2018

Customers’ perceptions of service quality, using an online reservation system, and online reviews affecting intention to use the system to book a hotel room

Mai Wu
Iowa State University

Follow this and additional works at: https://lib.dr.iastate.edu/etd

Part of the Business Administration, Management, and Operations Commons, and the Management Sciences and Quantitative Methods Commons

Recommended Citation
Wu, Mai, "Customers' perceptions of service quality, using an online reservation system, and online reviews affecting intention to use the system to book a hotel room" (2018). Graduate Theses and Dissertations. 16490.
https://lib.dr.iastate.edu/etd/16490

This Dissertation is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.
Customers’ perceptions of service quality, using an online reservation system, and online reviews affecting intention to use the system to book a hotel room

by

Mai Wu

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
  Young A. Lee
  Frederick Lorenz
  Eric D. Olson
  Tianshu Zheng

The student author, whose presentation of the scholarship herein was approved by the program of study committee, is 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

2018

Copyright © Mai Wu, 2018. All rights reserved.
DEDICATION

I would like to dedicate this dissertation to my angel, Chengxin (Krystal) Zhang. I am fortunate that you came into and enriched my life. I am thankful for the joy and luck you bring me.
# TABLE OF CONTENTS

LIST OF FIGURES .................................................................................................................. vi

LIST OF TABLES .................................................................................................................... vii

ACKNOWLEDGMENTS ........................................................................................................... ix

ABSTRACT ............................................................................................................................... xi

CHAPTER I. INTRODUCTION ................................................................................................. 1

Introduction ............................................................................................................................. 1
Background for Service Quality Research in the Hospitality Industry ............................. 1
Background for Technology Use in the Hospitality Industry ............................................. 3
Background for Social Media in the Hospitality Industry .................................................. 5
Problem Statement .................................................................................................................. 6
Purpose of Study ...................................................................................................................... 8
Research Contribution .......................................................................................................... 8
Definition of Terms .................................................................................................................. 9
Chapter Summary ................................................................................................................... 10

CHAPTER II. REVIEW OF LITERATURE .............................................................................. 11

Introduction ............................................................................................................................. 11
Theories Related to Consumer Behavior in Hospitality and Tourism Research ........................ 11
Utility Theory .......................................................................................................................... 11
Theory of Reasoned Action ...................................................................................................... 12
Theory of Planned Behavior .................................................................................................. 15
Motivation Theory .................................................................................................................. 19
Judgment and Decision-making Theory .................................................................................. 21
Customer Satisfaction Theories ............................................................................................ 23
Expectancy Disconfirmation Theory ...................................................................................... 23
Equity Theory .......................................................................................................................... 27
Attribution Theory .................................................................................................................. 29
Information Technology Theories ........................................................................................... 34
Technology Acceptance Theory .............................................................................................. 34
Fishbein Model ........................................................................................................ 35
TAM ........................................................................................................................ 37
Service Quality ....................................................................................................... 38
Perception of the Experience Using a System ....................................................... 44
   Perception of Experience Using a System and Intention to Use the System ....... 46
   Mediating Effect of Perception of the Experience Using the System .............. 47
Customer-Generated Online Review ..................................................................... 49
   Customer Online Review in the Hospitality Industry ..................................... 57
Customer Satisfaction and Intention to Purchase ................................................... 58
Amazon Mechanical Turk ....................................................................................... 58
Research Gap .......................................................................................................... 59
Chapter Summary .................................................................................................. 60

CHAPTER III. METHODS ....................................................................................... 61
   Introduction ......................................................................................................... 61
   Research Objectives ........................................................................................... 62
   Pilot Study ........................................................................................................... 63
   Questionnaire Development ............................................................................. 63
   Measurement Scales Development ................................................................... 65
      Perceived Service Quality .............................................................................. 65
      Online Reservation System Experience ....................................................... 65
      Other Customers’ Online Review .................................................................. 67
   Customers’ Perception of their Experience Using a Hotel’s Online Reservation System ............................................................................................................ 68
      Satisfaction Regarding Hotel ....................................................................... 69
      Intention to Use ............................................................................................... 70
      Demographic Information .............................................................................. 71
   Data Collection ................................................................................................... 73
   Data Screening ................................................................................................... 73
   Data Analysis ...................................................................................................... 74
      Descriptive Statistics ...................................................................................... 74
      Amazon’s Mechanical Turk (MTurk) .............................................................. 74
      Confirmatory Factory Analysis (CFA) ............................................................ 75
LIST OF FIGURES

Figure 1. Theory of reasoned action. ................................................................. 13
Figure 2. Theory of planned behavior ............................................................ 16
Figure 3. Expectancy disconfirmation ............................................................. 24
Figure 4. Technology acceptance model ......................................................... 38
Figure 5. Proposed model ............................................................................. 63
Figure 6. Structural model with standardized regression coefficients .......... 87
Figure 7. Structural model with standardized regression coefficients .......... 110
LIST OF TABLES

Table 1. Comparison of Three EDT Models Longitudinally ........................................26
Table 2. SERVQUAL Dimensions and Items ................................................................41
Table 3. Previous Used Measurements of Customer Perceived Service Quality ...........44
Table 4. Measurement Items of Perceived Service Quality .......................................65
Table 5. Measurement Items of Perceived Usefulness .............................................66
Table 6. Measurement Items of Perceived Ease of Use ...........................................67
Table 7. Measurement Items of Other Customers’ Online Reviews .........................68
Table 8. Measurement Items of Customers’ Perception of their Experience Using a
   Hotel’s Online Reservation System ..................................................................69
Table 9. Measurement Items of Customer Satisfaction Regarding a Hotel ............69
Table 10. Measurement Items of Intention to Use a Hotel’s Online Reservation
   System to Make Room Reservations ................................................................71
Table 11. Measurement Items for Demographic Information ..................................72
Table 12. Cut-Off Values for Goodness of Fit Indices ............................................76
Table 13. Demographic Profile of the Respondents ................................................79
Table 14. Summary of Travel and Booking Experiences ..........................................81
Table 15. Summary of Construct Reliability and Validity Evaluation ......................85
Table 16. Summary of Discriminant Validity Evaluation .......................................85
Table 17. Heterotrait-Monotrait (HTMT) Ratio of Correlations .............................86
Table 18. Summary of the Results for Hypotheses Test .........................................89
Table 19. Correlations Among Latent Variables for Initial (Reduced) Model ..........89
Table 20. Summary of Direct and Indirect Effects Results ......................................90
Table 21. \( \chi^2 \) Comparison Between Initial Model and Fully Recursive Model ..........92
Table 22. Comparison Between Initial Model and Fully Recursive Model ...............92
Table 23. Correlations Among Latent Variables for Full Model .............................92
Table 24. Standardized Factor Loadings in Each Indicator for Corresponding Latent
   Variables in Initial Model and Full Model ......................................................93
Table 25. Summary of Measurement Model Fit ......................................................107
Table 26. Summary of Construct Reliability and Validity Evaluation ......................107
Table 27. Summary of Discriminant Validity Evaluation .......................................108
Table 28. Heterotrait-Monotrait (HTMT) Ratio of Correlations for Discriminant Validity

Table 29. Summary of the Path Coefficients and Significance Level

Table 30. Correlations Among Latent Variables for Alternative Model

Table 31. Summary of Direct and Indirect Effects Results

Table 32. Standardized Factor Loadings in Each Indicator for Corresponding Latent Variables in Alternative Model
ACKNOWLEDGMENTS

At the very beginning of this dissertation, I would like to extend my sincere and heartfelt appreciation towards everyone who has assisted me in this endeavor. Without their active guidance, help, co-operation and encouragement, I would not have made headway in this project.

First, I would like to express sincere gratitude to my major professor, Dr. Thomas Schrier, for his continuous support of my PhD studies and related research, and his patience, motivation, and immense knowledge. His guidance helped me throughout the research and writing of this dissertation. I could not imagine finishing my degree without his mentoring in my study and life. I would also like to thank the rest of my committee: Dr. Fred Lorenz, Dr. Young A. Lee, Dr. Eric D. Olson, and Dr. Tianshu Zheng for their insightful comments and encouragement, and for the hard questions which incentivized me to widen my research from various perspectives.

My sincere thanks goes to my family, who provided me with great support throughout the whole process of my degree. I would like to thank my parents, parents in law, cousins, and grandparents for always being supportive, which enabled me to achieve my final goal. I send my deepest love and thank to my husband, Weitao Zhang, for the endless love and understanding you gave to me, which made me powerful in spite of the many sleepless nights working on this dissertation. I would also like to express my great appreciation for my newborn baby, our angel, Chengxin (Krystal) Zhang, for joining our big family and enriching our lives. I would not have finished this dissertation without any of you.

I would also like to thank my close friends, Xiaowei Xu, Yi Gong, Jing Yang, Xuefei Zhao, Yu-Chih Chiang, Yani Wei, Yi Luo, Ka Eun (Luna) Lee, Nishapat Meesangkaew, and Zahidah Latif for sticking with me during the long, but brilliant,
PhD journey. Thank you for your willingness to talk, listen, offer suggestions, and for always being there when I needed friends.

Last but not least, I would like to give my special thanks to Drs. Robert Bosselman, Ann-Marie Fiore, Ching-Hui Su, Ellen McKinney, and Linda Neihm for working with me when I was a teaching assistant and research assistant, and for providing great opportunities for me to learn. I would also like to thank all the faculty members of the AESHM Department at Iowa State University. You made my PhD life wonderful and unforgettable.
ABSTRACT

Information technology transforms the way hospitality organizations do business. There are many areas during the hotel booking process that create moments of satisfaction or dissatisfaction for customers. One of these areas is the ease of utilization of a hotel’s online reservation system.

It is important for hotel companies to ensure appropriate service is provided to customers and creates a positive customer experience; therefore, accurate and timely reservations are essential. The internet enables hotel customers to take full advantage of the immense amount of information available while they are booking a hotel online.

According to Castro and Custodio (2016), a hotel’s online reservation system has become a popular means for reserving hotel rooms. A hotel’s online reservation system enables hotel managers to manage the reservation process without manual efforts. Moreover, the online reservation system also improves the efficiency of the reservation process compared to booking via email or by phone. The hotel’s online reservation system also provides a direct way for hotels to monitor their revenue management (Hu & Gu, 2013). In addition, by booking a room through a hotel’s online reservation system, customers are assured about the availability of a room upon arrival at the hotel during their trip. The reservation is a commitment made by the hotel rather than a third-party business when the hotel accepts the reservation request via their online reservation system (Kasavana & Brooks, 1998). However, there is still a large portion of customers using other methods to book a hotel room, including through OTA websites, by email, by phone, or in person. Therefore, factors impelling customers to book directly through the hotel’s own reservation system turn out to be a substantial topic for hotel management. This study focuses on examining the factors
affecting customers’ intention to use a hotel’s online reservation system by combining previous theories and framework.

This study examines the elements impacting customers’ intentions to use a hotel’s online reservation system to make room reservations, including the customers’ perceptions of service quality, the experience of using the hotel’s online reservation system on its website, satisfaction regarding the hotel, perception of the experience using the online reservation system, and evaluation of other customers’ online reviews of a hotel.

Results from 848 online survey responses indicated customers intended to book through a hotel’s online reservation system due to favorable perceptions about the hotel’s service quality, positive experiences using the hotel’s online reservation system in terms of usefulness and ease of use, and good evaluations about other customers’ online reviews about the hotel. The findings proved the TAM was successfully applied to the hotel industry to explain customer usage of a hotel’s online reservation system. It was also confirmed that perceived ease of use directly affected customers’ intentions to use a system only when the system was not purchase-oriented. Customers’ evaluations about online reviews regarding the hotel affected their intentions to book through the hotel’s online reservation system by increasing the customers’ satisfaction level and perception of their experience using the system.

Contributions of this study were both theoretical and practical. First, this study provided insights into the perceived service quality-customer satisfaction-purchase intention link in a hotel’s online reservation system setting. Second, the results generalized the TAM for a hotel online direct sale scenario by examining the relationship among user acceptance of system and intention to use the system for purchase. Third, this study made the first attempt to combine intention for system
usage and intention to purchase and investigated in an online reservation system setting in hotel industry. Fourth, results suggested strategies to hotel practitioners for improving a hotel’s online reservation system in terms of ease of use and usefulness. Fifth, provided advice for hoteliers in improving online distribution strategies to take advantage of the customers’ adoption of the online reservation system as a reservation tool. Lastly, the results addressed the impact of online reviews generated by customers on customer satisfaction regarding the hotel and perception of their experience using the hotel’s online reservation system.
CHAPTER I. INTRODUCTION

Introduction

In recent years, the use of information technology, such as the internet, has transformed the way hospitality companies do business with customers. Commerce through the internet, or e-commerce, has grown at a tremendously high speed (Kim, Ma, & Kim, 2006). Pan, MacLaurin, and Crots (2007) proposed online, user-generated reviews about travel destinations, hotels, and tourism services became important sources of information for travelers. Kim et al. (2006) additionally asserted the internet was an increasingly popular channel for hospitality customers to make reservations for future trips. According to Connolly and Olsen (2000), the reason for this trend was due to customers’ insistence upon ease of use, hassle-free service, and adequate information can obtained during their trip planning process. Customers were satisfied not only by the hotels good service quality, but also because of the ease of dealing with their hotel booking process through the hotel’s online reservation system (Sparks & Browning, 2011). This chapter provides background information in terms of service quality, information technology, and social media in the hospitality industry. The purpose of this study is also stated at the end of this chapter.

Background for Service Quality Research in the Hospitality Industry

Levitt (1972) indicated service quality meant whether the service result was consistent with the established standards. Bolton and Drew (1991) indicated service quality described customers’ assessments of service superiority. Lehtinen and Lehtinen (1991) looked at service quality from the perspective of service, service delivery process, as well as function. He and Su (1995) demonstrated the stable and lasting influence of service quality on customer satisfaction.
Service quality has been considered the antecedent of customer satisfaction and behavioral intentions in hospitality organizations. Bigne, Sanchez, and Sanchez (2001) and Lee, Lee, and Lee (2005) proposed higher service quality results in both higher satisfaction and more positive behavioral intentions. Stevens, Knutson, and Patton (1995) argued, food, physical environment, and service were the three key attributes managers of hospitality organizations needed to recognize to determine how satisfied their customers were. All these attributes contributed to customers’ overall satisfaction with their perceived service experience, resulting in intention to repurchase in the future. Moreover, Nam and Lee (2011) utilized a modified SERVQUAL scale and found three dimensions of service quality (i.e., intangibles, tangibles, food) had a positive impact on customer satisfaction with hospitality organizations. Parasuraman, Zeithaml, and Berry (1988) noted service quality results from comparing customer expectations of service with actual service performance. Moreover, Churchill and Surprenant (1982) addressed that customer satisfaction with services delivered depended on the gap between expectations of service and actual service received. In other words, service quality not only included the final result but also the means of service delivery.

As the internet develops, online shopping or hotel booking becomes part of customers’ daily life. Service organizations, such as retailing companies or hotel companies, are providing services to their customers not only in person, but also in the cyberspace. Online shopping enables anyone to access a virtual marketplace, where the content of a transaction is information about services or goods, and to interact with different systems and other people in a fast and convenient way (Hoffman & Novak, 1996). However, it is noted by Grönroos, Heinonen, Isoniemi, and Lindholm (2000) that not all companies have designed their online systems in a way that creates good customer appeal and maximizes customer benefits. Rust and Lemon (2001) propose services
provided through the internet are defined as “… providing a superior experience to consumers with respect to the interactive flow of information.” Normann (1992) concludes that customers form an evaluation about a service based on whether the service provided meets their expected quality criteria. It is suggested by Grönroos et al. (2000) that the service quality perceived by customers in a physical marketplace are still valid for the virtual marketspace. The quality of customers’ experience from interacting with an online system offered by a company is essential, and a well-developed online system creates interest in the company and services or products it offers (Schwartz, 1997). Sivadas (1998) asserts a company with an online system for sales that provides good service or products promotes customers’ intentions to actually make purchases through the system. Grönroos et al. (2000) further notes customers’ perceptions of the quality of the service offered by a company with an online purchasing system leads to an outcome of using the system as a purchasing and consumption instrument. Therefore, marketers who wish to use an online system to provide services or products to customers should be aware of how customers perceive and assess the service.

Background for Technology Use in the Hospitality Industry

According to Oliveira and Martins (2011), information technology was widely considered to be an important tool in improving competition and the economic conditions of a country. Additionally, information technology was commonly agreed to significantly impact the productivity of a company who applied it. Likewise, Buick (2003) indicated information technology performed a dramatically fast increase in an expanding area. Traditionally, the hospitality industry often lagged other sectors in applying information technology due to the special characteristics of the hospitality and tourism industry. However, Buick (2003) also stated the situation has changed recently due to the economic recovery, which boosted the improvement of the hospitality industry. O’Connor and
Murphy’s (2004) study analyzed previous research investigating information technology themes in the hospitality and tourism area. The study reviewed previous papers published in a dozen hospitality and tourism journals. Their research showed previous research considering information technology in the hospitality industry focused on three areas: the effect of the internet on distribution, the effect of the internet on pricing, and the effect of the internet on customer-organization interactions. They concluded it was important for hoteliers to reconsider their selected distribution; and suggested a good strategy when choosing a proper distribution required knowing what to include in the channels. They also addressed customer ownership as a key point to a good strategy. In terms of pricing, O’Connor (2003) examined the behavior of chain hotel brands by revealing customers often sought multiple channels for the lowest price. It was revealed by O’Connor (2003) that hotel companies were more likely to choose multiple distribution channels and apply different prices for different channels. In conclusion, O’Connor indicated hotel companies did an overall poor job managing their distribution channels, therefore, it was necessary for hotel companies to implement better pricing policies to boost customers’ intentions to make reservations via brand websites. Lastly, in terms of the relationship between hotel customers and information technology, O’Connor and Murphy (2004) summarized the findings of previous research, and concluded information searching was one of the first stages in a customer’s decision-making process. Several previous studies examined the effects information technology had on hospitality customers’ decision-making behaviors.

Camison (2000) and Siguaw and Enz (1999) revealed that during recent years, the hotel industry was increasingly information-intensive. Furthermore, Law and Jogaratnam (2005) illustrated technology was functional in the hotel industry due to its role of making hotel employees more productive and performing better services to hotel customers.
Background for Social Media in the Hospitality Industry

Social media and Web 2.0 are two popular buzzwords, as well as technological concepts, that brought about pervasive changes in business-to-business communication, business-to-customer communication, and customer-to-customer communication (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). In the era of social media, the internet evolved from a broadcasting medium to a participatory platform that enabled users to become “media” themselves to collaborate and share information (Li & Wang, 2011; Thevenot, 2007). According to Bodnar (2010), more than 3 million photos were uploaded to Flickr, 5 million tweets, and a million new blog entries posted on Twitter and other blog sites every day. Obviously, these statistics reflected the increasing prevalence of social media in people’s daily lives. Furthermore, the “user democracy” culture and ability to share information by means of social media substantially changed information asymmetry and the bargaining power of customers.

As one of the two “mega trends” that significantly influence the tourism system (the other one being search engines (Xiang & Gretzel, 2010)), social media is widely adopted by travelers to search, arrange, share, and annotate their travel stories and experiences via blogs and microblogs (e.g., Twitter), online communities (e.g., Facebook), media sharing sites (e.g., Youtube), social bookmarking sites (e.g., Delicious), social knowledge sharing sites (e.g., Wikitravel), and other tools in a collaborative way. According to a report, more than one-third of all leisure travelers in the United Kingdom select their hotels on the basis of social media sites such as Tripadvisor (Koumelis, 2011).

Social media had the capacity to assist tourism and hospitality companies in engaging customers, increasing their online presence, and thereby resulting in greater online revenues driven by user-generated content (Leung, Law, Van Hoof, & Buhalis, 2013). Wang and Fesenmaier (2004) stated social media was substantial for managing customer
relations with their unique ability of attracting customers via in-depth, focused, and member-generated content, engaging customers through social interactions, and retaining customers through relation building with other members. Likewise, Dellarocas (2003) indicated social media provided hotel companies an excellent opportunity to analyze comments on online communities, such as Tripadvisor, so hotel companies better understood what their customers liked and disliked about them and their competitors. Considering this rapidly growing trend and the potential benefits social media offered, numerous hotel and tourism businesses integrated social media applications into their websites to enhance customers’ travel information searching experiences (Fuchs, Scholochov, & Hüpken, 2009; Sánchez-Franco & Rondan-Cataluña, 2010).

Considering the important role of social media in both travelers’ decision making as well as in tourism operations and management, a plethora of research on the application of social media in tourism and hospitality has been catalogued in referred journals (e.g., Chan & Denizci Guillet, 2011; Li & Wang, 2011; Noone, McGuire, & Rohlfis, 2011; Xiang & Gretzel, 2010).

**Problem Statement**

Perceived as a fast-growing business opportunity, the internet is viewed by many hospitality organizations as a creative and competitive marketing tool in offering room-related information and online transaction opportunities (Doolin, Bergess, & Cooper, 2002). However, hotels are still seeking an efficient way to persuade customers to make room reservations directly through a hotel’s online reservation system available on the hotel’s website, in spite of the growing online booking market. According to previous literature (Su, 2004), one of the biggest contemporary challenges of management in the hospitality industry is keeping customers satisfied. Moreover, customers’ perceived service quality and customer satisfaction are increasingly identified as key factors in the
battle for competitive differentiation and customer retention. Similarly, Ladhari (2009) asserts that superior service quality enables a hotel company to differentiate itself from its competitors, gain a sustainable competitive advantage, and enhance efficiency.

Meanwhile, online customers are also computer users as they perform all functions of traditional customers on a computer interacting with a system (Koufaris, 2002). Although previous research investigates how customers’ perceived service quality affects their satisfaction about a service provider, which in turn affects their intention to make purchases (Su, 2004); how users’ perceived ease of use and perceived usefulness of a system affect their intention to make purchases using that system (Suh & Han, 2002); and how customer-generated online reviews affect customers’ intention to purchase (Sparks & Browning, 2011), there is little research examining how these factors synchronously affect customers’ intention to make purchases in a hotel’s online reservation system setting. Therefore, this study combines all of these elements together, and examines how customers’ perceived service quality, customers’ perceived ease of use and perceived usefulness of a hotel’s online reservation system, and the customers’ assessment of other customers’ online reviews affect customers’ satisfaction regarding the hotel, their perception of their experience using the hotel’s online reservation system, and their intention to use the system to book from the hotel.

Furthermore, it is important to fully understand the theoretical keystones that are considered the foundation of the current work before conducting the study. Therefore, the following sections put an emphasis on illustrating the theories related to general customer behaviors, as well as theories related to human-technology interaction in hospitality and tourism research fields.
Purpose of Study

The purpose of this study was to examine the elements impacting customers’ intention to use a hotel’s online reservation system to book from the hotel, including customers’ perceptions of service quality of the hotel, their perceived ease of use and usefulness of a hotel’s online reservation system, satisfaction regarding the hotel, perception of their experience using the hotel’s online reservation system, and their evaluation of other customers’ online reviews that they were exposed to while making decisions for booking a hotel room. Considering this purpose, the following research questions were developed for investigation in this study:

RQ1: What are the factors affecting customers’ intention to use a hotel’s online reservation system to book from the hotel?
RQ2: Do customers’ perceptions of the service quality of a hotel affect their satisfaction regarding the hotel?
RQ3: How do customers’ perceived usefulness of a hotel’s online reservation system affect their perception of their experience using the hotel’s online reservation system?
RQ4: How do customers’ perceived ease of use of a hotel’s online reservation system affect their perception of their experience using the hotel’s online reservation system?
RQ5: Do other customers’ online reviews matter to their decision-making process of booking a hotel room via its online reservation system?

Research Contribution

This study indicated how customers’ perceived service quality provided by a hotel, the perceived ease of use and usefulness of a hotel’s online reservation system, as well as how other customers’ online reviews affected customers’ satisfaction regarding the hotel, their perception of their experience using a hotel’s online reservation system, and their intention to use a hotel’s online reservation system to book from the hotel. Therefore, the
findings of this study provided an exploration of the application of the technology acceptance model (TAM) in an online reservation system scenario, where the research model was tested using structural equation modeling (SEM). The results of this study provided useful information for hotel managers regarding service-related aspects that could improve perceptions by customers. In addition, the results provided suggestions for improving the hotel’s online reservation system to make it more user-friendly and encourage customers to book directly through the hotel’s own website instead of third party websites, or online travel agency (OTA) websites for example,.. Moreover, the findings offered valuable suggestions on appropriately managing customers’ online reviews to boost positive customer experience.

