel bookings. This phenomenon is consistent with the statistics provided by PhoCusWright, showing OTAs presented 58% of US independent properties online bookings in 2015 (Gonzalo, 2015). OTA domination is a double-edge sword for hotels. On one hand, with the help of the billboard effect, hotels can increase their sales by enhancing their online visibility and brand recognition via an OTA website. On the other hand, increasing bookings through OTA websites is not cost-effective due to commission costs. Hoteliers should find out ways to shift bookings from OTAs to their hotel website. First, hoteliers could consider offering promotions like complimentary upgrades or services (e.g., airport transportation, breakfast, Wi-Fi). Second, creating a loyalty program or rewards program for direct bookers could help retain loyalty. In the same manner, hoteliers could issue co-branded credit cards; offering customers a wide range of advantages related to hotel products or services. For example, the holder of a Hilton Visa card earns double HHonors bonus points by making purchases on the Hilton website. Additionally, hotel websites could also integrate some flash sale campaigns or last minute deals to attract customers who are always looking for hotels with deep discounts on OTA websites such as Priceline and Hotwire.

To differentiate from hotel websites, OTA websites should stick with the principle that customers should be able to book multiple travel-related items on the same website, turning e-browsers into e-buyers. OTA websites could also offer the possibility to search for a door-to-door itinerary by adding new segments such as ground transportation and additional rental services.

Results of this study are also helpful in understanding the impact of website quality on customer's satisfaction and behavioral intentions. Since website quality does not lead to purchase intention, practitioners should strive to make their online customers satisfied and generate more revenues by increasing purchase intention (Bai et al., 2008). As recommended by Cheung, Chan, and Limayem (2005), product and vendor characteristics should also be considered to enhance e-satisfaction.

Limitations and Future Study

Like all research, this study was subjected to some limitations. First, the questionnaire was distributed on MTurk. This contributed to the inability to generalize the findings as those who are not MTurk workers were excluded from participating in the survey. In addition, the majority of the sample was American and caution should be made in generalizing the findings from this study to other populations.

Second, quota sampling was a limitation. A specific number of respondents in each specific group was determined. Once the quota was filled participants no longer qualified for the study. The sample was not chosen using random selection, resulting in sampling bias and problems of generalization.

Third, the proposed four website quality dimensions were not all proven to represent website quality, which might be due to the inter-relationships among these variables. Studies have shown website quality could be an antecedent of information quality (Kim & Niehm, 2009), and website aesthetics and information quality could respectively influence ease-of-use (Ahn et al., 2007; Tractinsky, Katz, & Ikar, 2000). As such, future studies should take a closer look at these causal relationships to better dimensionalize and measure website quality.

Fourth, since a high correlation between perceived website quality and website aesthetics was found. The following structural model (see *Figure 10*) was suggested for future study to see how the other three dimensions impact these two highly correlated variables. More specifically, since this study examined classical aesthetics only, future studies could add expressive aesthetics; which stressed the designers' creativity and originality rather than the traditional attributes pointing to organized, clear design, and visual richness (Lavie & Tractinsky, 2004).

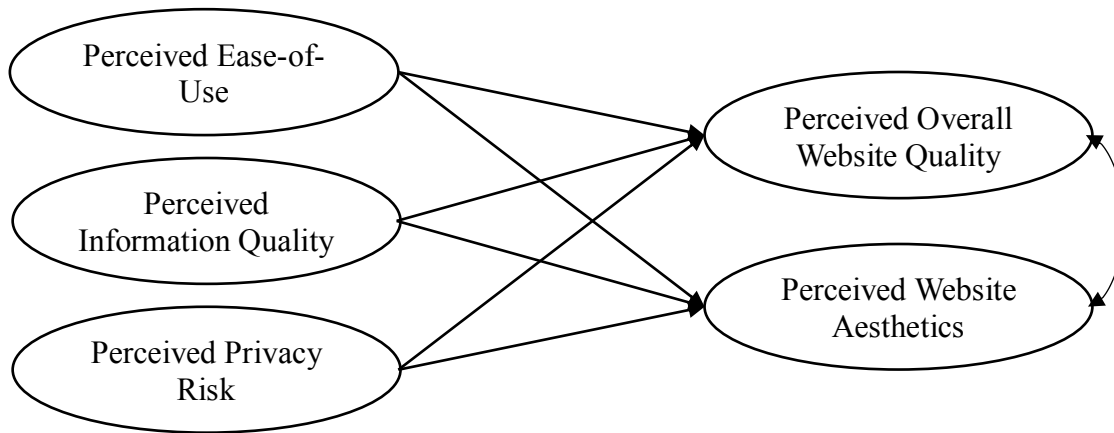


Figure 10. A suggested model for future study

Fifth, this study did not propose the relationship between four dimension of website quality and two types of behavioral intentions. Future study could examine a fully recursive model by adding eight additional paths. By comparing fully recursive models and reduced models, researchers could determine whether there are any spurious significant relationships.

