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Technology Experience: Measurement Development and Validation

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TECHNOLOGY EXPERIENCE: MEASUREMENT DEVELOPMENT AND VALIDATION

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DEDICATION

This dissertation is dedicated to my family and best friends, who have supported and encouraged me to keep going forward. Jinchul Shin and Jungsim Noh, you taught me I am what I choose to become. I will never give up on what I want to do. I cannot begin to express how grateful I am to have you in my life and by my side. You have been such great parents and life mentors. Special thanks to my brother, Hyuckjo Shin, for making me laugh during all the hard times. Jungyeon Han, Sooyeon Han, and Juhyun Kang have been one of my greatest supporters. Thank you all for your love, support, and encouragement.

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ABSTRACT

Think about yourself traveling to somewhere in the 1990s, 2000s, 2010s, and 2020s repeatedly. What would be the most significant difference among those four periods? There would be many differences, including clearer sky and clean air. Imagine how you would plan your three-day vacation. You might need several travel guidebooks and travel agents to plan your trip if you were in the 1990s. In the 2020s, you just need to download some mobile apps to plan and even create organized travel itineraries. After arriving at the destination, how would you find the way to a tourism attraction? You just need your smartphone to find the direction to the attraction, whereas you would need to read an atlas in the 1990s. What if you are lost in the middle of the first night at the destination? You may need to wait for someone to ask questions. Now your friend Siri will help you find wherever you go whenever it is.

As you can see from the examples mentioned above, the most significant change in the hospitality and tourism industry would be technological advancement. As we have witnessed, the development of technology has reshaped the entire landscape of the industry. Particularly, the introduction of guest-facing technologies has changed one of the industry's key characteristics, human-to-human interactions to guest-technology interactions. Furthermore, as the younger generations, as known as digital natives, are expected to become the next frontier of the industry, the availability of technology is expected to grow continuously to meet consumers' demands for technology and enrich the consumer experience. Due to the growing importance of technology in the hospitality

and tourism industry, much research has been conducted to understand consumer behavior toward technologies. However, most research has focused on consumers' technology adoption behaviors and post-adoption evaluations, leaving the crucial concept of technology experience under-explored. Since experience has been at the heart of the hospitality and tourism industry and a substantial amount of consumer experience is expected to be created by technologies, a comprehensive understanding of technology experience is called for. However, due to the holistic nature of a consumer's experience, a single construct might not be enough to capture the various facets of technology experience. Thus, this study primarily sought to develop a solid conceptualization of consumers' experience with hospitality and tourism technologies by identifying the multiple dimensions that collectively represent the dynamic nature of technology experience.

While defining consumers' technology experience and identifying its dimensions would provide a certain level of understanding of consumer experience, the implications would be limited without empirical evidence. Particularly, the industry might not fully digest the conceptual domain of technology experience without findings from empirical research. Therefore, this study also sought to develop a set of scales to measure the holistic nature of technology experience. In addition, this study aimed to explore the potential consequences of technology experience with an interdisciplinary approach by using preeminent theories, and to assess the extent to which the developed scales would provide appropriate levels of reliability and validity.

Guided by the sequential exploratory approach and scale development procedures, both qualitative and quantitative research methods were employed to achieve the study's

objectives. More specifically, Phase I was devoted to specifying the domain of technology experience through an extant review of the literature. Phase II was intended to develop the initial items to measure technology experience by conducting two focus group discussions and two rounds of expert reviews. The developed scale was assessed for its validity and reliability, and it was further refined based on the findings in Phase III. Lastly, in Phase IV, the refined scale from Phase III was validated with a new sample, thereby finalizing the scale. Furthermore, the finalized scale was used to assess the research framework and test the proposed relationships.

The findings offered empirical support for the proposed second-order formative construct of technology experience, and a higher degree of reliability and validity. Particularly, the factor structure of technology experience was investigated by employing multiple techniques (e.g., exploratory factor analysis, principal component analysis, parallel analysis, simple structure). The results showed a strong consistency supporting the nine dimensions of technology experience. Furthermore, the measurement model test in Phase IV was consistent with the findings from Phase III without any item changes, demonstrating that the developed scale's psychometric properties were established. The structural model test results revealed significant relationships among technology experience, satisfaction with hospitality and tourism technologies, overall experience, overall satisfaction, and future behavioral intention, implying the significant role of technology experience as an antecedent of consumers' general hospitality and tourism experiences.

This study provides theoretical and practical implications by developing a comprehensive conceptualization of technology experience and practical tools to measure

the concept. First and foremost, defining consumers' experience with hospitality and tourism technologies and identifying its dimensions enrich the current knowledge on consumer experience and establish the foundation for future hospitality and tourism research. The development of the technology experience scale would shed light on industry professionals' understanding of their performance in creating technology experience. By utilizing the developed scale, the industry would be able to assess their performance and allocate appropriate investment in the focal dimensions of technology experience, thereby increasing satisfaction and generating favorable future behavioral intentions.

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CHAPTER 1

INTRODUCTION

1.1. RESEARCH BACKGROUND

1.1.1. Significance of Technology

As time moves forward, society and its members have experienced substantial changes in the various aspects of their lives. Technological innovation would be one of the fastest and most significant changes the society has witnessed. Technology comes in various ways and apparently transforms society and consumers' lives. A decade ago, consumers' lives were significantly different from those of now. For example, Apple iPad, which has about 590 million worldwide users in 2020, was first introduced in 2010 (Tankovska, 2020). Over the past decade, technology turned into a major part of society and consumers became dependent on technology (Guevarra, 2014). Although consumers' diffusion stages vary by different factors, such as generation, it is certain that the majority of consumers utilize technologies in order to enhance their lives, not only for utilitarian purposes but also for hedonic reasons (Taylor, 2018).

Not to mention younger generations (e.g., Millennials, Generation Z), who are well known for their high dependency on technology, even older generations (e.g., the Baby boomers) have been showing increasing demands for technology (York, 2017). For example, 87% of the U.S. household possessed smartphones (Tankovska, 2020). Only 10% of Americans do not use the Internet due to such reasons as a financial burden and

inability to adopt technologies (Anderson, Perrin, Jiang, & Kumar, 2019; Hitlin, 2018). Furthermore, technology literacy is expected to continuously increase as the technology illiterate population consists mostly of seniors (Anderson et al., 2019). Along with the increasing technology literacy, the speed of technology adoption becomes faster (Desjardins, 2018). In other words, the velocity of technology penetration has been accelerated. Specifically, the adoption of personal technology devices (e.g., tablets, smartphones) has been exponentially growing and is expected to increase due to consumers' active adoption and utilization of technology (Desjardins, 2018; ITSG Global, 2017). Even though people's adoption and utilization of technology appear somewhat distinctive, their demand for technology is steadily increasing with the primary purpose of making their lives easier (BrainBoxol, 2017).

1.1.2. Technological Innovation in the Hospitality and Tourism Industry

The hospitality and tourism industry has adopted technology for the purpose of increasing operational efficiency and reducing costs (Law, Leung, & Buhalis, 2009). The hotel industry, for example, has incorporated a property management system (PMS) and point-of-sale (POS) in order to operate their business with higher accessibility, flexibility, and efficiency (Kobres, 2018). However, consumers' skyrocketing demand for technology requires the hospitality and tourism industry to actively adopt various technologies to cater to consumers' needs. Accordingly, technology's role has expanded from ancillary services to necessary services (Mitel, 2019). As the hospitality and tourism industry has recognized that technology is an essential factor for providing remarkable guest services (Connolly & Kim, 2019), technology is becoming a key driver to enhance consumer experience (Hall, Bowerman, Braverman, Taylor, Todosow, & Von

Wimmersperg, 2000; Huang, Goo, Nam, & Yoo, 2017). In order to enrich consumers' experience, the hospitality and tourism industry has used different types of technologies and continued to launch advanced technologies, as new technologies are available in the marketplace. Websites, for instance, have been heavily used as an information source since their introduction (No & Kim, 2015). Along with the existing technologies (e.g., websites), the hospitality and tourism industry has continuously evolved by incorporating more technologies (Kobres, 2018). With the development and increasing employment of personal technology devices (e.g., smartphones, tablets), mobile unfriendliness is found to be a critical inhibitor that drives potential consumers away (Khaliq, 2019). Recognizing the importance of the mobile environment, the industry has adopted mobile applications to provide consumers with different functions that are relevant to their travel (Pilon, 2016).

The hospitality and tourism industry has been characterized for its unique aspects, such as service-oriented and experiential nature (Hwang & Seo, 2016; Kim, 2018). Each consumer's hospitality and tourism experience is different due to his/her distinct demands (Walker, 2016). A consumer's experience is shaped by both direct and/or indirect interactions with themselves and hospitality/tourism resources (e.g., service providers, available services), or even with other consumers (Klaus & Maklan, 2012; Meyer & Schwager, 2007). Furthermore, consumers' experience varies by a number of factors, including the context of the experience. Considering the experiential nature of the hospitality and tourism industry, when hospitality and tourism technology is adequate as a substitution of hospitality and tourism services, the technology would be a significant generator of positive consumer experience (Tsourela & Roumeliotis, 2015). Accordingly,

the primary purpose of technology implementation in the hospitality and tourism industry is to enhance consumer experience by delivering appropriate services and information that meet consumers' distinctive needs (Li, Hu, Huang, & Duan, 2017). However, how each sector of the hospitality and tourism industry (e.g., the hotel industry) implemented technologies was similar but somewhat different at the same time depending on each sector's characteristics. Specifically, with the prevailing use of websites and mobile applications in the hospitality and tourism industry, each industry segment has tried to adopt technologies that are suitable for the context of their products/services to satisfy the specific needs of their consumers.

To increase operational efficiency and cater to guests' needs, the hotel industry has been using various technologies. Guest services are performed by a variety of technology, such as voice-enabled technology (e.g., voice assistant, such as Alexa), self-service devices equipped with diverse applications, and even self-learning video analytics for higher security levels to improve their core service (i.e., room) through higher guest-friendliness and accessibility (Hospitality Technology, 2019; Motorola Solutions, 2019; Starkov, 2019). The hotel industry has also implemented other types of technology for ancillary services. For example, artificial intelligence (e.g., chatbot) and service robots were used to provide their customers with efficient services by immediately answering to simple services (Hospitality Technology, 2019). While the hotel industry has shown diverse technologies for enhanced guest services, the restaurant industry has also introduced different technologies to meet guests' expectations. Particularly, as the restaurant industry has focused on operational efficiency and guest engagement, such technologies as mobile applications and self-service kiosks are commonly used for

consumers to get engaged in the co-creation of experience (Hospitality Technology, 2019).

The tourism industry is not an exception to technology embedment. Tourism destinations have utilized advanced information communication technologies (ICTs) (e.g., cloud computing, Internet of Things, mobile communication, artificial intelligence) to provide a platform for collaboration among stakeholders (e.g., public and private entities as well as travelers) (Jovicic, 2019). Adopting the concept of the experience economy, Oh, Fiore, and Jeoung (2007) stated that tourism experience can be classified into four realms (i.e., educational, esthetic, escapist, and entertainment) based on travelers' levels and forms of involvement. Although a traveler's trip can fall under more than one realm of experience, the distinctive characteristics of tourism experience are associated with the diversified implementation of tourism technology at destinations, transforming destinations into smart environments for enriched travel experiences. Historical heritage sites have utilized augmented reality (AR) technology for visitors to appreciate the sites and enrich their tourism experience (Chung, Lee, Kim, & Koo, 2017). On the other hand, some destinations well known for festivals have adopted drones to provide different views of the event, creating an entertainment tourism experience (Malivuk, 2017). The adequate implementation of technology has allowed the hospitality and tourism industry not only to satisfy consumers' needs but also to make them engaged in its services (Connolly & Kim, 2019; Neuhofer, Buhalis, & Ladkin, 2012; Tussyadiah & Zach, 2011).

Traditionally, the hospitality and tourism industry has been considered a people-oriented industry where host-guest interactions are the core. Meeting consumers' needs

and delivering the right service for them are the key to create a positive consumer experience. Pine and Gilmore (1998) suggested five principles to design memorable experiences: (1) developing themes for experience, (2) placing positive cues in accordance with the theme, (3) eliminating negative cues, (4) using memorabilia that stages experience, and (5) appealing to all five senses. These principles have been applied in the hospitality and tourism industry to generate a positive experience. Because of the industry's service-oriented and experiential nature, much research about experiences has been conducted from the service experience perspective. However, as most of the industry has become a technology-enabled environment, it is important to consider technology experience. Specifically, in the hospitality and tourism context, it needs immediate attention to identify what technology experience is, as more than 85% of all consumer interactions are performed by technology, such as self-service kiosks, chatbots, and service robots (Creamer, 2019). With consumers' growing demands for technology and technology-enabled tourism resources, their overall travel experience and satisfaction are strongly influenced by available technologies and the performance of those technologies (Wang, So, & Sparks, 2017; Jung, Chung, & Leue, 2015). Thus, the application of the aforementioned five principles in conjunction with the adequate utilization of technology would create a more positive experience.

1.1.3. Conceptualization of Individuals' Technology Experience and Development of Empirical Methods

As discussed earlier, with the fourth industrial revolution and consumers' strong demand for technology, the hospitality and tourism industry has implemented a variety of technology to meet guests' needs and to enhance their experience. Even though

technology would not entirely substitute human interactions and still require employee-guest interaction, it is evident that technology has been playing an important role in providing hospitality and tourism services since its introduction into the business environment (Law, Leung, & Chan, 2020; Xiang, 2018). The significance of technology in the hospitality and tourism industry continues to increase, as technology has become a key determinant of consumers' decision-making and post-experience evaluation (Hospitality Technology, 2019). Thus, the hospitality and tourism industry has already started jointly utilizing the principles of memorable experience and technologies for enriched experiences. AR technology, for instance, has been commonly used in tourism destinations (e.g., Pompeii) to generate positive experiences by extending users' senses, thereby enhancing consumers' interactions with resources (Champion, 2019; Dugdale, 2019; Tussyadiah, Jung, & tom Dieck, 2018). Disney developed Magic Bands, all-in-one wristbands with radio frequency technology, to connect guests to all options available at Disney, thereby providing guests enhanced experience and reminding guests' positive experiences as mementos after their trip (Ives, Palese, & Rodriguez, 2016; Lebeau, 2019). Technology has also been used to enhance consumers' experience by eliminating negative cues. One of the most common service failures in the hotel industry is slow check-in/out (Lewis & McCann, 2004). For prompt and effective check-in/out services, many hotels have adopted mobile check-in services as well as mobile room keys (Attala, 2019).

With the accelerating availability and importance of technology in the hospitality and tourism industry, hospitality and tourism technology has gained much attention from researchers (Law et al., 2019). Specifically, various research from consumers'

perspectives has focused on the factors affecting consumers' technology adoption (Ozturk, 2016; Shin & Jeong, 2020), the types of technology that can add values to consumers' experience (Nabben, Wetzel, Oldani, Huyeng, Boel, & Fan, 2016; Neuhofer, Buhalis, & Ladkin, 2015), and consequences of technology adoption behaviors in the hospitality and tourism setting (e.g., Chung et al., 2018; Huang et al., 2017; Jeong & Shin, 2020; Tussyadiah et al., 2018). However, current findings of hospitality and tourism technology are primarily about pre- and post-experiences as experience has served as one of the most important constructs in hospitality and tourism (Prebensen, Kim, & Uysal, 2016; Sternberg, 1997; Prebensen, Vittersø, & Dahl, 2013).

Although previous research improved our understanding of consumer behavior and technology, little is known about the conceptualization of technology experience. In other words, consumers' experience with hospitality and tourism technology has been often neglected. Due to the prevalence of technology implementation in the hospitality and tourism industry, it is of the utmost importance to clearly define consumers' technology experience, which is a unique type of experience occurring from the interaction between consumers and technology. Technology experience is critical since consumers' experience in the hospitality and tourism industry is shaped by interactions with service providers. Furthermore, conceptualizing consumers' experience with hospitality and tourism technology is even more crucial due to the experiential nature of the industry (Prebensen et al., 2013; Prebensen et al., 2016). Each consumer has his/her own unique interests and needs and participates in the co-creation of his/her own experience, resulting in different interpretations of hospitality and tourism services (Ooi, 2005). In other words, consumers' technology experience would vary by circumstances

and environments that affect consumers' perceptions toward technology even though they are using the same technology. For instance, a hotel guest's experience with AR would be different from that of a theme park visitor. Therefore, it is evident that creating a positive technology experience in the hospitality and tourism industry is more difficult and critical due to its unique characteristics.

The experiential nature of the hospitality and tourism industry allows each consumer to have a unique experience through inter-communication among stakeholders and resources (Jeong & Shin, 2020). More specifically, in the context of hospitality and tourism, consumers' experience is formed subjectively by their active participation in hospitality and tourism activities (Kim, Ritchie, & McCormick, 2012). Since each consumer has unique demands and expectations of his/her overall hospitality and tourism experiences, offering services that meet each consumer's needs is vital to create a positive experience, thereby generating satisfaction (Prebensen et al., 2016). In a similar vein, the hospitality and tourism industry would facilitate the interactions among stakeholders by offering relevant services to each consumer through adequate technology utilization. Hence, appropriate technology implementation in the industry would create a positive experience, satisfaction, and future behavioral intention (Carbonell & Escudero, 2015; Ozturk & Hancer, 2015; Rivera, Gregory, & Cobos, 2015). However, the lack of a coherent conceptualization of technology experience hampers the further understanding of how technology embedment in the hospitality and tourism industry shapes consumers' experience and how technology experience affects consumers' subsequent feelings of satisfaction and future behavioral intention.