**Definition of Terms**

*Perceived Service Quality:* A global judgment or attitude associating to the superiority of a service, in which the customer compares his/her expectations with his/her perception of the service received (Grönroos, 1984; Zeithaml & Bitner, 2000).

*Perceived Usefulness:* “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 320).

*Perceived Ease of Use:* “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p.320).

*Customer Online Review:* Any positive or negative statement made by former customers about a product or company, which is made available to a multitude of people and institutions via the internet (Litvin, Goldsmith, & Pan, 2008).

*Customer Satisfaction:* A psychological concept that engages the perceptions of well-being and pleasure originating from customers’ obtaining what they expect from a product or service provided by a specific company (Pizam & Ellis, 1999).
Perception of the Experience Using a System: A person’s assessment and responses that result from the use or anticipated use of a system (Law, Roto, Hassenzahl, Vermeeren, & Kort, 2009).

Intention to Use: A significant signal of whether customers are willing to remain with or defect from a specific organization (Zeithaml, Berry, & Parasuraman, 1996).

Chapter Summary

This chapter provided background information for customers’ perceived service quality, the application of information technology in the hospitality industry, such as a hotel’s online reservation system, and customer-generated online reviews and their impact on customers’ intention to use the hotel’s online reservation system to make room reservations in the hospitality industry. The theoretical and practical contributions of this study were discussed, followed by an overview of the definition of the key terms addressed in the framework of this study.

The following chapter will explore the existing theories related to customer behaviors in hospitality research and information technology in the hospitality industry. In addition, the following chapter illustrates what has been discussed in previous studies in the field of customer perceived service quality, customers’ perceptions of using a hotel’s online reservation system, and customers’ perceptions of previous customers’ online reviews and their impact on customer satisfaction, customers’ perception of their experience using a hotel’s online reservation system, as well as intention to use a hotel’s online reservation system to make room reservations from the hotel in a more detailed manner. Moreover, the constructs of the research framework and measurements for these constructs are explained by reviewing previous literature.
CHAPTER II. REVIEW OF LITERATURE

Introduction

This chapter discusses previous research that provides evidence for the development of the hypotheses of this study. The literature review is organized in six major sections. The first section discusses theories associated with customer behavior in hospitality and tourism research. The second section summarizes theories related to customer satisfaction about companies or organizations that provide services. The third section summarizes theories related to information technology and customers’ perceptions of their experience using systems. The fourth section discusses theories related to perceived service quality. The fifth section talks about theories related to customer-generated online reviews. The last section summarizes the research gap investigated.

Theories Related to Consumer Behavior in Hospitality and Tourism Research

Consumer behavior has long been of interest to researchers in various areas. Starting approximately 300 years ago, Nicholas Bernoulli, John von Neumann and Oskar Morgenstern began to explore the basis of consumer decision-making behaviors (Richarme, 2007).

Utility Theory

Among early work, the most prevalent model used was utility theory, which asserted consumers made purchase decisions on the basis of the outcome they expected from their purchase decisions (Bray, 2008). Fishburn (1970) proposed utility theory was based on consumers’ decision-making behavior. According to Zinkhan (1992), customers were considered ‘rational economic men’ (p.2), meaning a consumer had to be aware of all the available consumption choices, capable of properly rating each alternative, and available to choose the optimum course of purchase action. Similarly, Schiffman and Kanuk (2009)
pointed out that customers considered to be rational decision makers were only concerned about their own benefits.

Recent research on consumer behavior stated a wide range of factors affected customers’ purchase and decision-making behaviors due to the development of economy and the optimization of consumption environment. Therefore, customers established a broader range of desires such as recognition need, information search need, evaluation of alternatives, and building of purchase intention need, as well as the act of purchasing, consumption and finally disposal. Similarly, Simon (1997) suggested it was not realistic for consumers to make ‘perfect’ decisions (p.4) due to the lack of sufficient information, motivation, or time during their decision-making process. Simon (1997) further indicated that social relationships and values of products impacted consumers’ decision-making processes, preventing consumers from behaving as rational economic men. Simon (1997) further strengthened his point by establishing Herbert Simons satisficing theory, illustrating consumers were more inclined to seek satisfactory, instead of optimum, choices during consumption activities.

Theory of Reasoned Action

According to Fishbein and Ajzen (1975) and Chang (1998), the theory of reasoned action (Figure 1) argued a consumer’s behavior was influenced and even determined by the consumer’s behavioral intention, where behavioral intention was a function of ‘attitude toward the behavior.’ This attitude referred to the general feeling of favorableness or unfavorableness for a behavior, and ‘subjective norm’ referred to the perceived opinion of other people associated to the behavior in question. Moreover, Fishbein (1980) stated that a consumer’s behavioral intention predicted “the performance of any voluntary act, unless intent changes prior to performance or unless the intention measure does not correspond to the behavioral criterion in terms of action, context, time-
frame and specificity” (p.66). Similarly, Hansen, Jensen, and Solgaard (2004) illustrated that the theory predicted consumers’ intention of certain behaviors through consumers’ attitude toward that specific behavior, instead of by consumers’ attitude toward the product or service provided in the consumption activity.

Figure 1. Theory of reasoned action.

Fishbein and Ajzen (1975) and Chang (1998) further surmised that the theory of reasoned action involved consumer behaviors over which the individual has control and were rational, volitional, and systematic behavior. In contrast, Sheppard, Hartwick, and Warshaw (1988) argued “actions that are at least in part determined by factors beyond individuals volitional control fall outside the boundary conditions established for the model” (p.326).

In practice, the theory of reasoned action is applicable to various research situations. For example, it can be applied to research where the target behavior is not completely under the subjects’ volitional control, and research in which subjects’ intentions are evaluated when it is impossible for them to have all of the necessary information to build a completely confident intention. Njite and Parsa (2005) conducted a study investigating factors that influenced internet purchasing for the hospitality and tourism industry using a model based on the theory of reasoned actions and explaining the influence of different factors. The respondents of the study survey indicated subjective norms and trust
perceived by consumers had no significant influence on their intention to purchase. It was also suggested by Njite and Parsa (2005) that as demographics changed and access to the internet increased in the hospitality and tourism industry, trust perceived by customers and factors that affected their intention to purchase through the internet changed as well. Njite and Parsa’s study provided a framework that theoretically predicted consumer adoption of e-commerce by explaining customers’ intention to use internet technology for purchasing products and services in the hospitality and tourism industry.

However, one of the most vital limitations of the framework of this theory was it was established to cope with consumer behaviors rather than outcomes or events resulting from behaviors. As a result, Sheppard, Hartwick, and Warshaw (1988) asserted that behaviors at least partly determined by factors beyond individuals’ volitional control fell outside the boundary conditions developed for the framework. In other words, “whenever the performance of some action requires knowledge, skills, resources, or others’ cooperation, or necessitates overcoming environmental obstacles, the conditions of the model cannot be met” (p.326). Moreover, Sheppard, Hartwick, and Warshaw (1988) pointed out that two major potential problems arose when applying this framework to study goals for which attainment involved a degree of uncertainty. They mentioned the framework led to difficulties in terms of the power of the relationship between consumer intentions and performances due to a variety of factors in addition to one’s intentions affecting whether the expected consumption outcomes were acquired. This resulted in potential problems regarding the accuracy of predicting purchase outcomes from consumer intentions. Additionally, it was problematic to predict how consumers determined their purchase intentions using this framework since there was no provision in the framework which concerned either the probability for failing to gain one’s goals or the results of such failure (Atkinson, 1958).
Therefore, theory of planned behavior was established as an extension of the theory of reasoned action due to the limitations of its framework.

Theory of Planned Behavior

Based on Petty, Unnava, and Strathman (1991), the most essential concern for researchers interested in consumer behavior was to predict how attitudes influenced consumer behavioral intentions.

Meanwhile, many other researchers suggested consumers’ attitudes toward the product or service they were going to purchase was more predictive of their actual purchasing behaviors in certain circumstances (Evans, Christiansen, & Gill, 1996; Njite & Parsa, 2005; Shim & Drake, 1990; Shim, Eastlick, Lotz, & Warrington, 2001).

To investigate the relationship between consumer’ attitudes toward the product and services they were going to purchase and their behavioral intentions, various of theoretical frameworks were established. The best-known frameworks were the theory of reasoned action and the theory of planned behavior (Wen, 2009).

The theory of planned behavior (Figure 2) was first proposed by Ajzen (1991), who stated consumers’ intentions to perform various consumption-related behaviors were highly and accurately foreseen by attitudes toward the behavior, subjective norms, and perceived behavioral control. Consumers’ intentions, along with their perceived behavioral control, resulted in substantial differences in consumers’ purchasing behaviors.
Ajzen and Fishbein (1980) and Fishbein and Ajzen (1975) argued the theory of planned behavior was considered an extension of the theory of reasoned action since it dealt with limitations of the framework of the theory of reasoned action over which people had incomplete volitional control. Likewise, Montano, Kasprzyk, Glanz, Rimer, and Viswanath (2008) stated the theory of planned behavior was considered an extension of the theory of reasoned action because it assumed the best predictor of a behavior was behavioral intention like the theory of reasoned action, but expanded its framework to include the construct of perceived control over performance of the behavior. Furthermore, Montano et al., (2008) asserted that as an extension from the theory of reasoned action, the theory of planned behavior emphasized theoretical constructs associated with individual motivational factors and considered these determining factors to calculate the probability of performing a purchasing behavior.

Referring to Posthuma and Dworkin (2000), the additional construct included in the theory of planned behavior compared to the theory of reasoned action, was perceived
behavioral control and was defined as “the consumer’s subjective belief about how
difficult it will be for that consumer to generate the behavior in question” (p.541). The
concept of perceived behavioral control related to numerous research settings. For
example, Chang (1998) investigated the perceived behavioral control construct in a study
predicting unethical behavior. More recently, Shim, Eastlick, Lotz, and Warrington (2001)
included the perceived behavioral control in their research framework regarding
customers’ online pre-purchase intention.

Liao, Chen, and Yen (2007) established an integrated model designed to foresee and
interpret an individual’s continued use of online services based on the expectation
disconfirmation model and the theory of planned behavior. The study revealed customers’
intention to purchase from online service environment was primarily based on customer
satisfaction, perceived usefulness, and subjective norm as suggested by the theory of
planned behavior. Koufaris (2002) established the expectation disconfirmation model that
was utilized as an appropriate means to reflect customers’ repurchase intention via an
information system because the functionalities of online services are fully based on the
facilitations of information technologies. As an application of theory to practice,
Bhattacherjee (2001) combined the technology acceptance model (TAM) with the
expectation disconfirmation model to investigate the customers’ expectation of system-
specific attributes on customer satisfaction and their intention to use the system.
However, one of the downsides of the expectation disconfirmation model is that the
framework does not extensively assess the effect of social norms and customers’ personal
characteristics on an individual’s continuous consumption behavior (Liao et al., 2007). To
overcome this shortcoming, the theory of planned behavior established proper extensions
of the model to become a generic model widely used in explaining and analyzing
behavior suggests customer behavior was affected by their behavioral intentions and perceived behavioral controls. Meanwhile, customer behavioral intention was based on their attitude towards the behavior, subjective norm, and perceived behavioral control. Liao et al (2007) conducted a study investigating customers’ behavioral intention towards continued use of online services by establishing an integrated model, fully synthesizing the expectation disconfirmation model and the theory of planned behavior concepts in a supplementary way. According to Liao et al., (2007), the expectation disconfirmation model monitored the effect of customer satisfaction, while the theory of planned behavior was utilized for the purpose of reflecting the impact of personal characteristics and subjective norm. Furthermore, Liao’s (2007) study illustrated that subjective norm and perceived behavioral control were derived from the theory of planned behavior and explored the effects of normative beliefs in a social system and personal psychological status correspondingly. The results of the study suggested subjective norm and perceived behavioral control were both significant predictors of customers’ intention to repurchase services online. Liao’s study (2007) also revealed the variance explained in customer behavioral intention increased significantly by combining the theoretical constructs of the theory of planned behavior and the expectation disconfirmation model. The facts indicated that combining the theory of planned behavior and the expectation disconfirmation model helped increase the accuracy of an integrated model to predict as well as explain customers’ behavioral intention. In other words, the integrated model had a better explanatory power than other models based on the expectation disconfirmation model. In a practical perspective, Liao et al., (2007) suggested that since subjective norm within the theory of planned behavior proved to have significant impact on customers’ behavioral intentions, advertisements and promotional activities were applicable strategies for encouraging customers’ intention to revisit. Although the results of Shim’s
study agreed with findings of Ajzen’s (1985, 1991) study of the theory of planned behavior, which stated “attitudes are determinants of behavioral intentions,” doubts still remained regarding the appropriateness of putting the findings of this theory into the hospitality and tourism industry.

**Motivation Theory**

Iso-Ahola’s motivation theory in the tourism context illustrated leisure travelers were motivated by two primary forces when participating in tourism and recreational activities. The two forces affected the individual leisure traveler’s consumption behavior simultaneously (Ross & Iso-Ahola, 1991). One of the forces was personal/interpersonal escape, meaning people wanted to escape from troubles, personal problems, difficulties, failures, or the interpersonal world (e.g., coworkers, friends, family members) in their daily life through attending leisure activities (e.g., traveling to a tourism destination, staying in a resort on the beach, attending a banquet in a tourism destination). The other force was the personal/interpersonal seeking, meaning people sought psychological rewards from attending leisure activities as well as the desire to be involved in social contact through traveling. To investigate this theory, Ross and Iso-Ahola (1991) conducted a field study exploring the motivation and satisfaction dimensions of sightseeing tourists using data collected on 10 tour buses in different tourism destinations. The results of the study revealed respondents reported their satisfaction with various perspectives of the tour, which corresponded to the motivation items they presented before experiencing the tour. Results indicated a considerable similarity between motivation and satisfaction dimensions in terms of knowledge seeking, social interaction, and escape emerging as important motives and satisfaction factors. This similarity resulted in a high overall satisfaction level with the tour reported by the travelers.
Moreover, the researchers found leisure travelers reported significantly higher satisfaction levels than travelers who came for a convention.

According to Ross and Iso-Ahola (1991), “motivation is the cognitive representations of future states” (p.227). Leisure travelers’ motivation emphasized the initiation of behavior and was mainly a function of expectations toward the results of their future purchase behavior. As a result, motivation was measured through potential fulfillment, defined as a measurement of psychological outcomes after experiencing the products or services during the trip. Ross and Iso-Ahola (1991) further pointed out customer behavioral intention was often, although not always, considered to produce customer satisfaction. Deci (1975) illustrated that a motivation was considered “an awareness of potential satisfaction in a future circumstance (e.g. future purchasing of hotel or other tourism products or services)” (p. 227).

Meanwhile, Snepenger, King, Marshall, and Uysal (2006) investigated Iso-Ahola’s theory under similar tourism and recreation experiences, in which the motivation dimensions were monitored using scenario-based data for sporting events, beaches, amusement parks, and natural parks. This empirical study aimed to implement Iso-Ahola’s theory specifically within the hospitality and tourism circumstances. They used a scenario-based, repeated measure design to examine the objectives of the study. The findings of this study confirmed the existence of the four dimensions (i.e. personal escape, interpersonal escape, personal seeking, interpersonal seeking) proposed by Iso-Ahola (1982). Moreover, the results were consistent with that concluded by Iso-Ahola’s study; that personal escape, interpersonal escape, personal seeking, and interpersonal seeking all performed as salient intrinsic motivational drives for customer behaviors in the hospitality and tourism industry.
Judgment and Decision-making Theory

Abelson and Levi (1985) classified decision-making literature into three categories: structure versus process orientation, risk free versus risky choice models, and normative versus descriptive models. Risk-free decisions engaged in preferences, while risky decisions involved probabilities. A continuum of choice circumstances ranged from well-defined to ill-defined choice circumstances. Well-defined choice circumstances embraced both risky and risk-free decisions, whereas ill-defined choice circumstances only included risky decisions due to the uncertainty of the decision consequences. Sirakaya and Woodside (2005) stated most customer decisions in the hospitality and tourism industry were considered ill-defined decisions according to the classification made by Abelson and Levi (1985). Moreover, the most important difference between normative and descriptive models was whether customers in the hospitality and tourism industry were seeking optimum decisions or solely looking for a satisfying outcome of the decision-making process.

Research regarding customer decision-making behavior advanced exponentially during the past three decades (Sirakaya & Woodside, 2005). Papatheodorou (2001) stated tourists’ behavior and decision-making had long been the central issue in the tourism management literature. A large amount of research attempted to explore the factors impacting travelers’ decision-making for choosing a travel destination to visit, as well as travelers’ intention to purchase products or services in the hospitality and tourism industry (Wong & Yeh, 2009). In a study exploring travelers’ decision-making for tourism destinations, Wong and Yeh (2009) proposed travelers were affected by factors such as issues related to health, safety, time, expenditure, and travel distance (Bansal & Eiselt, 2004) during the decision-making process for future trip planning. Additionally, inadequately provided preceding information also led to the uncertainty in the expected
quality of their future experience with the hotel or other tourism organizations, thus resulting in travelers’ hesitation in decision-making. Thunholm (2004) stated it was considered a decision-making style that travelers hesitated during trip planning process.

Sirakaya and Woodside (2005) asserted, that for the purpose of explaining a wider range of decision behavior across an expanded range of contexts, multiple decision theories needed to be used simultaneously. In other words, it was not probable to fit an individual decision-making process into a single decision-making theory.

They proposed two types of decision-making processes based on the extension of involvement, and classified customers’ decision-making processes in the tourism industry as high-involvement and extensive decision-making, the reason for which was the relatively high costs both monetarily and non-monetarily involved in the decision-making process.

Woodside, MacDonald, and Trappey (1997) stated customers’ previous experience resulted in a more cursory information search, more confidence in the selection, and less perceived risk during customers’ decision-making process.

Stevenson, Busemeyer, and Naylor (1990) pointed out that judgment and decision-making theory consisted of a taxonomy of tasks, including prediction and forecasting, inference, and worth and preference judgments. Furthermore, prediction and forecasting indicated how individuals used current information to predict future events, such as predicting customers’ future purchasing decisions given the online reviews written by previous customers.

Inference referred to how individuals evaluated probabilities of events based on uncertain information. For instance, predicting customers’ trust towards a hotel brand based on their perceived quality of that hotel brand according to online reviews generated by previous customers. Finally, worth and preference judgments referred to how
individuals dealt with information to determine the value of an event or outcome. Under the current study conditions, it was described as the customers’ intention to purchase from a hotel in regard to their perception of the information provided by online reviews generated by previous customers.

**Customer Satisfaction Theories**

A number of theories in the service field addressed customer satisfaction and service paradigm, which were used in many areas in the service industry to explain the relationship between service quality and customer satisfaction with the service or products consumption experience. In general, the theories were categorized into three classifications: expectancy disconfirmation, equity, and attribution.

**Expectancy Disconfirmation Theory**

Oliver (1980) proposed a model that considered consumer satisfaction as a function of customer expectation and expectancy disconfirmation (Figure 3). Oliver (1980) further asserted that the effects of expectation and discrepancy perceptions were additive. Moreover, Oliver (1980) suggested expectations created a cutoff point about which one made a comparative judgment.

In this situation, service results worsened when customers’ expectations were considered a negative disconfirmation, which scored below the cutoff point; while service results better than customers’ expectations were assessed as a positive disconfirmation and scored beyond the cutoff point respectively.
Figure 3. Expectancy disconfirmation.

Expectancy disconfirmation theory measured customer satisfaction based on perceived quality of products or services (Elkhani & Bakri, 2012). Spreng, MacKenzie, and Olshavsky (1996) proposed an expectation disconfirmation model that explained the customer consumption decision in the post-purchase process and constantly dominated academic research and managerial practice. The application of the model clarified how customer satisfaction affected customer repurchase and loyalty. Based on the framework of the expectancy disconfirmation theory, customer satisfaction was the provision that determined customers’ intention to repurchase.

Oliver (1980) illustrated disconfirmation was defined as the inconsistency between customers’ pre-purchase expectation toward the product or service and the customers’ post-purchase performance after the consumption of the product or service. Moreover, various previous studies demonstrated the definition for expectation, which had three different types including the “will expectation, the should expectation, and the ideal expectation” (p.2807). According to Liao et al (2007), the “will expectation” referred to
the prediction of future performance as well as a customer’s faith in their post-purchase perception of the product or services. The “should expectation” referred to customers’ beliefs of situations in the next service encounter, which set up a normative standard for performance of the product or service consumption process. Finally, the “ideal expectation” referred to the customers’ anticipation of the product or services in an ideal circumstance. Parasuraman, Zeithami, and Berry (1994) stated disconfirmation was assumed to be positively related to customer satisfaction only when customers’ perceived product or service performance was lower or the same as the “ideal expectations” based on the classic ideal view of the expectation confirmation model.

Liao’s study (2007) used perceived usefulness, perceived ease of use, perceived service quality, satisfaction, and intention to repurchase online services as measurements in the expectancy disconfirmation model. By combining the core of the expectancy disconfirmation theory and the theory of planned behavior, this study revealed customers’ intention to purchase online services repeatedly was significantly motivated by subjective norm and perceived behavioral control. Moreover, the results also showed customers’ behavioral intention was primarily based on satisfaction, which was predicted by disconfirmation in perceived service quality and expected service quality and perceived ease of use of the services or products consumed online. More specifically, the study indicated disconfirmation and perceived ease of use together explained 79% of the error variance in customer satisfaction, and suggested the core of the expectancy disconfirmation theory was fully represented by the study framework.

Elkhani and Bakri (2012) reviewed the expectancy disconfirmation theory as a theory for measuring customer satisfaction utilizing perceived quality of products or services. Elkhani and Bakri (2012) further asserted the expectancy disconfirmation theory was based on the definition of cognitive dissonance theory. Consistent with previous
researchers, positive disconfirmation resulted in the customer’s satisfaction, while negative disconfirmation resulted in the customers’ dissatisfaction measured by the difference between customers’ expectation before actual purchase and the performance of the products or services they purchased. The development of the expectancy disconfirmation theory experienced three phases (see Table 1), changing from the first EDT model (Oliver, 1980), to the EDT model that presented information satisfaction (Spreng, MacKenzie, & Olshavsky, 1996) to the desires and expectation disconfirmation model (Spreng & Page, 2003).

Table 1. Comparison of Three EDT Models Longitudinally

<table>
<thead>
<tr>
<th>EDT Model</th>
<th>Model Constructs</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oliver (1980)</td>
<td>Expectation, Perceived performance</td>
<td>Measuring customer satisfaction through the difference between customers’ pre-purchase expectation and the actual performance of the products or services</td>
</tr>
<tr>
<td></td>
<td>Disconfirmation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td></td>
</tr>
<tr>
<td>Spreng, MacKenzie, and</td>
<td>Expectation, Perceived performance Desires</td>
<td>Satisfying the customers is not limited only to their expectation of products or services. Rather, satisfying customers from perceived information is the first step that can attract the customers’ trust over offered products and services</td>
</tr>
<tr>
<td>Olshavsky (1996)</td>
<td>Desires congruency, expectation congruency Attribute satisfaction, information satisfaction Overall satisfaction</td>
<td></td>
</tr>
<tr>
<td>Spreng and Page (2003)</td>
<td>Expectation, Perceived performance Desires</td>
<td>Proved that Perceived performance has direct impact on overall satisfaction</td>
</tr>
<tr>
<td></td>
<td>Disconfirmation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall satisfaction</td>
<td></td>
</tr>
</tbody>
</table>
The three phases of evolution of the expectancy disconfirmation theory showed this model applied to various areas of study; however, the common theme among these models were they proved the expectancy disconfirmation theory to be good for investigating the relationship between customers’ pre-purchase expectation and their satisfaction after the purchase and adjusted to fit research in various fields.

According to Westbrook and Reilly (1983), Oliver’s (1980) conceptualization of the expectancy disconfirmation theory identified the influential character of customer satisfaction, and the concept focused on customer’s experience perspective instead of the product or service perspective. However, Westbrook and Reilly (1983) further proposed the major weakness of the expectancy disconfirmation theory was its dependence specifically on the procedure determining customer satisfaction.