Sixth, this study only examined the website quality of three types of booking channels. Future research should continue to access the generalizability of the proposed website quality index across contexts such as meta-search engines, last-minute online hotel reservation websites, and hotel group buying websites. It should also be noted this study utilized quantitative methods to conceptualize website quality constructs. To supplement the shortage of the quantitative

approach, future study should conduct a qualitative study to uncover any additional website quality dimensions and help researchers gain a richer theoretical understanding of website quality.

Moreover, only two types of behavioral intentions, use intention and purchase intention, were examined in this study, excluding word-of-mouth and attitudinal loyalty. Although numerous studies conceptualized purchase intention as e-loyalty, it is important to include the assessment of attitudinal preference or psychological attachment (Anderson & Srinivasan, 2003; Oliver, 1999). As such, it is recommended future research examine behavioral intentions by capturing both attitudinal and behavioral dimensions.

Lastly, this study only included customer satisfaction as a mediator. Previous studies suggested customer trust (Ganguly, Dash, Cyr, & Head, 2010; Shin, Chung, Oh, & Lee, 2013) and customer commitment (Shin et al., 2013) mediate the relationship between website quality and purchase intention. Several researchers also integrated affective and cognitive states as mediators into the model based on Mehrabian and Russell's (1974) stimulus-organism-response (S-O-R) model (Hsu, Chang, & Chen, 2012; Kim & Lennon, 2013). Therefore, further research needs to consider more organism variables, reflected by the emotional responses and cognitive reaction (Eroglu, Machleit, & Davis, 2003) to better understand behavioral intentions. Several authors have also introduced some moderators (e.g., previous experience, perceived value, customer characteristics, switching cost) that change the causal relationship between customer satisfaction and behavioral intention (Chang, Wang, & Yang, 2009; Chang & Wang, 2011; Cooil, Keiningham, Aksoy, & Hsu, 2007; Lee, Lee, & Feick, 2001). Future studies should pay more attention to the moderating effects, to suggest more meaning interpretations and practical implications.

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APPENDIX A

SURVEY INSTRUMENT

You are invited to participate in this project focusing on customers' perceptions of three types of online accommodations booking websites: online travel agency (OTA) websites, hotel websites, and hospitality sharing economy platforms.

To participate in this survey, you must be at least 18 years of age. This survey will take about 15-20 minutes to complete. If you agree to participate, you will be asked to answer a set of questions about your perceptions, ideas, and future behaviors related to online booking websites. Please answer the survey questions to the best of your knowledge.

Once you complete a valid survey, you will receive a code to input on the invitation screen of Amazon Mechanical Turk to receive the incentive for completing this survey. There are not any foreseeable risks to you for participating in this survey. It is hoped that the information you provide can be used as a customer-determined means for website developers and hoteliers to assess their website quality. As such you may receive indirect benefits from improved quality of online booking websites provided by developers in the future.

Your participation is voluntary. You may refuse to participate in this study or in any part of this study, if you feel uncomfortable. All your answers will be solely used for the purpose of this study. All the information collected in this survey will be kept completely anonymous and confidential in a password-protected system.

Thank you for your time and consideration. Your participation is greatly appreciated.

By clicking on the "I AGREE" button below you verify that you have read the above information and agree to participate in this survey.

- ☐ I Agree
- ☐ I Do Not Agree

If I Do Not Agree is selected, then skip to a page that thanks the participants for their interest and ends the survey

Entry Questions:

E1. What is your current age?

If what is your current age? is less than 18, then skip to a page that thanks the participants for their interest and ends the survey

E2. Have you booked any overnight accommodations **online** (i.e., hotel room, vacation club rental, condo) in the last 12 months?