Moreover, there is a shortcoming in identifying the dimensions of consumers' technology experience due to the lack of solid conceptualization of technology experience. As a consumer's experience is multi-dimensional, technology experience would be multi-faceted, and its dimensions would collectively represent the holistic technology experience. Thus, without identifying the dimensions of technology experience, it is difficult to investigate the factors affecting the holistic technology experience and its consequences. In the context of hospitality and tourism, each consumer has different experiences due to his/her distinctive needs toward the technology, resulting in diverse technology experiences even when he/she is using an identical technology. For example, a leisure traveler's experience with hotel technology would be different from that of a business traveler because their needs are different when they use the same technology at the same time at the same hotel.

With the continuous development of technology, the hospitality and tourism industry is expect to bring more advanced technologies in order to benefit consumers, thereby constantly reshaping consumer experience with hospitality and tourism technology. Accordingly, it is crucial to explore the dimensions of technology experience for the comprehensive understanding of technology experience and the different weights of each dimension in creating consumers' holistic technology experience. Identifying the dimensions of technology experience enables researchers to examine how each component of technology experience influences its consequences, such as overall experience, satisfaction, and future behavioral intention. Moreover, it remains questionable how a consumer's technology experience can be empirically examined in the context of hospitality and tourism. Absence of the tool for an empirical investigation

of technology experience inhibits the stakeholders from exploring the impact of each dimension of technology experience, which in turn obstructs the development of relevant operational and marketing strategies as well as the enhancement of the overall experience.

In sum, there are several problems and research gaps in the literature regarding consumers' experience with hospitality and tourism technology. First, consumers' technology experience has not been clearly defined and/or conceptualized and the dimensions of technology experience have been under-explored, which might cause conceptual confusion for further research. Second, the lack of a comprehensive conceptualization of technology experience inhibited the development of a corresponding measurement scale. Accordingly, the absence of a tool for empirical examination of technology experience has deterred the diagnosis of their performance in creating technology experience, making it industry professionals challenging to evaluate their performance in terms of technology implementation. Lastly, most studies about hospitality and tourism technology primarily investigated consumers' technology adoption behaviors. However, as the hospitality and tourism industry has become a technology-enabled environment, consumers' perception and evaluation of their experience with a technology need immediate attention as it became a primary issue in the technology-enabled environment. Therefore, this study aims to address the current research gap by conceptualizing technology experience, developing a set of scales to measure its concept, and investigating how consumers' technology experience influences their overall experience, satisfaction and future behavioral intention. The following section outlines the purpose of this study.

1.2. PURPOSE OF THE STUDY

This study aims to explore and understand a consumer's technology experience by developing a comprehensive conceptualization of technology experience. Particularly, this study seeks to identify the dimensions of consumers' technology experience to capture the holistic nature of consumers' technology experience. Recognizing the absence of empirical measurement for technology experience, this study also seeks to develop a reliable and valid set of measurement scales that capture the nature of consumers' technology experience in the hospitality and tourism context. Finally, this study further seeks to explore relationships with other focal constructs in the discipline, such as overall experience, satisfaction and future behavioral intention. The following research questions are developed to outline the scope of the study:

RQ 1) What is a consumer's technology experience?

RQ 2) What are the dimensions of technology experience?

RQ 3) How should technology experience be measured in the context of hospitality and tourism?

RQ 4) To what extent does the developed technology experience scale yield appropriate levels of reliability and validity?

RQ 5) To what extent does technology experience influence overall experience, satisfaction and future behavioral intention?

1.3. SIGNIFICANCE OF THE STUDY

This study aims to conceptualize a consumer's technology experience, to develop a set of reliable and valid scales, and to examine how technology experience affects consumers' overall experience, satisfaction, and future behavioral intention. The

developed measurement scales offer both theoretical and practical contributions. This study conceptualizes technology experience, explicitly integrating multiple dimensions and provides a means of empirical examination of the concept. Specifically, by developing and validating multiple dimensions of technology experience and the relevant measurement items for each dimension, this study offers a comprehensive understanding of a consumer's technology experience and examines the relationships between the dimensions of technology experience and its possible consequences.

Moreover, this study provides practical contributions. By identifying multiple dimensions of the technology experience, the hospitality and tourism industry would be capable of understanding the dimensions constituting the technology experience and the significance of each dimension in creating a consumer's technology experience. Therefore, the industry would pay more attention to the focal dimensions, thereby creating a better performance for a consumer's technology experience. In addition, by utilizing the technology experience scales, the industry would examine its performance in creating a consumer's technology experience. By diagnosing its performance, the industry would allocate relevant resources to the dimensions of the technology experience that need improvement. The appropriate allocation of resources would enhance consumers' satisfaction regarding their technology experience, which in turn would increase the industry's return on investment.

Lastly, this study identifies the key dimensions of a consumer's technology experience in the hospitality and tourism context, indicating the measurement items can be further modified and extended to the specific context of the hospitality and tourism industry. Based on the results of this study, future studies will adopt the developed scales

to various industry sectors and compare their differences between the sectors to increase the generalizability of the findings of the present research.

1.4. DELIMITATION OF THE STUDY

This study has several limitations that need to be addressed. Since the focus of the current study is on the consumers in the hospitality and tourism industry and their perception/evaluation and behaviors, this study does not consider the perception/evaluation of other stakeholders of the hospitality and tourism industry other than consumers. This study is delimited to those who are at least 18 years old and consumers of the hospitality and tourism industry to ensure that the selected sample is representative of the population of interest in order to give an accurate reflection of the population, thereby providing meaningful insight. Furthermore, this study requires the respondents to have experienced hospitality and tourism technology. Therefore, technology experience in other contexts (e.g., workplace technology experience) is not considered in the current study.

This study investigates the relationships between consumers' technology experience in the hospitality and tourism context and the constructs within its nomological network, such as overall experience, satisfaction and future behavioral intention. Therefore, other factors that are known to be relevant to the context of this study (i.e., hospitality and tourism technology, experience), such as technology readiness, are excluded due to the possible survey fatigue resulted from the lengthy and complicated questionnaire.

1.5. CHAPTER SUMMARY

This chapter provided an overview of this study. Specifically, this chapter discussed a background on current technology implementation status in the hospitality and tourism industry as well as the importance of consumers' technology experience. In addition, this chapter provided an introduction of experience studies in the literature to offer readers justification to study the concept of technology experience in the context of the hospitality and tourism industry. Based on the research background, the objectives and underlying research questions to address the current gap in the literature were presented. Furthermore, how the conceptualization of technology experience and development of measurement scale would contribute to the literature and the industry was discussed. Chapter II provides a comprehensive review of the literature regarding hospitality and tourism technology, the concept of experience in hospitality and tourism research, and the conceptualization of technology experience, as well as potential consequences of technology experience. The next chapter also presents the proposed model for this study.

1.6. DEFINITION OF TERMS

Consideration should be given to a few terms that are used throughout this study. To facilitate the understanding of this study, the definitions of key terms are presented below.

- *Hospitality and Tourism Industry*: The hospitality and tourism industry refers to a service industry that consists of a variety of segments, including lodging, food and beverage, travel, event, and leisure/sports (I-CHRIE, 2004; Ottenbacher, Harrington, & Parsa, 2009).

- *Hospitality and Tourism Technology*: Hospitality and tourism technology indicates both general and specific technologies that are used to enhance stakeholders' experience and to increase the added values.
- *Experience*: A consumer's holistic and subjective responses to products/services, including cognitive, affective, emotional, social, and physical responses (Manschot & Visser, 2011; Schmitt, 1999).
- *Technology Experience*: A consumer's unique type of experience occurring from the interplay between the consumer and technology, and their holistic assessment of complex interactions with hospitality and tourism technology.

CHAPTER 2

REVIEW OF LITERATURE

Chapter 2 discusses the technology implementation in the hospitality and tourism industry, followed by a comprehensive review of literature on hospitality and tourism technology and consumer experience to establish a solid conceptualization of consumers' technology experience in the hospitality and tourism industry. Potential dimensions of technology experience are identified. Finally, the conceptual model of technology experience is developed, including the consequences of technology experience.

2.1. TECHNOLOGY IN THE HOSPITALITY AND TOURISM INDUSTRY

2.1.1. Technology Utilization in the Hospitality and Tourism Industry

With a strong connection with different technologies, individuals' lives became much easier, more convenient, and enjoyable. As technology has benefited consumers and societies in convenient and effective ways, technology became an integral part of consumers' lives and society (Hussung, 2015). Accordingly, to meet consumers' needs and increase operational efficiency, various industries (e.g., health industry, retail industry) have implemented diverse technologies (Hecht, 2018). Over the past decades, the hospitality and tourism industry has also witnessed how technology has been transforming not only the way hospitality and tourism services are provided but also the way customers consume the services. The adoption of technology has considerably

changed the landscape of the hospitality and tourism industry, generating consumer-technology interactions (Skelia, 2019; Ukpabi & Karjaluoto, 2017).

In the hotel industry, technology has played a significant role in providing services that meet guests' needs. The utilization of technology exists in all phases of the consumer journey in the hotel industry, starting from pre-purchase to post-purchase. One of the most common manifestations of technology during the pre-purchase stage is the online reservation system (Saratchandran, 2018). Consumers are not only searching for information but also making reservations and even planning their travel itineraries using technological platforms, such as websites and mobile applications. Smart travelers, for instance, use Expedia App to check available deals and make a reservation, search destination information via Guides by Lonely Planet, and generate organized itinerary synchronized with reservations through Triplt (Rogers, 2018). The utilization of various technologies in the hotel industry continues during consumers' stay to enhance guest experience, including mobile valet parking applications (SMSValet, 2016), mobile guest services (Attala, 2019), service delivery robots (DeMuro, 2018; Shin & Jeong, 2020), in-room entertainment (BuzztimeBusiness, 2018), and artificial intelligence-powered personalized services (Saratchandran, 2018). During the post-purchase stage, online reputation management technology further assists the hotel industry in managing its reputation and using online reviews for enhancing the future guest experience, as well as recovering any service failures (Attala, 2019).

The restaurant industry has also employed various technologies for the front-of-house operations to satisfy guests' needs for technology and build relationships with guests, thereby creating positive dining experiences. One of the most common examples

of restaurant technology is mobile applications for information search and ordering. Mobile applications and mobile-friendly websites help consumers search for information (e.g., menu, hours of operation), make a reservation, and place orders (Siebert, 2017). As approximately 92% of consumers use mobile devices for their restaurant experiences, mobile technology has become a crucial tool for restaurant operations (Siebert, 2017). For restaurants' efficient and personalized services, they use a variety of technologies, including self-order devices with menu customization options (e.g., tabletop tablets). Among different technologies offered for consumers, self-service technologies (SSTs) have been selected as one of the best facilitators of the Millennials' dining experience (Britton, 2018). Other than SSTs, the restaurant industry also has established more advanced technologies to enhance consumers' experience, such as AR, voice-assistant, and service robots. For instance, restaurants, such as Magnolia Bakery, introduced AR to help consumers view their special offers and menu (Buzztime Business, 2017; Cumella, 2020; Sagar, 2018; SinglePlatform, 2018; Stanley, 2018; Volpe, 2019). McDonald introduced voice recognition software to assist customers in their personalized orderings (Resendes, 2020). From 2017, robots started delivering meals to their guests in a more efficient and convenient manner, and food delivery robots are expected to grow continuously (Gallay, 2019; Littman, 2019). About three-quarters (73%) of restaurant consumers believe that technology in the restaurant industry enhances their dining experience, demonstrating the capability of technology in improving guest experience (Tetreault & Beltis, 2019).

In the tourism industry, technology has made substantial changes in both production and consumption of travel products/services. The tourism industry introduced

a variety of technologies in every phase of tourism activities to offer rich tourism information. During travelers' pre-travel stage, they have enjoyed more relevant, reliable, and rich information from different online information platforms, such as websites, social media, and mobile applications (Buhalis, Harwood, Bogicevic, Viglia, Beldona, & Hofacker, 2019). The online tourism information channels became a norm, as statistics showed about 74% of travelers plan their travel online (Vidal, 2019). According to Mobile User Statistics (Turner, 2020), more than three-quarters (79%) of the U.S. population use smartphones, and 73% of the population in the top 10 developed countries own smartphones, representing that the diffusion of smart devices reached saturation level. As the number of smartphone users has increased, mobile technology has become one of the most prevalent technologies in the tourism industry. The tourism industry started providing travelers with relevant information through mobile technology, such as tour guide applications, a map marked with destination attractions, such as museums (Vidal, 2019). Furthermore, more personalized and real-time information has become available to individuals by connecting mobile technology and IoTs (Skelia, 2019). Since the mid-2010s, AR and virtual reality (VR) have started to be available and now are prevalently used in many tourism destinations (Revfine, 2020; Stfalcon, 2018; Vidal, 2019). By integrating AR and VR features into tourism resources, the tourism industry allows travelers to interact with virtual objects and enrich their tourism experiences.

2.1.2. Research on Technology

The hospitality and tourism industry has actively adopted and invested in technology in order to cater to consumers' technological needs and wants, transforming the structure and operation of the industry. Subsequently, technology has become an

increasingly important topic for hospitality and tourism researchers. Substantial research has been conducted on technology for the purpose of understanding consumers' motivation to adopt and use technologies. Specifically, as numerous technologies are available in every stage of the consumer journey, many studies (e.g., Chung et al., 2018; Jeong & Shin, 2020; Oh, Jeong, Lee, & Warnick, 2016; Shin & Jeong, 2020; Sipe & Testa, 2018; Tom Dieck, Jung, & Rauschnabel, 2018; Wang et al., 2017; Yoo, Goo, Huang, Nam, & Koo, 2017) have been conducted in different aspects of consumer behaviors regarding hospitality and tourism technology from pre-experience (e.g., motivation, decision-making) to post-experience (e.g., future behavioral intention, loyalty) stages.

2.1.2.1. Research on Technology Adoption

Consumers' pre-experience stage with technology was associated with the adoption of hospitality and tourism technology, including the factors affecting technology adoption. The prior technology adoption literature generally concluded that consumers' adoption of technology is influenced by three major factors: attitudinal factors, situational factors, and personal traits. Attitudinal factors are related to an individual's knowledge, belief, and perception of the object (Ajzen & Fishbein, 1973; Oh et al., 2016). Whereas situational factors indicate extraneous attributes beyond an individual's control that affect the person's behavior (Belk, 1974; Belk, 1975). Situational factors (e.g., social surroundings, physical surroundings) can change individuals' attitudes, intentions, or preferences temporarily, thereby transforming their behaviors (Collier, Moore, Horky, & Moore, 2015; Simon & Usunier, 2007). Personal traits refer to inter-individual differences that attribute to an individual's behavior (Sandell, 1968).

Using technology-focused theories (i.e., theory of reasoned action (TRA), theory of planned behavior (TPB), technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), diffusion of innovation (DIT), motivational model (MM), self-determination theory (SDT), and social cognitive theory (SCT)), studies have examined how a consumer's technology adoption intention is shaped by these three factors in various segments of the hospitality and tourism industry.

Initial research on consumers' pre-experience with technology in the hospitality and tourism domain focused on their information search and decision-making process. Particularly, the early-stage research on technology adoption was related to online websites (e.g., Herrero & San Martín, 2012; Hwang, Yoon, & Park, 2011; Luo, Remus, & Sheldon, 2007; Wong & Law, 2005). The study of Jeong and her colleagues (2005) showed that website characteristics had significant impacts on consumers' perceived quality. Tang, Jang, and Morrison (2012) found how important the design of destination websites was in persuading consumers in both central and peripheral routes. Researchers (e.g., Ozturk, Bilgihan, Salehi-Esfahani, & Hua, 2017; Tsourela & Roumeliotis, 2015) investigated the mechanism of how the attitudinal and situational factors, and personal traits affecting consumers' acceptance of technology-based services, such as near field communication based mobile payment (NFC-MP).

As the usage of mobile devices (e.g., smartphones, tablets) had rapidly increased, research attention has shifted to mobile devices, such as smart devices, mobile applications (app). Lu, Mao, Wang, and Hu (2015) identified that performance outcome, personal outcome, and innovation characteristics were significant determinants of tourists' travel app acceptance. Consumers' intention to use mobile devices and/or

application was significantly influenced by the attitudinal factor, situational factor, and personal traits in different segments of the hospitality and tourism industry, such as restaurants (e.g., Okumus, Ali, Bilgihan, & Ozturk, 2018), hotels (e.g., Park & Huang, 2017), and tourism industry (e.g., Paulo, Rita, Oliveira, & Moro, 2018). As many hospitality and tourism organizations started implementing SSTs for cost reduction and operational efficiency, SST has gained much attention from researchers to understand consumers' adoption of SST in the hospitality and tourism setting. Consistent with consumers' adoption of mobile devices, researchers (e.g., Kim & Qu, 2014; Min, So, & Jeong, 2019; Oh et al., 2016; Suarez, Berezina, Yang, & Gordon, 2019) found that attitudinal factor, situational factor, and personal traits had significant influences on the hospitality and tourism consumers' adoption of STTs. Besides mobile devices and SSTs, researchers examined consumers' intention to adopt different technologies in various segments of the hospitality and tourism industry. The application of TAM and motivational theory in the tourism setting found the positive effects of attitudinal and situational factors, as well as personal traits on tourists' adoption intention toward AR at cultural heritage tourism sites (Jung, Lee, Chung, & tom Dieck, 2018). In their experimental study, Shin and Jeong (2020) examined the influential factors on hotel guests' intention to adopt hotel services robots. Ivanov and Webster (2019) examined how the different dimensions of the hospitality setting influence consumers' intention to adopt a service robot.