**Equity Theory**

Adam (1963) first proposed the equity theory, stating employees pursued the preservation of equity between the effort they put into their job and the outcome they gained from the job. The theory was widely used to explain employees’ perceived fairness and job satisfaction. The structure of equity in the workplace depended on the ratio of the input employees contributed to their job and the outcome they obtained. As the theory evolved, it was applied to a wider area and attempted to explain customer satisfaction in regards to their perceptions of fairness during service encounters (Oliver & Swan, 1989). Swan and Oliver (1989) conducted a study investigating customers’ perceptions of interpersonal equity and their satisfaction towards the service encounter using a field survey. In this study, automobile customers were asked to report their perceptions towards their inputs and outcomes from the service encounter, and their perceived inputs and outcomes of the salesperson during the encounter. Structural equation modeling with maximum likelihood estimation was utilized in conducting the data analysis, and results
showed fairness and advantageous inequity were the two advanced concepts in equity theory literature. They had different relationships with the input and outcome evaluations, with fairness mediating the effect of service encounter’s inputs and outcomes on customer satisfaction while the advantageous inequity does not. The equity theory suggested customer satisfaction was achieved when customers considered their output-to-input ratio for the consumption of a product or service as being fair. Woodruff, Ernest, and Jenkins (1983) further pointed out customers’ perceived fairness during their consumption of a product or service derived from various factors including price, benefits, and time and effort during and prior to consumption. Yüksel and Yüksel (2005) stated the equity theory of customer satisfaction was different from other frameworks in this area because satisfaction was assessed, including consideration of other customers in a consumption encounter, as well as the outcomes of all customers who shared the same consumption experience with the customer under investigation. Regarding this distinguished theory characteristic, Erevvels and Leavitt (1992) further illustrated the equity theory offered a more ample depiction of customer satisfaction in consumption encounters that could not be investigated using traditional customer satisfaction frameworks. To be more specific about this statement, researchers also cited the equity theory was particularly useful in shaping consumption encounters where customer satisfaction with the other party was regarded as being a vital impact on the encounter.

Previous research also explored the equity theory specifically for the hospitality and tourism industry. Reisinger and Turner (1997) stated the equity theory in the hospitality and tourism industry suggested travelers evaluated their perceived outcome-to-input ratio to see if their input in the encounter was less than what they got out of the encounter. Moutinho (1987) further indicated satisfaction was “a mental state of being adequately or inadequately rewarded” (p.34). Likewise, Meyer and Westerbarkey (1996) illustrated the
outcome-to-input ratio was compared to the travelers’ perceived net gain of friends or family members who received the similar service offer. Fisk and Coney (1982) conducted a study using a role-playing method to examine whether travelers’ knowledge of other travelers receiving a better price and more acceptable boarding wait time impacted travelers’ satisfaction with the airline company. They revealed that hospitality and tourism industry customers’ perception of equity performed by the companies were interpreted into satisfaction evaluation results and influenced their purchase expectations and intention to purchase in the future.

Goodwin and Ross (1992) mentioned the equity theory was limitedly applied to marketing research. Oliver (1996) indicated equity existed in the research field of marketing and could be measured against “a continuum ranging from negative inequity to equity, to positive equity” (p.202). Oliver and Swan (1989) stated the equity theory and the attribution theory were considered determinants of customer satisfaction. However, the attribution theory proposed different perspectives of customer satisfaction than the equity theory.

Attribution Theory

The concept of attribution was first established by Heider (1944), who conducted a study investigating “how causal attributions influence the perception of the behavior of other persons” (p.358). Heider’s (1944) study built a foundation for the investigation of elementary factors of causal attribution in social perception due to the abstract nature of the material used in his experiment. In social psychology, attribution was defined as the process in which the causes of human behaviors were explained (Kelly, 1973). Bitner (1990) defined consumer attribution as “what people perceive to be the causes behind their own behavior, the behaviors of others, or the events they observe” (p.70).
Weiner et al. (1987) established an attributional framework of achievement motivation. The framework was guided by the general cognitive approach, and was based on the assumption that beliefs about the causes of success and failure mediated between antecedent stimulus-organism transactions and ensuing achievement behavior. According to Weiner et al. (1987), the attribution theory was used more widely in investigating frameworks considering dissatisfied customers, or customers’ complaining behaviors, than frameworks regarding satisfied customers, or customers’ positive behaviors towards the product or services purchased. According to Folkes (1984), the framework established in Weiner’s study considered customers as rational in dealing with information related to products or services to explain the cause of a dissatisfying consumption encounter. Moreover, Bitner (1990) argued the framework proposed in Weiner’s study suggested that when customers’ perception of the consumption experience about the product or service did not meet their expectation of that product or service prior to the consumption, the customers engaged in “an attribution process in order to make sense of what has occurred” (p. 79).

Bitner (1990) conducted a study investigating the preconditions and subsequent customers’ satisfaction level regarding service encounters, as well as a strategy to combine services to improve customers’ satisfaction level. This study improved managerial understanding of customers’ assessments of the satisfaction level considering their experience with the service interaction. A framework of service encounter evaluation, including consumer satisfaction, service marketing, and attribution theories, was established to conduct this study. The framework was partly used to examine the effects of physical surroundings as well as employee responses to attributions and satisfaction in a service situation. The framework of service encounter evaluation proposed in this study included three portions. The first portion of the framework
indicated a customers’ attitude prior to the encounter impacted customers’ expectations regarding the outcome of the service encounter, which was derived from previous research (Oliver, 1980; Swan, 1983). The second portion of the framework suggested causal attributions for disconfirmation mediated customer satisfaction, which was developed from previous work (Folkes, Koletsky, & Graham, 1987; Oliver & DeSarbo, 1988). The final portion of the framework considered service encounter satisfaction as an input into the more general construct, perceived service quality, which in turn resulted in customers’ post-purchase behavioral intentions according to Oliver (1980). The results of Bitner’s study suggested it was important to take every individual service encounter into consideration in management to improve customers’ overall perception of service quality. Additionally, the study showed attributions had an impact on customers’ satisfaction level, and reasonable explaining and compensation reduced the negative effect of dissatisfaction. These findings indicated by understanding customers’ attribution processes, managers turned a dissatisfied customer into a satisfied one even when there was a variance between customers’ perceived experience outcome and the customers’ pre-purchase expectation. Additionally, the model analysis showed there was a strong relationship between customer satisfaction towards the service encounter and customers’ perceived service quality. Moreover, according to Bitner (1990), other non-verbal factors, such as the company’s physical image, also affected customer attribution, as well as satisfaction in a situation where service failure occurred. In conclusion, the study called for a need to combine the functional areas of a company and operating entirely. In terms of its contributions to research, the results of the study revealed research in consumer behavior attempted to focus on the role of core attributes of products and services in determining customer reactions. Further investigation was desired for replication to identify the robustness and boundaries of the service encounter evaluation framework and
the analysis results. Weiner (1985) conducted a study to further the attribution theory of motivation and emotion by theoretically focusing on achievement strivings. Weiner (1985) illustrated consumers engaged in spontaneous causal thinking, especially when they were faced with unexpected and negative events, for example, an unexpected rude front desk employee in a hotel. Three causal dimensions, including locus, stability, and controllability, were revealed in this study. Accordingly, locus referred to the consumption outcome of a product or service. Stability included stable or permanent causes and unstable or temporary causes. Stable causes were considered as not varying overtime, while unstable causes were considered as fluctuating among periods. Finally, controllability was defined as the company and the customers’ ability to take control over the outcome of a service encounter.

Pearce and Moscardo (1984) argued external attribution took place in a situation where customers found themselves in agreement about the cause of their dissatisfaction, or in a situation where the same company performed the same service failures repeatedly (i.e. consistency). Nevertheless, when customers’ agreement or consistency was low, customers linked their dissatisfaction to themselves.

Folkes (1984) conducted a study examining the relationship between the cause inferred for a service failure and customers’ responses. The study attempted to explore the types of attributions that resulted in specific customers’ responses to fill the research gap that few theoretical frameworks were established for predictions of specific customer complaining behaviors and to identify factors customers took into consideration when making the decision to complain or not. Therefore, Folkes (1984) argued it was necessary to develop a framework to depict the relationship between customers’ perceptions about the service failure and their complaining behaviors. Attribution theory was proposed in this study as the theoretical foundation that offered a means to describe this relationship.
According to Folkes (1984), attribution theory “views people as rational information processors whose actions are influenced by their causal inferences” (p.398). In terms of customer complaining behavior, attribution theory served as the predictor of the effect customers’ perceived cause of a service failure had on customers’ responses to the failure (Bettman, 1979). Folkes (1984) further stated the attribution theory indicated customers sought the cause of a service failure and reached conclusions to explain the failure based on their own values and understandings. Based on Weiner’s (1985) findings of the three dimensions of causal property, Folkes stated the causes of service failure were classified based on stability, locus, and controllability; where stability referred to “whether they are temporary or fairly permanent”, locus referred to “whether they are consumer-or firm-related”, and controllability referred to “whether they are under volitional control or are constrained” (p.399). Two studies were conducted to investigate the relationships between causal dimensions and customer complaining responses. The participants were asked to recall their latest experience of service failure with a restaurant. The participants were asked to report the person they thought was responsible for the failure (i.e. locus), whether this type of failure happened frequently at this restaurant (i.e. stability), and whether the restaurant was able to prevent the failure from happening (i.e. controllability). The participants were also asked whether they preferred any type of compensation (e.g. a refund, exchange, or an apology). Folkes (1984) revealed participants who perceived the failure as external (i.e. related to the restaurant) reported they preferred one of the forms of compensation. Nevertheless, participants who perceived the cause of the failure as stable preferred a refund rather than an exchange, and participants who reported the restaurant could have prevented the failure showed high levels of anger and had an intention to show threat to the restaurant’s business. However, as further indicated by Folkes, in the situation where participants felt the restaurant had
nothing to be responsible for, participants were less likely to perform complaining behaviors and were more likely to express their dissatisfaction through spreading negative word-of-mouth. In conclusion, Folkes argued that customers were more likely to complain service failures under circumstances attributed to external factors related to the company itself rather than situations in which the service failures were attributed to internal factors.

**Information Technology Theories**

Oliveira and Martins (2011) stated it was essential to recognize the factors that determined the adoption of information technology, as well as the theoretical frameworks focusing on the adoption of information technology. Based on previous research in information systems, many theories were used for investigating the adoption of information technology. The most widely used are the technology acceptance model (TAM) (Davis, 1986; Davis, 1989; Davis, Bagozzi, & Warshaw, 1989), theory of planned behavior (TPB) (Ajzen, 1985; Ajzen, 1991), unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003), DOI (Rogers, 1995), and the TOE framework (Tornatzky & Fleischer, 1990). The following section provides an elaboration of each of these theories and their application in the tourism and hospitality field.

**Technology Acceptance Theory**

Davis (1986) proposed a study for the purpose of developing and testing a theoretical framework that examined the influence of system features on user acceptance of computer-based information systems. The framework established in this study was referred to as the technology acceptance model (TAM). Davis further mentioned that TAM was built to improve the understanding of user acceptance towards information technologies. Moreover, Davis also pointed out that TAM provided the theoretical
background for an applicable methodology for “user acceptance testing” (p.2), that made it possible for system designers or practitioners to test the established systems before implementation.

**Fishbein Model**

Davis (1986) mentioned that the TAM was established based on the Fishbein Model, which provided most of the theoretical basis for TAM. The Fishbein (1967) model stated psychological variables of the specific framework needed to be defined and measured at a level that related to the behavioral criterion for the purpose of gaining a proper specification of the causal determinants of behavior. Fishbein and Ajzen (1975) intensively examined and modified the model using three equations. The first equation suggested a person’s intention of a specific behavior directly determined his or her overt performance of that behavior. Additionally, the equation also indicated a person’s intention of a specific behavior was determined together by his or her attitude toward acting the behavior and the perceived social effect of people who were significant to the subject. Fishbein and Ajzen (1975) further defined the primary factors to give clear interpretations for the equations used in their study. First, Fishbein and Ajzen (1975) referred to behavioral intention as “an individual’s subjective probability that he or she will perform a specified behavior” (p.288). Second, they defined attitude as “an individual’s degree of evaluative affect toward the target behavior” (p.216). Finally, they defined subjective norm as “the person’s perception that most people who are important to him think he should or should not perform the behavior in question” (p.302). The second equation proposed by Fishbein and Ajzen (1975) indicated a person’s attitude toward a specific behavior was the product of the perceived outcomes of acting a specific behavior and the evaluations of these outcomes. The second equation was based on the expectancy-value model established by Fishebein (1963), which built on previous work
conducted by Rosenberg (1956). Likewise, Fishbein and Ajzen (1975) proposed definitions for the key terms used in the second equation. First, beliefs were referred to as “the person’s subjective probability that performing the target behavior will result in salient consequence” (p.16). Second, the evaluation terms were described as “an implicit evaluative response to the consequence” (p.29). Furthermore, Fishbein and Ajzen (1975) conceptualized the relationship between beliefs and attitudes as “a person forms beliefs about an object will automatically and simultaneously gain an attitude toward that object” (p.253). The second equation indicated an information-processing view of attitude formation and variation, which suggested a person’s attitudes changed due to changes in the person’s belief structure. The third equation stated “a person’s subjective norm is a function of the perceived expectations of specific referent individuals or groups, and by the person’s motivation to comply with those expectations” (p.302). It indicated this function was considered the “least-understood part of the Fishbein’s model” (p.304) since little previous work was conducted in the field of normative beliefs. However, Fishbein and Ajzen (1975) argued “it is useful to remain the distinction between beliefs about the consequences of performing a behavior and beliefs about expectations of relevant referents” (p.304).

The primary reason Fishbein’s model was selected as the foundation of TAM was it merged a great number of previously disconnected theories regarding the relationships among beliefs, attitudes, behavioral intentions, as well as behaviors. In addition, the Fishbein’s model was similar in structure to other major motivation theories (e.g. Vroom, 1964; Weiner, 1985). Moreover, the Fishbein’s model offered clear definitions for operationalization of and causal relationships among variables emphasized in many alternative theoretical perspectives. Ultimately, the Fishbein’s model was “well-fitted to Davis’s (1986) research objectives, which provided a well-founded theory of the
motivational correlation between external stimuli” (p.22). Moreover, the Fishebein’s model also offered criteria for establishing measurements for observing individual motivational phenomena before their actual behaviors.

**TAM**

Davis (1986) utilized a theoretical model (Figure 4) of human behavior from psychology as a criterion to formulate the proposed TAM. Furthermore, Davis made several modifications to this criterion for the purpose of fitting into the current context. The conceptual framework proposed by Davis was intended to depict the motivational processes as the mediator, generating the relationship between system characteristics and user behavior. The study conducted using this conceptual framework investigated how the features of the system affected the users’ intention to use the system, which in turn affected their actual usage of the system. Basically, TAM assumed IT adoption was influenced by prior use-related beliefs. Two such beliefs were proposed, which were perceived usefulness and perceived ease of use. The former was referred to as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p.320); while the latter was referred to as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p.320). These two beliefs created a favorable disposition or intention toward using IT that ultimately influenced its self-reported use (Davis, Bagozzi, & Warshaw, 1989). Moreover, this study utilized the framework to establish the measures for users’ intention to use the system, as well as their actual usage of the system. These measures made it possible to examine the conceptual framework proposed in this study empirically. Additionally, the measures also offered the instrumentation required for practical use of the conceptual framework in user acceptance of a system.
Online commerce has seen the initial period of obtaining new customers by various promotional means move to the current phase of retaining customers. E-commerce websites and powerful search engines provide a medium for customers to compare not only prices instantly, but non-monetary characteristics, such as service quality, among service companies. Therefore, it has become essential to attract customers with high service quality to retain customers in online purchase scenarios (Griff & Palmer, 1999; Jarvenpaa & Todd, 1997; Liu & Arnett, 2000). According to Hoff, McWilliams and Saveri (1998), for a company with an online purchase system, the primary way to bring online customers back is to provide better service than its competitors. Perceived service quality is defined as “a global judgment or attitude relating to the superiority of a service” (Parasuraman, Zeithaml & Berry, 1988). Researchers have made many attempts over the past thirty years to reveal global or standard attributes of a service that are essential to the customer and contribute significantly to customers’ evaluation about service quality (Yang & Jun, 2002).

Petrick (2004) proposed a study examining the impact of service quality on cruise passengers’ intention to purchase, and revealed service quality was both a moderate effect on cruise passengers’ intention to purchase via satisfaction and a direct effect on cruise passengers’ intention to purchase. Chen and Tsai (2007) conducted a study investigating the impact service quality had on tourists’ overall satisfaction, as well as behavioral

**Figure 4. Technology acceptance model.**

**Service Quality**


intention. They proposed the higher the service quality, the higher the overall satisfaction and more positive behavioral intentions. Furthermore, they defined service quality as “the visitor’s assessment of the standard of the service delivery process in association with the trip experience” (p.1116). Wilkins, Merrilees, and Herington (2007) proposed hotel customers utilized a range of attributes to access their perceived service quality provided by a hotel. Ekinci, Dawes, and Massey (2008) found the quality of service provided by a hotel posed a positive impact on customers’ satisfaction.

Moreover, as indicated by Ross & Iso-Ahola’s (1991) motivation theory, it was reported by customers that their personal or interpersonal seeking affected their overall satisfaction level with a hospitality organization experience. Furthermore, personal seeking was referred to as the customers’ desire to learn, rest and relax through their experience with a specific organization. In this study, personal seeking was referred to as customers’ personal perception of the service quality provided by a hotel from their previous experience staying with the hotel. Customers’ perception of the service delivered by the hotel they previously visited was expected to play an important role in influencing their satisfaction of their previous experience with a hotel as well as their behavioral intention, such as the intention to make room reservations.

The achievement of quality in the service industry became a major concern in the 1980s (Parasuraman, Zeithaml, & Berry, 1985). Parasuraman et al. (1985) mentioned that unlike the quality in tangible products, quality in service is largely undefined and under researched since service quality was more difficult to assess. Moreover, they indicated consumers’ perceived service quality resulted from a comparison of customers’ expectations with the actual service performance they received. Also, consumers assessed their perceived service quality, not only based on the result of a service, but also on the process of service delivery (Parasuraman, Zeithaml, & Berry, 1985). In the conceptual
framework developed by Parasuraman et al. (1985), consumers’ expected service quality and perceived service quality were both measured. Perceived service quality was directly measured by external communications to consumers, including pre- and post-contacts before and after service delivery. Additionally, perceived service quality was also indirectly measured by management perceptions of consumer expectations, and translations of perceptions into service quality specs. Furthermore, the relationship between consumers’ expected service and perceived service was investigated. Parasuraman’s study showed consumers used basically similar criteria in assessing their perceived service quality regardless of the category of service, which were reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles (p.47). These criteria were used as the determinants of consumer perceived service quality in future studies. Later, Parasuraman, Zeithaml, and Berry (1988) published a paper describing the development of a 22-item instrument for evaluating consumers’ perceptions of service quality in service and retailing firms. After a discussion of the conceptualization and operationalization of the service quality construct, the procedures used in constructing and refining a multiple-item scale to measure the construct was described. Evidence of the scale’s reliability, factor structure, and validity based on data analysis from four independent samples were presented in their paper. After two stages of scale purification, five dimensions of measurement items were obtained, which were tangibles, reliability, responsiveness, assurance, empathy. Items used to measure each dimension are listed in Table 2.
Parasuraman, Berry, and Zeithaml (1991) revised and reevaluated the SERVQUAL scale based on the findings of a follow-up study in which they replicated the SERVQUAL in five different customer samples and compared their findings to other researchers who applied and assessed SERVQUAL. The revised SERVQUAL scale split the tangible dimension into two sub-dimensions (i.e., physical facilities/equipment and employees/communication materials). Additionally, the degree of overlap among dimensions increased. Moreover, responsiveness and assurance dimensions were distinguished in the revised SERVQUAL scale, which allowed sufficient “degrees of freedom” for the dimensions, other than tangibles, to display their uniqueness. Wilkins, Merrilees, and Herrington (2007) provided support for the validity of the SERVQUAL model in the hotel service industry, which enabled the dimensions developed in the SERVQUAL model to be used in the hotel industry to measure consumers’ perceived service quality for hotels.

Cronin and Taylor (1992) investigated the conceptualization as well as measurement of service quality and the relationships between service quality, consumer satisfaction, and their purchase intentions. Researchers explored an alternative method of operationalizing perceived service quality, as well as the significance of the relationships between service quality, consumer satisfaction, and purchase intentions. They suggested a performance-based measure of service quality was an improved means of measuring the

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Tangibles</th>
<th>Reliability</th>
<th>Responsiveness</th>
<th>Assurance</th>
<th>Empathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>Physical facilities, Equipment, Appearance of personnel</td>
<td>Ability to perform the promised service dependably and accurately</td>
<td>Willingness to help customers and provide prompt service</td>
<td>Knowledge and courtesy of employees and their ability to inspire trust and confidence</td>
<td>Caring, individualized attention the firm provides its customers</td>
</tr>
</tbody>
</table>
service quality construct. According to Cronin and Taylor (1992), these measurements were classified into three major categories: performance, importance, and expectations.

In the hospitality industry, LODGQUAL (LODGingQUALity model) was considered a specific application of SERVQUAL, used for measuring service quality in the lodging industry (Getty & Thompson, 1994). The measurement of LODGQUAL was designed from customer perceptions of the SERVQUAL measure, but also considered dimensions of tangibles, reliability, and “contact”, which included attributes with response capacity, safety, and empathy (Knutson, 1991).

According to Chen and Tsai (2007), consumers’ perceived service quality was defined as “the visitor’s assessment of the standard of the service delivery process in association with the trip experience” (p.1116). Previous studies focused on hotel attributes and the influence on hotel guests’ satisfaction of their experience with a hotel property (Atkinson, 1988; Cadotte & Turgeon, 1988; Heung, Mok, & Kwan, 1996; Knutson, 1988; Leblanc, 1992). Wilkins, Merrilees, and Herington (2007) proposed hotel guests utilized a range of attributes to evaluate their perceived service quality provided by a hotel where they had stayed. These attributes include service quality, stylish comfort, personalization, room quality, speedy service, added extras, and quality food and beverage, which provided a thorough evaluation on service, facilities, room conditions, staff, and food and beverage aspects of the hotel, and their impacts on customers’ satisfaction and intention to purchase. In addition, Mohsin and Lockyer (2010) pointed out that some hotel attributes affecting hotel guests’ satisfaction level linked to intangible service factors, some linked to tangible physical factors, and others were difficult to define, such as the attribute of “value of money”. Furthermore, they explained intangible attributes were often service related, including customer service, relative convenience of dealing with transactions while staying in a hotel, and service received at the restaurant; while tangible attributes
were often physical facilities related, including the availability and quality of various facilities in the room (e.g., coffee facilities and bathrobe) and in the entire hotel (e.g., swimming pool and gym), physical appearance of hotel employees, cleanliness of the room and the entire hotel, and restaurant and quality of food. Roberts (2006), and Nasution and Mavondo (2008) revealed hotel guests’ satisfaction was determined by their positive experience with a certain hotel property; and the experience itself was influenced by hotel attributes including customer service, cleanliness, facilities, price, food, and location.

In past years, many conceptual and empirical studies attempted to generate primary attributes of customer perceived service quality in the context of e-commerce directly or indirectly (Yang & Jun, 2002). Rice (1997) investigated the factors driving users to revisit a website, and revealed the most essential factors were design features, such as content, layout, ease of finding information, navigability; and emotional experience, such as enjoyable visits. According to Hoffman and Novak (1997), personalization was the essence by which companies performing e-commerce valorized the internet as a unique consumer market. Griffith and Krampf (1998) investigated online systems of the top 100 U.S. retailers, and stated that the lack of prompt responsiveness, especially to email inquiries, was the most common phenomenon in online purchase scenarios. Moreover, customer service access through an online system needed enough staff support to satisfy customers, which in turn affected their intention to purchase through the online system. Table 3 summarized the scales established in previous literature that were used to measure customers’ perceived service quality in the general service and hospitality industries.
Table 3. Previous Used Measurements of Customer Perceived Service Quality

<table>
<thead>
<tr>
<th>Authors/Year</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akan (1995)</td>
<td>“courtesy and competence of the personnel”, “communication and transactions”, “tangibles”, “knowing and understanding the customer”, “accuracy and speed of service”, “solutions to problems”, “accuracy of hotel reservations”</td>
</tr>
<tr>
<td>Mei, Dean, &amp; White (1999)</td>
<td>“employees”, “tangibles”, “reliability”</td>
</tr>
</tbody>
</table>

Based on previous research and conclusions, this study proposed the following hypothesis:

\[ H1: \] Customers’ perceived service quality of a hotel has a positive effect on customers’ satisfaction regarding the hotel.