- ☐ Yes
☐ No

If No is selected, then skip to a page that thanks the participants for their interest and ends the survey

E3. Please select the type of online booking channel you **have most recently used** to book an accommodation

- ☐ Online travel agency (OTA) websites / Third-party booking websites (e.g., Priceline, Expedia, Hotwire)
☐ Hotel branded websites (e.g., Marriot, Hilton, Hyatt)
☐ Hospitality sharing economy platforms (e.g., Airbnb, HomeAway, CouchSurfing)
☐ None of the above

If None of the above is selected, then skip to a page that thanks the participants for their interest and ends the survey

If Online travel agency websites is selected, then skip to A1;

If Hotel branded websites is selected, then skip to A2;

If Hospitality sharing economy platforms is selected, then skip to A3;

A1. Please select the name of online travel agency (OTA) website / third-party website you have most recently used to book an accommodation

- | | | |
|------------------------------------|-----------------------------------|---|
| <input type="radio"/> Agoda | <input type="radio"/> Hotelurbano | <input type="radio"/> Skyscanner |
| <input type="radio"/> Booking.com | <input type="radio"/> Hotwire | <input type="radio"/> StudentUniverse |
| <input type="radio"/> Bookngbuddy | <input type="radio"/> Kayak | <input type="radio"/> Thomascook |
| <input type="radio"/> Cheapair | <input type="radio"/> LastMinute | <input type="radio"/> Thomson |
| <input type="radio"/> CheapTickets | <input type="radio"/> LateRooms | <input type="radio"/> Travelocity |
| <input type="radio"/> Ctrip | <input type="radio"/> Makemytrip | <input type="radio"/> Tripadvisor |
| <input type="radio"/> Decolar | <input type="radio"/> Onetravel | <input type="radio"/> Venere |
| <input type="radio"/> ELong | <input type="radio"/> Orbitz | <input type="radio"/> Yatra |
| <input type="radio"/> Expedia | <input type="radio"/> Priceline | <input type="radio"/> Others (Please specify) |
| <input type="radio"/> Holidaycheck | <input type="radio"/> Qunar | <input type="text"/> |
| <input type="radio"/> Hotels.com | <input type="radio"/> RoomKey | |

A2. Please select the name of hotel branded website you have most recently used to book an accommodation

- | | | |
|---|---|---|
| <input type="radio"/> Adam's Mark | <input type="radio"/> Hampton Inn | <input type="radio"/> Red Lion |
| <input type="radio"/> Advena | <input type="radio"/> Hilton | <input type="radio"/> Red Roof Inn |
| <input type="radio"/> Affinia | <input type="radio"/> Hilton Garden Inn | <input type="radio"/> Regal |
| <input type="radio"/> Best Western | <input type="radio"/> Holiday Inn | <input type="radio"/> Regent |
| <input type="radio"/> Choice | <input type="radio"/> Hyatt | <input type="radio"/> Renaissance |
| <input type="radio"/> Courtyard by Marriott | <input type="radio"/> Hyatt Place | <input type="radio"/> Ritz-Carlton |
| <input type="radio"/> Crowne Plaza | <input type="radio"/> InterContinental | <input type="radio"/> Shangri-La |
| <input type="radio"/> Days Inn | <input type="radio"/> Mandarin Oriental | <input type="radio"/> Starwood |
| <input type="radio"/> Doubletree | <input type="radio"/> Microtel | <input type="radio"/> Super8 |
| <input type="radio"/> EconoLodge | <input type="radio"/> JW Marriott | <input type="radio"/> Travelodge |
| <input type="radio"/> Embassy Suites | <input type="radio"/> Omni | <input type="radio"/> Wyndham |
| <input type="radio"/> Extended Stay America | <input type="radio"/> Radisson | <input type="radio"/> Others (Please specify) |
| <input type="radio"/> Fairmont | <input type="radio"/> Radisson Blu | <input type="text"/> |
| <input type="radio"/> Four Seasons | <input type="radio"/> Raffles | |

A3. Please select the name of hospitality sharing economy platforms you have most recently used to book an accommodation