2.1.2.2. Research on Technology Usage

There has been vast effort to investigate how technology affects consumers' experience during their travel or service encounter, including types and attributes of

technology, and co-creation of experience (e.g., Jeong & Shin, 2020; Murphy, Chen, & Cossutta, 2016; Roy, Singh, Hope, Nguyen, & Harrigan, 2019; Tussyadiah, 2016). Particularly, the guest-technology interaction and co-creation have gotten much attention from the hospitality and tourism researchers because many technologies were implemented in the front-of-house operation to have direct interactions with consumers. While many researchers specified the type of technology in their study setting, some researchers examined how hospitality and tourism technology in general influenced consumers' experience. Beldona, Schwartz, and Zhang (2018) investigated how the level of technology of a hotel influenced guests' evaluation of technologies, compared with the level of technology at home. In the restaurant setting, Khan (2020) investigated how different stages of technological disruptions influenced service quality. Consumers' habit about mobile commerce positively affected their degree of co-creation in hotel-related activities using their mobile devices (Morosan & DeFranco, 2016). Susskind and his colleagues (2019) examined how tabletop devices affect consumers' experience by increasing their control over the service process in a full-service restaurant setting.

Huang et al. (2017) examined tourists' experience with smart tourism technology (e.g., smartphone apps) by using the four attributes of smart tourism technology (i.e., accessibility, informativeness, interactivity, personalization). Following Huang et al.'s (2016) framework, Jeong and Shin (2020) investigated the effect of the four different attributes of smart tourism technology on memorable experiences at smart tourism destinations. Based on prior studies, a conceptual framework of smart service experience was developed in hospitality and tourism settings (Kabadayi, Ali, Choi, Joosten, & Lu, 2019). Individuals' experience with AR technology at science festivals was examined

from the perspective of the experience economy (tom Dieck et al., 2018). Chung and his colleagues (2018) also applied the experience economy concept as a dimension of tourists' experience with an AR application at a cultural heritage site in Korea. Travelers' experience with tourism-related VR activity was measured from authenticity, cognitive response, and affective response based on stimulus-organism-response theory (Kim, Lee, & Jung, 2020). Tung and Au (2018) identified that hotel guests' experience with service robots (e.g., Human-Robot Interactions) consists of five dimensions (i.e., embodiment, emotion, human-oriented perception, feeling of security, and co-experience) by applying usability, social acceptance, user experience, and societal impact evaluation (USUS). Utilizing biosensor equipment, Tussyadiah and Park (2018) examined hotel guests' emotional responses to service robots.

2.2.2.3. Research on the Consequences of Technology Adoption

Prior literature on consumers' post-experience with technology has concentrated on the consequences of technology usage, such as satisfaction and future behavioral intention. In the context of general hospitality and tourism technology, the significantly positive effects of technical service in the hospitality and tourism industry on consumer satisfaction, service quality, and memorable experience were also uncovered (Sipe & Testa, 2018). By developing a multi-dimensional scale for consumers' perception of restaurant innovativeness, including technology-based service innovativeness, Kim, Tang, and Bosselman (2018) found that restaurants' technology innovativeness positively influenced their satisfaction. Zhang, Omran, and Cobanoglu (2016) explored how technological sophistication influenced Generation Y's intention to share their dining experience. Wang et al. (2017) found that the quality of technology-enabled service

(TES) positively influenced travelers' future behavioral intention mediated by satisfaction with TES and overall satisfaction.

Within the lodging industry, Chevers and Spencer (2017) identified how components of information communication technology (ICT) shaped hotel guests' perception of service quality. On the other hand, the negative impacts of ICT (e.g., isolation, addiction) on tourists' experience were examined by employing a netnographic approach (Tribe & Mkono, 2017). Jeong and Shin (2020) found that attributes of smart tourism technology positively influenced tourists' satisfaction and future behavioral intention (e.g., revisit, recommend) mediated by memorable experience. Ahn and Seo (2018) explored the impact of the quality of SST on restaurant consumers' future approach/avoidance behavior through their psychological responses (i.e., affective and cognitive states). Beldona, Buchanan, and Miller (2014) compared the e-tablet menu and traditional menu, revealing restaurant consumers' order satisfaction was higher for those who used the e-tablet menu. In the tourism industry, travelers' experience with AR significantly influenced their attitude and behavioral intention toward cultural heritage sites (Chung et al., 2018). Jung et al. (2015) identified how tourists' intention to recommend AR technology was influenced by system, content, and service qualities via tourists' satisfaction with the technology.

2.2. EXPERIENCE IN THE HOSPITALITY AND TOURISM RESEARCH

2.2.1. Experience Definitions

The concept of experience has gained much attention from researchers in various disciplines. However, due to the complexity of the concept, an individual's experience has been defined in many ways (Kim, Cha, Knutson, & Beck, 2011; Walls, Okumus,

Wang, & Kwun, 2011). Furthermore, the definition of experience varies contextually because the concept of experience has been used in numerous contexts. Thorne (1964) defined peak experience as an individual's most exciting and accomplishing experience in the person's life. In the religious context, Maslow (1964) described peak experience as a short time an individual transcends his/her ordinary reality and recognizes an ultimate reality. According to Carlson (1997), experience refers to an individual's continuous thinking and feeling occurring when the person is conscious. Schimitt (1999) argued that experience is defined as reactions to situations that were not generated by the person, and it is a multi-dimensional concept consisting of five types of experiences (i.e., sense, feel, think, act, and relate).

Generally, experience refers to an individual's psychological state (Cao, 2016). In the context of consumer behavior, experience indicates a consumer's interactions with products/services he/she received from the provider, which is related to the person's sensory and emotions (Hirschman & Holbrook, 1982; Holbrook & Hirschman, 1982). Pine and Gilmore (1998) defined customer experience as "events that engage individuals in a personal way", which consist of emotional, physical, intellectual, and/or spiritual aspects. Customer experience occurs when customers obtain sensation and/or knowledge (Gupta & Vajic, 2000) and refers to the entire consequences from environments, products, and services (Lewis & Chambers, 2000), which occur throughout their consumption process (Mascarenhas, Kesavan, & Bernacchi, 2006). Consistent with Schmitt's (1999) conceptualization of experience, many researchers (e.g., Bolton, Gustafsson, McColl-Kennedy, Sirianni, & Tse, 2014; Gentile, Spiller, & Noci, 2007; Lemke, Clark, & Wilson, 2011;Verhoef, Lemon, Parasuraman, Roggeveen, Tsiros, &

Schlesinger, 2009) considered customer experience as a holistic concept which includes a customer's cognitive, emotional, sensory, and social responses, as well as spiritual reaction to all interactions between the customer and the products/services provider.

Because of the unique characteristics (e.g., intangibility) of the hospitality and tourism industry (Mody, Hanks, & Dogru, 2019; Titz, 2007), the center of understanding consumer behavior in hospitality and tourism has been on experiential consumption. Furthermore, Pine and Gillmore (1998, 1999) asserted that individuals' experience-based consumption may bring greater industry revenue. Accordingly, many researchers (e.g., Hemmington, 2007; Ismail, 2011; Otto & Ritchie, 1996; Oh et al., 2007; Shi, Gursoy, & Chen, 2019; Zhang, Jahromi, & Kizildag, 2018) attempted to conceptualize individuals' experience in the context of hospitality and tourism. Cohen (1979) defined tourist experience as an individual's exploration of spiritual values, which cannot be found in the person's daily life. Tourist experience indicates a diverse phenomenon, which is created by the tourist (Uriely, 2005) and is composed of two dimensions: peak tourist experience and supporting consumer experience (Quan & Wang, 2004). According to Andersson (2007), tourist experience refers to the moment of interactions between tourist and tourism products. Tourism experience occurs from the relationship between stakeholders and involves a tourist's emotions (Lashley, 2009). Memorable tourism experience is a tourist experience that is positively remembered after their tourism activities (Kim, Ritchie, & McCormick, 2010). Hospitality experience concentrates on the interactions between consumers and service providers, consisting of five dimensions: the host-guest relationship, generosity, theatre and performance, lots of little surprises, and safety and security (Hemmington, 2007). Hospitality experience is an individual's experience in

entities in the hospitality industry, such as hotels (Pijls, Groen, Galetzka, & Pruyn, 2017; Lugosi, 2014).

Table 2.1. Definition of Experience

Context	Author(s), Year	Definition of Experience
General Consumer Behavior	Hirschman & Holbrook (1982)	Experience is an individual's interactions with products/services they received from the provider, which is related to the person's sensory and emotions.
	Carlson (1997)	Experience refers to an individual's continuous thinking and feeling occurring when the person is conscious.
	Pine & Gilmore (1998, 1999)	An experience, which is derived from the interaction between the events and individual, can be characterized as personal feelings associated with emotional, physical, intellectual, and/or spiritual perspectives.
	Schmitt (1999)	Experience occurs through individuals' interactions and involves multiple dimensions: sensory, emotional, cognitive, behavioral, and relational dimensions.
	Mossberg (2007)	A composite of an individual's emotional, physical, intellectual, and/or spiritual perspective from interactions.
Tourism	Cohen (1979)	Tourist experience includes five different modes: recreational, diversionary, experiential, experimental, and existential modes.
	Oh et al. (2007)	Tourist experience indicates behavioral, perceptual, cognitive, emotional, and/or expressed experience, which a tourist goes through at a destination.
	Tung & Ritchie (2011)	Tourist experience indicates a tourist's subjective evaluation of events about their entire tourism activities.
	Cetin & Bilgihan (2016)	Tourist experience is defined as enjoyable and memorable activities and/or events that engage travelers and have a positive impact on the travelers' future behavior.
	Jeong & Shin (2020)	A memorable tourism experience indicates a traveler's pleasant and unforgettable experience at destinations that is remembered positively.
Hospitality	Hemmington (2007)	Hospitality experience is generated from guest-host interactions and includes five dimensions: the host-guest relationship, generosity, theatre & performance, lots of little surprises, and safety & security.
	Walls et al. (2011)	Hotel guest experience a complex and multi-dimensional construct, which constitutes physical environment and human interaction dimensions.

Qiu, Li, Shu, & Bai (2019)	Hospitality experience is psychological and/or emotional in nature, which is attributed from the interactions from the service environments.

2.2.2. Multi-dimensionality of Experience

While experience has been defined in different contexts and from different perspectives, in-depth reviews of the previous studies revealed that there were several similarities in researchers' definitions of experience. First of all, individuals' experience occurs from a set of interactions between the consumers, the provider, and/or products/services (Verhoef et al., 2009). Second, regardless of the context of experience, an experience involves an individual at various levels (e.g., psychological, physical) (Kim et al., 2011; Verhoef et al., 2009). Lastly, but very importantly, an experience is holistic in its nature and multi-dimensional (Kim et al., 2011). In other words, an individual's experience is an amalgam of various dimensions (Walls et al., 2011). The multi-dimensionality of experience can be found in previous literature. Hirschman and Holbrook (1982) considered hedonic consumption multi-sensory, fantasy, and emotive elements of experience. Pine and Gilmore (1999) recognized experience is related to individuals' physical, spiritual, emotional, and intellectual engagement, as well as the subjective characteristic of experience. Schmitt (1999) proposed five types of experience: sensory, affective, cognitive, physical, and social-identity experiences. Drawing from the previous literature about the experience, Gentile and her colleagues (2007) conceptualized experience as a multi-dimensional construct, consisting of sensorial, affective, cognitive, lifestyle, pragmatic and relational experiences. Accordingly, other studies (e.g., De Keyser, Lemon, Klaus, & Keiningham, 2015; Kandampully, Zhang, Jaakkola, 2018; Kim et al., 2011; Lemon & Verhoef, 2016; Mossberg, 2007; Verhoef et

al., 2009; Walls et al., 2011) supported the holistic and multi-dimensional nature of experience. The review of preceding research on experience proposed that an individual's experience is dynamic and varied by the context of consumption (Jain, Aagja, & Bagdare, 2017; Lemon & Verhoef, 2016). Furthermore, individuals' experience would be distinctive due to the multi-dimensionality and the interactions among its dimensions (Walls et al., 2011).

Table 2.2. Multi-dimensionality of Experience

Author(s), Year	Multi-dimensionality of Experience
Hirschman & Holbrook (1982)	The experiential view considers consumption a predominantly subjective state of consciousness related to multi-sensory, fantasies, and emotional responses.
Schmitt (1999, 2003)	Experience as a multi-dimensional concept consists of five types of experiences: sensory (sense), affective (feel), cognitive (think), physical (act), and social-identity (relate) experiences.
Gentile et al. (2007)	Experience occurs from a set of interactions between a customer and the product/service, and/or the provider. Experience is multi-dimensional and consists of sensorial, affective, cognitive, lifestyle, pragmatic, and relational experiences.
Verhoef et al. (2009)	Experience is a multi-dimensional construct that is holistic and includes individuals' cognitive, affective, emotional, social, and physical responses to the product/service provider.
Kim et al. (2011)	Experience is multi-dimensional and holistic, involving an individual at various levels, such as psychological and physiological.
De Keyser et al. (2015)	Experience is multi-dimensional by nature and encompasses cognitive, emotional, physical, sensorial, spiritual, and social elements from the interactions between the customer and provider.
Lemon & Verhoef (2016)	Experience is a multi-dimensional construct that concentrates on cognitive, emotional, behavioral, sensorial, and social responses to the provider during the entire consumption process.
Kandampully et al. (2018)	Experience is holistic and contains cognitive, affective, emotional, social, and physical (behavioral) responses.

As the hospitality and tourism industry is one of the most experiential industries, substantial attention has been paid to identify what experience is in hospitality and

tourism research. Consequently, the concept of experience and its dimensions have been examined in different hospitality and tourism contexts. Otto and Ritchie (1996) asserted that the experience should be holistically evaluated, and they identified the four dimensions (i.e., hedonics, peace of mind, involvement, and recognition) of the service experience in the tourism context. Four dimensions (i.e., sensory, social, emotional, and intellectual) of pleasurable online experience were examined in the context of the hotel (Dubé, Bel, & Sears, 2003). The impacts of five types of experience marketing (i.e., sense, act, feel, think, and relate) on emotion were investigated in the context of the zoo (Tsaur, Chiu, & Wang, 2007). The four dimensions (i.e., affect, expectations, consequentiality, and recollection) of memorable tourism experiences were identified (Tung & Ritchie, 2011). Kim and his colleagues (2012) developed a scale to measure memorable tourism experience that includes hedonism, novelty, local culture, refreshment, meaningfulness, involvement, and knowledge. The influence of cognitive, affective, and sensory experiences on decision-making was explored in the context of the hotel (Kim & Perdue, 2013). Lodging brand experience was measured as a holistic concept that consists of sensory, affective, behavioral, and intellectual dimensions (Kang, Manthiou, Sumarjan, & Tang, 2017).

The experience economy has been frequently applied to understand the concept of hospitality and tourism experience, including bed and breakfasts (Oh, Fiore, & Jeoung, 2007), brand hotel (Ismail, 2011), wine tourism (Quadri-Felitti & Fiore, 2012), festival experience (Manthiou, Lee, Tang, & Chiang, 2014), general hospitality and tourism (Sipe & Testa, 2018) and heritage tourism (Chung et al., 2017). While many studies holistically applied the experience economy to hospitality and tourism experiences, some studies

focused on unique dimensions of experiences. Alexen and Swan (2010) examined wine and food festival attendees' experience by focusing on unique, social, and educational experiences. Lee, Gretzel, and Law (2010) focused on the effect of individuals' sensory experience with destination websites on behavioral outcomes. The impacts of smart tourism technology attributes on tourists' memorable experiences were examined by focusing on the affective dimension of experience (Jeong & Shin, 2020). Prayag and his colleagues (2017) concentrated on the emotional dimension of experience and its outcomes in the tourism context.

2.3. RESEARCH GAP ABOUT TECHNOLOGY EXPERIENCE

In consumer behavior research, experience has been acknowledged as an important concept. Due to the human-oriented nature of the hospitality and tourism industry, where host-guest interactions are the core, the industry has been identified as one of the greatest generators of experience (Prebensen et al., 2013; Prebensen et al., 2016). Recognizing experience as a key ingredient in the hospitality and tourism industry, substantial research has been conducted on experiences in various segments, such as hotels, restaurants, and tourism, in order to better comprehend consumer behavior in different settings of hospitality and tourism. However, the development of technology had changed the landscape of the hospitality and tourism industry by increasing human-technology interactions. Particularly, various technologies have been launched in the front-of-house operations for different reasons, such as meeting consumers' needs for technology, enriching experience, increasing service efficiency, and reducing labor costs (Connolly & Kim, 2019; Fussell, 2019; Granger, 2017). Although technology would not entirely substitute human interactions, the significance of technology experience is

unquestionable because it is a key factor for consumers' decision-making and satisfaction (Hospitality Technology, 2019). With the accelerating importance of technology in the hospitality and tourism industry, hospitality and tourism technology has become an important topic in research.