**Perception of the Experience Using a System**

Keim (1976) conducted a study utilizing a questionnaire developed by Schultz and Slevin (1975) to examine perceptions of the implementation of multivariate analysis, participation, and structure (MAPS), a computer-based, organization design technology in two organizations. This study showed the structure of perception in the experience dimensions changed during implementation, and the concept of perception in change captured aspects of employee behavior, which were presumably related to resistance to
change and were useful in formulating change strategies. Robey and Bakr (1978) measured perceptions of implementation in microfiche viewers using 57-item Likert Scale developed by Schultz and Slevin (1975). To establish the instrument, seven dimensions of implementation perceptions through factor analysis were identified. The dimensions extracted were interpreted as the respondent’s feelings about a system’s impact on job performance, interpersonal relations, changes in organizational relationships, goals, outside support for implementation, and user-developer relations, and urgency and importance of the innovation (Schultz & Slevin, 1975, pp. 174-177). According to Schultz and Slevin (1975), job performance referred to “effect of system on manager’s job performance and performance visibility”, interpersonal relations referred to “interpersonal relations, communication, and increased interaction and consultation with others”, changes in organizational relationship referred to “changes which occur in organization structure and people dealt with”, outside support for implementation referred to “system has implementation support, adequate top management, technical and organization support and does not have undue resistance”, user-developer relations referred to “researchers understand management problems and work well with their clients”, urgency and importance of the innovation referred to “need for results, even with costs involved, importance to self, boss, top management” (Robey, 1979, p. 530). Suh and Han (2002) investigated the effect of trust on consumers’ acceptance of online banking systems. They measured consumers’ perception of experience using a system through five dimensions, including “using this online banking system is a good idea”, “using this online banking system is a wise idea”, “using this online banking system is a pleasant idea”, “using this online banking system is a positive idea”, and “using this online banking system is an appealing idea” (p. 262). The results of this study supported all causal relationships hypothesized in the technology acceptance model. Moreover, the
authors indicated the scale used in this study applied to other circumstances such as shopping malls or hotels.

**Perception of Experience Using a System and Intention to Use the System**

One of the two best-known theories of consumer behavior was the theory of planned behavior (TPB), which was proposed to predict how customers’ attitude affected behavior (Petty, Unnava, & Strathman, 1991). Based on this theory, various situational and dispositional factors enhanced the consistency of perception of experience, and researchers found consumer perceptions were more predictive of behavior in certain situations (Evans, Christiansen, & Gill, 1996; Njite & Parsa, 2005; Shim & Drake, 1990; Shim, Eastlick, Sherry, & Warrington, 2001). Shim et al. (2001) established a model to study factors affecting customers’ online pre-purchase intention building on the TPB theory, and the results indicated consumer perceptions influenced their behavioral intentions. Furthermore, Barkhi, Belanger, and Hicks (2008), and Njite and Parsa (2005) proposed consumer perceptions of online purchasing for travel products had the strongest effect on customers’ online purchase intentions.

According to Davis (1986), attitude referred to “the degree of evaluative affect that an individual associates with using the target system in his or her job” (p.25). Therefore, the definition and measurement of attitude corresponded in specificity with the definition of the behavioral criterion, as recommended by Ajzen and Fishbein (1977). Like other industries, companies in the hospitality industry invested in information systems due to many motivations such as cutting costs, producing more without increasing costs, and improving the quality of services or products (Lederer, Maupin, Sena, & Zhuang, 1998). It was noted that users’ perception of an information system had an important effect on successful information system adoption (Davis, 1989; Venkatesh & Davis, 1996; Succi & Walter, 1999). According to Davis (1993), if users were not willing to accept the
information system, it did not bring full benefits to the organization. In other words, the higher level of acceptance users had for a system, the more willing they were to make changes in their practices to use the system. System examples included a hotel’s online reservation system (Succi & Walter, 1999).

**Mediating Effect of Perception of the Experience Using the System**

Kim et al. (2006) proposed the “ease of use” factor, explained by customers’ perceived ease of placing orders using a hotel’s online reservation system, in their study investigating the determinants of Chinese hotel customers’ e-satisfaction and purchase intention. Results revealed ease of use influenced both hospitality customers’ e-satisfaction and their intention to use a hotel’s online reservation system to purchase room nights. They further indicated customers often preferred to make purchases with less effort and more information. Therefore, a hotel’s online reservation system was a good option for customers to plan future trips online.

According to Davis (1986), perceived usefulness was referred to as “the degree to which an individual believes that using a particular system would enhance his or her job performance” (p.26); while perceived ease of use was defined as “the degree to which an individual believes that using a particular system would be free of physical and mental effort” (p.26).

According to many recent researchers (Bruner & Kumar, 2005; Chen, Gillenson, & Sherrell, 2002; Hong, Thong, Wong, & Tam, 2002; Lee, Kim, & Lee, 2006), technology acceptance Theory (TAM) was considered one of the most influential research frameworks in demonstrating users’ information technology usage or acceptance behavior in various circumstances. It became the theoretical background for many recent studies.

Koufaris (2002) adopted TAM to examine online customer behavior in the online retail field. Perceived usefulness and perceived ease of use of an online stores’ website
were used to predict online customers’ intention to purchase from the website. The results indicated perceived usefulness of the website had significant effects on online customers’ intention to purchase; however, perceived ease of use did not have significant effects on online customers’ intention to purchase. Kourfaris also asserted customers’ intention to purchase was considered a satisfactory approximation of their actual purchase behavior in the future. Customers’ perception of the experience using the website impacted customers’ intention to purchase via a website was also investigated by previous studies in the hospitality industry. For example, Kim, Ma, and Kim (2006) conducted a study investigating the determinants affecting Chinese hotel customers’ satisfaction of using online purchase tools (i.e. hotel’s online reservation system) as well as their intention to purchase. Their research showed hotel customers’ perceived ease of use of a hotel’s online reservation system significantly affected perception of their online reservation experience, which in turn affected their intention to purchase (i.e. make online room reservations) using the system. Moreover, Kim and Kim (2004) investigated the factors affecting hotel customers’ intention to make room reservations using a hotel’s online reservation system. Their study indicated customers’ perceived ease of use on a hotel’s online reservation system had a significant and positive effect on their intention to book through the system, mediated by perception of their experience using the system.

Accordingly, previous research focused on customers’ perception of using online systems and how the perceived ease of use and perceived usefulness of the systems affected their perception of the experience and intention to purchase from a specific company in the retail industry. Few studies focused on this relationship in the hotel industry and the hospitality and tourism industry. According to research conducted by Davis (1986), the features of the system (i.e. perceived ease of use and perceived usefulness) affected the users’ perception of their experience using the system, which
influenced their motivation to use the system. This study investigated whether customers’ perceptions towards an easy to use, hotel online reservation system positively affected their perception of their experience using the hotel’s online reservation system, and in turn impacted their intention to use the reservation system to book a hotel for their future trip. In other words, this study investigated whether hotel customers’ perceived ease of use of a hotel online reservation system, as well as their perceived usefulness of the system, had significant effects on customers’ intention to book through the hotel’s online reservation system that was mediated by their perception of the experience using the system. Based on previous research, the following hypotheses were proposed:

\( H2: \) Customers’ perceived ease of use of a hotel’s online reservation system has a positive effect on the customers’ perception of their experience using the hotel’s online reservation system to make room reservations.

\( H3: \) Customers’ perceived usefulness of a hotel’s online reservation system has a positive effect on the customers’ perception of their experience using the hotel’s online reservation system to make room reservations.

\( H4: \) Customers’ perception of their experience using a hotel’s online reservation system has a positive effect on their intention to use it to make reservations from the hotel.

**Customer-Generated Online Review**

Word-of-mouth (WOM) has become the basic method of communication among customers, as well as between customers and service organizations in service industries (Harrison-Walker, 2001). According to Harrison-Walker (2001), customers of service organizations search information to get a broad view of the company they are going to choose to make decisions for their coming trips. Similarly, Anderson (1998) and Richins (1984) indicate people often seek the advice of others as part of their decision-making.
Tripadvisor (2006), one of the most important travel social media sites, reports hundreds of millions of visitors search information through online reviews during their trip planning period. Word-of-mouth is also referred to as a “verbal exchange of positive and negative information about a business’s products and services” (Haywood, 1989, p. 55). In the hotel industry, one of the most commonly used forms of WOM is customers’ reviews for hotels they have stayed in regarding various aspects of their experiences. In the reviews, customers either make comments on the hotel features or recommendations, providing suggestions to future customers which derive from their positive experiences. Through recommendations or warnings from friends or family members, word-of-mouth provides an opportunity for customers to learn the positive and negative aspects of services offered by certain organizations before an actual purchase takes place.

As technology advances, the internet is widely applied in various areas in the hospitality industry. Traditional word-of-mouth, which spreads from person to person vocally or reviews that are paper-based (e.g. hotel logbook for holding customer written reviews), is replaced by electronic word-of-mouth (eWOM). One form of eWOM is online reviews generated by internet users regarding travel destinations, hotels, and tourism services, and is an important source of information for other travelers (Pan, MacLaurin, & Crotts, 2007). In the hospitality industry, an increasing number of social media websites enable hotel guests to share their eWOM regarding travel experiences as well as communicate with the hotel management. For instance, Tripadvisor, Orbitz, Travelocity, Frommers, Travelpost, Fodors, Expedia are all well known, popular hotel review websites in the United States (About.com Guide, 2006). These hotel social media websites help customers in their decision-making process, and also help with management strategy modification (Donovan & Rossiter, 1982; Senecal & Nantel, 2004).
It is not uncommon that travelers seek advice from others as an important part of their decision-making process when planning for a trip to a destination city they are not familiar with. According to previous studies (Sparks & Browning, 2011), ways to search for information include asking a friend, checking out a travel agency, or directly searching through tourism and hospitality online communities. The ways people search for information are recognized as word-of-mouth, and the word-of-mouth obtained from online communities or online reviews left by previous customers of the hotel are further considered electronic word-of-mouth.

Researchers started investigating online word-of-mouth activities long ago. Arndt (1967) conducted one of the first empirical studies of online reviews in the marketing field, illustrating online reviews differed from word-of-mouth activities in the real world in that they required references to online communication modes, and it was a remote many-to-many communication instead of “oral, person-to-person communication between a receiver and a communicator whom the receiver perceives as noncommercial, regarding a brand, a product, a service or a provider” (p.295). Chatterjee (2001) proposed in his study investigating whether negative information released in online reviews affected customers’ assessments and purchase intentions that online reviews of products or services conveniently provided information accessible and prevalent for customers to reference during their decision-making process. Lee, Park, and Han (2008) noted the phenomenon of an increased popularity of customer-generated, online reviews changed customers’ behavior due to the growth of internet usage. They stated customers made offline decisions regarding a product or service they were going to consume in the future based on information accessible online. In addition, customers were dependent on the comments and thoughts of previous customers reflected in their online reviews during their decision-making process before purchasing from a company. Online reviews
generated by previous customers were of great importance for impelling customers’ intention to purchase in the retailing industry according to Lee, Park, and Han (2008).

Park and Kim (2008) asserted electronic word-of-mouth was an effective way to help marketers in the tourism and hospitality industry avoid limitations resulting from the various information types desired by customers in different consumption stages because it provided information regarding products and services from the customers’ perspective in each stage. According to Dwyer (2007), customer online reviews were measurable because comments and reviews on a product generated by customers were written and accessible on tourism and hospitality review websites. Moreover, Godes and Mayzlin (2004) showed customer-generated online reviews were controllable from a manager’s perspective since they determined whether certain comments were allowed to be shown to the public or not, and whether the hotel company provided a specific review format for customers to guide the way they expressed their opinions to benefit the hotel company to the largest extension. They also suggested online reviews overcame the limitation of traditional word-of-mouth, making the information exchanging process in private conversations so direct observations were difficult. Research showed either positive or negative word-of-mouth was widely recognized as potentially influencing customers’ intention to purchase. (Sparks & Browning, 2011). Gretzel and Yoo (2008) suggested 75% of customers in the tourism and hospitality industry preferred to take online customer reviews into consideration as an information source during their travel planning process. During recent years, online reviews rapidly replaced traditional word-of-mouth in the tourism and hospitality industry due to the rapid development of information technology, the increasing number of online users, their easy access to the internet (Hart & Blackshaw, 2006), and the ability to produce online comments. Likewise, Brown, Broderick and Lee (2007) asserted tourism and hospitality industry customers preferred to
rely on online reviews left by previous customers as a main source of information in their
decision-making process rather than traditional forms of word-of-mouth (e.g.,
information orally spread by friends, information provided by travel agencies), which
they considered to be trustworthy and helpful in assisting them with purchase decisions.
Recently, customer-generated, online reviews became a great point of interest in the
tourism and hospitality industry.

Research considering online information searching in the tourism and hospitality
business related to customers online purchase decision making processes suggested
information searches seemed to be the most valuable functional element resulting in
purchase through online communities (Shim, Eastlick, Lotz, & Warrington, 2001). They
further illustrated customers’ intention to search information online predicted their future
purchase intention to some extension. Therefore, online reviews left by previous
customers had a direct impact on customers’ information searching as well as online
purchase intention. Additionally, online reviews and comments left by previous customers
became more important as online purchasing grows extremely rapidly compared to other
forms of shopping in the tourism and hospitality industry (Levy & Weitz, 2001). Based on
previous studies, the definition of an online review in the hospitality industry differed
according to different studies. Pan et al (2007) illustrated that customer online reviews in
the hospitality industry referred to the comments or thoughts generated by internet users
regarding travel destinations, hotels, and tourism services, which are an important source
of information for travelers planning a new trip with the intention to book hotel rooms
online. Similarly, according to Gretzel and Yoo (2008), online reviews are customers’
comments and thoughts written for a certain hotel that performed as an information
source for travelers during their travel planning process. Senecal and Nantel (2004)
defined customer online reviews as the feedback left by previous guests on social travel
websites; and they further pointed out that online reviews consisted of two major parts—the content of the review and the ratings customers assigned for a particular hotel, regarding various hotel aspects from their own experience.

Instead of referring to online reviews as just a combination of content in the review and customer assigned ratings, Jeong and Jang (2011) indicated online reviews were a consumer behavior of expressing thoughts and comments towards the services they received and experienced by posting it to the website or blog of the service organization. Compared with traditional WOM, online review prompted new ways of communication and became a potentially cost-effective way for hotel marketing to promote its brand (Litvin, Goldsmith, & Pan, 2008). An increased number of customers and tourism companies used online, user-generated reviews to manage their trips and businesses according to Zhu and Zhang (2006). Likewise, Dellarocas (2003) indicated user-generated, online reviews had an important impact on tourism companies in terms of brand building, product development, and quality assurance. It was reported by previous research that online reviews written by previous travelers became an important information source for travelers while planning future trips (Pan, MacLaurin, & Crotts, 2007). Moreover, Goldenberg, Libai, and Muller (2001) argued online reviews generated by previous customers cast a strong impact on customers’ decision-making regarding future traveling plans.

As mentioned before, customers of travel services were affected by information offered by online reviews generated by previous visitors. Furthermore, it was reported by Tripadvisor (2007) that 84% of visitors were impacted by online reviews generated by previous travelers while making decisions regarding their future travel reservations. Njite and Parsa (2005) revealed that opinions reflected in previous online reviews for travel products or services strongly influenced customers’ online purchase intentions. Data
reported by Xiang and Gretzel (2010) indicated a large portion of visitors preferred to utilize search engines and social media rather than any other communication tools to assess a tourism destination. As a result, looking up information provided by previous customers became part of customers’ travel-related product decision-making process (Sparks & Browning, 2011). Furthermore, Xiang and Gretzel (2010) and Li and Bernoff (2008) suggested customers perceived online reviews posted on blog pages, forums or review sites to be reliable while they were making plans for future trips. Brown, Broderick and Lee (2007) revealed an increased number of customers were now willing to trust online reviews as a key source of information about specific tourism products. Therefore, previous research suggested it was especially important to appropriately understand tourism products whereby customers potentially searched information then made reservations or purchases online (Sparks & Browning, 2011).

On the other hand, Li and Bernoff (2008) pointed out that travelers viewed online reviews generated by previous customers as more reliable and unbiased than those generated by marketing or advertising personnel. Similarly, Chen (2008) found recommendations made by previous travelers had a stronger influence on customers in their choices of tourism products or services than recommendations made by experts or commercial advisors. Papathanassis and Knolle (2011) also mentioned online reviews generated by customers made a great contribution in constituting a valuable source of information for hotel management. Litvin, Goldsmith, and Pan (2008) illustrated that obtaining and maintaining a competitive advantage in the dynamic hospitality and tourism industry required creativeness and fast reactions to technological and social trends. One of the most popular trends was online reviews generated by previous customers.
As indicated by Stevenson, Busemeyer, and Naylor (1990) judgment and decision-making theory consisted of a taxonomy of tasks including prediction and forecasting, inference, and worth and preference judgments. Among these factors, inference referred to the information customers used to help with making future purchase decisions in their purchase process. Online comments or reviews were considered an important information source for customers in the tourism industry when making their purchase decisions for a future trip (Sparks & Browning, 2011). Similarly, Cheng and Loi (2014) indicated online customer reviews became one of the most substantial information resources with significant impact on customers’ online hotel selection behavior. Moreover, previous research showed customers’ sentience of a certain hotel was enhanced merely by the presence of online reviews for that hotel (Vermeulen & Seegers, 2009). Research further showed online hotel reviews significantly influenced hotels’ business performance due to the wide usage of online review sites, as well as the fast development of customers’ hotel online booking enthusiasm (Ye, Law, & Gu, 2009).

Sparks & Browning (2011) proposed online reviews posted by previous customers affected customers’ intention to purchase from a hotel through three aspects related to characteristics of online reviews: content, valence, and framing of the reviews. Content of reviews referred to the target of the review, which was either the customer service or the core features of the hotel. Valence of online reviews was defined as the overall evaluation of the provided services or products, either predominantly positive or negative. The framing of online reviews was referred to as the tone of the review content, which was positive or negative. Noticeably, Cheng and Loi (2014) found negative online reviews had a negative impact, caused damage to a hotel brand, or resulted in the loss of existing and future customers. Sparks and Browning (2011) indicated customers of the tourism industry were impacted more by previous information that was negative, especially when
the overall tone of the review was negative. However, it was also suggested that previous information in a positive tone enhanced customers’ booking intentions for certain tourism organizations. A recent study conducted by Anderson (2012) showed a 1-point increase in a hotel’s 100-point ReviewPro Global Index (GRI) resulted in a 0.89% increase in ADR, a 0.54% increase in occupancy, and a 1.42% increase in RevPAR. Nevertheless, it was difficult to control the occurrence of negative reviews, therefore, previous research suggested hotel management respond to negative online reviews with proper strategies to help reduce the undesirable influence on hotel customers’ intention to purchase at certain hotels (Ye, Gu, Chen, & Law, 2008).

**Customer Online Review in the Hospitality Industry**

As mentioned before, customers made their ideas and opinions easily accessible to other customers via the internet (Dellarocas, 2003). Customers’ online reviews about hotels and other tourism services became important sources of information for customers (Pan, MacLaurin, & Crotts, 2007), with reports indicating each year hundreds of millions of customers consulted online reviews (Tripadvisor.com, 2011). Among these customers, more than half were reported to be influenced by other customers’ online reviews when making hotel reservations (Travelindustrywire.com, 2007). According to Goldenberg, Libai, and Muller (2001), customer decision-making processes were strongly impacted by other customers’ online reviews. Based on what has been covered in previous literature, this study examined the relationship between other customers’ online reviews and customers’ intention to use a hotel’s online reservation system to make room reservations. The following hypothesis is proposed:

\[ H5: \text{Customers’ evaluation of other customers’ online reviews have a positive effect on their intention to use a hotel’s online reservation system to make room reservations.} \]
Customer Satisfaction and Intention to Purchase

According to Kim et al. (2006), customers’ intention to purchase started when they wished to meet their satisfaction by obtaining certain products or services to satisfy a specific need. Kuo, Wu, and Deng (2009) revealed customer satisfaction positively influenced their post-purchase intention, which showed the tendency that customers will purchase goods or services from the same provider. Bai, Law, and Wen (2008) conducted a study investigating Chinese online visitors’ intention to purchase by examining the relationship between Mainland Chinese customer satisfaction and purchase intentions. They revealed customers’ satisfaction had a significant direct and positive effect on their purchase intentions.

Based on previous studies, this study examined the relationship between customers satisfaction regarding the hotel and their intention to book a hotel room. The following hypothesis is proposed:

\( H6: \) Customers’ satisfaction regarding a hotel has a positive effect on their intention to use the hotel’s online reservation system to make room reservations.

Amazon Mechanical Turk

Ghose, Ipeirotis, and Li (2009) investigated the economic impact of user-generated content on the internet by combining text mining with demand estimation in the hospitality industry. They argued user-generated product reviews, images and tags served as a valuable source of information for customers to make online purchases. It was posited that online reviews were multifaceted, and, therefore, the textual content of product reviews were an essential determinant of consumers’ choices over and above the valence and volume of reviews. They utilized the Amazon Mechanical Turk service as a “human-powered computing” technique, and a semiautomatic human intelligence approach to perform the data collection survey. Jeong and Lee (2017) explored the effects
of different types of service recovery strategies on customers’ trust, satisfaction, and behavioral intentions in the context of consumer-generated media by conducting an online, self-administered survey on Amazon Mechanical Turk to recruit participants who posted their experiences with a hotel on consumer-generated review sites. The research identified that when managers incorporated authenticity and compensation components, customers were more likely to show a higher level of trust, satisfaction and behavioral intentions.

**Research Gap**

According to Cronin et al. (2000), customers’ perceptions of the service quality offered by a company positively affects their satisfaction level of the company, as well as the customers’ intention to purchase from the company. However, it is still unknown if the results of Cronin’s study apply to hotel companies.

Kim, Ma, and Kim (2006) conducted a study investigating the determinants affecting Chinese hotel customers’ satisfaction of using online purchase tools as well as their intention to purchase. Their research showed hotel customers’ perceived ease of use and perceived usefulness of a hotel’s online reservation system significantly affected customers’ perception of their online reservation experience, which in turn affected their intention to purchase (i.e. make online room reservations). Moreover, Kim and Kim (2004) investigated the factors affecting hotel customers’ intention to make room reservations using a hotel’s online reservation system. However, their findings were mainly made within the Asian hospitality industry, it was questionable if it could be confirmed in the more general hospitality industry.

Jalilvand, Samiei, Dini, and Manzari’s (2012) study investigated the interrelationships among customer online reviews, tourist attitude, and travel intention in the tourism industry. However, it would be interesting to examine the results if perceived
service quality, perceived ease of use, and perceived usefulness were added to the framework in a hotel online reservation scenario.

Despite the fast development of information technology in the hotel industry, as well as the increasing recent studies conducted in investigating hotel customers’ online reservation intention, there is a lack of comprehensive studies on hotel customers’ intention to make room reservations using a hotel’s online reservation system integrating factors associated to hotel customers’ perceptions of service quality, perception of using a hotel’s online reservation system, and social networking in a wider and more general hospitality market. Therefore, it is substantial to conduct this study to fill these research gaps.

Chapter Summary

This chapter provided an overview of the existing theories related to customer behavior and information technology in the hospitality industry. Additionally, this chapter illustrated what was discussed in previous studies in the field of customer perceived service quality, customers’ perceptions of using a hotel’s online reservation system, and customers’ perceptions of previous customers’ online reviews and their impact on customer satisfaction, customers’ perception of their experience using the hotel’s online reservation system, and intention to use a hotel’s online reservation system to make room reservations in a more detailed manner. Furthermore, literature related to the development of the constructs of the research framework and measurements for these constructs were discussed in this section.

The following chapter will focus on explaining how the framework of this study is developed. The development of the survey constructs, as well as measurement items for each construct and how they are associated with the literature will be discussed. The procedures of data collection and data analysis will also be described.
CHAPTER III. METHODS

Introduction

This study investigated the effects of hotel customers’ perception of service quality, perceived ease of use and perceived usefulness of using a hotel’s online reservation system, the effect of other customers’ online reviews on customers’ satisfaction regarding the hotel, perception of customers’ experience using a hotel’s online reservation system, and their intention to book rooms from a specific hotel for future trips. This study was extended current knowledge of customers’ perceived service quality provided by the hotel, customers’ perception using the hotel’s online reservation system, as well as other customers’ online reviews, and the impact these factors had on customers’ intention to use a hotel’s online reservation system to book from the hotel.