- | | | |
|--------------------------------------|-----------------------------------|---|
| <input type="radio"/> 9Flats | <input type="radio"/> HomeStay | <input type="radio"/> VBRO.com |
| <input type="radio"/> Airbnb | <input type="radio"/> HouseTrip | <input type="radio"/> Wimdu |
| <input type="radio"/> Cosmopolithome | <input type="radio"/> Knok | <input type="radio"/> LoveHomeSwap |
| <input type="radio"/> CouchSurfing | <input type="radio"/> MyTwinPlace | <input type="radio"/> GuesttoGuest |
| <input type="radio"/> FlipKey | <input type="radio"/> OneFineStay | <input type="radio"/> Others (Please specify) |
| <input type="radio"/> HomeAway | <input type="radio"/> Roomorama | <input type="text"/> |
| <input type="radio"/> HomeExchange | <input type="radio"/> Travelmob | |

A4. What is your frequency of online purchases (e.g., clothing, electronics, home supplies) in the last 12 months?

- ☐ Never
☐ Once or twice
☐ 3-6 times
☐ Monthly
☐ At least weekly

A5. Please think about the most recent time you made an overnight accommodation booking.

Please indicate the **number of booking websites** you have used to **search for** overnight accommodations for this stay.

- | | |
|-------------------------|------------------------------------|
| <input type="radio"/> 0 | <input type="radio"/> 6 |
| <input type="radio"/> 1 | <input type="radio"/> 7 |
| <input type="radio"/> 2 | <input type="radio"/> 8 |
| <input type="radio"/> 3 | <input type="radio"/> 9 |
| <input type="radio"/> 4 | <input type="radio"/> 10 |
| <input type="radio"/> 5 | <input type="radio"/> More than 10 |

A6. Please indicate the number of overnight accommodation bookings you have made in the last 12 months.

- | | |
|-------------------------|------------------------------------|
| <input type="radio"/> 1 | <input type="radio"/> 7 |
| <input type="radio"/> 2 | <input type="radio"/> 8 |
| <input type="radio"/> 3 | <input type="radio"/> 9 |
| <input type="radio"/> 4 | <input type="radio"/> 10 |
| <input type="radio"/> 5 | <input type="radio"/> More than 10 |
| <input type="radio"/> 6 | |

A7. What is the primary purpose of your last trip?

- ☐ Business
- ☐ Visiting family, relatives, and / or friends
- ☐ Pleasure (e.g., vacation, relax, shopping honeymoon)
- ☐ Attending a conference, meeting, exhibition, seminar or other forms of education
- ☐ Religion
- ☐ Health (e.g., hospital, examination, operation)
- ☐ Others (Please specify)

A8. Please indicate the number of people who were traveling with you last time

- | | |
|---|------------------------------------|
| <input type="radio"/> I was traveling alone | <input type="radio"/> 6 |
| <input type="radio"/> 1 | <input type="radio"/> 7 |
| <input type="radio"/> 2 | <input type="radio"/> 8 |
| <input type="radio"/> 3 | <input type="radio"/> 9 |
| <input type="radio"/> 4 | <input type="radio"/> 10 |
| <input type="radio"/> 5 | <input type="radio"/> More than 10 |

B1. Please indicate how much you agree or disagree with the following statements about your perception of the technological effort you need to adapt to this booking websites

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can find what I want with a minimum number of clicks					
I can go to exactly what I want quickly					
The search functions on this website are helpful					
To insure that all participants are thoroughly reading each question. Please check Neutral					
This website has well-arranged categories					
This website does not waste my time					

B2. Please indicate how much you agree or disagree with the following statements about your perception of quality of information provided by the accommodation booking website you most recently used.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
This website provides in-depth descriptions of accommodation and its services (e.g., room amenities, facility information, location, surrounding area information)					
This website provides accurate information of accommodation (e.g., room availability, room pictures)					
This website provides customized information of accommodation					
This website is a very good source of information					
This website gives me enough information so that I can identify the item to the same degree as offline					

B3. Please indicate how much you agree or disagree with the following statements about your perception of privacy risk while searching for or booking an accommodation on this website

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
I am concerned about the privacy of my personal information during a transaction					

I am concerned that unauthorized persons (e.g. hackers) have access to my personal information					
I am concerned that this website will use my personal information for other purposes without my authorization					
I am concerned about the privacy of my personal information during a transaction					
I am concerned that this website will sell my personal information to others without my permission					

B4. Please indicate how much you agree or disagree with the following statements about your *perception of the visual appearance* of this booking website