Although the significance of technology experience in the hospitality and tourism industry is evident, research findings about hospitality and tourism technology were primarily laid on pre- and post-experiences. Accordingly, the underlying concept and structure of a consumer's experience with hospitality and tourism technology remain unclear. In other words, research on the conceptualization of technology experience is still in its infancy. Thus, considering the significance of technology experience in the hospitality and tourism context, researchers should pay immediate attention to conceptualizing technology experience, which is a unique type of experience formulating from the interaction between consumers and technology. Furthermore, consumers' experience in the hospitality and tourism industry is shaped by the interactions between stakeholders. Even though technology might not entirely substitute human interactions, a substantial amount of guest service would be performed by technology. Hence, understanding consumers' experience with hospitality and tourism technology is of the utmost importance to create positive consequences. The lack of a coherent conceptualization of technology experience hampers the further understanding of how technology embedment in the hospitality and tourism industry shapes consumers' experience and how technology experience affects their subsequent feelings of satisfaction and future behavioral intention.

Furthermore, the absence of a solid conceptualization of technology experience implies a shortcoming in identifying the dimensions of consumers' technology experience. As a consumer's experience is multi-dimensional in its nature, technology experience would be multi-faceted. In other words, the dimensions of technology experience would collectively represent the holistic technology experience. Thus, without identifying the dimensions of technology experience, it is difficult to investigate the factors that affect the holistic technology experience and its consequences. In hospitality and tourism, each consumer has different experiences due to their distinctive needs, causing different technology experience even with identical technology. For example, a leisure traveler's experience with hotel technology would be different from that of a business traveler because their needs are different when they use the same technology in a similar situation. Moreover, there are numerous types of technologies available in the hospitality and tourism industry. Thus, there are infinite combinations of individuals' needs and types of technologies, leading to different technological experiences. Therefore, immediate attention should be given to explore the dimensions of technology experience for the comprehensive understanding of technology experience and the different weights of each dimension in creating individuals' holistic technology experience. Identifying the dimensions of technology experience enables researchers to examine the mechanism of how each component technology experience influences its consequences, such as overall experience, satisfaction, and future behavioral intention. Moreover, the deficiency of conceptualization and unidentified dimensions of technology experience raises the question about how an individual's technology experience can be empirically examined in the context of hospitality and tourism. The absence of a means

of empirical investigation of technology experience inhibits the stakeholders from exploring the impact of each dimension of technology experience, which in turn obstructs the development of relevant operational and marketing strategies as well as the enhancement of consumer satisfaction.

2.4. CONCEPTUALIZATION OF TECHNOLOGY EXPERIENCE

2.4.1. Definition of Technology Experience and Potential Dimensions

Recognizing the importance and complicated nature of experience, experience has been much studied in the hospitality and tourism discipline. Furthermore, with the increasing availability of hospitality and tourism technology, there has been substantial research (e.g., Cai, Richter, & McKenna, 2019; Law et al., 2019; Shin & Perdue, 2019) on consumer behavior regarding hospitality and tourism technology. Despite the volume of research on experience and technology in the hospitality and tourism discipline, consumers' experience with hospitality and tourism technology has not been conceptualized, increasing chances to misunderstand the concept for both researchers and practitioners to approach from different perspectives (Lynch, Molz, Mcintosh, Lugosi, & Lashley, 2011; Smith, Xiao, Nunkoo, & Tukamushaba, 2013). Accordingly, there is an urgent need to provide a comprehensive definition of technology experience in order to serve as a reference for general and specific research studies not only for academic but also for industry-focused practical research (Leiper, 1979).

Furthermore, despite the various notions of consumer experience, the in-depth review of literature on consumer experience revealed that there was a common ground in researchers' conception of experience, including the multi-dimensionality of experience (e.g., De Keyser et al., 2015; Gentile et al., 2007; Hirschman & Holbrook, 1982; Kim et

al., 2011; Lemon & Verhoef, 2016; Schmitt, 2003; Verhoef et al., 2009). Specifically, individuals' experience is shaped from a set of interactions among consumers and products/service providers (Verhoef et al., 2009). Also, an individual's experience is holistic in its nature, implying multiple dimensions would consist of the entire experience (Walls et al., 2011). In the same vein, consumers' technology experience is a second-order construct composed of a variety of dimensions that collectively represent the holistic technology experience. Therefore, a thorough review of literature in psychology, consumer behavior, and information technology suggested that technology experience is a unique type of experience occurring from the interactions between consumers and technology, and the consumer's assessment of complex interactions with hospitality and tourism technology. Although the dimensions of technology experience have not been identified yet, the common themes of experience in previous studies have proposed potential dimensions of technology experience: sensorial, emotional, pragmatic, cognitive, and relational experiences. While the proposed dimensions are not completely reflect a consumer's experience with hospitality and tourism technology, the proposed five dimensions would serve as the starting point of understanding technology experience. In other words, the conceptualization of technology experience includes the proposed dimensions but is not limited to them. Table 2.3 provides a summary of the definitions and examples of the proposed dimensions.

Table 2.3. Potential Dimensions of Technology Experience

Dimension	Conceptual Definition	Examples
Sensorial	Experience generated when senses are affected.	Hospitality and tourism technology was appealing to my senses (e.g., visual, aural, olfactory, gustatory, tactile).

Emotional	Experience associated with the affective system, including moods, feelings, and emotions.	Hospitality and tourism technology aroused positive feelings (e.g., pleasure, fun).
Pragmatic	Experience comes from practical actions, including usability.	Hospitality and tourism technology was easy and user-friendly.
Cognitive	Experience related to cognitive mental process that engages individuals in such a situation as problem-solving or creativity.	Hospitality and tourism technology allowed me to engage in problem-solving, conscious mental processes, and/or creative activities.
Relational	Experience regarding individuals' social relationships with others.	Hospitality and tourism technology enhanced my social relationships (e.g., with other consumers).

Note. Theoretically based on Gentile et al. (2007) and Verhoef at al. (2009).

2.4.1.1. Sensorial Experience

Pine and Gilmore (1998) suggested that an individual's experience is more effective and memorable when more senses are engaged in the experience. Sensorial experience can be defined as a consumer's experience generated from sensorial stimuli (i.e., visual, aural, olfactory, gustatory, and tactile experiences) (Barnes, Mattsson, & Sørensen, 2014). The significant impact of the sensorial aspect on a consumer's experience has been much supported in the literature (Agapito, Pinto, & Mendes, 2012; Brakus, Schmitt, & Zarantonello, 2009; Hultén, Broweus, & Van Dijk, 2009; Krishna, 2010; Pine & Gilmore, 1998; Schmitt, 1999). In the hospitality and tourism setting, Rahman, Khalifah, and Ismail (2016) explored how human senses affected tourist experience at cultural heritage attractions. The positive impacts of consumers' sensory experience on the online rating were examined, revealing that all five senses significantly influenced consumers' rating behavior (Mehraliyev, Kirilenko, & Choi, 2020). In restaurants, Liu, Hannum, and Simons (2019) used immersive technology to test the impact of visual, auditory, and olfactory cues on consumers' preference for coffee and found that visual, auditory, and olfactory streams were significant factors affecting consumer preference.

When hospitality and tourism technology gives sensorial stimuli for deeper immersion into the atmosphere, a consumer's sensorial experience can be generated through their interactions with the technology. Theme parks have been embedding sensory effects on their rides in order to generate sensorial experience and enrich the overall experience (Levine, 2018). However, with the hospitality and tourism industry's substantial investment in technology, the sensorial experience can be easily found in the hospitality and tourism industry. For example, wearable AR devices extend tourists' sensory modality so that tourists can fully be immersed and interact with tourism resources, which in turn generates sensorial experiences (Tussyadiah et al., 2017). Furthermore, AR technology provides a greater degree of interactivity and vividness through sensory aspects than the web, thereby creating higher consumer immersion and enjoyment (Yim, Chu, & Sauer, 2017). In the hotel setting, a smart room would be a technology that appeals to guests' senses and evokes sensorial experience by offering personalized room settings, such as temperature, lighting (Revfine, 2020). With the rapid development of technology, there are a variety of sensory-enabling technologies, such as 3-dimensional interactive view (visual), straw-like user interface (auditory), mid-air haptics (tactile), and VR (auditory, visual, olfactory) (Petit, Velasco, & Spence, 2019).

2.4.1.2. Emotional Experience

The importance of the emotional aspect of consumer experience has been demonstrated in consumer research. Emotion refers to an individual's strong feelings related to a specific object or event (Cohen & Areni, 1991). Emotion (e.g., pleasure, joy, disappointment) has been considered an important subject in consumer experience research because it is a critical element of hedonic consumption (Alba & Williams, 2013;

Hosany & Gilbert, 2010). Moreover, the positive impact of emotion on consumers' future behavioral intention was significant even for non-hedonic products/services (Ladhari, Souiden, & Dufour, 2017). Emotional experience refers to a consumer's experience related to his/her feelings, sentiments, and emotions that are context-specific (Barnes et al., 2014; Hosany & Gilbert, 2010). There are many sources of emotional experience during the consumption process, such as aesthetics, design, and interactions (Alba & Williams, 2013). In other words, individuals' emotional experience can be provoked at any time during their consumption process. For example, a hotel guest's emotional experience can be generated if his/her hotel room was aesthetically appealing (Krishna, 2012).

The concept of emotional experience is even more crucial in the hospitality and tourism industry because of the unique characteristics of the industry. Specifically, different from other industries' products (e.g., essentials), hospitality and tourism products/services are commonly associated with pleasure by nature, especially for individuals with leisure purposes (Alba & Williams, 2013). In other words, while consumers experience products/services in the hospitality and tourism industry, they are involved in a variety of emotions, such as happiness and pleasure. As hospitality and tourism products/services are inherently related to emotion, many studies have been conducted to explore the role of emotions in the hospitality and tourism context (Hosany & Gilbert, 2010; Kim, 2010). Kim, Chua, Lee, Boo, and Han (2016) found the positive impact of emotional experience on satisfaction in the airline lounge setting. In the tourism context, the positive influence of emotional experience on satisfaction was supported (Barnes et al., 2014; Prayag et al., 2017).

Hospitality and tourism technology can generate emotional experiences in many ways. Specifically, different types of stimuli generated by technology can entail emotional aspects, such as valence, arousal, mood, and other emotion-related themes (Saariluoma, & Jokinen, 2014). For example, a dark tourism destination (e.g., National 9/11 Memorial & Museum) can utilize AR technology to make tourists further immersed in the situation and arouse negative emotions. On the other hand, some destinations also can use VR and AR technology in order to generate positive arousal through aesthetic appeals. Thematic hotels can enhance their thematic appeal by generating positive valence through advanced in-room technology. Restaurants can enrich consumers' emotional experience by playing pop music to arouse positive emotions.

2.4.1.3. Pragmatic Experience

Even a single hospitality and tourism product/service can generate both emotional and pragmatic experiences simultaneously (Alba & Williams, 2013). Pragmatic experience refers to individuals' experience related to practical act and usability. Consumers' pragmatic experience can occur when technology provides benefits, such as accessibility (Gentile et al., 2007; Schmitt, 1999). Researchers have abundantly studied the pragmatic aspect of consumer experience in the hospitality and tourism context. Particularly, research in technology adoption has focused on the impact of effort expectancy on individuals' intention to adopt technologies. For example, Oh et al. (2016) investigated the effect of perceived ease of use on the intention to adopt SST in a hotel. Min et al. (2019) examined the impact of perceived ease of use on attitude toward sharing economy services. The influence of effort expectancy on intention to use SST was explored (Tsourela & Roumeliotis, 2015). In tourism, Paulo et al. (2018) investigated

how effort expectancy affected travelers' intention to use mobile AR technology. Jung et al. (2015) investigated the system quality of AR applications on museum visitors' satisfaction. Jeong and Shin (2020) examined how the accessibility of smart tourism technology affects travelers' experience and satisfaction.

Individuals' pragmatic experience can be generated by hospitality and tourism technology when the technologies are easily accessible, available, comfortable, and user-friendly. For instance, when a hotel has an in-room tablet in every single room to provide its guests with smart room control, a positive pragmatic experience would be generated due to the high accessibility. In the restaurant setting, guests' perception of the SST would be positive when the self-service kiosks are easy to use and user-friendly regardless of guests' technology readiness, generating a pragmatic experience. Pragmatic experience would occur when mobile applications with AR technology translate foreign languages by multi-layering on the information board in tourism destinations because it is easily accessible and user-friendly.

2.4.1.4. Cognitive Experience

Cognition has been recognized as an important part of consumer experience (De Keyser et al., 2016; Holbrook & Hirschman, 1982). Cognitive experience is related to individuals' conscious mental processes, such as problem-solving and creativity (Schmitt, 1999). Even though the experiential view for hospitality and tourism products/services has been focused on the hedonic and symbolic nature of the consumption (Kim & Perdue, 2013), the cognitive aspect of experience should not be under-estimated since individuals are exposed to a variety of opportunities to acquire knowledge and/or engage into thinking and learning in the hospitality and tourism context (Cao, 2016). In other words,

when individuals obtain knowledge or are involved in intellectual activities, a cognitive experience is generated. As Oh et al. (2007) suggested, the cognitive experience is closely related to the hospitality and tourism industry, and some destinations are tailored to exclusively create a cognitive experience. For example, a destination that provides the historical background of democracy would be an example of the destination offering a cognitive experience as the destination provides knowledge about the root of democracy.

While some destinations are designed to solely generate cognitive experience, the cognitive experience can be produced in other areas of the hospitality and tourism industry. Cognitive experience can occur when hotels provide historical information about themselves and destination attractions, which would promote guests' learning and thoughts about the lifestyle of the city (Gao, 2012). In the restaurant setting, individuals' dining experience can be enhanced when they have unexpected and/or novel experiences, leading to new insights into the cuisine (Blichfeldt, Chor, & Ballegaard, 2010). When an individual first visits a wine bar, for instance, the learning process from the wine bar can offer his/her knowledge about different types of wine, which generates cognitive experience. In tourism settings, as many studies (e.g., Oh et al. 2007; Quadri-Felitti & Fiore, 2012; Song, Lee, Park, Hwang, & Reisinger, 2015) have supported, individuals enhance their knowledge and skills by actively participating and engaged in the destination resources and activities.

Cognitive experience can be generated by using hospitality and tourism technology. In the context of tourism, mobile applications that provide consumers with quizzes or activities about the destination would generate a cognitive experience. More specifically, AR applications enable individuals to get immersed in a certain historical

situation and make them use their creativity or solve problems in the situation, which would be an example of cognitive technology experience. Hotel technologies, for instance, that provide in-room entertainment (e.g., hotel history, useful information about the location), can be a generator of cognitive experience because it gives a new insight. In the restaurant setting, consumers would have a cognitive experience when they can gain information about wine pairing through tabletop tablets. Particularly, restaurants consumers' cognitive experience would be strengthened when they are engage in the wine pairing for their own meals applying the information from the tablet.

2.4.1.5. Relational Experience

As humans are inherently social (Young, 2008), individuals pursue interpersonal relationships by experiencing belongingness and love (Maslow, 1943). Moreover, individuals' experience always occurs from interactions with other consumers and service providers through not only human-to-human interactions but also human-to-nonhuman interactions (De Keyser et al., 2015). Accordingly, the social aspect of consumer experience has been studied by researchers (De Keyser et al., 2015; Gentile et al., 2007; Lemon & Verhoef, 2016). Specifically, the relational aspect of consumer experience has been given much attention from hospitality and tourism researchers (Antun, Frash, Costen, & Runyan, 2010; Rageh, Melewar, & Woodside, 2013; Ren, Qiu, Wang, & Lin, 2016). Relational experience occurs when technology helps individuals interact with other people or the technology itself and affirm social identity (Gentile et al., 2007).

As hospitality and tourism products/services are offered to consumers through their interactions with service providers, the relational experience is an important dimension of technology experience. Furthermore, the unique characteristics (e.g.,

heterogeneity/variability, intangibility) of the hospitality and tourism products/services make the relational experience more critical. Specifically, the hospitality and tourism products/services are not always identical but can vary a lot by many factors. Therefore, consumers of the hospitality and tourism industry seek interactions with other consumers in order to share information (Litvin, Goldsmith, & Pan, 2008). Moreover, consumers' hospitality and tourism experience can be even more enjoyable after their experience ends by recalling the memories and sharing with others (Alba & Williams, 2013; Raghunathan & Corfman, 2006).

As various hospitality and tourism technologies are embedded in mobile devices with IoTs, individuals would feel relational experience through these technologies that allow them to interact with other people. For instance, online platforms would generate relational experience for consumers by sharing information and their own experiences. Particularly, sharing their own experience through virtual worlds (e.g., online platforms) during their consumption journey enables consumers highly engaged in their experience (Kim & Hardin, 2010). In the hotel setting, hotel concierge apps (e.g., Marriott Bonvoy App) offer a live-chat function for guests to interact with hotel associates directly anytime, resulting in a guest-staff relational experience (Marriott Bonvoy, 2019). In the tourism setting, individuals can further interact with others by connecting their technology devices (e.g., mobile app).