The framework used in this study (Figure 5) was developed by combining and filling the gaps of three existing models from previous studies (Cronin, Brady, & Hult, 2000; Kim, Ma, & Kim, 2006; Jalilvand, Samiei, Dini, & Manzari, 2012). The conceptual model included perceived service quality, perceived ease of use and perceived usefulness of the hotel’s online reservation system, other consumers’ online reviews, customers’ perception of the experience using a hotel’s online reservation system, customers’ satisfaction regarding the hotel and the services provided by the hotel, and their intention to purchase from the hotel using its online reservation system.

A structured questionnaire was used to conduct data collection using a 7-Likert scale. The participants were expected to answer questions regarding their perceptions of service quality provided by a certain hotel, perceived usefulness and perceived ease of use of the hotel’s online reservation system, experience of reading hotel online reviews, perception of the experience using the hotel’s online reservation system, satisfaction regarding the hotel, and feelings about booking from the specific hotel in regards to these factors.
Research Objectives

This study investigated the factors affecting customers’ intention to use a hotel’s online reservation system to book from a hotel, including the customers’ perception of service quality, other customers’ online reviews posted on the hotel’s website that customers were exposed to while making decisions, and the customers’ experience using the online reservation system on a hotel’s website. The research objectives proposed for examination are as follows:

1. To determine if there is a relationship between customers’ perception of the service quality of a hotel and their satisfaction regarding this hotel.

2. To determine if there is a relationship between customers’ perceived ease of use of a hotel’s online reservation system and their perception of their experience using the system.

3. To determine if there is a relationship between customers’ perceived usefulness of a hotel’s online reservation system and their perception of their experience using the system.

4. To determine if there is a relationship between the other customers’ online reviews that are accessed on a hotel’s website by customers and their intention to use the hotel’s online reservation system to make room reservations at this hotel.

5. To determine if there is a relationship between the customers’ satisfaction regarding a hotel and their intention to use a hotel’s online reservation system.

6. To determine if there is a relationship between the customers’ perception of their experience using a hotel’s online reservation system and their intention to use the system to book from this hotel.
To ensure the reliability and validity of the model constructs, a pilot study was conducted through social media. The participants were asked to review and refine the questions in terms of wording and survey logic flow. Based on the feedback generated by the participants, the wording of a few items was modified to avoid vagueness. For instance, to avoid vagueness, “Using this hotel’s online reservation system was positive” was modified to “Using this hotel’s online reservation system was a positive experience”.

**Questionnaire Development**

The participants of this study were obtained from the Amazon Mechanical Turk (MTurk) database. An online survey was created and distributed through Qualtrics at a Midwest university. The online questionnaire consisted of eight main sections.
The first section contained the informed consent and screening questions. Respondents who agreed to the informed consent, were aged above 18 years old, stayed in a hotel in the past 12 months, booked utilizing a hotel’s online reservation system on its official website, and read other customers’ online reviews while making the booking decision were retained for the further parts of the survey.

In the following section, the respondents evaluated the service quality they perceived in their most recent trip. In the third section of the survey, respondents were asked to assess their perceived ease of use and perceived usefulness towards the hotel’s online reservation system. In the fourth section, respondents answered questions regarding their perceptions of whether reading other customers’ online reviews about the hotel affected their intention to use the hotel’s online reservation system to make a room reservation. In the following section, respondents were asked about their perception of their experience using the hotel’s online reservation system during the booking procedure. In the sixth section, respondents were asked to evaluate the extent to which they are satisfied with the overall hotel and the service quality it offered (Chen & Tsai, 2007). In the seventh section, respondents’ intention to use the hotel’s online reservation system to make room reservations was asked.

In the last section, the respondents were asked to provide basic socio-demographic information, including gender, income, education level, number of children, marital status, etc. The traveling and booking patterns of the respondents were also asked, including primary traveling purpose, preferred hotel type, frequency of staying in a hotel annually, frequency of using the hotel’s online reservation system to book a room, etc. All responses the respondents provided in sections 2 through 7 were on a 7-point Likert Scale.
Measurement Scales Development

Perceived Service Quality

The measurement items of perceived service quality were adapted from the study of Getty and Getty (2003), in which a set of reliable and valid multi-item instruments were developed. Since the set of measurements for service quality were developed specifically for the lodging industry based on SERVQUAL and LODGSERV, more reliable and valid instruments were established by not overlooking any dimensions that were unique to this industry. Moreover, this set of measurements compared previous scales used in measuring perceived service quality and combined some of the dimensions used in previous scales in common. Measurement items of perceived service quality are shown in Table 4.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived service</td>
<td>Getty &amp; Getty (2003)</td>
<td>1. The hotel was visually appealing</td>
</tr>
<tr>
<td>service quality</td>
<td></td>
<td>2. My reservation was handled efficiently</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employees responded promptly to my requests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. This hotel provided a safe environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Charges on my account were clearly explained</td>
</tr>
</tbody>
</table>

Online Reservation System Experience

In this study, customers’ perception of their experience using a hotel’s online reservation system was predicted by perceived usefulness and perceived ease of use based on Davis’s (1986) technology acceptance model (TAM). Jeong, Oh, and Gregoire (2001) examined customer perceptions of hotel websites, and revealed online customers preferred to make online reservation via the hotel’s websites. The most important factor for this preference was the ease of use of the hotel’s website. Results of Kim and Kim’s study showed factors related to perceived ease of use and perceived usefulness explained more than 40% of the total variance in customers’ perception of their experience using an online hotel reservation system; and both had a Cronbach’s alpha higher than 0.60,
indicating the factors were reliable. Koufaris’s (2002) study investigated customers’ perception of their experience purchasing online by adopting the core constructs from technology acceptance model (TAM), which were customers’ perceived ease of use and perceived usefulness of the purchase system.

Based on previous literature, this study used perceived usefulness and perceived ease of use as the factors predicting customers’ perception of their experience using a hotel’s online reservation system. The measurement items for perceived usefulness and perceived ease of use were adapted from the scales provided by Davis (1989), which are shown in Table 5 and Table 6 respectively. Based on previous study utilizing Davis’s theoretical scales, item five “Using this hotel’s online reservation system made it easier to make the reservation” and item six “I found this hotel’s online reservation system useful in my reservation process” were from the perceived usefulness scale, item four “I found this hotel’s online reservation system to be flexible to interact with” and item five “It was easy for me to become skillful at using this hotel’s online reservation system” were from the perceived ease of use scale, had high residual covariance, and contributed to cross loading issues for the measurement scale (Abdullah, Ward, & Ahmed, 2016).

Table 5. Measurement Items of Perceived Usefulness

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Scale</th>
</tr>
</thead>
</table>
| Perceived usefulness | Davis (1989) | 1. Using this hotel’s online reservation system in my reservation process enabled me to accomplish tasks more quickly  
2. Using this hotel’s online reservation system improved my reservation process  
3. Using this hotel’s online reservation system in my reservation process increased my productivity  
4. Using this hotel’s online reservation system enhanced my effectiveness on the reservation process  
5. Using this hotel’s online reservation system made it easier to make the reservation  
6. I found this hotel’s online reservation system useful in my reservation process |
Table 6. Measurement Items of Perceived Ease of Use

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived ease of use</td>
<td>Davis (1989)</td>
<td>1. Learning to operate this hotel’s online reservation system was easy for me</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. I found it easy to get this hotel’s online reservation system to do what I wanted it to do</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. My interaction with this hotel’s online reservation system was clear and understandable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. I found this hotel’s online reservation system to be flexible to interact with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. It was easy for me to become skillful at using this hotel’s online reservation system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. I found this hotel’s online reservation system easy to use</td>
</tr>
</tbody>
</table>

Other Customers’ Online Review

Other customers’ online reviews were also considered as electronic Word-of-Mouth (eWOM) in some studies, which referred to “any positive or negative statement made by former customers about a product or company, which is made available to a multitude of people and institutions via the Internet” (Jalilvand, Samiei, Dini, & Manzari, 2012, p.136). In the study conducted by Jalilvand et al. (2012), a structural model examined the effect customer-generated online reviews had on tourists’ travel intention. The scales used to measure other customers’ online reviews were adapted from the Jalilvand et al. (2012) study and used in the hotel circumstance. Item five “If I didn’t read other customers’ online reviews when I made the room reservation, I would be worried about my decision” was reverse coded, since the negatively worded statement affected the internal consistency reliability of the scale. Additionally, it was indicated by previous study (Abubakar & Ilkan, 2016) that item five could be taken away due to low factor loading according to CFA results. The items used to measure other customers’ online reviews are listed in Table 7.
Table 7. Measurement Items of Other Customers’ Online Reviews

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other customers’ online reviews</td>
<td>Jalilvand, Dini, &amp; Manzari (2012)</td>
<td>1. I read other customers’ online reviews to know if this hotel made a good impression on others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To make sure I choose the right hotel, I read other customers’ online reviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. I consulted other customers’ online reviews to help choose (the hotel name put in by the respondent in Screening Question 6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. I gathered information from other customers’ online reviews before I made the room reservation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. If I didn’t read other customers’ online reviews when I made the room reservation, I would be worried about my decision</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. When I made the room reservation, reading other customers’ online reviews made me confident in staying at (the hotel name put in by the respondent in Screening Question 6)</td>
</tr>
</tbody>
</table>

Customers’ Perception of their Experience Using a Hotel’s Online Reservation System

Customers’ perception of their experience using a hotel’s online reservation system was measured via four dimensions from previous studies using the TAM to investigate the effect of system use on customers’ intention to actually use the system in the online banking field (Suh & Han, 2002). Item one “Using this hotel’s online reservation system was a good experience” and Item three “Using this hotel’s online reservation system was a positive experience” were correlated due to the similar meaning presented to respondents. The measurement items for customers’ perception of their experience using a hotel’s online reservation system are listed in Table 8.
Table 8. Measurement Items of Customers’ Perception of their Experience Using a Hotel’s Online Reservation System

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Items</th>
</tr>
</thead>
</table>
| Perception of their Experience using the hotel’s interactive reservation system | Suh & Han (2002) | 1. Using this hotel’s online reservation system was a good experience  
2. Using this hotel’s online reservation system was pleasant  
3. Using this hotel’s online reservation system was a positive experience  
4. Using this hotel’s online reservation system was appealing |

Satisfaction Regarding Hotel

According to Su (2004), customers’ satisfaction regarding a hotel was the customers’ overall perception of the hotel. The main function a hotel company’s employees must perform was the delivery of high-quality service to its customers. Perceived service quality was defined as how well a customer’s needs were met, and how well the service delivered meted the customer’s expectations. In addition, perceived service quality was the gap between a customer’s expectations and perceptions; and the smaller the gap, the better the quality of service and greater the customer satisfaction. As argued by Su (2004), customer satisfaction was measured in different ways throughout literature; however, one measure consisting of responses to a single question remained in various studies, and was considered the measurement item for customer satisfaction regarding the hotel and the services provided. The measurement items for customer satisfaction regarding a hotel in this study were also adopted from Lee, Lee, and Yoo’s (2000) study, which investigated the factors determining perceived service quality and its relationship with satisfaction.

Table 9. Measurement Items of Customer Satisfaction Regarding a Hotel

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Satisfaction</td>
<td>Su (2004)</td>
<td>1. Overall, I was satisfied with this hotel</td>
</tr>
<tr>
<td></td>
<td>Lee, Lee, &amp; Yoo (2000)</td>
<td>2. I was satisfied with my decision to stay at this hotel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. I was satisfied with this hotel’s services</td>
</tr>
</tbody>
</table>
Intention to Use

Considering previous literature, Morosan and Jeong (2008) conducted a study investigating customers’ perceptions of two different channels for hotel online reservations and their intention to use the website. Customers’ intention to use the website was measured with items including statements related to users’ intention to revisit the website (Lai & Li, 2005), recommend the website to others (Saade & Bahli, 2005), select the website for future use (Mathwick, Malhotra, & Rigdon, 2001), and bookmark the website for future use (Moon & Kim, 2001). It was appropriate to apply these measurements to the current study since the current study focused on customers’ intention to use a hotel’s online reservation system to make room reservations, which was affected by customers’ perception of their experience using the hotel’s online reservation system. Therefore, it was proper to investigate customers’ intention to book from a hotel through perspectives including using the hotel’s website, recommending the website, potential to use the website at a future time, and saving the website for future use.

In addition, since this study investigated customers’ intention to make room reservations through a hotel’s online reservation system affected by their satisfaction, which was derived from their perceived service quality, it was appropriate to adopt the scales used in the study conducted by Jalilvand et al. (2012). However, since the items were adopted from various previous scales, items with similar meanings caused an issue with good model fit. The items this study used to measure customers’ intention to use a hotel’s online reservation system to make room reservations are listed in Table 10.
Table 10. Measurement Items of Intention to Use a Hotel’s Online Reservation System to Make Room Reservations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Authors/Year</th>
<th>Questionnaire Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to use</td>
<td>Morosan &amp; Jeong (2008)</td>
<td>1. I intend to reuse this hotel’s online reservation system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. I intend to recommend the hotel’s online reservation system to others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. I intend to use this hotel’s online reservation system for future bookings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. I intend to bookmark this hotel’s online reservation system for future bookings</td>
</tr>
<tr>
<td></td>
<td>Jalilvand, Samiei, Dini, &amp; Manzari (2012)</td>
<td>5. I predict I will make room reservations from this hotel in the future</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. I would prefer to make room reservations at this hotel rather than any other hotels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. If everything goes as I would like, I will plan to make room reservations at this hotel in the future</td>
</tr>
</tbody>
</table>

Demographic Information

The demographic information investigated in this study included country of residence, gender, age, education, annual household income, number of children, marital status, ethnicity, main purpose of travel (Jalilvand, Samiei, Dini, & Manzari, 2012), previous reservations made in the past year, preferred hotel type, frequency of staying at hotels per year, and frequency of using a hotel’s online reservation system to book a hotel room (Morosan & Jeong, 2008). The measurement scales of these variables are listed in Table 11.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Questionnaire Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country of Residence</td>
<td>Measured by the country of residence offered by respondents</td>
</tr>
<tr>
<td>Gender</td>
<td>Measured by selecting Male or Female</td>
</tr>
<tr>
<td>Age</td>
<td>Measured by selecting from 18-24, 25-34, 35-44, 45-54, and 55 or Above</td>
</tr>
<tr>
<td>Education Level</td>
<td>Measured by selecting from Less than a high school degree, High school graduate (including GED), Some college but no degree, Associate degree (2-year), Bachelor’s degree (4-year), Master’s degree, Doctoral degree, Professional degree (JD, MD, etc.)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Measured by selecting from Caucasian/White, Asian/Pacific Islander, African American/Black, Hispanic/Latino, Native American Indian, Other</td>
</tr>
<tr>
<td>Household Annual Income</td>
<td>Measured by selecting from Less than $10,000, $10,000-$19,999, $20,000-$29,999, $30,000-$39,999, $40,000-$49,999, $50,000-$59,999, $60,000-$69,999, $70,000-$79,999, $80,000-$89,999, $90,000-$99,999, $100,000-$149,999, $150,000 or more</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Measured by selecting from Married, Widowed, Divorced, Separated, Never Married</td>
</tr>
<tr>
<td>Number of Children</td>
<td>Measured by selecting from 0, 1, 2, 3, 4, 5, 5 or More</td>
</tr>
<tr>
<td>Main Purpose of Travel</td>
<td>Measured by selecting from Leisure, Business, Mixture of leisure and business, VFR (i.e. visiting friends and relatives), Other</td>
</tr>
<tr>
<td>Previous Reservations in the Past 12 months</td>
<td>Measured by selecting from 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or More reservations</td>
</tr>
<tr>
<td>Preferred Hotel Type</td>
<td>Measured by selecting from Economy (One Diamond), Mid-Scale (Two Diamond), Upper Mid-Scale (Three Diamond), Upscale (Four Diamond), Ultra-Luxury (Five Diamond)</td>
</tr>
<tr>
<td>Frequency of staying at hotels per year</td>
<td>Measured by selecting from Never, 1 or 2 times, 3-5 times, 6-10 times, 10 times or More</td>
</tr>
<tr>
<td>Frequency of using the hotel’s online reservation system to book a hotel room</td>
<td>Measured by selecting from Always, Most of the time, About half the time, Sometimes</td>
</tr>
</tbody>
</table>
Data Collection

All materials and procedures for this study, including the consent form, the questionnaire, and the data collection process, were approved by the Institutional Review Board (IRB) of Iowa State University. Upon approval from the IRB, data were collected in January, 2018. For this study, Amazon Mechanical Turk (MTurk), collaborating with Qualtrics, was used as the tool to collect survey responses. A seven-point Likert scale questionnaire was created and edited on Qualtrics. The Qualtrics survey was connected to Amazon Mechanical Turk (MTurk), a community that allows participants to be paid for choosing tasks, known as HITs, to complete. At the end of the survey, each respondent was assigned a random code generated by Qualtrics to receive payment for taking the survey. The sample was composed of participants who had booked a hotel room through a hotel’s official website and read other customers’ reviews online while making the reservation. All participants were recruited from MTurk, had a registered MTurk worker’s account, and were provided an online survey link restricted only to registered users. All participants who fully responded to the survey received a 50-cent reward. More detailed information about the Amazon Mechanical Turk for data collection is provided in the following sections.

Data Screening

The purpose of data screening was to delete invalid responses, check and impute missing data, outliers, and check for normality assumptions. It was important to appropriately deal with missing data to remove bias that threatens the validity of the inferences drawn from the results (Sinharay, Stern, & Russell, 2001). SPSS 21.0 was used to identify patterns and mechanisms of missing data and to check the normality.
Data Analysis

The data analysis process started with data screening, descriptive statistics, and creating the demographic profile of respondents. Confirmatory factor analysis checked the reliability and validity of the measurement scales. Finally, structural equation modeling was utilized to test the hypotheses and the proposed structure model.

Descriptive Statistics

The descriptive statistics, including percentages, means, standard deviations and frequencies for each measured variable, were obtained using SPSS 21.0. Respondents’ previous travel and booking experiences were investigated and described.

Amazon’s Mechanical Turk (MTurk)

Amazon Mechanical Turk (MTurk) is a channel used for fast and valid data collection in research of hotel services and hotel online reservation systems. MTurk is an online marketplace used to automate the execution of micro-tasks that require human intervention (Ghose, Ipeirotis, & Li, 2009). Task requesters post simple, micro-tasks known as Human Intelligence Tasks (HITs) in the marketplace. Workers browse the posted micro-tasks and complete them for a small monetary reward. The marketplace offers appropriate control over the task completion, such as validation of the submitted responses or the ability to assign the same task to several different workers. It also ensures proper randomization of assignments of tasks to workers within a single task type. MTurk also allows task requesters to restrict which workers are allowed to annotate a task by requiring all workers have a particular set of qualifications (Snow, O’Connor, Jurafsky, & Ng, 2008). It is also expected that MTurk provides more generalizable information for the results than other data collection methods, such as university convenient sample (Mason & Suri, 2012).
Confirmatory Factory Analysis (CFA)

The Confirmatory Factor Analysis (CFA) addresses the situation wherein the researcher specifies a model based on a previous theoretical framework, and tests the conjecture that a relationship between observed and latent variables does exist (Sureshchandar, Rajendran, & Anantharaman, 2002). This approach was used to demonstrate an adequate model fit and assured a satisfactory level of measurement reliability and validity for the underlying variables and their respective factors. In studies utilizing CFA, researchers had a reasonably good knowledge of the number of factors required to explain the intercorrelations among the measured variable.

Structural Equation Modeling (SEM)

The structural equation model (SEM) with maximum likelihood estimation was employed to test the interrelationships among research variables utilizing AMOS version 21. This approach was selected due to its ability to examine causal relationships between constructs with multiple measurement items. The SEM approach also had the capability to test measurement characteristics of the constructs (Hair, Anderson, Tatham, & Black, 1998). Moreover, SEM provided overall tests of model fit and individual parameter estimate tests simultaneously. Overall model fit indices for the structured model were examined. Several goodness of fit indices were assessed, including chi-square statistic ($\chi^2$), normed chi-square statistic ($\chi^2/df$), the root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), the Tucker Lewis index (TLI), and comparative fit index (CFI). The cut-off value of these goodness of fit indices are listed in Table 12. Additionally, the proposed conceptual model was compared to a fully recursive model to reveal significant paths among latent variables not hypothesized. After the comparison, a re-specified model was explored as an alternative model to fit the data of this study.
Table 12. *Cut-Off Values for Goodness of Fit Indices*

<table>
<thead>
<tr>
<th>Goodness of fit indices</th>
<th>Threshold</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square ($\chi^2$)</td>
<td>Non-significant</td>
<td>Kline (1998)</td>
</tr>
<tr>
<td>Normed Chi-square ($\chi^2/df$)</td>
<td>$&lt; 5.0$</td>
<td>Bollen (1989); Hair, Black, Babin, &amp; Anderson (2009)</td>
</tr>
<tr>
<td>Root Mean Square Error of</td>
<td>$&lt; .080$</td>
<td>Schreiber, Nora, Stage, Barlow, &amp; King (2006)</td>
</tr>
<tr>
<td>Approximation (RMSEA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodness-of-Fit Index (GFI)</td>
<td>$\geq .80$</td>
<td>Byrne (1998)</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>$\geq .90$</td>
<td>Hu &amp; Bentler (1999)</td>
</tr>
<tr>
<td>Tucker Lewis Index (TLI)</td>
<td>$\geq .90$</td>
<td>Hu &amp; Bentler (1999)</td>
</tr>
</tbody>
</table>

**Reliability and Validity**

Internal consistency reliability is the stability of individual measurement items across replications from the same source of information (Straub, 1989). Internal consistency reliability was evaluated by computing Cronbach’s alpha. Cronbach’s alpha, ranging from 0.0 to 1.0, is a measurement of the reliability of the instruments, which reflects how well a set of questions measures a specific construct (Peterson, 1994). Cronbach’s alpha coefficients for the constructs was the qualitative tool to measure the reliability in this study. Constructs with Cronbach’s alpha coefficient larger than 0.70 were considered to be reliable according to Hair, Black, Babin, Anderson, and Tatham (1998). Construct validity indicated whether or not the measures chosen were true constructs describing the event (Straub, 1989), the subtypes of construct validity including convergent validity, and discriminant validity. The technique for evaluating the construct validity of the instrument in this study was the contemporary approach using the confirmatory factor analysis (CFA) for assessing convergent validity and discriminant validity. Convergent validity is the degree to which multiple attempts to measure the same concept are in agreement. Composite reliability (CR) and average variance extracted (AVE) were used to examine the convergent validity of the model. CR values above 0.70 and AVE values above 0.50
were considered adequate evidence for construct validity (Hair, Black, Babin, & Anderson, 2010). Additionally, standard factor loadings higher than 0.60 were recommended (Chin, Gopal, & Salisbury, 1997).

Discriminant validity is the degree to which the measures of different concepts are distinct; and is used to test whether two measures that are not supposed to be related are actually unrelated. Discriminant validity is evident when the construct’s average variance extracted is greater than its correlations with other constructs (Henseler, Ringle, & Sarstedt, 2015). However, as recently pointed out by Henseler, Ringle, and Sarstedt (2015) by means of the Monte Carlo simulation study, traditional approaches for checking the discriminant validity do not sufficiently detect the lack of discriminant validity in common research situations. They propose the heterotrait-monotrait (HTMT) ratio of correlations is an alternative approach to evaluate discriminant validity, which is based on the multitrait-multimethod matrix(MTMM). A HTMT ratio of correlations lower than .90 is considered adequate to establish discriminant validity. After evaluating the measurement model and the overall model, the estimated coefficients of the causal relationships between constructs were examined, which validated the hypothesized effects.

**Chapter Summary**

This chapter provided an introduction of the process this study took, including sampling, data collection, data analysis. The methods of data analysis included confirmatory factor analysis and structural equation modeling. Moreover, the process of data screening and descriptive information analysis were also discussed.
CHAPTER IV. DATA ANALYSIS AND RESULTS

Introduction

The purpose of this chapter is to report the results from this study. First, a description of respondents’ demographic information is presented, which includes socio-demographic information, previous booking experience, and travel experience. Next, the descriptive statistics for each extracted factor and its measurement items in terms of means and standard deviations is presented. The results of the confirmatory factor analysis (CFA) for the initial measurement model are interpreted. In addition, the results of validity and reliability tests are presented. The results of the structural equation modeling (SEM) analysis are then presented. A fully recursive model is tested and compared to the initial model proposed in this study to reveal significant paths that were not hypothesized. Finally, a revised model based on both the CFA results towards the measurement model and the results of comparing the initial model to a fully recursive model towards the structural model is explored as an alternative model and examined at the end of this chapter.