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
This website looks attractive					
This website looks organized					
This website uses colors properly					
This website uses fonts properly					
This website uses multimedia features properly					

B5. Please indicate how much you agree or disagree with the following statements about your *perception of the overall quality* of this booking website

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
This website is of high quality					
To insure that all participants are thoroughly reading each question. Please check Agree					
The likely quality of this website is extremely high					
The website must be of very good quality					
This website appears to be of very poor quality					

B6. Please indicate how much you agree or disagree with the following statements about your *level of satisfaction* with this booking website

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Overall, I am happy with the accommodation and services offered by this booking website					
I am satisfied with my decision to search for accommodations with this website					
Searching for accommodations/rooms on this website is a good experience for me					
My choice to visit this website was a wise one					

B7. Please indicate how much you agree or disagree with the following statements about your *intention to search information* on this booking website in the future

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
I intend to use this website to search for information on accommodations					
I will probably use this website to search for information on accommodations					
I am decided to use this website to search for information on accommodations					

B8. Please indicate how much you agree or disagree with the following statements about your *intention to make a purchase* on this booking website in the future

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
The probability that I would consider to book an accommodation from this website is high					
To insure that all participants are thoroughly reading each question. Please check Strongly Disagree					
If I were to book an accommodation, I would consider booking it from this website					
The likelihood of my booking an accommodation on this website is high					
My willingness to book an accommodation from this website is high					

The following questions are for classification purposes only. No identifying information will be able to be linked directly to you.

C1. What is your gender?

- ☐ Male
- ☐ Female

C2. What is your age?

- | | |
|-----------------------------|-----------------------------|
| <input type="radio"/> 18-24 | <input type="radio"/> 45-49 |
| <input type="radio"/> 25-29 | <input type="radio"/> 50-54 |
| <input type="radio"/> 30-34 | <input type="radio"/> 55-59 |
| <input type="radio"/> 35-39 | <input type="radio"/> 60-64 |
| <input type="radio"/> 40-44 | <input type="radio"/> 65+ |

C3. What is the highest level of education you have completed?

- | | |
|---|--|
| <input type="radio"/> Some High School | <input type="radio"/> Bachelor/college/university degree |
| <input type="radio"/> High School Degree/Diplomat or equivalent | <input type="radio"/> Masters Degree |
| <input type="radio"/> Associate Degree | <input type="radio"/> Professional Degree |
| <input type="radio"/> Some College | <input type="radio"/> Doctoral Degree |

C4. What is your total household income?

- | | |
|---|---|
| <input type="radio"/> Less than \$10,000 | <input type="radio"/> \$60,000 - \$69,999 |
| <input type="radio"/> \$10,000 - \$19,999 | <input type="radio"/> \$70,000 - \$79,999 |
| <input type="radio"/> \$20,000 - \$29,999 | <input type="radio"/> \$80,000 - \$89,999 |
| <input type="radio"/> \$30,000 - \$39,999 | <input type="radio"/> \$90,000 - \$99,999 |
| <input type="radio"/> \$40,000 - \$49,999 | <input type="radio"/> \$100,000 - \$149,999 |
| <input type="radio"/> \$50,000 - \$59,999 | <input type="radio"/> More than \$150,000 |

C5. Please indicate your ethnicity

- | | |
|--|--|
| <input type="radio"/> Caucasian / White | <input type="radio"/> Native American / Alaska Native |
| <input type="radio"/> African American / Black | <input type="radio"/> Pacific Islander / Native Hawaiian |
| <input type="radio"/> Asian | <input type="radio"/> Other (please specify) |
| <input type="radio"/> Hispanic / Latino | <input style="width: 150px; height: 20px;" type="text"/> |

C6. In which country do you currently reside?

Thank you for taking the time to complete this survey. Your participation in the study is greatly appreciated.

Please click the Next (>>) Button below to receive the code for payment.

APPENDIX B

IRB APPROVAL FORM

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-4207
515-294-4566
FAX 515-294-4207

Date: 2/10/2016

To: Dr. Xiaowei Xu
167 University Village, Apt E
Ames, IA 50010

CC: Dr. Thomas Schrier
5 MacKay Hall

From: Office for Responsible Research

Title: The Impact of Website Quality on Customer Selection of Online Accomodation Booking Channels

IRB ID: 16-036

Study Review Date: 2/9/2016

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
 - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
 - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed**. For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.