2.4.2. Conceptual Framework of Technology Experience

The extant review of the literature suggested potential dimensions of technology experience: sensorial, emotional, pragmatic, cognitive, and relational experiences. While the aforementioned five dimensions would not fully reflect all facets of technology

experience, they would serve as the starting point of this research before every single aspect of individuals' experience with hospitality and tourism technology is identified through a series of qualitative and quantitative investigations. Reflective construct, an unobservable construct that consists of reflective indicators, should be uni-dimensional by definition (Petter, Straub, & Rai, 2007). Since technology experience is a multi-dimensional construct (i.e., second-order construct) whose dimensions collectively represent the holistic nature of individuals' experience with hospitality and tourism technology, technology experience should be modeled as a formative construct. In other words, each dimension of technology experience captures different aspects of technology experience, thereby having formative relationships. Furthermore, the complex nature of technology experience should be modeled as a formative multi-dimensional construct so that the measurement and analysis can be more meticulous (Petter et al., 2007).

Thus, technology experience was designed as a formative model in this study. However, even though each dimension of technology experience was modeled as formative, the indicators of dimensions were viewed as reflective, which is commonly used in social science (MacKenzie, Podsakoff, & Podsakoff, 2011). Particularly, developed measurement items of each dimension were used to measure the same conceptual domain of each dimension, implying its uni-dimensionality (Petter et al., 2007). Therefore, indicators of each dimension of technology experience should be considered as reflective indicators. Furthermore, it is appropriate to specify the items of each dimension as reflective because of the possibility of undermining construct validity when using formative indicators, as researchers (e.g., MacKenzie et al., 2011; Petter et al., 2007) recommended specifying latent construct with reflective indicators, which are

fundamentally interchangeable (Diamantopoulos & Winklhofer, 2001). Accordingly, a second-order formative construct of technology experience consisting of five dimensions (i.e., sensorial, emotional, pragmatic, cognitive, and relational) with reflective indicators was proposed. Figure 2.1 illustrates the initial measurement model of technology experience before complete conceptualization.

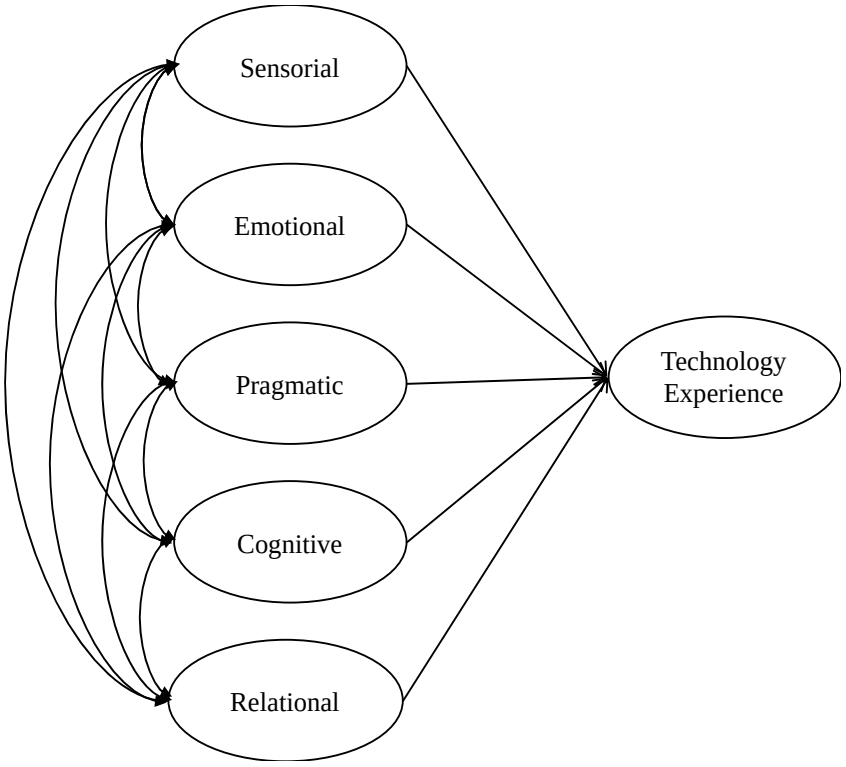


Figure 2.1. Initial Measurement Model of Technology Experience

2.5. CONSEQUENCES OF TECHNOLOGY EXPERIENCE

The preceding discussion offered insights into the conceptualization of individuals' experience with hospitality and tourism technology and the potential dimensions of technology experience. However, the consequences of technology experience have been under-explored. Previous research on experience (e.g., Choi, Kandampully, & Stafford, 2019; Jeong & Shin, 2020; Truong, Nisar, Knox, & Prabhakar, 2017) has suggested that individuals' experience is a determinant of post-experience

assessments and behaviors, such as satisfaction and behavioral intentions. Furthermore, many studies (e.g., Gursoy, Cai, & Anaya, 2017; Kabadayi et al., 2919; Lin, Gursoy, & Zhang, 2019) proposed that individuals' interactions with other consumers or service providers influence their overall experience. Collectively, previous studies suggest that individuals' interactions with technology would lead to technology experience, satisfaction, and behavioral intention. As one of the purposes of this study was to identify the relationships between technology experience and other focal constructs in the discipline, the following section provides a discussion of the potential consequences of technology experience: overall experience, satisfaction and behavioral intention.

The hospitality and tourism products are composed of a variety of both tangible and intangible aspects (Karamustafa & Ülker, 2020; Yueksel, 2000). For example, a consumers' hospitality and tourism experience includes their experience with food and beverage services, lodging services, and tourism services. Each experience, such as food and beverage experience, influences the consumer's overall hospitality and tourism experience (Karamustafa & Ülker, 2020; Sheldon & Fox, 1988). Although technology experience might not be a core product of the hospitality and tourism industry, as a part of consumers' experience, it would affect their overall hospitality and tourism experiences. Satisfaction indicates an individual's positive evaluation of their experience (Singh, Goolsby, & Rhoads, 1994). According to expectation-confirmation theory (Oliver, 1977; Oliver, 1980), when the products/services outperform an individual's expectation, satisfaction occurs due to the positive disconfirmation of expectation (Spreng, MacKenzie, & Olshavsky, 1996). In hospitality and tourism research, satisfaction has been studied as a crucial consequence of experience (e.g., Huang, Weiler,

& Assaker 2015; Jeong & Shin, 2020; Oh et al., 2007; Kim, 2018). In the context of tourism, the positive impact of memorable tourism experience on overall satisfaction was found (Kim, 2018). Ramseook-Munhurrun, Naidoo, Seebaluck, and Puttaroo (2018) identified that tourists' experience positively affects their satisfaction and loyalty. Tom Dieck et al. (2018) examined the impact of festival visitors' experience with technology on their satisfaction. The positive relationship between experience and satisfaction was supported in hospitality and tourism (Sipe & Testa, 2018). The significant effect of service experience in the hospitality industry on satisfaction was found (Ali, Amin, & Cobanoglu, 2016). Jung et al. (2015) examined how individuals perceived quality with AR by focusing on individuals' satisfaction with the technology (AR).

Because of the complex nature of satisfaction, Zhao, Li, Zhang, and Chau (2012) suggested two different types of satisfaction: transaction-specific satisfaction and cumulative satisfaction. Transaction-specific satisfaction indicates an individual's evaluation of services/products at a certain point, whereas cumulative satisfaction is the holistic assessment of all products/services (Jung et al., 2015). The distinction between transaction-specific and overall satisfaction is worth acknowledging as an individual is exposed to different service encounters over a period of time and might have a different evaluation for each transaction and cumulative satisfaction might be affected by factors other than technology experience. Furthermore, the type of satisfaction would affect sequent behavioral intentions. By recognizing the critical distinction between transaction-specific and overall satisfaction, researchers also explored the relationships among experience, transaction-specific satisfaction, and overall satisfaction. Huang et al. (2016) investigated the mechanism of how smart tourism technology influences their overall

travel satisfaction mediated by transaction satisfaction. The impact of tourists' perceived quality of travel technology on satisfaction with technology, overall satisfaction, and future behavioral intention was explored (Wang et al., 2017). In this study, therefore, individuals' satisfaction was divided into satisfaction with technology (transaction-specific) and overall satisfaction with their overall flight experience (cumulative). Specifically, satisfaction with technology means individuals' positive assessment of their psychological states regarding their technology experience. On the other hand, the overall experience indicates individuals' assessment of cumulative experiences from a variety of service encounters. A hotel guest's positive evaluation of in-room tablet is an example of satisfaction with hospitality and tourism technology, whereas their judgment of their experience at the hotel is considered overall satisfaction.

According to balance theory (Heider, 1946; Heider, 1958) and cognitive dissonance theory (Festinger, 1957), individuals try to avoid conflict between two thoughts and try to maintain a balanced state of mind by changing their attitudes. In other words, balance theory and cognitive dissonance theory posit that individuals change their attitude in order to avoid cognitive dissonance and maintain a consistent attitude. Particularly, when individuals feel dissonance thoughts toward the target, they change their attitude in order to eliminate the discomfort from the cognitive dissonance. TRA and TPB posit that attitudes positively affect behavioral intentions (Ajzen, 1991; Fishbein & Ajzen, 1975). While an individual's satisfaction is commonly considered as one of the consequences of experience (Huang et al., 2015; Jeong & Shin, 2020, Oh et al., 2007; Kim, 2018), satisfaction has also been recognized as a critical antecedent of future behavioral intentions, including repurchase intention, revisit intention, and word-of-

mouth intention (e.g., Ali, Ryu, & Hussain, 2016; Chung et al., 2018; Jeong & Shin, 2020; Kim, 2018, Prayag et al., 2017; Yoon, Kim, & Connolly, 2018).

Studies in the hospitality and tourism discipline have applied multiple theories to further comprehend a consumer's behavior. Jeong and Shin (2020) investigated the impacts of smart tourism technology on experience, satisfaction, and future behavioral intention by integrating balance theory and TRA. In order to understand individuals' dining experiences and subsequent satisfaction and behavioral intentions, researchers (e.g., Muskat, Hörtnagl, Prayag, & Wagner, 2019) used TRA and cognitive dissonance theory as their theoretical background. Chung et al. (2017) applied a variety of theories (i.e., motivational theory, confirmation-disconfirmation theory, experience economy, balance theory, cognitive dissonance) to understand the mechanism of how individuals' belief about AR affects satisfaction with AR, attitudes, and behavioral intention toward the destination. The mediating impact of cognitive dissonance was examined in the relationship between online tourists' regret tendency and e-satisfaction by applying cognitive dissonance and persuasion theories (Tseng, 2017). As discussed above, satisfaction is one of the most critical precursors of future behavioral intention. Accordingly, when an individual's satisfaction with hospitality and tourism technology is considered as their attitude toward the technology, various tenets such as balance theory, cognitive dissonance theory, TRA, and TPB can be integrated and applied to explain the relationship between satisfaction and future behavioral intention. Building on the previous research about the relationship between experience and satisfaction, the following research propositions were developed.

Research Proposition 1: Consumers' technology experience positively influences satisfaction with hospitality and tourism technology.

Research Proposition 2: Consumers' technology experience positively influences overall experience.

Research Proposition 3: Consumers' satisfaction with hospitality and tourism technology positively influences overall experience at the hotels/restaurants/destinations.

Research Proposition 4: Consumers' satisfaction with hospitality and tourism technology positively influences overall satisfaction with their experience at the hotels/restaurants/destinations.

Research Proposition 5: Consumers' overall experience at hotels/restaurants/destinations positively influences overall satisfaction with their experience at the hotels/restaurants/destinations.

Research Proposition 6: Consumers' overall satisfaction with their experience at the hotels/restaurants/destinations positively influences their intention toward the hotels/restaurants/destinations.

2.6. PROPOSED RESEARCH FRAMEWORK

After thorough reviews of the literature on hospitality, tourism, psychology, technology, and consumer behavior, an integrated research model of technology experience was developed. All research propositions derived from the discussion above were presented in Table 2.4. Figure 2.2 visually demonstrates the integrated research model by reflecting the multi-dimensional nature of technology experience and its consequences.

Table 2.4. Proposed Research Propositions

Research Proposition	Statement
Research Proposition 1	Consumers' technology experience positively influences satisfaction with hospitality and tourism technology.
Research Proposition 2	Consumers' technology experience positively influences overall experience.
Research Proposition 3	Consumers' satisfaction with hospitality and tourism technology positively influences overall experience at the hotels/restaurants/destinations.
Research Proposition 4	Consumers' satisfaction with hospitality and tourism technology positively influences overall satisfaction with their experience at the hotels/restaurants/destinations.
Research Proposition 5	Consumers' overall experience at hotels/restaurants/destinations positively influences overall satisfaction with their experience at the hotels/restaurants/destinations.
Research Proposition 6	Consumers' overall satisfaction with their experience at the hotels/restaurants/destinations positively influences their intention toward the hotels/restaurants/destinations.

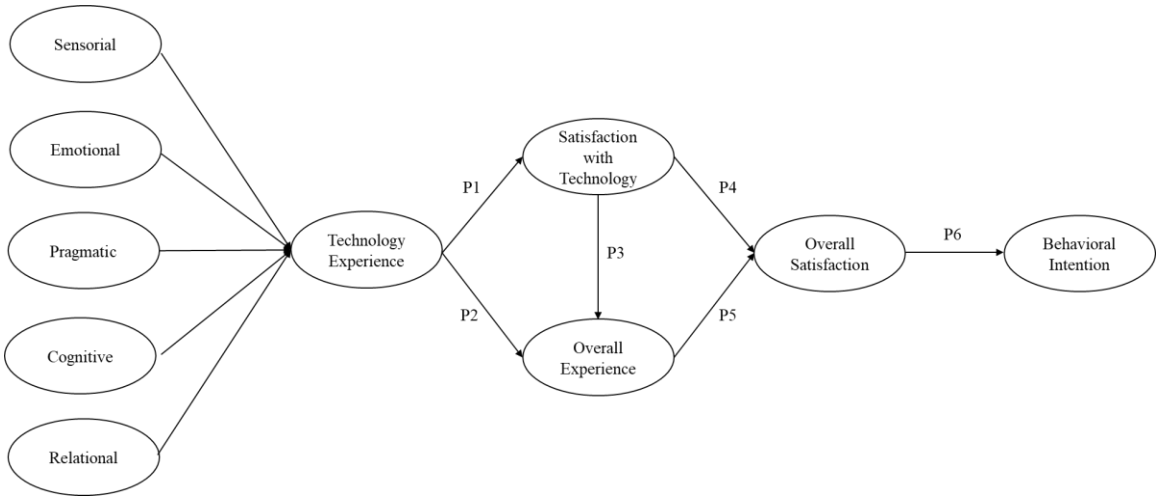


Figure 2.2. Proposed Research Model

2.7. CHAPTER SUMMARY

This study comprised a discussion of the conceptualization of technology experience and its potential dimensions, and theoretically related constructs in this study. Specifically, the current stage of technology implementation in the hospitality and

tourism industry and previous literature about hospitality and tourism technology from the consumer behavior perspective were presented. Next, a discussion of experience was provided, along with an explanation of why experience is an important concept in hospitality and tourism research. The necessity of research about technology experience was presented, followed by the conceptualization of technology experience and its consequences. Specifically, based on previous research about technology and experience, the potential dimensions of technology experience were identified, followed by a discussion of its consequences.

CHAPTER 3

METHODOLOGY

To accomplish the research purposes and address research questions of this study, this chapter focuses on the research design, including research methodology and outline of the scale development process. A detailed explanation of focus-group discussions and a nation-wide survey are explained to validate the developed measurement constructs of technology experience.

3.1. RESEARCH DESIGN

While the hospitality and tourism industry has actively implemented different technologies in order to satisfy consumers' needs and enhance the experience (Colloly & Kim, 2017; Fussell, 2019; Granger, 2017; Hall et al., 2000; Huang et al., 2017), little research has been documented about consumers' experience with hospitality and tourism technology. Accordingly, it is not evident whether consumers' experience with hospitality and tourism technology indeed leads to overall experience, satisfaction, and future behavioral intention. To address the gap identified in the current literature, this study aims to develop a set of scales for technology experience in the hospitality and tourism context that captures the dynamic nature of consumers' technology experience consisting of multiple dimensions. In order to achieve the objectives of this study, a mixed-method was employed. A mixed-method refers to a study that involves elements of qualitative and quantitative research for an in-depth understanding of the concept (Johnson & Onwuegbuzie, 2007). The mixed-method is effective, as the findings from

the qualitative inquiry (e.g., conceptualization and generation of items) can be further strengthened by empirical validation from the quantitative approach (Churchill, 1979; Gerbing & Anderson, 1988; Hinkin, 1995). Particularly, this study employed a sequential exploratory strategy that is often used to develop a construct and to explain relationships with a primary focus on the exploration of a phenomenon (Creswell & Creswell, 2009). The sequential exploratory approach begins with qualitative data collection and analysis and further builds on the results of the qualitative inquiry through quantitative data collection and analysis (Creswell & Creswell, 2009). Figure 3.1 shows the flowchart of the sequential exploratory approach.