Demographic Information

This study conducted the survey process utilizing Qualtrics, and a completed sample of 1000 respondents were collected through Amazon’s Mechanical Turk (MTurk). After eliminating 105 respondents who either provided invalid hotel names (e.g. abcd) or failed at least one attention check, a total of 895 valid responses remained for further analysis. Additionally, after eliminating outliers in the data, the sample size went down to 848 to be used for final data analysis. The valid response rate was 84.8%. Of these participants, 67.6% indicated their most recent hotel stay in the last 12 months was in the United States, and the other 32.4% indicated their most recent hotel stay in the last 12 months was outside of the United States.
Analysis of the demographic information of the respondents is shown in Table 13. The average age of respondents was 34 years old. Among which the age group with the highest percentage was from 25 to 34 years old (52.5%), and the group with the lowest percentage was those above 55 years old (6.9%). The gender of the respondents was roughly evenly distributed, with 50.5% male and 49.5% female. In terms of the highest education level, the majority of the respondents (45.4%) reported they earned a bachelor’s degree, 23.6% reported a Master’s degree and above, 14.9% reported they attended some college but had no degree, 10.1% attended a two-year associate degree, and only 6% of the respondents reported a high school degree or below. Most of the respondents reported they were White/Caucasian (51.6%), 29.5% reported they were Asian/Pacific Islander, 7.7% were African American, 5.3% were Hispanic/Latino, 1.5% were Native American Indian, and the remaining 4.4% reported other. In terms of annual household income, 41.8% respondents reported they earned between $20,000 and $59,999 every year, 18.5% reported they earned less than $19,999 per year, 36% earned between $60,000 and $149,999, and only 3.7% earned more than $150,000 annually.

Table 13. Demographic Profile of the Respondents

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>n=848</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>420</td>
<td>49.5</td>
</tr>
<tr>
<td>Male</td>
<td>428</td>
<td>50.5</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>99</td>
<td>11.7</td>
</tr>
<tr>
<td>25-34</td>
<td>445</td>
<td>52.5</td>
</tr>
<tr>
<td>35-54</td>
<td>245</td>
<td>28.9</td>
</tr>
<tr>
<td>55 and over</td>
<td>59</td>
<td>6.9</td>
</tr>
</tbody>
</table>

*Note*. n represents frequency; % represents percentage.
Table 13. (continued) *Demographic Profile of the Respondents*

<table>
<thead>
<tr>
<th>Highest Education</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than a high school degree</td>
<td>4</td>
<td>.5</td>
</tr>
<tr>
<td>High school graduate (including GED)</td>
<td>47</td>
<td>5.5</td>
</tr>
<tr>
<td>Some college but no degree</td>
<td>126</td>
<td>14.9</td>
</tr>
<tr>
<td>Associate degree (2-year)</td>
<td>86</td>
<td>10.1</td>
</tr>
<tr>
<td>Bachelor’s degree (4-year)</td>
<td>385</td>
<td>45.4</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>168</td>
<td>19.8</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>17</td>
<td>2.0</td>
</tr>
<tr>
<td>Professional degree (JD, MD, etc.)</td>
<td>15</td>
<td>1.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian/White</td>
<td>438</td>
<td>51.6</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>250</td>
<td>29.5</td>
</tr>
<tr>
<td>African American/Black</td>
<td>65</td>
<td>7.7</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>45</td>
<td>5.3</td>
</tr>
<tr>
<td>Native American Indian</td>
<td>13</td>
<td>1.5</td>
</tr>
<tr>
<td>Other</td>
<td>37</td>
<td>4.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household Annual Income</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $19,999</td>
<td>156</td>
<td>18.5</td>
</tr>
<tr>
<td>$20,000-$39,999</td>
<td>180</td>
<td>21.4</td>
</tr>
<tr>
<td>$40,000-$59,999</td>
<td>172</td>
<td>20.4</td>
</tr>
<tr>
<td>$60,000-$79,999</td>
<td>132</td>
<td>15.7</td>
</tr>
<tr>
<td>$80,000-$99,999</td>
<td>87</td>
<td>10.3</td>
</tr>
<tr>
<td>$100,000-$149,999</td>
<td>85</td>
<td>10.0</td>
</tr>
<tr>
<td>More than $150,000</td>
<td>31</td>
<td>3.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country of Residence</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>The United States</td>
<td>589</td>
<td>69.5</td>
</tr>
<tr>
<td>India</td>
<td>218</td>
<td>25.7</td>
</tr>
<tr>
<td>Canada</td>
<td>12</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>3.4</td>
</tr>
</tbody>
</table>

*Note.* n represents frequency; % represents percentage.

Table 14 shows results regarding respondents’ travel and booking experiences. The majority of respondents (47.1%) indicated they usually travel for leisure purposes, 20.6% indicated they usually travel for business trips, 25% usually traveled for a mix of leisure and business purposes, while only 6.1% usually traveled for visiting family and friends. Of these respondents, only about 5% made more than 10 hotel reservations in the past 12 months; most respondents (56.3%) made 1-3 reservations in the past 12 months, and 33.1% made 4-6 reservations. In terms of the type of hotel they preferred to stay for a
majority of their trips, most of the respondents (43.5%) said they preferred upper mid-scale (three diamond) hotels while traveling. Mid-scale (two diamond) hotels were preferred by 22.6% of respondents, while only 5.3% preferred ultra-luxury (five diamond) hotels. About half of the respondents (42.5%) indicated they stayed at hotels three to five times per year. Speaking to the methods of booking a hotel room, more than half of the respondents (51.2%) said they booked the hotel rooms through a hotel’s online reservations system most of the time. There were 29.2% of respondents that said they always use a hotel’s online reservation system to make reservations, with about 13% of respondents indicating about half the time they use a hotel’s online reservation system to make room reservations.

Table 14. Summary of Travel and Booking Experiences

<table>
<thead>
<tr>
<th>Primary Travel Purpose</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure</td>
<td>399</td>
<td>47.1</td>
</tr>
<tr>
<td>Business</td>
<td>175</td>
<td>20.6</td>
</tr>
<tr>
<td>Mixture of leisure and business</td>
<td>212</td>
<td>25</td>
</tr>
<tr>
<td>VFR</td>
<td>52</td>
<td>6.1</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>1.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Hotel Reservations made in past 12 months</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 times</td>
<td>477</td>
<td>56.3</td>
</tr>
<tr>
<td>4-6 times</td>
<td>281</td>
<td>33.1</td>
</tr>
<tr>
<td>7-9 times</td>
<td>49</td>
<td>5.8</td>
</tr>
<tr>
<td>10 times or more</td>
<td>41</td>
<td>4.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preferred Hotel Type</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy (One Diamond)</td>
<td>90</td>
<td>10.6</td>
</tr>
<tr>
<td>Mid-Scale (Two Diamond)</td>
<td>192</td>
<td>22.6</td>
</tr>
<tr>
<td>Upper Mid-Scale (Three Diamond)</td>
<td>369</td>
<td>43.5</td>
</tr>
<tr>
<td>Upscale (Four Diamond)</td>
<td>152</td>
<td>17.9</td>
</tr>
<tr>
<td>Ultra-Luxury (Five Diamond)</td>
<td>45</td>
<td>5.3</td>
</tr>
</tbody>
</table>

*Note. VFR: Visiting Friends and Relatives; Percentage may not add up to 100% due to rounding.*
Table 14. (continued) Summary of Travel and Booking Experiences

<table>
<thead>
<tr>
<th>Frequency Stay at Hotels annually</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or 2 times</td>
<td>303</td>
<td>35.7</td>
</tr>
<tr>
<td>3-5 times</td>
<td>360</td>
<td>42.5</td>
</tr>
<tr>
<td>6-10 times</td>
<td>137</td>
<td>16.2</td>
</tr>
<tr>
<td>10 times or more</td>
<td>45</td>
<td>5.3</td>
</tr>
<tr>
<td>Never</td>
<td>3</td>
<td>0.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency Using Hotel’s Online Reservation System to book</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>248</td>
<td>29.2</td>
</tr>
<tr>
<td>Most of the time</td>
<td>434</td>
<td>51.2</td>
</tr>
<tr>
<td>About half the time</td>
<td>109</td>
<td>12.9</td>
</tr>
<tr>
<td>Sometimes</td>
<td>55</td>
<td>6.5</td>
</tr>
<tr>
<td>Never</td>
<td>2</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Descriptive Statistics**

SPSS version 21.0 investigated the missing pattern of the data. The Little’s MCAR test showed $\chi^2=720.547$, df=753, sig.=.797, indicating a non-significant result of the test. The null hypotheses failed to reject, meaning the missing values of this study were missing completely at random. McDonald and Ho (2002) stated the Little’s (1988) chi-square statistic suggested data was missing completely at random (MCAR), meaning the absence of this observation was independent of other observed variables and the variable itself. According to Little and Rubin’s (1987) recommendation, expectation maximum (EM) was the method used for imputing missing data for this study, which made use of all available data points.

The mean value of each measurement item ranged from 1.81 to 2.35. The standard deviation ranged from .911 to 1.186. Tests for normality were conducted using SPSS version 21.0. Univariate outliers for several variables were revealed by box and whisker plots, and were deleted from the data set. Normality assumptions were checked after deleting outliers. Following the recommendations of Kline (1998), skewness values within the range between -3 and 3, and kurtosis values within the range of -10 and 10 were considered acceptable. Overall, the data was in an acceptable distribution range at
the univariate level. However, results indicated the data was not multivariate normal. Various previous research for large samples illustrated violation of the normality assumption should not be of major concern due to the central limit theorem, which stated the mean of random sample from any distribution had normal distribution (Altman & Bland, 1995). Therefore, if the sample consisted of hundreds of observations, the distribution of the data was ignored (Oppong & Agbedra, 2016). Similar conclusions were proposed by Lumley, Diehr, Emerson, and Chen (2002) using large public health data sets.

A final sample size of 848 was used for the data analysis process of this study. Based on previous researchers’ recommendations on the proper sample size for SEM programs, each measurement item had at least 15 observations (Benter & Chou, 1987; Stevens, 1996). Similarly, Loehlin (1992) concluded from the results of the Monte Carlo simulation studies that each factor in the SEM should plan on collecting at least 100 cases. Therefore, the sample size of this study met the appropriate sample size suggested for research and performing SEM.

**Initial Measurement Model**

A confirmatory factor analysis was performed to test the model fit of the measurement model utilizing AMOS 21.0. The initial measurement model included 37 items measuring seven variables. PSQ_1, PSQ_2, PSQ_3, PSQ_4, PSQ_5 were used to measure perceived service quality; PU_1, PU_2, PU_3, PU_4, PU_6, PU_7 were used to measure perceived usefulness; PEU_1, PEU_2, PEU_3, PEU_4, PEU_5, PEU_6 were used to measure perceived ease of use; OR_1, OR_2, OR_4, OR_5, OR_6, OR_7 were used to measure other customers’ online reviews; EXP_1, EXP_2, EXP_3, EXP_4 were used to measure perception of customers’ experience using a hotel’s online reservation system; SAT_1, SAT_2, SAT_3 were used to measure satisfaction regarding the hotel
overall and the services provided by the hotel; and INT_1, INT_2, INT_3, INT_4, INT_5, INT_6, INT_7 were used to measure intention to use the hotel’s online reservation system to make room reservations for future trips. The results of CFA demonstrated the estimation of the initial model fit was acceptable but not good. A $\chi^2$ value of 2553.453 with 608 degrees of freedom was statistically significant at $p<.001$, which indicated the model was not perfectly fit. The $\chi^2/df$ value (4.200) and RMSEA value (.061) were acceptable, and the other model fit indices (CFI=.920, TLI=.912, GFI=.832) were acceptable.

**Reliability and Validity of the Initial Model**

Cronbach’s alpha tested the internal reliability of the model. Cronbach’s alpha estimated the internal consistency associated with the scores derived from a scale or a composite score. In addition, reliability was important because, with the absence of reliability, it was impossible to have any validity associated with the scores of the scale. In the current study model, Cronbach’s alpha for all variables was higher than .70, meaning the measurements of the model were able to measure what they were expected to measure. Composite reliability (CR) for each construct was greater than .70, and average variance extracted (AVE) for each construct was greater than .50 (Fornell & Larcker, 1981), suggesting satisfactory convergent validity (see Table 15). Table 24 shows the standardized factor loadings for each construct, which revealed items OR_6, INT_4, INT_6 had factor loadings lower than .70 indicating potential issues for measuring the respective constructs well. However, since Cronbach’s alpha for constructs OR and INT were .841 and .907 respectively (Table 15), the measurement model still showed quite good internal reliability. Therefore, further analysis was done with this initial model. Moreover, discriminant validity was examined by comparing the square-root of AVE for each construct with the inter-construct correlations (Gefen & Straub,
In other words, the discriminant validity was established if the construct’s squared correlations with other constructs were no higher than its AVE value (Henseler, Ringle, & Sarstedt, 2015). As shown in Table 16, three sets of the latent variables (PEU and EXP, PU and EXP, OR and PEU) were found to violate the criterion. However, the HTMT ratios of the correlations (see Table 17) between PEU and EXP, PU and EXP, OR and PEU were .871, .841, .746 respectively. These values were all lower than the threshold value of .90, which confirmed discriminant validity (Henseler, Ringle, & Sarstedt, 2015).

Table 15. Summary of Construct Reliability and Validity Evaluation

<table>
<thead>
<tr>
<th>Constructs</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQ</td>
<td>.874</td>
<td>.909</td>
<td>.666</td>
</tr>
<tr>
<td>PU</td>
<td>.911</td>
<td>.931</td>
<td>.692</td>
</tr>
<tr>
<td>PEU</td>
<td>.930</td>
<td>.945</td>
<td>.740</td>
</tr>
<tr>
<td>OR (Reverse coded)</td>
<td>.841</td>
<td>.886</td>
<td>.577</td>
</tr>
<tr>
<td>EXP</td>
<td>.904</td>
<td>.933</td>
<td>.776</td>
</tr>
<tr>
<td>SAT</td>
<td>.900</td>
<td>.938</td>
<td>.834</td>
</tr>
<tr>
<td>INT</td>
<td>.907</td>
<td>.927</td>
<td>.645</td>
</tr>
</tbody>
</table>

*Note.* EXP= experience of using a hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT=satisfaction regarding the hotel, PSQ=perceived service quality; CA=Cronbach’s alpha; CR=composite reliability; AVE=average variance extracted.

Table 16. Summary of Discriminant Validity Evaluation

<table>
<thead>
<tr>
<th></th>
<th>EXP</th>
<th>INT</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>SAT</th>
<th>PSQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP</td>
<td>0.881</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>0.729</td>
<td>0.803</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>0.684</td>
<td>0.528</td>
<td>0.760</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>0.862</td>
<td>0.637</td>
<td>0.772</td>
<td>0.860</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>0.843</td>
<td>0.629</td>
<td>0.681</td>
<td>0.824</td>
<td>0.832</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>0.665</td>
<td>0.740</td>
<td>0.535</td>
<td>0.599</td>
<td>0.596</td>
<td>0.913</td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>0.694</td>
<td>0.661</td>
<td>0.665</td>
<td>0.744</td>
<td>0.739</td>
<td>0.806</td>
<td>0.816</td>
</tr>
</tbody>
</table>

*Note.* EXP= experience of using a hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT=satisfaction regarding the hotel, PSQ=perceived service quality. Diagonal elements are the squared root of the AVE (the variance shared between the constructs and their measurement items). The lower triangle of the matrix are the values of the construct correlations.
Table 17. Heterotrait-Monotrait (HTMT) Ratio of Correlations

<table>
<thead>
<tr>
<th></th>
<th>EXP</th>
<th>INT</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>SAT</th>
<th>PSQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>0.749</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>0.736</td>
<td>0.581</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>0.871</td>
<td>0.623</td>
<td>0.746</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>0.841</td>
<td>0.686</td>
<td>0.658</td>
<td>0.822</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>0.752</td>
<td>0.757</td>
<td>0.681</td>
<td>0.703</td>
<td>0.683</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>0.669</td>
<td>0.625</td>
<td>0.602</td>
<td>0.702</td>
<td>0.705</td>
<td>0.773</td>
<td></td>
</tr>
</tbody>
</table>

Note. EXP= experience of using a hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT= satisfaction regarding the hotel, PSQ= perceived service quality.

Structural Equation Modeling (SEM) of the Initial (Reduced) Model

Based on the confirmatory factor analysis, the measurement model fit was acceptable. The reliability and validity of the model constructs were examined and confirmed, which suggested the model should be further examined in a structural way to test the causal relationships among these constructs to the proposed hypotheses utilizing structural equation modeling. To conduct the structural equation modeling process, AMOS 21.0 was utilized.

$\chi^2$ statistics and the goodness-of-fit indices were used to assess the overall model fit. The $\chi^2=2792.170$, with 616 degrees of freedom, $p=.000$, $\chi^2/df=4.370$, GFI=.826, CFI=.915, TLI=.908, PCFI=.846, RMSEA=.063 indicated the proposed model fit the data but did not fit well. It could be due to the low factor loadings for some of the items (e.g. item OR_6 had a factor loading of .271, which was lower than .40), which did not measure the construct well. It could also be due to some highly correlated items in the same measurement scale (e.g. item EXP_1 and EXP_3 had a correlation of .736).

The $R^2$ statistics indicated the portion of variance in the endogenous variables were explained by the predict variables. The 79.8% variance in perception of customers’ experience using a hotel’s online reservation system was explained by perceived ease of use and perceived usefulness, 64.9% of the variance in satisfaction regarding the hotel as
a whole and the services provided by the hotel was explained by perceived service quality, and 64.8% of the variance in intention to use the hotel’s online reservation system to make room reservations was explained by perceived service quality, perceived ease of use, perceived usefulness, and other customers’ online reviews. All paths in the structural model appeared to be statistically significant, except for the path from the other customers’ online reviews to the intention to use a hotel’s online reservation system. This meant when customers were trying to make reservations for their trips, reading other customers’ online reviews did not encourage them to use a hotel’s online reservation system. Figure 6 shows the results for the path analysis.

![Diagram](image)

**Figure 6.** Structural model with standardized regression coefficients.

*Note.*  
→ Significant path  
--- non-significant path; ***$p<.001$. 
As shown in Table 18, the standardized coefficients indicated the causal relationship for the observed variables and the endogenous variables, which provided support for acceptance of the proposed hypotheses. A positive and statistically significant relationship between perceived service quality and satisfaction regarding the hotel as a whole and the services provided by the hotel were found by the path analysis ($H1: \beta=0.806, t=19.91, p<.001$), supporting $H1$. Additionally, the relationship between customers’ perceived system use and their perception of their experience using a hotel’s online reservation system to make room reservations was found by obtaining positive and statistically significant path estimates for $H2$ ($H2: \beta=0.521, t=11.68, p<.001$) and $H3$ ($H3: \beta=0.413, t=9.38, p<.001$). $H4$ was also shown to be supported ($H4: \beta=0.432, t=9.47, p<.001$), indicating the better the customers’ perception of their experience using the hotel’s online reservation system, the more likely they intended to use the hotel’s online reservation system to make room reservations for future trips. $H6$ was supported ($H6: \beta=0.460, t=12.06, p<.001$) with a positive and statistically significant path estimate; meaning the more satisfied the customers were about the hotel and the hotel’s services, the more likely they were willing to use the hotel’s online reservation system to make room reservations for future trips. However, results for $H5$ were found to be non-significant, indicating no matter how favorable customers perceived other customers’ online reviews to be, their intention to use the hotel’s online reservation system to make room reservation was not affected. The correlations among latent variables are displayed in Table 19.
Table 18. Summary of the Results for Hypotheses Test

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>$\beta$</th>
<th>t</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H1$</td>
<td>PSQ $\rightarrow$ SAT</td>
<td>.806***</td>
<td>19.91</td>
<td>Supported</td>
</tr>
<tr>
<td>$H2$</td>
<td>PEU $\rightarrow$ EXP</td>
<td>.521***</td>
<td>11.68</td>
<td>Supported</td>
</tr>
<tr>
<td>$H3$</td>
<td>PU $\rightarrow$ EXP</td>
<td>.413***</td>
<td>9.38</td>
<td>Supported</td>
</tr>
<tr>
<td>$H4$</td>
<td>EXP $\rightarrow$ INT</td>
<td>.432***</td>
<td>9.47</td>
<td>Supported</td>
</tr>
<tr>
<td>$H5$</td>
<td>OR $\rightarrow$ INT</td>
<td>.015</td>
<td>.39</td>
<td>Not Supported</td>
</tr>
<tr>
<td>$H6$</td>
<td>SAT $\rightarrow$ INT</td>
<td>.460***</td>
<td>12.06</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Note. EXP= experience of using a hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT= satisfaction regarding the hotel, PSQ= perceived service quality; *** $p < .001$.

Table 19. Correlations Among Latent Variables for Initial (Reduced) Model

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>PSQ</th>
<th>SAT</th>
<th>EXP</th>
<th>INT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>.772</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>.681</td>
<td>.824</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>.665</td>
<td>.744</td>
<td>.739</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>.535</td>
<td>.599</td>
<td>.596</td>
<td>.806</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP</td>
<td>.684</td>
<td>.862</td>
<td>.843</td>
<td>.694</td>
<td>.665</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>.528</td>
<td>.637</td>
<td>.629</td>
<td>.661</td>
<td>.740</td>
<td>.729</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The direct and indirect effects among the observed variables and endogenous variables were examined, and mediations were found statistically significant. Customer satisfaction regarding the hotel positively mediated the relationship between perceived service quality and intention to use the hotel’s online reservation system to make reservations. Customers’ perception of the experience using the hotel’s online reservation system positively mediated between customers’ perceived ease of use and perceived usefulness of the hotel’s online reservation system and their intention to use the system to book hotel services. The mediating role of customer satisfaction regarding the hotel was verified by bootstrapping analysis (Preacher & Hayes, 2008), with a 95% CI: .26 ~ .49. The mediating role of perception of customers’ experience using a hotel’s online reservation system between perceived ease of use of the hotel’s online reservation system
and customers’ intention to use the system to book from the hotel was verified with a
95% CI: .15 ~.32, and 95% CI: .11 ~ .28 between perceived usefulness of the hotel’s
online reservation system and customers’ intention to use the system to book from the
hotel. The results for the direct and indirect effects are displayed in Table 20.

Table 20. Summary of Direct and Indirect Effects Results

<table>
<thead>
<tr>
<th>Direct Effects</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: PSQ → SAT</td>
<td>.806***</td>
<td>19.91</td>
</tr>
<tr>
<td>H2: PEU → EXP</td>
<td>.521***</td>
<td>11.68</td>
</tr>
<tr>
<td>H3: PU → EXP</td>
<td>.413***</td>
<td>9.38</td>
</tr>
<tr>
<td>H4: EXP → INT</td>
<td>.432***</td>
<td>9.47</td>
</tr>
<tr>
<td>H6: SAT → INT</td>
<td>.460***</td>
<td>12.06</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indirect Effects Using 2000 Bootstrapping Analysis a</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQ → SAT → INT</td>
</tr>
<tr>
<td>PEU → EXP → INT</td>
</tr>
<tr>
<td>PU → EXP → INT</td>
</tr>
</tbody>
</table>

a 95% bootstrap confidence intervals are shown in parentheses; *** p < .001.

Comparison Between Fully Recursive Model and Initial Model

To provide a direct test of the key assumptions embedded in the proposed model, an
additional fully recursive model was examined to explore the relationships among the
predictor variables and the endogenous variables not hypothesized in this study. A
comparison between the full model and the reduced model (i.e. the conceptual model
proposed in this study) was performed. As shown in Table 21, there was a significant
change in χ^2 between the fully recursive model and the initial model, indicating there
were paths that were significant but not hypothesized in the initial model. It was revealed
that although other customers’ online reviews did not have significant effects on
customers’ intention to use the hotel’s online reservation system in booking hotel rooms, it had a significant, positive effect on customers’ satisfaction regarding the online reservation system provided by the hotel. In addition, other customers’ online reviews also significantly affected customers’ perception of their experience using the hotel’s online reservations system positively. That is to say, other customers’ online reviews indirectly affected customers’ intention to use a hotel's online reservation system to book a hotel room, which was mediated by customers’ satisfaction regarding the hotel and their perception of their experience using the hotel’s online reservation system. Additionally, perceived usefulness was found to have a significant impact on customers’ intention to use the hotel’s online reservation system to book from the hotel, while perceived ease of use was not. Results were consistent with the findings of Gefen and Straub (2000) indicating perception was a response to user evaluation of the system’s extrinsic (i.e. task-oriented) outcomes: how a system helped users achieve task-related objectives, such as task efficiency and effectiveness. However, perceived ease of use related to evaluations of the intrinsic characteristics of the system (e.g., the ease of use, ease of learning, flexibility, and clarity of its interface). Therefore, previous research indicated perceived ease of use did not affect system usage when a system was used to purchase products (or services) because it was not an inherent quality of the purchased product (e.g., Mathieson, 1991; Adams, Nelson, & Todd, 1992; Subramanian, 1994; Straub, Limayem, & Karahanna, 1995; Chau, 1996; Szajna, 1996). The results from comparing the conceptual model of this study to the fully recursive model are shown in Table 22. The correlations among latent variables for the fully recursive model are shown in Table 23, and the standardized factor loadings for each latent variable are shown in Table 24.
Table 21. \( \chi^2 \) Comparison Between Initial Model and Fully Recursive Model

<table>
<thead>
<tr>
<th>Model</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>( \Delta \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Model (Reduced)</td>
<td>2692.170</td>
<td>616</td>
<td></td>
</tr>
<tr>
<td>Full Model</td>
<td>2553.102</td>
<td>608</td>
<td>( \chi^2(8) = 139.1 )</td>
</tr>
</tbody>
</table>

Table 22. Comparison Between Initial Model and Fully Recursive Model

<table>
<thead>
<tr>
<th>Path</th>
<th>Standardized Coefficient</th>
<th>Compare Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced</td>
<td>Full</td>
<td></td>
</tr>
<tr>
<td>( \beta )</td>
<td>( t )</td>
<td>( \beta )</td>
</tr>
<tr>
<td>PSQ→SAT</td>
<td>.806***</td>
<td>19.91</td>
</tr>
<tr>
<td>PEU→EXP</td>
<td>.521***</td>
<td>11.68</td>
</tr>
<tr>
<td>PU→EXP</td>
<td>.413***</td>
<td>9.38</td>
</tr>
<tr>
<td>OR→INT</td>
<td>.015</td>
<td>.388</td>
</tr>
<tr>
<td>SAT→INT</td>
<td>.460***</td>
<td>12.06</td>
</tr>
<tr>
<td>EXP→INT</td>
<td>.432***</td>
<td>9.47</td>
</tr>
<tr>
<td>PSQ→INT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ→EXP</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>PEU→SAT</td>
<td>.088</td>
<td></td>
</tr>
<tr>
<td>PU→SAT</td>
<td>.107</td>
<td></td>
</tr>
<tr>
<td>OR→SAT</td>
<td>.258***</td>
<td>5.72</td>
</tr>
<tr>
<td>OR→EXP</td>
<td>.163***</td>
<td>4.37</td>
</tr>
<tr>
<td>PEU→INT</td>
<td>.226</td>
<td>3.24</td>
</tr>
<tr>
<td>PU→INT</td>
<td>.188**</td>
<td>3.15</td>
</tr>
</tbody>
</table>

Note. EXP= experience of using a hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT=satisfaction regarding the hotel, PSQ=perceived service quality; ** \( p<.01 \), *** \( p<.001 \).

Table 23. Correlations Among Latent Variables for Full Model

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>PSQ</th>
<th>SAT</th>
<th>EXP</th>
<th>INT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>.766</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>.675</td>
<td>.823</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>.623</td>
<td>.705</td>
<td>.702</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>.691</td>
<td>.706</td>
<td>.684</td>
<td>.769</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP</td>
<td>.748</td>
<td>.867</td>
<td>.841</td>
<td>.669</td>
<td>.756</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>.604</td>
<td>.642</td>
<td>.694</td>
<td>.633</td>
<td>.767</td>
<td>.755</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Table 24. *Standardized Factor Loadings in Each Indicator for Corresponding Latent Variables in Initial Model and Full Model*

<table>
<thead>
<tr>
<th>Latent Variables</th>
<th>Indicators</th>
<th>Standardized Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial (Reduced)</td>
<td>Full Model</td>
</tr>
<tr>
<td>Perceived Service Quality</td>
<td>PSQ_1 .700</td>
<td>.705</td>
</tr>
<tr>
<td></td>
<td>PSQ_2 .803</td>
<td>.810</td>
</tr>
<tr>
<td></td>
<td>PSQ_3 .764</td>
<td>.778</td>
</tr>
<tr>
<td></td>
<td>PSQ_4 .817</td>
<td>.825</td>
</tr>
<tr>
<td></td>
<td>PSQ_5 .700</td>
<td>.699</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>PU_1 .804</td>
<td>.805</td>
</tr>
<tr>
<td></td>
<td>PU_2 .774</td>
<td>.776</td>
</tr>
<tr>
<td></td>
<td>PU_3 .739</td>
<td>.741</td>
</tr>
<tr>
<td></td>
<td>PU_4 .829</td>
<td>.831</td>
</tr>
<tr>
<td></td>
<td>PU_6 .817</td>
<td>.815</td>
</tr>
<tr>
<td></td>
<td>PU_7 .797</td>
<td>.795</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>PEU_1 .826</td>
<td>.827</td>
</tr>
<tr>
<td></td>
<td>PEU_2 .842</td>
<td>.843</td>
</tr>
<tr>
<td></td>
<td>PEU_3 .848</td>
<td>.849</td>
</tr>
<tr>
<td></td>
<td>PEU_4 .779</td>
<td>.778</td>
</tr>
<tr>
<td></td>
<td>PEU_5 .810</td>
<td>.809</td>
</tr>
<tr>
<td></td>
<td>PEU_6 .870</td>
<td>.872</td>
</tr>
<tr>
<td>Other Customers’ Online Reviews</td>
<td>OR_1 .795</td>
<td>.796</td>
</tr>
<tr>
<td></td>
<td>OR_2 .794</td>
<td>.789</td>
</tr>
<tr>
<td></td>
<td>OR_4 .709</td>
<td>.710</td>
</tr>
<tr>
<td></td>
<td>OR_5 .769</td>
<td>.768</td>
</tr>
<tr>
<td></td>
<td>OR_6 .270</td>
<td>.271</td>
</tr>
<tr>
<td></td>
<td>OR_7 .777</td>
<td>.783</td>
</tr>
<tr>
<td>Perception of the Experience</td>
<td>EXP_1 .847</td>
<td>.854</td>
</tr>
<tr>
<td></td>
<td>EXP_2 .795</td>
<td>.801</td>
</tr>
<tr>
<td></td>
<td>EXP_3 .863</td>
<td>.867</td>
</tr>
<tr>
<td></td>
<td>EXP_4 .822</td>
<td>.827</td>
</tr>
<tr>
<td>Satisfaction regarding the hotel</td>
<td>SAT_1 .897</td>
<td>.898</td>
</tr>
<tr>
<td></td>
<td>SAT_2 .854</td>
<td>.859</td>
</tr>
<tr>
<td></td>
<td>SAT_3 .849</td>
<td>.846</td>
</tr>
<tr>
<td>Intention to use the hotel’s Online Reservation System to book from the hotel</td>
<td>INT_1 .807</td>
<td>.811</td>
</tr>
<tr>
<td></td>
<td>INT_2 .728</td>
<td>.736</td>
</tr>
<tr>
<td></td>
<td>INT_3 .857</td>
<td>.861</td>
</tr>
<tr>
<td></td>
<td>INT_4 .561</td>
<td>.570</td>
</tr>
<tr>
<td></td>
<td>INT_5 .825</td>
<td>.830</td>
</tr>
<tr>
<td></td>
<td>INT_6 .661</td>
<td>.670</td>
</tr>
<tr>
<td></td>
<td>INT_7 .839</td>
<td>.845</td>
</tr>
</tbody>
</table>
Chapter Summary

This chapter reported the results of CFA and SEM analysis for the initial model proposed based on theoretical frameworks. The measurement model fit and reliability and validity of the measurement model was analyzed by CFA before a structural equation model test was performed. The path analysis was performed by conducting a SEM, and results were compared to a fully recursive model. In additional, for a better data fit, an exploratory model re-specification of the initial model was performed based on both CFA results of the initial model and results of comparisons between the initial model and the fully recursive model. In the next chapter, a summary of the study results will be reviewed and theoretical and practical implications of the results, limitations of the study, and recommendations for future research topics will be presented.
CHAPTER V. DISCUSSION AND CONCLUSION

Introduction

This chapter discusses and summarizes the results of this study and is composed of four sections. The first section reviews the major results of this study. The second section discusses theoretical and practical implications. The third section provides an illustration of the limitations of this study, as well as offers potential directions for future studies. The fourth section presents an exploratory alternative model modified from the proposed model by investigating the comparison between the proposed model to its fully recursive model to fit for the data of this study.

Summary of Findings

The fast evolution of information and communication technology and the popularization of internet usage increasingly promotes information technology in the hospitality industry. Accurate and timely reservations are essential for hotel companies to ensure appropriate service is provided to customers for a positive customer experience. Making reservations through the internet enables hotel customers to take full advantage of the ample information accessible through just a click. Hotel online reservation systems are a popular method for booking hotel rooms, which is considered the best option to automate and enhance the booking process (Castro & Custodio, 2016). A hotel’s online reservation system helps manage the reservation process of hotel customers without manual efforts. The online reservation system also enables hotel management to make the reservation process highly efficient compared to booking via email or by phone. According to Hu and Gu (2013), hotel’s online reservation systems provide a more direct way for hotels to monitor their revenue management. Anderson (2009) asserts that booking directly through a hotel’s online reservation system enables the hotel to control sales costs and maintain customer contact. The system enables customers to check room
availability on a certain range of dates and certain price ranges based on real time data. It also makes it possible for customers to create, view, modify, or cancel an existing reservation. By booking a room through a hotel’s online reservation system, customers are assured about the availability of a room upon arrival at the hotel during their trip, as the reservation is a commitment made by the hotel via their online reservation system rather than a third-party business (Kasavana & Brooks, 1998). However, there is still a large portion of customers using other methods to book a hotel room, including through OTA website, by email, by phone, or in person. The factors impelling customers to book directly through a hotel’s own reservation system is a substantial topic for hotel management.

This study focused on examining the factors affecting customers’ intention to use a hotel’s online reservation system by combining previous theories and frameworks. Moreover, this study was the first to provide investigation into the relationship between customers’ perception of reading other customers’ online reviews and their intention to book from a hotel via the hotel’s online reservation system.

First, findings of this study suggested customers’ perceived service quality, customers’ satisfaction regarding the hotel, customers’ perceived usefulness of the hotel’s online reservation system, customers’ perception of their experience using the hotel’s online reservation system, and online reviews generated by other customers were factors impacting customers’ intention to use a hotel’s online reservation system to book from the hotel, which answered the first research question proposed in this study. Second, results showed customers’ perception about the quality of services provided by the hotel during their previous trips had significant, positive effects on satisfaction regarding the hotel. The customers’ perceived service quality also showed a significant, indirect effect on their intention to use the hotel’s online reservation system to book from the hotel, which
added to the research knowledge regarding the linkage among customers’ perceived service quality, satisfaction regarding a service company, and customers’ behavioral intentions in purchasing, and widened it to a hotel’s online reservation system scenario. Therefore, the second research question proposed in this study, which indicated how the perceived service quality provided by the hotel affected customers’ satisfaction regarding the hotel, was answered.

Third, results indicated there was a significant, positive relationship between the customers’ perceived ease of use and their perception of their experience using the system, and between their perceived usefulness of the hotel’s online reservation system and their perception of their experience using the system. Therefore, the third and fourth research questions were answered. Moreover, customers’ perception of their experience using a hotel’s online reservation system was found to have a significant, positive effect on their intention to book from the hotel using the system. The findings proved the TAM was successfully applied to the hotel industry to explain customer usage of hotel reservation systems. Additionally, it was found customers’ perceived ease of use and perceived usefulness of a hotel’s online reservation system had significant, indirect effects on their intention to use the system to book hotel rooms mediated by their positive perception of their experience using the system. Additionally, perceived usefulness was found to have a significant, direct effect on customers’ intention to use a hotel’s online reservation system for booking, while perceived ease of use did not. Findings were consistent with the results concluded by Gefen and Straub (2000) for purchase-oriented systems, and perceived usefulness appeared to be more important than perceived ease of use in terms of intention to use the system for purchasing.

Fourth, findings showed customers’ evaluation of other customers’ online reviews did not significantly affect intention to book from a hotel using the hotel’s online
reservation system. However, it indirectly affected customers’ intention to book from a hotel using the hotel’s online reservation system. In other words, the exploratory alternative model examined in this study revealed customers’ assessment about other customers’ online reviews had an indirect effect on their intention to book through the hotel’s online reservation system via customers’ satisfaction regarding the hotel and their perception of their experience using the hotel’s online reservation system. Unlike the findings of previous studies investigating hotel bookings via non-transactional websites (Mauri & Minazzi, 2013), customers intended to book hotel rooms through the hotel’s own reservation system because they had a high level of satisfaction and a good perception of their experience using the hotel’s online reservation system. Therefore, the last research question was also answered.

**Characters of Amazon Mechanical Turk Sample**

This study conducted data collection by combining the usage of Qualtrics for survey design and the Amazon’s Mechanical Turk (MTurk) for survey distribution. As indicated by Buhrmester, Kwang, and Gosling (2011), MTurk participants were slightly more demographically diverse than standard internet samples. The gender distributed roughly even in female and male participants in this study, with females slightly lower than males in terms of percentage. This was contrary to findings established by Ipeirotis (2015) indicating MTurk respondents were mainly female (70%). The sample was mainly composed of participants from the United States (69.5%) and India (25.7%), with less than 10% coming from Canada (1.4%) and other countries (3.4%). Participants aligned with findings concluded by Ipeirotis (2015) that the majority of MTurk users were from the United States, but a significant majority was now coming from India. Furthermore, the largest age group of this study was the age group between 25-34, taking up 52.5% of the sample, which was consistent with findings by Ipeirotis (2015) that respondents on
MTurk were younger compared to the general population, with the largest age group between 21-35. In terms of educational level, the majority (45.4%) of respondents reported they earned a bachelor’s degree, which was also consistent Ipeirotis’ results, indicating the majority of respondents from MTurk were well-educated. According to Ipeirotis (2015), the annual household income of most MTurk respondents was between $25,000 and $59,999, which matched the results revealed in this study (41.8%). As opposed to what was revealed by Ipeirotis (2015), more than half (54.6%) of the respondents of this study were married instead of single, and in terms of household size, respondents who had children and those who did not have children were roughly evenly distributed in the current study sample. This was not the case mentioned by Ipeirotis (2015), who found most of the MTurk workers did not have children. Although MTurk sample had some bias (e.g. gender, age) on results, it was still considered a potential mechanism for conducting research in social sciences, yielding generally promising results. The demographic characteristics indicated respondents from MTurk were as diverse and more representative of non-college populations than other types of internet and traditional samples. It had the necessary components to successfully complete a research project from start to finish; and the quality of data collected from MTurk met or exceeded the psychometric standards associated with published studies (Buhrmester, Kwang, & Gosling, 2011).

Theoretical Implications

There are several theoretical contributions generated by this study. First, results of this study added to the growing literature (e.g., Koufaris, 2002; Jalilvand, Samiei, Dini, & Manzari, 2012) in the service industry, especially featuring the hotel sector, regarding the causal relationship between customers’ perceptions of service quality received from a business and their satisfaction, which in turn affected their intention to purchase in an
online booking scenario. Although the service quality – customer satisfaction – purchase intention linkage (e.g., Kuo, Wu, & Deng, 2009; Iskandar, Nurmalina, & Riani, 2015; Petrick, 2004; Chen & Tsai, 2007) was widely studied, not much study was done in an online setting regarding a hotel reservation system.

Second, this study showed a successful application of TAM, which was proposed by Davis (1989) to explain system adoption regarding users’ perceived ease of use and perceived usefulness of the system, to investigate hotel customers’ acceptance of a hotel’s online reservation system in the process of making reservations. The results of this study confirmed the relationship among user acceptance of a system and system usage intention proposed by Davis (1989) in a hotel online direct sales scenario, which generalized the TAM to a wider research area. In addition, the finding that perceived ease of use of a hotel’s online reservation system did not have a significant, direct effect on the customers’ intention to use the system to book from the hotel confirmed the findings of Gefen and Straub (2000). TAM-related studies that perceived ease of use of a system did not directly affect use-intention when the system was used for a purchasing task.

Third, the findings of this study applied various previous theories to assist in investigating the factors which affected customers intention to use a hotel’s online reservation system to book from the hotel’s website directly. Specifically, Davis (1986) suggested users’ perceptions of the features of the system (i.e. perceived ease of use and perceived usefulness) affected the users’ motivation to use the system, which in turn affected their actual usage of the system. The results of this study generalized the theory into hotel online reservation system usage and proposed customers’ perceptions towards easily used, hotel online reservation systems positively affected their motivation to use the reservation system, and actual usage of the system to make reservations for their future trips increased.
Fourth, although the measurement items of this study were adopted from previous research, future researchers should be cautious that some items were highly correlated residuals. The correlated items (e.g., EXP_1, EXP_3) should be adopted with caution while utilizing these scales. Moreover, some measurement items (e.g., OR_6) had low factor loadings. It was reconfirmed in this study as it was pointed out in previous studies (Abubakar & Ilkan, 2016). Therefore, future researchers should be aware of this as a priori, and should consider dropping this item for the revised model to get a better model fit for further analysis.

Fifth, the proposed model was compared with a fully recursive model in this study, and the comparison results revealed several paths found to be statistically significant that were not hypothesized in the proposed model. Dissimilar to OTA websites, the scenario of using a hotel’s online reservation system while reading other customers’ online reviews during the hotel booking process did not lead directly to customers’ intention to book. This scenario had an indirect effect on customers’ intention to book through customer satisfaction regarding the hotel and impacted the good perception of their experience using the online reservation system.

Lastly, this study was the first attempt to investigate customers’ intention to use a system to make purchases by combining customers’ perceived service quality, perceived ease of use and perceived usefulness of a hotel’s online reservation system, and customer-generated online reviews. Previous studies (e.g., Kim, Ma, & Kim, 2006; Jalilvand, Samiei, Dini, & Manzari, 2012) examined these ideas separately.

**Practical Implications**

The findings of this study provide valuable information for hotel managers and hospitality practitioners to appropriately deal with the customer relationship issue. The
results focus on three major directions of managing this issue: 1) how customers’
perception of service quality leads to their satisfaction, 2) how customers’ perceptions of
using a hotel’s online reservation system boosts their intention to make reservations, 3) how to manage customers’ online reviews to appropriately lead to customers’ intention to
book through a hotel’s online reservation system. First, the results indicate customers’
positive perceptions of service quality provided by the hotel leads to satisfied experiences
with the hotel. To deliver high quality services, hotel managers and personnel must ensure
every contact with guests results in a positive experience. It is essential to define quality
standards that are transparent and measurable. These standards are divided into
procedural quality dimensions, which are high efficiency, timeliness, accommodation to
meet the customers’ needs and properly controlled coordination, etc.; and social
dimensions, which include positive attitude, handling problems promptly, giving
individual attention to customers, etc.

Second, this study provides suggestions for the development of a hotel’s online
reservation system in terms of ease of use and usefulness. The results indicate a
significant, positive relationship between customers’ perceived ease of use and perceived
usefulness of the hotel’s online reservation system with their perception of their
experience using the system respectively. Similar to previous research utilizing TAM to
investigate systems used for purchase purposes, the perceived usefulness have significant
positive effects on customers’ intention to book from a hotel using the hotel’s online
reservation system; while perceived ease of use does not, due to the fact that this study
investigates a purchasing-task system (Gefen & Straub, 2000). Therefore, hotel
practitioners should pay more attention to improving the perceived usefulness (e.g., task
efficiency, effectiveness) of the system to boost customers’ intention of using the system
to purchase from the hotel. Moreover, hotel practitioners should make efforts to offer
useful, efficient, easy to handle, and reliable information about the hotel’s products and services. It is also useful to periodically get customers’ feedback on using the hotel’s online reservation system, to make appropriate improvements on the system.

Third, the results of this study provides advice for hoteliers in improving online distribution strategies to take advantage of customers’ adoption of the online reservation system as a reservation tool. First, it should be a priority to design an online reservation system that is high in usefulness. The reservation system should be high in efficiency, productive, reliable, and rich in content. Respondents of this study agree that a hotel’s online reservation system with characteristics such as high efficiency and high productivity enhanced their perception of the user experience and intentions to use the system in booking from the hotel. Second, the user-friendliness of a hotel’s online reservation system needs to improve. Perceived ease of use is an important indicator of customers’ perception of the experience using the system. Therefore, hotels should focus on establishing a more user-friendly online reservation system that allows customers to become skilled in using it easily (Morosan & Jeong, 2008). For example, strategies could include providing highly visible navigational buttons, suggestive images, and easy to follow reservation engines.

Lastly, since customers consider other customers’ online reviews as a source of information that forms part of their satisfaction regarding a hotel, and reviews impact their perception of their experience using a hotel’s online reservation system, it is important for hoteliers to be serious about online reviews generated by their customers. Previous research reveals average online review ratings have a positive relationship with hotel room sales (Ye, Law, & Gu, 2009).
Limitations and Recommendations for Future Research

This study contains several limitations. Therefore, the interpretation of results should be done with caution. First, the sample was composed of workers of Amazon’s Mechanical Turk. Although the MTurk sample is diverse and more representative of non-college populations than other types of internet and traditional samples (Buhrmester, Kwang, & Gosling, 2011), it still has some bias (e.g., age, gender, education level), which may have threatened the external validity of the results.

Second, there are limitations associated to the nature of the TAM. Intentions are discussed as the last link in the conceptual framework of TAM (Figure 4), assuming it ultimately results in behavior. In the absence of objective measures of actual behavior, intentions are used as a substitute of actual behavior. This practice is common in previous literature utilizing TAM (e.g., Koufaris, 2002; Wu & Holsapple, 2014), as intentions can be used as indicators to predict actual behavior (Bruner & Kumar, 2005; Liaw & Huang, 2003).

This study investigated the factors affecting hotel customers’ satisfaction regarding a hotel and their perception of their experience using the hotel’s online reservation system, which ultimately affects their booking intention when using the hotel’s online reservation system. However, there may be other factors influencing room sales through a hotel’s online reservation system. According to Anderson (2009), in addition to direct sales through their own online reservation system, hotels also gain a reservation benefit on third-party distributors’ website, which are commonly known as online travel agents (OTA). Due to the billboard effect, a hotel listed on the OTA website promotes the room sales on the hotel’s own online reservation system. It is meaningful for future research to look into the relationship between an OTA website and the hotel’s own reservation system, and compare customers motivated by the OTA websites to make a reservation
through the hotel’s online reservation system and customers motivated to make a reservation through the hotel’s online reservation system by other means, for example, advertisement on TV. The results of the investigation may provide recommendations for hotel management to take into consideration when making the decision to use optimal promotion methods to boost their direct sales of room nights. Moreover, to enhance the generalizability of findings, this study can be replicated utilizing a sample of actual hotel guests to eliminate the bias caused by the MTurk sample. Lastly, based on TAM’s assumption that there is a strong relationship between intentions and actual behavior, objective measures of customers’ actual behavior could be included to strengthen the model.

**An Exploratory Alternative Model**

The proposed model tested whether the theories and items from previous research could be applied into a hotel’s online reservation system purchasing scenario. By comparing the fully recursive model, paths among the latent variables were tested and significant paths not hypothesized in the initial model were explored for further investigation. A model re-specification was performed to explore an alternative model to better fit the data based on the measurement model identification results of the initial model, as well as the comparison results of the initial model and the fully recursive model. Therefore, the measurement model fit was re-evaluated based on the modification indices resulted from the initial CFA, non-significant paths were removed from the initial model, and significant paths were added to the initial model. A re-specified model was explored to fit for the data.