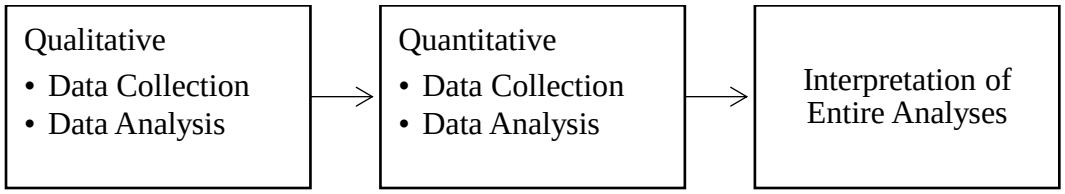


Figure 3.1. Sequential Exploratory Approach

Employing the sequential exploratory approach, this study began with a qualitative part of research, consisting of an in-depth review of the literature, focus group discussions, and expert reviews, followed by a quantitative part of research (i.e., a series of online surveys and data analyses). More specifically, as shown in Figure 3.2, this study was composed of four phases, following the procedures suggested by researchers (i.e., Churchill, 1979; Netemeyer, Bearden, & Sharma, 2003; MacKenzie et al., 2011). The first two phases were part of the qualitative approach, while the other two phases were part of the quantitative approach. Phase I included the specification of the domain of technology experience. Phase II consisted of two focus group discussions to identify and define the dimensions of technology experience, and generate the items. Additionally,

Phase II contained two rounds of expert review for the relevancy of initially developed items. The pilot data collection and tests for the reliability and validity of the measurement were performed in Phase III. After refining measurement items, the main data collection was conducted to assess the refined measurement items through a series of reliability and validity tests in Phase IV.

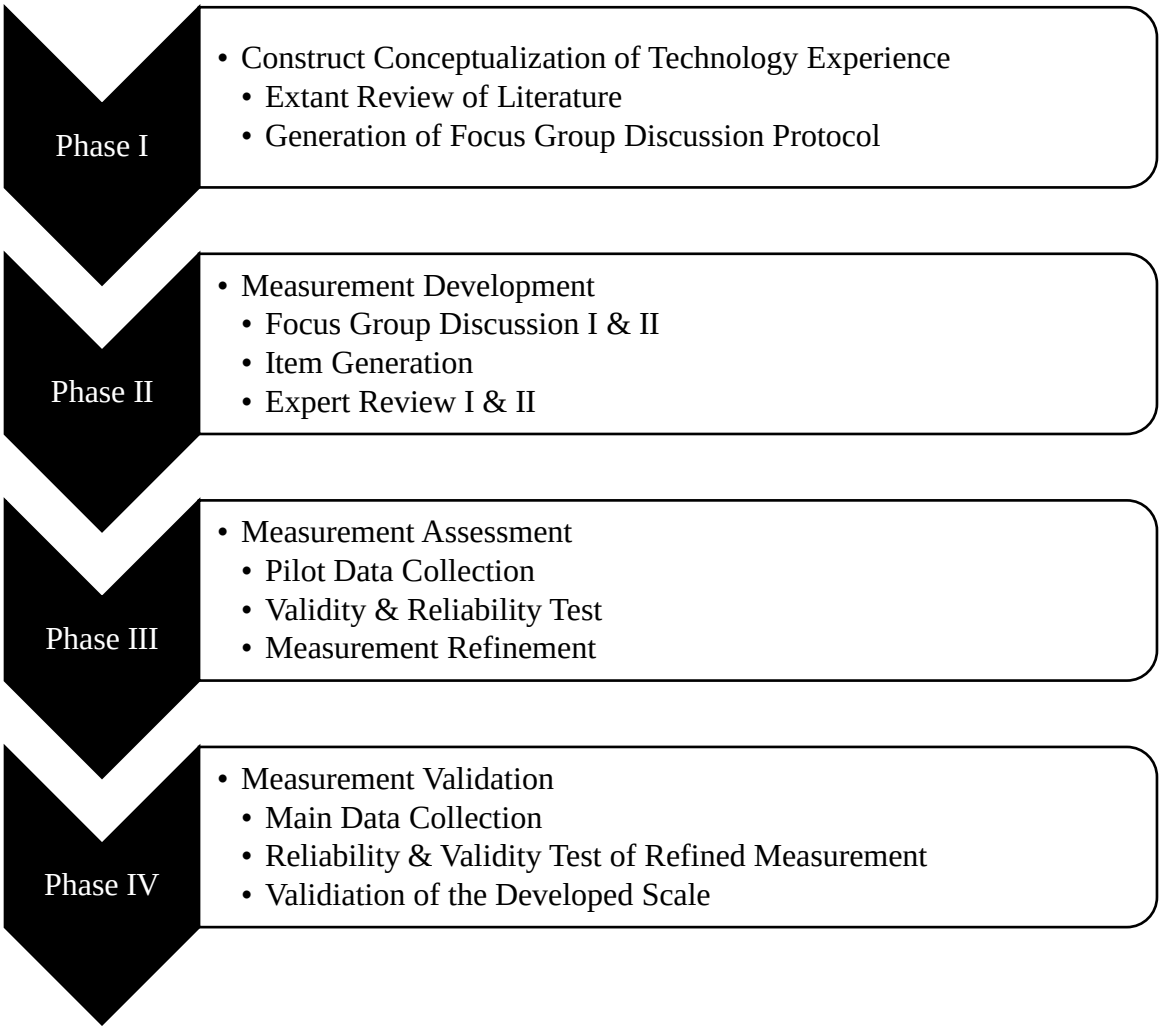


Figure 3.2. The Flowchart of Research Method Processes

3.2. PHASE I: CONSTRUCT CONCEPTUALIZATION

As researchers (e.g., Churchill, 1979; Netemeyer et al., 2003; MacKenzie et al., 2011) suggested, the first step, development of measurement scale, specifies the domain

of the construct. As the validity of what is measured is highly dependent on the construct conceptualization and its domain, the domain specification and construct conceptualization should not be underestimated (Netemeyer et al., 2003). According to Churchill (1979), a researcher who develops a set of scales must be accurate and precise in delineating what would be included and excluded in the definition of the construct, and it can be achieved by grounding in a theoretical framework. Therefore, a vast literature was examined in the previous chapter as well as constructs within the nomological network of technology experience in order to specify the domain of technology experience in the hospitality and tourism context. As there has been a lack of the conceptualization of technology experience, this study established an appropriate definition of technology experience, its potential dimensions, boundaries, and content domain through the in-depth review of literature on experience and technology. The extensive review of the literature suggested five potential dimensions of technology experience: sensorial, emotional, pragmatic, cognitive, and relational experiences. However, in order to capture all facets of consumers' technology experience with hospitality and tourism technology, further investigation and conceptualization of technology experience were conducted in Phase II through focus group discussions.

3.3. PHASE II: MEASUREMENT DEVELOPMENT

3.3.1. Focus Group Discussion

3.3.1.1. Purpose

According to Netemeyer et al. (2003), the population of interest is another source of item generation as the members of the population can provide insights about what the construct would be and how to measure it, thereby increasing the accuracy and

comprehensiveness of the construct domain, which in turn enhance the face validity of the construct. While the potential dimensions of technology experience have been explored through an in-depth review of literature on technology and experience, the identified dimensions might not fully portray the dynamic nature of technology experience. In other words, a comprehensive set of dimensions of technology experience has not been completely identified. Accordingly, a further investigation of technology experience is imperative to identify potential defections and thoroughly represent every aspect of the technology experience. Therefore, in order to ensure the face and content validity of the identified dimensions (i.e., sensorial, emotional, pragmatic, cognitive, and relational experiences) and to explore potential dimensions of technology experience, two focus group discussions were conducted with the population of interest.

3.3.1.2. Setting

Developing a focus group discussion protocol is one of the most critical components for the successful completion of the discussion. In order to achieve the goal of focus group discussion, the researcher must be able to profoundly extract discussants' experiences and/or perceptions about the topic. Therefore, the focus group discussion protocol was developed based on the recommendations from McNamara (2009) and Turner (2010), and reviewed by researchers in the hospitality and tourism discipline and behavioral science. Specifically, the discussion questions were designed as open-ended so that discussants can choose their own wordings that most accurately reflect their own perceptions. Furthermore, all questions were developed in a neutral tone to avoid any judgmental wordings and its possible influences. The focus group discussions consisted of five sections. The first section was an introduction reiterating the purpose of this study,

and definition and examples of the key concepts (i.e., the hospitality and tourism industry, hospitality and tourism technologies), as well as confirming discussants' consent. The second section involved several probing questions, which were designed to evoke discussion and discussants' detailed recall of their experiences with hospitality and tourism technology. For example, discussants were requested to answer such questions asking the time, place, and types of technology they used during their trip. The third section contained questions about the discussants' technology experience. In order to obtain detailed information about discussants' technology experience, the discussants were asked to specify the type or name of the technology with the context of their technology utilization. The fourth section was designated to ask a series of questions to uncover the consequences of technology experience, such as overall experience, satisfaction, and future behavioral intention. The focus group discussion ended by asking discussants' additional opinions to share.

3.3.1.3. Participants

As this study's objective is to conceptualize a consumer's technology experience with hospitality and tourism technology and to develop a set of scale, the population of interest was individuals who have experienced hospitality and tourism technology. In order to recruit a representative sample, the following recruiting criteria were used to determine potential focus group discussants: (1) individuals who are 18 years old or above, and (2) those who have experienced hospitality and tourism technologies in 2019. The main reasons restricting the participants to who used hospitality and tourism technology in 2019 were that (1) there were not many people traveled during the year 2020 due to COVID-19, (2) individuals who traveled in the year 2019 would be exposed

to more recent technologies, and (3) they may clearly recall their technology experience. To recruit potential discussants, both random and snowball sampling methods were used and the advertisement flyer was distributed via multiple online platforms, including Linked In and Facebook. The online advertisement flyer contained information about the focus group discussion and a QR code that directed potential participants to the online consent form. The consent form, developed on Qualtrics, consisted of four sections. The first section provided the purpose of the focus group discussion and asked participants to consent for their participation. The second section provided the participants with definitions and various examples of hospitality and tourism technologies for their clear understanding of the concepts. The third section included screening questions to ensure the participants' representativeness. The fourth section asked participants' socio-demographic information in order to ensure representative participants' composition. The target number of participants was 15 in total. The selection of participants was determined based on the type of technology and the context of their technology experience. In order to collect rich information, the final discussants were selected based on their breadth and depth of technology experience and their backgrounds. Thus, 11 discussants were selected from 32 potential discussants who completed the informed consent. Once a participant was selected for his/her discussion participation, the initial participation confirmation email and reminder emails, including the time and virtual conference link, were sent to the participant. Upon completion of the group discussion, the discussants received a $20 gift card as participation incentives.

3.3.1.4. Data Collection

On December 14, 2020, the first focus group discussion was conducted with five discussants for about an hour and a half in order to explore the dynamic dimensions of the technology experience. During the focus group discussion, discussants were asked to recall their experience with hospitality and tourism technology during the year 2019. Also, when discussants were asked to explain when, where, which technology they used, and how they felt about their experiences. As the discussion was semi-structured and flexible, discussants were able to elaborate more on the dimensions that they wanted to emphasize or that were not specified in the existing studies (Horton, Macve, & Struyven, 2004). Detailed discussion questions are listed in Appendix D. On December 21, 2020, the second focus group discussion was conducted with six discussants for about an hour and ten minutes to ensure whether all dimensions of technology experience were captured through the literature review and first focus group discussion. Particularly, the second focus group discussion focused on the identification of potential dimensions of technology experience other than the pre-identified dimensions. The first focus group discussion lasted about an hour and a half, and the second discussion took about one hour and ten minutes. For further analyses, the discussions were video-recorded and transcribed.

3.3.1.5. Data Analysis

The laddering technique (Jüttner, Schaffner, Windler, & Maklan, 2013) was employed to explore the dimensions of technology experience. The laddering technique is commonly used to discover fundamental meanings as a sequence of elements representing different levels of abstractions (e.g., attributes, consequences, values)

(Jüttner et al., 2013). The laddering technique was employed for focus group discussions to describe the dimensions of technology experience from abstract to concrete levels. Specifically, the laddering technique was utilized to identify the discussants' perceptions of their experience with hospitality and tourism technology at all levels of cognitive and affective responses. More specifically, thematic analysis was used to identify the salient themes and provide meaningful insights by employing coding as the primary process for developing themes (DeWalt & DeWalt, 2011; Saldaña, 2013; Samarathunga, Cheng, & Weerathunga, 2020). Multiple coding methods were employed to capture salient attributes from the data. Specifically, in vivo, descriptive, emotion, value, and versus coding methods were used to develop connections that would provide meaningful insights (DeWalt & DeWalt, 2011; Saldaña, 2013). As qualitative inquiry requires meticulous scrutiny to language and reflection of meaning, only one coding method was applied at a time and refinements of the codings were made to accurately extract what discussants implied (Saldaña, 2013). After a series of the coding process, the codes for focus group discussions were integrated into sub-categories, and then early themes were established (Saldaña, 2013). The identified themes and categories were compared with the pre-identified dimensions to investigate whether they are comprehensible within the context of hospitality and tourism.

3.3.2. Expert Review

Initial measurement items should be evaluated for their validity and reliability (MacKenzie et al., 2011) to ensure the items measure the intended conceptual domain (Hinkin, Tracey, & Enz, 1997). The items need to be evaluated for their content validity and face validity, which are related to how well the construct is translated to the

operationalized measure (Netemeyer et al., 2003). Content validity refers to the extent to which the developed items fully represent the content domain of the construct, which can be assessed and reviewed by experts (Drost, 2011; MacKenzie et al., 2011). Face validity is associated with the operationalization of the construct and can be obtained from post-hoc evaluation of how adequately the items measured the construct (Drost, 2011, Netemeyer et al., 2003).

Two rounds of expert reviews were conducted to ensure the content and face validities of the developed measurement items. After a thorough review of experts in the hospitality and tourism technology, an invitation to expert review was sent to 16 potential reviewers who were experts in consumer behavior regarding technology in the hospitality and tourism industry. After much consideration based on the candidates' experience and area of expertise, two researchers in the hospitality and tourism discipline and four hospitality and tourism industry professionals were selected, totaling six expert reviewers

During the first round of expert review, the experts were asked to review the items based on four criteria: (1) whether the items were reflecting every single domain of the construct without any missing part, (2) whether the items in the same group were reflecting a single domain of technology experience, (3) whether the items in the same group were clearly indicating the designated domain of technology experience, and (4) whether the items were clear enough for the population of interest to understand and respond (Netemeyer et al., 2003). More specifically, the first expert review consisted of three steps. First, in order to ensure the potential issues resulted from miscomprehension of the concept, at the beginning of the expert review, each reviewer was given the definition and examples of hospitality and tourism technologies, and the definition of

technology experience. After thoroughly reading the description of the conceptual domain of technology experience, the experts were asked to answer how precisely they understood the conceptual domain of technology experience and its dimensions. The experts were requested to allocate the items into several groups so that the items of each group were conceptually related. Once the experts completed the grouping, they were asked to name each group based on their perception of the items. In section three, experts were allowed to provide their comments. For example, experts were able to state whether the construct was operationalized well with each of the developed items and/or to write additional feedback, including their overall thoughts and the perception about the representatives and operationalization of developed items based on the aforementioned criteria (i.e., relevancy, reliability, and validity). Based on the first expert review results, a few changes and modifications were made.

The second round of expert review was performed to enhance the content and face validities of the revised items. Consistent with the previous expert review, the experts were given the description of the study context, the definition and examples of hospitality and tourism technologies along with the definition of technology experience. However, different from the first review, the second review provided the experts with the dimensions of technology experience as well as its definition for their clear understanding of the concepts. The experts were asked to answer whether they clearly understood the conceptual domain of the construct. Different from the precedent expert review, which asked experts to group items based on their own opinions, they were given items for each dimension and requested to rate the extent to which item represents the corresponding dimension on a 5-point Likert scale (i.e., Not representative at all, slightly representative,

moderately representative, very representative, extremely representative). Space was provided for each item so that experts could provide feedback or freely modify the item. There were two decision rules for item retention: average review scores greater than 'moderately representative' and inter-rater reliability score. Inter-rater reliability for the second expert review was investigated by using Cohen's kappa (McHugh, 2012; Netemeyer et al., 2003), one of the most commonly used statistics for inter-rater or intra-rater reliability (Cohen, 1968; McHugh, 2012). Cohen's kappa ranges from - 1 to +1, where the value of 1 indicates perfect agreement between the two raters (Cohen, 1960). The Cohen's kappa value from inter-rater reliability test was interpreted as fair (.21 - .40), as moderate (.41 - .60), as substantial (.61 - .80), as perfect (.81 – 1.00) (McHugh, 2012).

3.4. PHASE III: MEASUREMENT ASSESSMENT

3.4.1. Purpose

After generating the initial items, evaluation of convergent validity and discriminant validity through quantitative methods is required (MacKenzie et al., 2011). McMillan and Schumacher (1989) suggested that a pilot test is a great way to test an initial model. Accordingly, convergent and discriminant validities were assessed through a pilot test. Convergent validity refers to the degree to which two measures designed to measure the same construct are related. Convergent validity indicates the extent to which items of the developed construct are related (Netemeyer et al., 2003). In order to assess convergent validity of the developed construct, multiple alternative items of the construct should be included as a part of data collection (MacKenzie et al., 2011). Then, the testing for convergence across the items of the same construct needs to be conducted (Drost,

2011). Discriminant validity refers to the degree to which items designed to measure similar but distinct in their conceptual domain are related (Netemeyer et al., 2003). Discriminant validity can be evaluated by examining similar constructs that are potentially confounded with the developed construct and testing the relationships (MacKenzie et al., 2011). In other words, the divergence between the items that are related but distinct needs to be tested (Drost, 2011).