Based on the results generated from the initial CFA, the standardized regression weights were evaluated to examine the factor loadings of the 37 items. Items with factor loadings lower than .70 were deleted from the measurement model according to Hair
(2010). Therefore, one item from the other customers’ online reviews (OR_6 with a factor loading of .270), two items from intention to use the hotel’s online review system (INT_4 with a factor loading of .561, INT_6 with a factor loading of .661) were excluded from the measurement model. Additionally, items that were highly correlated with the other items that measured one variable were eliminated from the measurement model. Therefore, two items from the perceived ease of use (PEU_4, PEU_5), two items from intention to use the hotel’s online review system (INT_1, INT_7), two items from the perceived usefulness (PU_6, PU_7), and two items from the attitude (EXP_1, EXP_3) were deleted, leaving 26 remaining items.

After eliminating 11 items from the initial measurement model, CFA was conducted again using the remaining 26 items. The results of the CFA indicated a satisfactory model fit (see Table 25). Although the $\chi^2$ value was 913.615, and was statistically significant at $p<.001$, and the $\chi^2/df$ value was 3.334, it was suggested by previous research that the $\chi^2$ statistic was very sensitive to sample size and was no longer sufficient as a basis for acceptance or rejection. As a result, the use of multiple fit indices was developed to provide a more holistic view of goodness-of-fit, which took account of sample size, model complexity, and other relevant issues of the study (Schermelleh-Engel, Moosbrugger, & Muller, 2003; Vandenberg, 2006). The RMSEA value (.052) that was non-significant indicated a better model fit. The other model fit indices (CFI=.960, TLI=.952, GFI=.917) were all better than the initial measurement model, indicating a satisfactory model fit.
Table 25. Summary of Measurement Model Fit

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>$\chi^2/df$</th>
<th>CFI</th>
<th>TLI</th>
<th>GFI</th>
<th>RMSEA</th>
<th>PCLOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-Specified Model</td>
<td>913.615</td>
<td>3.334</td>
<td>.960</td>
<td>.952</td>
<td>.917</td>
<td>.052</td>
<td>.134</td>
</tr>
</tbody>
</table>

Note. $\chi^2$ = chi-squared; df= degree of freedom; RMSEA= root mean square error of approximation; CFI= comparative fit index; TLI= Tucker-Lewis index; GFI= goodness-of-fit index; PCLOSE= significance level of RMSEA; *** $p< .001$.

Reliability and validity of the Alternative Model

To test the internal reliability of the model, Cronbach’s alpha was utilized. As shown in Table 26, Cronbach’s alpha for all variables was higher than .70, indicating the measurements of the model measured what they were expected to measure. Composite reliability (CR) for each construct was greater than .70, and average variance extracted (AVE) for each construct was greater than .50 (Fornell & Larcker, 1981), suggesting evidence of convergent validity. Discriminant validity was examined by comparing the square-root of AVE for each construct with the construct’s correlations with other constructs. If the construct’s squared correlations with other constructs were no higher than its AVE value, discriminant validity was satisfied (Gefen & Straub, 2005; Henseler, Ringle, & Sarstedt, 2015). Table 27 shows all constructs of the model met this criterion, which indicated a sufficient evidence for discriminant validity. Moreover, the HTMT ratio for all the constructs correlations were no higher than .90 (see Table 28), indicating the discriminant validity was confirmed.

Table 26. Summary of Construct Reliability and Validity Evaluation

<table>
<thead>
<tr>
<th>Latent Factors</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQ</td>
<td>.874</td>
<td>.909</td>
<td>.666</td>
</tr>
<tr>
<td>PU</td>
<td>.888</td>
<td>.923</td>
<td>.749</td>
</tr>
<tr>
<td>PEU</td>
<td>.913</td>
<td>.938</td>
<td>.792</td>
</tr>
<tr>
<td>OR</td>
<td>.879</td>
<td>.911</td>
<td>.673</td>
</tr>
<tr>
<td>EXP</td>
<td>.835</td>
<td>.924</td>
<td>.858</td>
</tr>
<tr>
<td>SAT</td>
<td>.900</td>
<td>.938</td>
<td>.834</td>
</tr>
<tr>
<td>INT</td>
<td>.836</td>
<td>.901</td>
<td>.753</td>
</tr>
</tbody>
</table>

Note. CA= Cronbach’s alpha; CR= composite reliability; AVE= average variance extracted.
Table 27. Summary of Discriminant Validity Evaluation

<table>
<thead>
<tr>
<th>Construct</th>
<th>EXP</th>
<th>INT</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>SAT</th>
<th>PSQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>.926</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>.756</td>
<td>.868</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>.732</td>
<td>.666</td>
<td>.820</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>.807</td>
<td>.691</td>
<td>.795</td>
<td>.890</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>.763</td>
<td>.689</td>
<td>.609</td>
<td>.726</td>
<td>.866</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>.681</td>
<td>.775</td>
<td>.721</td>
<td>.679</td>
<td>.583</td>
<td>.913</td>
<td></td>
</tr>
</tbody>
</table>

Note. Diagonal elements are the squared root of the AVE (the variance shared between the constructs and their measurement items). The lower triangle of the matrix are the values of the construct correlations.

Table 28. Heterotrait-Monotrait (HTMT) Ratio of Correlations for Discriminant Validity

<table>
<thead>
<tr>
<th>Construct</th>
<th>EXP</th>
<th>INT</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>SAT</th>
<th>PSQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>0.765</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>0.710</td>
<td>0.637</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>0.805</td>
<td>0.676</td>
<td>0.768</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>0.769</td>
<td>0.712</td>
<td>0.589</td>
<td>0.731</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>0.701</td>
<td>0.797</td>
<td>0.690</td>
<td>0.714</td>
<td>0.630</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>0.635</td>
<td>0.665</td>
<td>0.619</td>
<td>0.705</td>
<td>0.667</td>
<td>0.773</td>
<td></td>
</tr>
</tbody>
</table>

Note. EXP= experience of using the hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT= satisfaction regarding the hotel, PSQ= perceived service quality.

Structural Equation Modeling (SEM) for the Alternative Model

The confirmatory factor analysis suggested the measurement model fit well to the data of this study, and the reliability and validity of the conceptual model constructs were checked and confirmed.

Results indicated the model could be further investigated in a structural way to examine the causal relationships among constructs to test the proposed hypotheses utilizing structural equation modeling. In addition, based on the results of comparing between the initial model to a fully recursive model, non-significant paths were removed from the initial model.
Moreover, items with highly correlated residuals were set to be correlated. A revised structure model was then tested. The overall model fit was evaluated by $\chi^2$ statistics and the goodness-of-fit indices. The $\chi^2=796.296$, with 276 degrees of freedom, $p=.000$, $\chi^2/df=2.885$, which was expected to be smaller than the initial model because the revised measurement model had a smaller matrix after eliminating items.

The goodness-of-fit indices, GFI=.931, CFI=.967, TLI=.962, PCFI=.822, RMSEA=.047 with $p=.885$, suggested the model fit the data well. In terms of the $R^2$ statistics, 73.4%, 68.2%, and 71.4% of the variance was explained in perception of their experience using a hotel’s online reservation system, satisfaction regarding the overall hotel and the services provided by the hotel, and intention to use the hotel’s online reservation system to make room reservations respectively.

All paths in the structural model appeared to be statistically significant in the revised model. The other customers’ online reviews had indirect effects on the intention to use a hotel’s online reservation system mediated by both customers’ satisfaction regarding the hotel and the customers’ perception of their experience using the hotel’s online reservation system. The results indicated that the other customers’ online reviews does not affect intention to use a hotel’s online reservation system directly as hypothesized in the proposed model, which is not similar as previous studies investigating customers’ intention to book from a hotel through non-transactional websites, such as hotel review websites or other rating websites that provided customers’ evaluations on hotels. In other words, in the case of using hotel’s online reservation system to book from a hotel, customers tend to be more aware of satisfaction about the hotel as well as perceptions of the experience using the hotel’s online reservation system. The path analysis results are shown in Figure 7.
Table 29 shows a positive and statistically significant relationship between perceived service quality and satisfaction regarding a hotel was found by the path analysis ($\beta=.528$, $t=12.93$, $p<.001$). Moreover, the relationship between customers’ perceived system usage experience and their perception of the experience using a hotel’s online reservation system to make room reservations was found by obtaining positive and statistically significant path estimates, ($\beta=.374$, $t=6.33$, $p<.001$) and ($\beta=.361$, $t=8.59$, $p<.001$) for perceived ease of use and perceived usefulness respectively. The newly revised model showed a positive, significant relationship between other customers’ online reviews and
customers’ perception of the experience using an online reservation system ($\beta = .215$, $t = 4.22$, $p < .001$), and customers’ satisfaction regarding the hotel ($\beta = .379$, $t = 9.79$, $p < .001$), indicating reading other customers’ online reviews during the booking decision-making process significantly raised customers’ satisfaction level about the hotel, and also boosted their good perception of the experience using the hotel’s online reservation system. This indirectly affected their intention to use the hotel’s online reservation system to make room reservations for future trips. The correlations among the latent variables are shown in Table 30. The results for the direct and indirect effects are displayed in Table 31. Factor loadings for the latent variables are shown in Table 32.

Table 29. Summary of the Path Coefficients and Significance Level

<table>
<thead>
<tr>
<th>Path</th>
<th>Path Coefficients</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQ→ SAT</td>
<td>.528***</td>
<td>12.93</td>
</tr>
<tr>
<td>PEU→ EXP</td>
<td>.374***</td>
<td>6.33</td>
</tr>
<tr>
<td>PU→ EXP</td>
<td>.361***</td>
<td>8.59</td>
</tr>
<tr>
<td>OR→ EXP</td>
<td>.215***</td>
<td>4.22</td>
</tr>
<tr>
<td>OR→ SAT</td>
<td>.379***</td>
<td>9.79</td>
</tr>
<tr>
<td>EXP→ INT</td>
<td>.289***</td>
<td>5.19</td>
</tr>
<tr>
<td>SAT→ INT</td>
<td>.462***</td>
<td>11.15</td>
</tr>
<tr>
<td>PU→ INT</td>
<td>.199***</td>
<td>4.27</td>
</tr>
</tbody>
</table>

Note. EXP= experience of using the hotel’s online reservation system, INT=intention to use the hotel’s online reservation system, OR=other customer’s online reviews, PEU=perceived ease of use, PU=perceived usefulness, SAT= satisfaction regarding the hotel, PSQ= perceived service quality; a 95% bootstrap confidence intervals are shown in parentheses; ***$p < .001$.

Table 30. Correlations Among Latent Variables for Alternative Model

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR</th>
<th>PEU</th>
<th>PU</th>
<th>PSQ</th>
<th>SAT</th>
<th>EXP</th>
<th>INT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>.795</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>.609</td>
<td>.726</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSQ</td>
<td>.646</td>
<td>.714</td>
<td>.666</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>.721</td>
<td>.679</td>
<td>.583</td>
<td>.773</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP</td>
<td>.732</td>
<td>.807</td>
<td>.763</td>
<td>.646</td>
<td>.681</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>.666</td>
<td>.691</td>
<td>.689</td>
<td>.677</td>
<td>.775</td>
<td>.756</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Table 31. Summary of Direct and Indirect Effects Results

<table>
<thead>
<tr>
<th>Direct Effects</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQ → SAT</td>
<td>.528***</td>
<td>12.93</td>
</tr>
<tr>
<td>OR → SAT</td>
<td>.379***</td>
<td>9.79</td>
</tr>
<tr>
<td>PEU → EXP</td>
<td>.374***</td>
<td>6.33</td>
</tr>
<tr>
<td>PU → EXP</td>
<td>.361***</td>
<td>8.59</td>
</tr>
<tr>
<td>OR → EXP</td>
<td>.215***</td>
<td>4.22</td>
</tr>
<tr>
<td>EXP → INT</td>
<td>.289***</td>
<td>5.19</td>
</tr>
<tr>
<td>SAT → INT</td>
<td>.462***</td>
<td>11.15</td>
</tr>
</tbody>
</table>

**Indirect Effects Using 2000 Bootstrapping Analysis a**

| PSQ → SAT → INT | .244*** |
| PU → EXP → INT  | .104*** |

Note. a 95% bootstrap confidence intervals are shown in parentheses; *** p < .001

Table 32. Standardized Factor Loadings in Each Indicator for Corresponding Latent Variables in Alternative Model

<table>
<thead>
<tr>
<th>Latent Variables</th>
<th>Indicators</th>
<th>Standardized Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Service Quality</td>
<td>PSQ_1</td>
<td>.704</td>
</tr>
<tr>
<td></td>
<td>PSQ_2</td>
<td>.810</td>
</tr>
<tr>
<td></td>
<td>PSQ_3</td>
<td>.776</td>
</tr>
<tr>
<td></td>
<td>PSQ_4</td>
<td>.823</td>
</tr>
<tr>
<td></td>
<td>PSQ_5</td>
<td>.699</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>PU_1</td>
<td>.843</td>
</tr>
<tr>
<td></td>
<td>PU_2</td>
<td>.795</td>
</tr>
<tr>
<td></td>
<td>PU_3</td>
<td>.763</td>
</tr>
<tr>
<td></td>
<td>PU_4</td>
<td>.871</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>PEU_1</td>
<td>.829</td>
</tr>
<tr>
<td></td>
<td>PEU_2</td>
<td>.837</td>
</tr>
<tr>
<td></td>
<td>PEU_3</td>
<td>.854</td>
</tr>
<tr>
<td></td>
<td>PEU_6</td>
<td>.876</td>
</tr>
</tbody>
</table>
Table 32. (continued) Standardized Factor Loadings in Each Indicator for Corresponding Latent Variables in Alternative Model

<table>
<thead>
<tr>
<th>Latent Variables</th>
<th>Indicators</th>
<th>Standardized Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Customers’ Online Reviews</td>
<td>OR_1</td>
<td>.809</td>
</tr>
<tr>
<td></td>
<td>OR_2</td>
<td>.783</td>
</tr>
<tr>
<td></td>
<td>OR_4</td>
<td>.668</td>
</tr>
<tr>
<td></td>
<td>OR_5</td>
<td>.718</td>
</tr>
<tr>
<td></td>
<td>OR_7</td>
<td>.783</td>
</tr>
<tr>
<td>Perception of the Experience</td>
<td>EXP_2</td>
<td>.834</td>
</tr>
<tr>
<td></td>
<td>EXP_4</td>
<td>.858</td>
</tr>
<tr>
<td>Satisfaction regarding the hotel</td>
<td>SAT_1</td>
<td>.897</td>
</tr>
<tr>
<td></td>
<td>SAT_2</td>
<td>.864</td>
</tr>
<tr>
<td></td>
<td>SAT_3</td>
<td>.845</td>
</tr>
<tr>
<td>Intention to use the hotel’s Online</td>
<td>INT_2</td>
<td>.733</td>
</tr>
<tr>
<td>Reservation System to book from the hotel</td>
<td>INT_3</td>
<td>.873</td>
</tr>
<tr>
<td></td>
<td>INT_5</td>
<td>.775</td>
</tr>
</tbody>
</table>

**Discussion About the Exploratory Alternative Model**

The exploratory alternative model was revised from the proposed model of this study because significant differences existed between the proposed model and the fully recursive model. The paths examined in the alternative model were significant, and the goodness-of-fit indices were improved, indicating an adequate fit to the data of the specific study.

As indicated in the comparison results of the proposed model and the fully recursive model, other customers’ online reviews affected customers’ intention to use the hotel’s online reservation system in booking from the hotel because customers’ satisfaction regarding the hotel and the services they received, as well as their user experience toward the hotel’s online reservation system in booking the hotel was affected by the reviews. According to Mauri and Minazzi (2013), for non-transactional travel websites, the valence
of customer-generated online reviews and hotel booking intention were positively related. While for transactional travel websites, customers-generated online reviews were found to affect customers’ satisfaction level as well as their user experience of the reservation system on the website. Therefore, one of the strengths of the alternative model was it addressed the indirect effect existing between other customers’ online reviews and the customers’ intention to use the hotel’s online reservation system in booking mediated by customers’ satisfaction regarding the hotel and their user experience of the hotel’s online reservation system. In addition, the alternative model also addressed the positive relationship between the customers’ perceived usefulness of a hotel’s online reservation system and the customers’ intention to use the hotel’s online reservation system in booking the hotel. This added evidence to the findings of previous research done by Gefen and Straub (2000), who conducted a study that summarized previous research utilizing the technology acceptance model, and classified the system into two categories (systems that are purchase-oriented and systems that are not purchase-oriented), and concluded that for purchase-oriented systems, customers’ perceived usefulness was more important in influencing customers’ intention to use the system for purchase purposes.

However, there were also limitations of the alternative model since some other factors affecting hotel customers’ intention to use the online reservation system in booking from the hotel were included. Previous literature proposed hotels also gained a reservation benefit from third-party distributors’ websites, commonly known as online travel agents (OTA). Due to the billboard effect, a hotel being listed on OTA websites promoted the room sales on the hotel’s own online reservation system. Considering the addition of these factors, the alternative model was strengthened and should be used to investigate hotel customers’ intention to use a hotel’s online reservation system in their booking process in a more thorough manner. Moreover, like the other studies utilizing the technology acceptance
model, the alternative model discussed customers’ intention to use a hotel’s online reservation system as the last link of the model, assuming it ultimately resulted in customers’ actual booking behavior. However, the objective measurement items for the actual booking behavior of the hotel customers were missing.

In conclusion, the alternative model revised from the proposed model of this study was more powerful in investigating the structural relationship between the measurement variables and latent constructs proposed in this study. The alternative model addressed both direct and indirect effects on the latent constructs, which were consistent with previous literature and were not hypothesized in the proposed model. However, limitations still remained in the alternative model, and additional factors and measurements for customers’ actual booking behaviors are not yet fully investigated.
REFERENCES

Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students’ Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. Computer in Human Behavior, 63, 75-90. doi:10.1016/j.chb.2016.05.014


APPENDIX A. SURVEY QUESTIONNAIRE

S1. Dear Participant:

This survey is designed to investigate customers' perceptions of service quality, perceptions of using the hotel's online reservation system, and other perceptions of customers' online reviews.

To participate in this survey, you must be at least 18 years of age. This survey will take about 20-25 minutes to complete. If you agree to participate, you will be asked to complete a survey about your perceptions of service quality, using the online reservation system, and other customers' online reviews of a hotel that you previous stayed at. 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. Note: This survey is structured in a way to check that participants are thoroughly reading each question. If you do not thoroughly read each question you will not receive the payment.

There are no foreseeable risks to you for participating in this survey. You may refuse to participate in this study or in any part of this study if you feel uncomfortable. Your participation is completely voluntary. Your responses will be used for research purposes only and kept anonymous and confidential. This means that you cannot be directly identified by your responses, and all responses will be securely stored and accessed only by the researchers of this study.

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

S2. What is your current age?

________________________________________________________________

S3. Have you stayed in a hotel in the past 12 months?

- Yes
- No

S4. How did you book your most recent hotel room?

- By using the hotel's reservation system on its official website
- By using an Online Travel Agency website (e.g., Expedia, Kayak, Hotwire, priceline, cheapoair, Travelocity, OneTravel, AirGorilla, Orbitz, CheapTickets, etc.)
- By phone
- By email
- In person
- Other (please specify) ____________________________________________
S5. For the hotel at which you most recently stayed, while you were trying to decide where to stay did you read other customers' online reviews for the specific hotel you finally selected?
- Yes
- No

S6. Please indicate the name of the hotel you have most recently stayed in the past 12 months.

________________________________________________________________

Not Qualified: Thank you for your interest in this study. Unfortunately, you are not qualified to participate in this survey. You may wish to return the HIT on Amazon Mechanical Turk so that it does not count against your acceptance rate.

PSQ. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The hotel was visually appealing</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My reservation was handled efficiently</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Employees responded promptly to my requests</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>This hotel provided a safe environment</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Charges on my account were clearly explained</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
PU. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)
When thinking about the hotel's online reservation system, please refer to the following definition: The hotel's online booking system that enables its customers to make room reservations through the hotel's official website.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using this hotel's online reservation system in my reservation process enabled me to accomplish my tasks more quickly</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system improved my reservation process</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system in my reservation process increased my productivity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system enhanced my effectiveness on the reservation process</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Please select &quot;Somewhat agree&quot; for the answer to this question</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system made it easier to make the reservation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I found this hotel's online reservation system useful in my reservation process</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
PEU. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)

When thinking about the hotel's online reservation system, please refer to the following definition: The hotel's online booking system that enables its customers to make room reservations through the hotel's official website.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning to operate this hotel's online reservation system was easy for me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I found it easy to get this hotel's online reservation system to do what I wanted it to do</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My interaction with this hotel's online reservation system was clear and understandable</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I found this hotel's online reservation system to be flexible to interact with</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It was easy for me to become skillful at using this hotel's online reservation system</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I found this hotel's online reservation system easy to use</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
OR. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I read other customers' online reviews to know if this hotel made a good impression on others</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>To make sure I chose the right hotel, I read other customers' online reviews</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Please select &quot;Disagree&quot; for the answer to this question</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I consulted other customers' online reviews to help choose (hotel name entered by respondent in S6)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I gathered information from other customers' online reviews before I made the room reservation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>If I didn't read other customers' online reviews when I made the room reservation, I would be worried about my decision</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>When I made the room reservation, reading other customers' online reviews made me confident in staying at (hotel name entered by respondent in S6)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
EXP. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)

As previous noted, the hotel's online reservation system refers to the following definition: The hotel's online booking system that enables its customers to make room reservations through the hotel's official website.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using this hotel's online reservation system was a good experience</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system was pleasant</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system was a positive experience</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using this hotel's online reservation system was appealing</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

SAT. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, I was satisfied with this hotel</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I was satisfied with my decision to stay at this hotel</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I was satisfied with this hotel's services</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
INT. For the following questions please recall your most recent stay at (hotel name entered by respondent in S6)

As previous noted, the hotel's online reservation system refers to the following definition: The hotel's online booking system that enables its customers to make room reservations through the hotel's official website.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I intend to reuse this hotel's online reservation system</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I intend to recommend this hotel's online reservation system to others</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I intend to use this hotel's online reservation system for future bookings</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I intend to bookmark this hotel's online reservation system for future bookings</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I predict I will make room reservations from this hotel in the future</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would prefer to make room reservations at this hotel rather than any other hotel</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>If everything goes as I would like, I will plan to make room reservations at this hotel in the future</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
DEMO1. In which country do you currently reside? ▼ Afghanistan ... Zimbabwe

DEMO2. Where is your location of residence?
   ○ City ______________________
   ○ State ______________________
   ○ Country ______________________

DEMO3. What is your sex?
   ○ Male
   ○ Female

DEMO4. What is the highest level of school you have completed or the highest degree you have received?
   ○ Less than a high school degree
   ○ High school graduate (high school diploma or equivalent, including GED)
   ○ Some college but no degree
   ○ Associate degree (2-year)
   ○ Bachelor's degree (4-year)
   ○ Master's degree
   ○ Doctoral degree
   ○ Professional degree (JD, MD, etc.)

DEMO5. For what purpose do you usually travel?
   ○ Leisure
   ○ Business
   ○ Mixture of leisure and business
   ○ VFR (i.e. visiting friends and relatives)
   ○ Other (Please specify) ______________________________________________

DEMO6. How many children do you have?
   ○ 0
   ○ 1
   ○ 2
   ○ 3
   ○ 4
   ○ 5
   ○ More than 5

DEMO7. What type of hotel do you prefer to stay at?
   ○ Economy (One Diamond)
   ○ Mid-Scale (Two Diamond)
   ○ Upper Mid-Scale (Three Diamond)
   ○ Upscale (Four Diamond)
   ○ Ultra-Luxury (Five Diamond)

DEMO8. What is your current marital status?
   ○ Married
   ○ Widowed
   ○ Divorced
   ○ Separated
   ○ Never Married
DEMO9. What is your ethnicity? Check all that apply.

☐ Asian/Pacific Islander
☐ Black/African-American
☐ Hispanic/Latino
☐ Native American Indian
☐ White/Caucasian
☐ Other (please specify) ________________________________________________

DEMO10. How frequently do you usually stay at hotels per year?

○ Never
○ 1 or 2 times
○ 3-5 times
○ 6-10 times
○ More than 10 times

DEMO11. When booking a hotel room how often do you use the hotel's online reservation system?

○ Always
○ Most of the time
○ About half the time
○ Sometimes
○ Never

THK. 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 finish the survey.
APPENDIX B. IRB APPROVAL FORM

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Date: 2/13/2017
To: Mai Wu
7E MacKay Hall
From: Office for Responsible Research
Title: Potential customers’ perceptions of service quality, interactive reservation system, and online reviews affecting intention to purchase
IRB ID: 17-043
Study Review Date: 2/13/2017

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 holder(s) 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.