3.4.2. Data Collection

In behavioral science, including the hospitality and tourism discipline, the validity of online recruitment of sample and tests has been established (Casler, Bickel, & Hackett, 2013). Other than its well-known benefits, such as low cost, the online survey enables researchers to enhance the quality of data as they are able to track quality-related aspects (e.g., response duration, response pattern) (Hung & Law, 2011). Furthermore, the online survey allows the researchers to check the completeness of the data by forcing respondents to follow the guidelines (e.g., force complete, multiple choice). Therefore, to assess the validity and reliability of the initial items and to examine the theoretical a priori structure, an online self-administered survey method was employed (Hung & Law, 2011). While the survey was developed on Qualtrics, the recruitment of respondents was conducted through Amazon Mechanical Turk (i.e., MTurk). Since MTurk provides researchers with access to a distinctly different population than a conventional sample and MTurk workers are socio-demographically diverse and produce reliable results, data collection through MTurk would be appropriate (Buhrmester, Kwang, & Gosling, 2011; Casler et al., 2013; Goodman, Cryder, & Cheema, 2013; Rouse, 2015).

The survey was limited to respondents who satisfy the qualifications (i.e., adults who were 18 years old AND who used hospitality and tourism technologies in 2019). Screening questions were asked at the beginning of the survey so that the respondents who did not meet the qualification criteria would be directed to the end of the survey and considered as system missing. Moreover, following a suggestion from Goodman et al. (2013), this study added several attention check questions gauging respondents' attention and language comprehension to enhance the quality of data.

Researchers (e.g., Hair, Black, Babin, Anderson, & Tatham, 1998; Tabachnick, Fidell, & Ullman, 2007) suggested at least 300 responses for the sample size to conduct exploratory factor analysis (EFA). However, to prevent issues related to statistical conclusion validity resulting from power (Maxwell, Delaney, & Kelley, 2017), the number of initial items and factor structure were considered to decide the minimum sample size. Specifically, the ratio of sample size (*n*) to the number of items (*p*) was investigated to determine the sample size for this study (Hogarty, Hines, Kromrey, Ferron, & Mumford, 2005). Based on Cattell's (1978) suggestion (*n/p* ratio = 3-6:1), the minimum sample size for EFA was between 186 and 372, as the number of items was 62. However, due to the complicated nature of the technology experience that consisted of multiple dimensions, a large sample size was essential (Netemeyer et al., 2003). Therefore, the minimum sample size was determined at 400, yielding *n/p* ratio greater than 6.

The online questionnaire consisted of five sections. The first section was designated to introduce the purpose and significance of this study, ask respondents' willingness to participate in the survey, and screen respondents based on the qualification

criteria (i.e., an adult who has experienced hospitality and tourism technology in the year of 2019). The second section included questions asking detailed information about the hospitality and tourism technologies the respondents used during their travel in 2019. The third section consisted of the items asking respondents' technology experience, which were developed from Phase II. The fourth section included items that measure the possible consequences of technology experience in order to test the nomological validity. Respondents' socio-demographic information was collected in the last section. Satisfaction with technology was measured with three items from Lin and Hsieh (2007). Overall experience, satisfaction, and future behavioral intention were measured with three items, respectively adopted from Jeong and Shin (2020). All items were measured on a seven-point Likert of semantic differential scale.

3.4.3. Data Analysis

Before testing the validity and reliability of the items, the normality of the data was assessed to ensure whether the assumptions for the data analysis were met. As the distribution of the data was found to be normal, a series of exploratory factor analyses (EFA) was conducted to identify the underlying factor structure of technology experience and to reduce the number of the items for increasing the explained variance and reliability (Netemeyer et al., 2003). Bandalos (2018) suggested that items are clearly aligned with a particular factor when factors are rotated, providing an easier interpretation of factors. An obilique rotatation, promax, was used because the dimensions of technology experience were likely to be correlated due to the nature of social science (Bandalos, 2018). The number of factors was decided by considering multiple criteria (K1 criterion, scree plot, parallel analysis, simple structure) (Bandalos, 2018; Benson & Nasser, 1998). Item

retention and deletion were determined based on each item's loading and significance. Specifically, items with factor loading less than .4 or items with high cross-loadings were eliminated (Netemeyer et al., 2003). Once the underlying factor structure was identified and the number of items was reduced based on EFA results, reliability analysis was conducted. Particularly, the internal consistency was estimated through a series of Cronbach's alpha, average inter-item correlations, item-to-total correlations, item variances, and wording redundancy check (Netemeyer et al., 2003). Based on Nunnally's (1978) suggestion on internal consistency, coefficient alpha equal or greater to .7 was considered as an indication of strong item homogeneity and sufficient reliability.

3.5. PHASE IV: MEASUREMENT VALIDATION

3.5.1. Purpose

After refining the initial items and identifying the measurement model from Phase III, the developed items were evaluated for their convergent, discriminant, nomological, and external validities (MacKenzie et al., 2011). Nomological validity is defined as the extent to which the developed measurement assesses what the construct is designed to measure from a formal theoretical network (Netemeyer et al., 2003). Nomological validity of the measurement can be assessed by measuring other constructs that are theoretically associated with the developed construct and test the relationships (MacKenzie et al., 2011). External validity is associated with the generalization of the measurement across populations, settings, and times (Drost, 2011). Specifically, the validation of measurement includes evaluation of the degree to which the developed measurement items accurately represent the construct, sufficiently capture the multi-dimensional nature of the construct, are distinctive from other constructs that are

potentially associated, are related to other constructs in the theoretical manners, and can be generalized in other settings (e.g., population) (MacKenzie et al., 2011). Furthermore, Netemeyer et al. (2003) suggested that after a set of the scale is refined, the researchers should (1) obtain new samples from the population of interest, (2) conduct EFA and confirmatory factor analyses (CFA) to assess the consistency of the scale, and (3) examine the validity and reliability of the scale.

3.5.2. Data Collection

An online self-administered survey, developed on Qualtrics and distributed through MTurk, was used to collect data. Consistent with previous data collections, respondents were limited to adults who had not participated in previous surveys. At the beginning of the questionnaire, respondents were requested to answer a screening question asking whether they have experienced hospitality and tourism technology during the year 2019, in order to enhance the representativeness of the data. Based on respondents' answer to the screening question, unqualified respondents were directed outside of the study and considered as system missing. Moreover, in the middle of the survey, a few attention check questions were given to ascertain respondents' attention and language comprehension to enhance the data quality.

The questionnaire was composed of five sections. Introduction of the context and purpose of the study, consent form, and screening questions were included in the first section. The second section of the survey asked questions about detailed information about respondents' hospitality and technology usage, such as the purpose and types of technologies they used. The third section consisted of the items asking technology experience, which were assessed from the previous phase. The fourth section included

items that measure the consequences of technology experience. The last section contained questions asking their socio-demographic information. Satisfaction with technology was measured with three items from Lin and Hsieh (2007). Overall experience, overall satisfaction, and future behavioral intention were measured with three items respectively, adopted from Jeong and Shin (2020). The sample size was decided based on the sample size recommendation in the literature. More specifically, Hair and his colleagues (2011) suggested that the minimum sample size should be equal to or greater than ten times of the largest number of the formative indicators of one constructs. As technology experience was a second-order formative constructs, the minimum sample size was 371, considering the number of items to measure technology experience. However, the sample size was determined at 750 in order to divide the sample into two groups to perform multi-group analysis (MGA).

3.5.3. Data Analysis

After the tests for normality of the data, the assessments for validity and reliability of the measurement were undertaken through a series of statistical tests. First, EFA was conducted to examine whether the factor structure of the construct was shaped as expected by assessing whether the items were loaded to the intended factor without severe cross-loadings (Netemeyer et al., 2003). As EFA results showed the factor structure of the construct was corresponding with the theoretical factor structure (i.e., a priori measurement model), partial least squares structural equation modeling (PLS-SEM) with a two-step approach (i.e., measurement model, structural model) was conducted (Anderson & Gerbing, 1988). Particularly, PLS-SEM was used as technology experience was developed as a second-order formative construct (Hair, Ringle, &

Sarstedt, 2011). The validity of the measurement model was evaluated based on the model convergence, and significance of parameters. Particularly, the items of each dimension were designed as reflective indicators, the bootstrapped loading of each item was assessed for its statistical significance and magnitude to estimate the convergent validity of the items. Internal consistency of the measurement items was estimated by composite (construct) reliability. Furthermore, the average variance explained (AVE) was investigated to assess the variance explained by items of a dimension (Netemeyer et al., 2003). The discriminant validity was evaluated by evaluating heterotrait-monotrait ratio of correlations (HTMT).

Once the results of measurement model tests were satisfactory, the structural model was tested in order to test the nomological validity of the construct by employing component-based path estimation. Specifically, the proposed relationships were evaluated for path coefficients and path significance using bootstrapping technique with the bootstrapping sample size of 5000. In other words, the relationships between the developed construct and constructs that are theoretically associated with technology experience were assessed, thereby evaluating the nomological validity (MacKenzie et al., 2011). The adjusted R^2 for constructs was also examined to explore how much variance in the endogenous construct was explained by the model. The f^2 was assessed to investigate the effect size of each proposed path. Lastly, common method bias was tested to ensure the absence of variance attributed to the measurement method.

3.6. CHAPTER SUMMARY

This chapter presented the study's methodological approach to achieve the research objectives. This study employed a mixed-method approach (e.g., sequential

exploratory approach), employing both qualitative and quantitative methods. The methodological approach of this study consisted of four phases to develop a set of scale for technology experience. The first phase was about the construct conceptualization to define the conceptual domain of technology experience and its dimensions through an in-depth review of the literature. The second phase was devoted to conceptualize technology experience in a more comprehensive manner and to develop the initial pool of items based on focus group discussions. The third phase was to refine the developed items using quantitative methods. The fourth phase was measurement validation to ensure the validity and reliability of the scale. Upon the completion of the aforementioned four phases, a set of scales that measures technology experience was developed. The next chapter presents the findings of qualitative inquiry (Phase II) and quantitative analyses (Phase III and IV).

CHAPTER 4

RESULTS

Chapter 4 discusses the results and findings of the current study. This chapter begins with the findings from qualitative inquiries (i.e., focus group discussions, expert reviews), followed by quantitative findings from online surveys to validate the developed measurement items.

4.1. RESULTS AND DISCUSSIONS OF PHASE II: MEASUREMENT DEVELOPMENT

4.1.1. Results and Discussions of Focus Group Discussions

As shown in Table 4.1, 11 discussants (seven male and four female) participated in the focus group discussions. The discussants' age ranged from 25 to 41, with the mean of 33. The age distribution of the discussants well reflected the fact that the Millennials have been with the broadest adoption of technology (Digital Media Solutions, 2019). The food and beverage sector (91%) was the sector where the discussants experienced hospitality and tourism technologies the most, followed by travel (82%) and lodging (73%) sectors. Discussants' most commonly used hospitality and tourism technology was online review platforms (82%), such as Yelp. In the hospitality context, mobile applications for reservation, order, and guest services were also frequently used. In the tourism setting, such technologies as maps and transportation (e.g., Uber) were used greatly. Relatively latest technologies (e.g., AR/VR, AI, Robots) were also found in the discussants' answers.

Table 4.1. Discussants' Profile

ID	Gender	Birth Year	Technology Used	Sector of Technology Adoption
1	Female	1979	Augmented Reality (AR)/ Virtual Reality (VR) Online Review Platforms Maps Transportation Accommodation/Restaurant Reservation & Ordering Self-Service Technology (SST)	Lodging Food & Beverage Recreation Travel Event related
2	Male	1990	Augmented Reality (AR)/ Virtual Reality (VR) Online Review Platforms Maps Transportation Accommodation/Restaurant Reservation & Ordering Self-Service Technology (SST)	Lodging Travel
3	Male	1990	Online Review Platforms Maps Transportation Accommodation/Restaurant Reservation & Ordering Self-Service Technology (SST) Mobile Payment	Lodging Food & Beverage Travel
4	Male	1985	Online Review Platforms Maps Social Media	Lodging Food & Beverage Recreation Travel Event related
5	Male	1989	Online Review Platforms Social Media Service Robots/Artificial Intelligence	Food & Beverage Travel
6	Female	1990	Online Review Platforms Maps Transportation Accommodation/Restaurant Reservation & Ordering Self-Service Technology (SST) Mobile Payment Service Robots/Artificial Intelligence	Lodging Food & Beverage Travel
7	Male	1985	Self-Service Technology (SST) Mobile Payment	Food & Beverage

			Accommodation/Restaurant Reservation & Ordering	
8	Male	1987	Accommodation/Restaurant Reservation & Ordering Mobile Payment	Lodging Food & Beverage Travel
9	Female	1989	Augmented Reality (AR)/ Virtual Reality (VR) Online Review Platforms Maps Transportation Accommodation/Restaurant Reservation & Ordering Mobile Payment	Lodging Food & Beverage Travel
10	Female	1995	Online Review Platforms Maps Social Media Mobile Payment	Lodging Food & Beverage Recreation
11	Male	1981	Online Review Platforms Maps Transportation Service Robots/Artificial Intelligence	Food & Beverage Recreation Travel

Using the laddering technique, the focus group discussion was analyzed to explore the dimensions of technology experience. After a series of coding procedures (in vivo, descriptive, emotion, process, value, and versus codings), nine dimensions were identified from thematic analysis and cross validated by an experienced researcher in the hospitality and tourism discipline, suggesting technology experience is a second-order construct that may consist of nine dimensions. As Figure 4.1 illustrates, other than pre-identified dimensions (i.e., sensorial, emotional, pragmatic, cognitive, and relational experiences), four more dimensions (i.e., unique, familiar, controllable, and economical experience) were newly found from the focus group discussions.

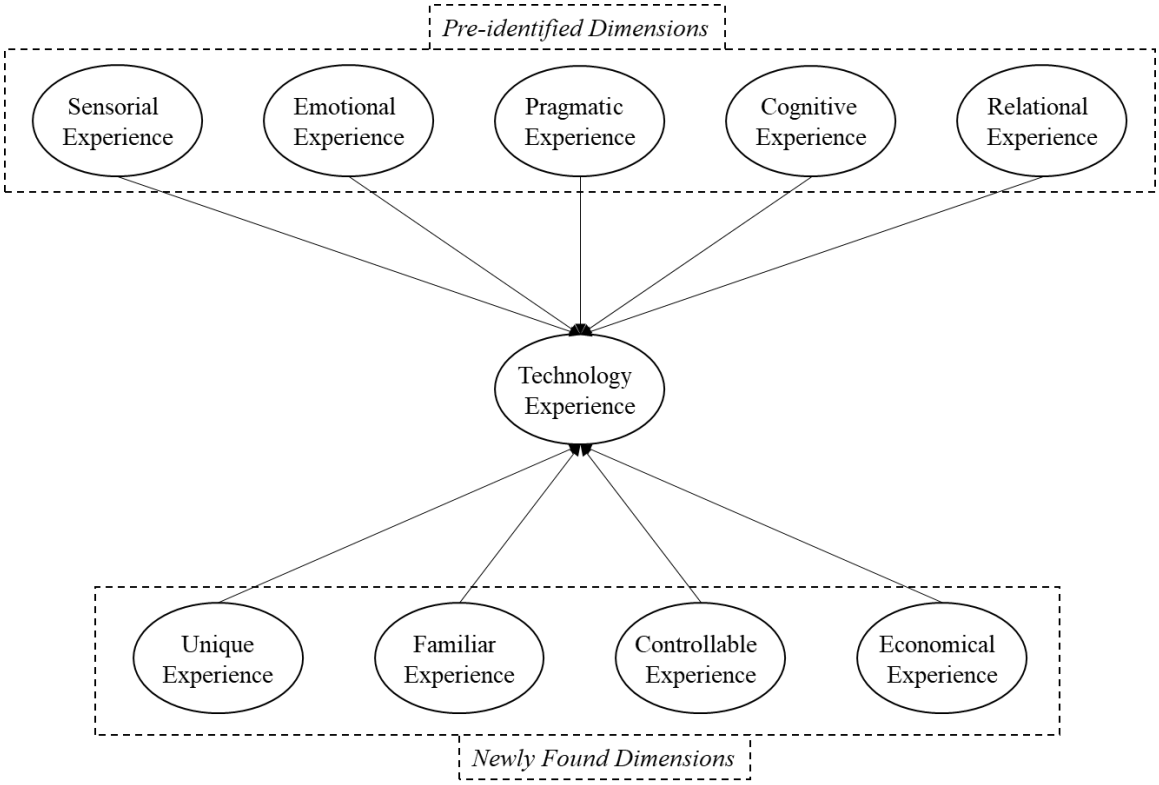


Figure 4.1. Developed Measurement Model from Focus Group Discussions

4.1.1.1 Sensorial Experience. Sensorial experience occurs when hospitality and tourism technologies affect a consumer's senses. In other words, sensorial experience denotes a consumer's experience when his/her senses (i.e., visual, aural, olfactory, gustatory, and tactile) are involved in the components of the technology. Discussants' sensorial experience was much related to visual components. For example, some discussants described their experience with an accommodation-related mobile application, *"With the app, I was able to see the pictures better. I think the visual made big differences. Being able to see them makes a big difference."*, and *"I looked at the pictures and vivid descriptions from the app."* Some discussant using VR mentioned, *"I was able to see and hear using VR googles."*, and *"I used VR to take around a ski resort. So I can just feel like how the people skiing from the top of the mountain. But I felt a little*

bit dizzy when I use VR." Discussant who used restaurant-related mobile apps also said, *"Looking at the pictures of food and it's blurry or dimly lit, or the color is off. It may deter me, whereas a really good picture makes me instantly choose it."* In terms of the auditory components, *"I was like Alexa, play the music and it did it. And I asked it to play kind of random music by its choice and it was very nice."* said a discussant who used Alexa in his/her hotel room. In addition, the discussant added, *"(Turning music and light on/off) was appealing and attractive."*

4.1.1.2. Emotional Experience. Emotional experience refers to a consumer's experience associated with his/her feelings, sentiments, and emotions generated from their adoption of hospitality and tourism technologies. According to Kensinger (2004), there are two dimensions (i.e., arousal, valence) of emotional experience, making four quadrants. Interestingly, all four quadrants of emotional experience were discovered, demonstrating emotional experience is a key dimension of technology experience. When discussants had a high valence and high arousal experience with technologies, they mentioned, *"We've had those moments of amazement or wonder."*, *"It was pretty pleasant and great."*, *"It was very cool, unique, and shocking."*, and *"First feeling for the service robot was kind of interesting. All feel like interesting."* Discussants described their feelings when it was high valence and low arousal as, *"It made me feel comfortable."*, and *"I felt relieved that it went quickly and smoothly."* Also, negative valence with high arousal was found when the discussant said, *"I was just pissed off."*, *"I was kind of annoying."*, *"It was very frustrating."* Some discussants mentioned, *"It made me uncomfortable."*, *"(Without technology) I am totally lost."*, *"It was overwhelming."*, *"Service robots were actually distracting."*, and *"I felt apprehensive."* In addition, there

were some discussants who expressed a neutral tone of emotion. *"(When technology worked well) It is just like okay cool."* said a discussant who was also pointing out that just the expectation of what was supposed to happen.

4.1.1.3. Pragmatic Experience. Pragmatic experience indicates a consumer's experience attributed to the practical benefits. The pragmatic experience was the most frequently mentioned by discussants. When discussants depicted their experience with hospitality and tourism technology, their pragmatic experience usually emerged the first. More specifically, discussants mostly started their discussion with such statement as, *"It was very convenient.", "I used it for the factor of convenience.", "I think the most important thing was its convenience."* Some discussants stated, *"It made everything a lot easier. I think the ease of use was the big takeaway.", "It's much easier and more reliable", "I don't have to deal with any other programs, any other people, any other issues. I can send a request through the app.",* and *"All being on my phone, it just eliminates everything, it puts everything all together and it makes reservations, it makes everything just super easy all compact from one app."* Other than the convenience and ease of use, the benefits of saving time and efficiency were much discussed, *"So, it helps it lets it facilitates in finding the best restaurants out there and not wasting your time.", "It made my trips more efficient. So everything was more efficient I got to skip the front desk, you know, checking into all that to the efficient.", "Robot has more ability to process all the information in a limited time without any errors.",* and *"It is kind of a shortcut to me."* While most of the answers showed that their pragmatic experience was positive, some negative aspects were also identified, *"Their service was not reaching out*

my expectation, so it was not that convenient.", "As a first-time user, it was a bit hard to understand.", and *"There were too many options and it prevented me to use."*

4.1.1.4. Cognitive Experience. Cognitive experience refers to a consumer's experience occurring when he/she acquires knowledge and/or is engaged in conscious mental processes. Many discussants acknowledged that they gathered much useful information by using hospitality and tourism technology. For example, a discussant who used both service robot and AI voice-assistant said, *"And I kind of use it to navigate the place that I'm looking for, like a restaurant and stuff in the airport.",* and *"I looked up like weather and restaurants."* Also, some discussants pointed out that the quality of the information provided by technology has been continuously increasing. *"So I think it used to be just kind of like a review app but now it has improved a lot in that sense where it kind of caters. Because the app has all information about a restaurant.",* said a discussant. Another discussant stated that technologies helped him solve problems or engage him in thinking, including comparing options and learning something. For instance, a discussant said, *"I could compare all the properties for my travel."* Technologies in the tourism context also generated cognitive experience by offering background knowledge about the destination. *"Through the VR tour, I got to know more about the destination. Some were matched with what I knew and some were new, which made me curious about the destination."* said a discussant who had a virtual tour to a destination he had never been.

4.1.1.5. Relational Experience. Relational experience is defined as a consumer's experience that arises when technology facilitates his/her interaction with others and/or affirms social identity. While hospitality and tourism technology has substituted some

parts of human interactions in the industry, there were two conflicting views toward relational experience as a dimension of technology experience. One discussant with a very skeptical view said, *"Interacting with other reviewers are giving feedback about their reviews."* On the other hand, another discussant stated, *"Just looking at those reviews was like a virtual talking with people that you have never known."* Another point that emerged from focus group discussions was that technology plays a bridge to connecting with others. One discussant who frequently uses ride-sharing mobile app said, *"The good thing about Uber is that you can get to interact with drivers. Some folks you get to interact with them and you get to exchange some ideas. I enjoyed having those interactions with Uber drivers that helped me move around in different towns."*, and *"Technology is giving me access to other people. I get opportunities to interact with a variety of interesting people."* Another discussant provided an example of others' relational experience, *"I've had friends that have done like couch surfing. You know Airbnb has local tours. There used to be a website called book a local where you could go to someone's house for dinner."* The discussant added on, *"The connections are not necessarily enhanced by technology but it tends to help the access to others."* A discussant described online review platform as, *"I think it's like a good communication method and conversation with someone."*, and also pointed out, *"I know some people like to take it (online reviews, identity as a reviewer) very seriously and actively post very detailed notes about their experience."*

4.1.1.6. Unique Experience. Unique experience occurs when a consumer encounters unique activities that he/she does not usually involve in their day-to-day life. During the discussions, some discussants articulated that they did not expect some types

of hospitality and tourism technologies to see, as they had thought those technologies were futuristic and imaginary rather than all over the place. For example, a discussant described her experience with service robots in a restaurant as, *"I kind of saw like in TV show or something like that but I didn't really expect to see it in real life. It was a very cool unique experience. That was really a shock. Shocking."* Another discussant who used service robots in a restaurant also added, *"I didn't expect there's a service robot over there. So first feeling for the service robot is kind of interesting."* One discussant, who used all-in-one guest service technology, expressed, *"So that was very shocking to me when I first used it. That was a very convenient and very special experience."*, and *"Fancy technologies like that also made me travel experience more memorable because I have never experienced that kind of experience."* While some people already implemented an AI voice assistant, such as Alexa, there were people who perceived using Alexa as unique experience, *"It was very cool. I mean, I don't use any of that at home, so you know, I felt it was pretty unique to use it. Yeah, it was very unique, like, different from day-to-day life."*

4.1.1.7. Familiar Experience. Familiar experience indicates a consumer's experience that is similar to his/her daily routines or what he/she can expect/predict from their daily lives or previous experiences. As technologies have been widely used in various areas, some types of technologies became very prevalent tools. For example, many restaurant-related mobile apps can be commonly found in a consumer's daily life. Accordingly, discussants asserted that they could feel comfortable using some technologies to relate with their regular use of technologies in day-to-day life. *"Those are in my day-to-day life; those experiences take place as well."* said a discussant when

talking about food ordering mobile apps. The discussant also stated the universality of hospitality and tourism technologies achieved by globalization. More specifically, he said, *"So, you know, I think the tools are fairly universal when it comes to the apps that you use. I mean, like when we're in Japan, we were still using Yelp and the reviews were still in English. And so I mean that such experiences as using Yelp were not that different from what I would be doing at home."* Two other discussants also pointed out that some hospitality and tourism technologies, especially mobile apps, were available worldwide, *"The overall use of technology was similar for both trips (U.S. domestic and international trips) and is making everything easier."*, and *"I used the exact same application at different places. It is present absolutely everywhere."* Another discussant also expressed, *"I found that the consistency of, you know, the technology, helpful because I didn't have to spend time navigating new technology or trying to find what, you know, the local people might use."* The discussant added on her own comments, *"There's also I think sometimes as a small at least a slight desire to have something familiar. There is a little familiarity, and you know what you're going to expect but it might have like a twist. I find that fun."*

4.1.1.8. Controllable Experience. Controllable experience occurs when a consumer has relevant and enough options to make decisions using hospitality and tourism technologies, thereby having more control over their travel. As many hospitality and tourism technologies provide real-time information or give immediate responses, people can obtain more relevant information, allowing them to adjust their travel itinerary or plan based on their situations. In other words, hospitality and tourism technologies offered a greater degree of flexibility during their travel. *"We had more control over our*

own decisions at destinations. We were planning on going to the San Diego Zoo, and we're in San Diego. And I could go on to spot hero and purchase a parking spot. I can use Google or Apple Maps to get the information on what's the most rapid way to drive to the destination and then I can go on to the app for the San Diego Zoo and find out that the way to get in was three hours. So we canceled everything." Another discussant illustrated how he could travel without planning in advance, *"I was walking here in the neighborhood here in town. Suddenly I was feeling a little hungry. It (AI travel guide) just gave me what was nearby. You know, without planning in advance."* What was interesting is, while most discussants described their positive experience with technology in terms of having more control over their travel and flexibility, a discussant pointed out a negative aspect of too much control, *"Using technology, we faced too many options sometimes it prevented us from making our final decision. Just a bunch of options."*

4.1.1.9. Economical Experience. Economical experience is generated when a consumer saves his/her costs and/or expenditures by using hospitality and tourism technologies. As hospitality and tourism organizations provide various types of rewards to encourage consumers to use technology, some discussants alluded to the economical aspects of their experience with hospitality and tourism technologies. A discussant who has been using Hilton Hotels' digital key stated, *"Hilton Hotels actually rewarded people with points if they use the digital key at their hotels to try it. That was how they were trying to push people will be accustomed to that technology so there are benefits from the consumer side."* Other discussants also said, *"Sometimes it will save some money because like sometimes when we use the technology, they offer some discounts.", "I was able to find a deal over using the app. So it was a lot cheaper.", "It was and super*

affordable.", "It is just kind of saving some money.", and *"You don't need to tip to technologies. I mean, for simple tasks, I can just use technologies, not spending extra money for tipping."*

Table 4.2 presents the identified dimension of technology experience based on the findings of focus group discussions and the definition of each dimension.

Table 4.2. Identified Dimensions of Technology Experience from Focus Group Discussions

Dimension	Definition
Sensorial Experience	An experience that the consumer appeals to his/her five senses (i.e., visual, aural, olfactory, gustatory, and tactile experiences).
Cognitive Experience	An experience that the consumer is engaged in intellectual activities, such as information gathering, processing, and/or thinking.
Pragmatic Experience	An experience that the consumer has practical benefits from technology, such as efficiency and convenience.
Emotional Experience	An experience that the consumer appeals to his/her feelings, sentiments, and emotions.
Relational Experience	An experience that the consumer has access to others and/or interacting with other people through the technology.
Unique Experience	An experience that the consumer encounters something unique, distinctive, different from his/her daily life.
Familiar Experience	An experience that the consumer has or predicts in his/her daily routines.
Controllable Experience	An experience that the consumer chooses for his/her decision-making, thereby having more control over their travel.
Economical Experience	An experience that the consumer saves costs, compared to performance of technology.

As Netemeyer et al. (2003) asserted, it is better to have an over-inclusive item pool rather than an under-inclusive item pool. While the number of items in the initial pool is highly dependent on the nature and complexity of the construct, a large pool of initial items has been recommended. Accordingly, the initial item pool for technology experience was developed with 120 items based on the findings of in-depth literature

review and focus group discussions. Particularly, as technology experience is conceptualized as a second-order construct with nine dimensions, in order to have a sufficient number of items for the final scale, each dimension was developed to have at least eight items.

4.1.2. Results and Discussions of Expert Reviews

Two researchers in the hospitality and tourism discipline and four hospitality and tourism industry professionals were selected, totaling six expert reviewers (see Table 4.3 for the experts' profile). After dropping items of which the average review score was less than 'moderately representative', 97 items were retained. Then, inter-rater reliability was assessed with Cohen's kappa. In order to achieve substantial reliability (McHugh, 2012), items with low agreement level were eliminated, resulting in 83 items. For all reviewers simultaneously, the kappa was .631 across all items (N = 83), indicating substantial inter-rater reliability. Once satisfactory inter-rater reliability was established, a few items were deleted due to redundancy, and to reduce the number of items to prevent potential survey fatigue issues. Eventually, the technology experience scale contained 62 items in total, with each dimension containing at least five items. Table 4.4 displays the refined items after two rounds of expert review.

Table 4.3. Experts' Profile

ID	Occupation/Position	Areas of Expertise	Length of Experience
1	Professor	Hospitality and Tourism Marketing	27 years
2	Assistant Professor	Hospitality Technology, Business Analytics	11 years
3	Chief Operating Officer	Hospitality Technology	45 years
4	President	Hospitality Technology	25 years
5	Chief Executive Officer	Hospitality Technology	11 years
6	President	Hospitality Technology	45 years

Table 4.4. Refined Items after Expert Reviews (N = 62)

Dimension/Items
Sensorial Experience
Hospitality and tourism technologies appealed to my senses (sight, sound, smell, taste, and touch).
Hospitality and tourism technologies provided sensuous descriptions about the hotel/restaurant/destination (sight, sound, smell, taste, and touch).
Hospitality and tourism technologies provided vivid descriptions about the hotel/restaurant/destination (sight, sound, smell, taste, and touch).
Hospitality and tourism technologies were attractive to my senses (sight, sound, smell, taste, and touch).
Hospitality and tourism technologies were pleasing to my senses (sight, sound, smell, taste, and touch).
Hospitality and tourism technologies were engaging my senses (sight, sound, smell, taste, and touch).
Cognitive Experience
By using hospitality and tourism technologies, I knew better about the hotel/restaurant/destination.
By using hospitality and tourism technologies, I gained rich information about the hotel/restaurant/destination.
By using hospitality and tourism technologies, I gathered more information about the hotel/restaurant/destination.
By using hospitality and tourism technologies, I processed information about the hotel/restaurant/destination.
Using hospitality and tourism technologies helped me understand more about the hotel/restaurant/destination.
Pragmatic Experience
Hospitality and tourism technologies were (1) useless ... (7) useful.
Hospitality and tourism technologies were (1) inapplicable ... (7) applicable.
Using hospitality and tourism technologies was (1) difficult ... (7) easy.
Using hospitality and tourism technologies was (1) complex ... (7) simple.
Using hospitality and tourism technologies was (1) impractical ... (7) practical.
Using hospitality and tourism technologies was (1) non-functional ... (7) functional.
Using hospitality and tourism technologies was (1) flawed ... (7) seamless.
Using hospitality and tourism technologies required considerable effort.
Using hospitality and tourism technologies needed a substantial effort.
Using hospitality and tourism technologies imposed me large endeavor.
Emotional Experience
Using hospitality and tourism technologies made me feel (1) frustrated ... (7) relieved.
Using hospitality and tourism technologies made me feel (1) unhappy ... (7) happy.
Using hospitality and tourism technologies made me feel (1) anxious ... (7) relaxed.
Using hospitality and tourism technologies was (1) unpleasant ... (7) pleasant.
Using hospitality and tourism technologies was (1) boring ... (7) fun.

Using hospitality and tourism technologies was (1) dull ... (7) exciting.
Using hospitality and tourism technologies was (1) uninteresting ... (7) interesting.
Using hospitality and tourism technologies was (1) terrible ... (7) delightful.
Using hospitality and tourism technologies was (1) unamusing ... (7) amusing.
Relational Experience
I was able to connect with others through hospitality and tourism technologies.
I was able to communicate with others through hospitality and tourism technologies.
I felt connected with others by using hospitality and tourism technologies.
Hospitality and tourism technologies were bridging me and others.
Using hospitality and tourism technologies made me a part of the community.
Unique Experience
My experience with hospitality and tourism technologies was new.
My experience with hospitality and tourism technologies was something that I did not expect.
My experience with hospitality and tourism technologies was novel.
My experience with hospitality and tourism technologies was innovative.
My experience with hospitality and tourism technologies was extraordinary.
Familiar Experience
Using hospitality and tourism technologies at the hotel/restaurant/destination was not that different from my day-to-day life.
Hospitality and tourism technologies were connectable to my daily life.
I felt something similar at the hotel/restaurant/destination by using hospitality and tourism technologies.
I felt something familiar at the hotel/restaurant/destination by using hospitality and tourism technologies.
By using hospitality and tourism technologies, my travel experience was consistent with my daily life.
By using hospitality and tourism technologies, I was able to experience what I used to feel in my daily life.
Controllable Experience
Using hospitality and tourism technologies allowed me to control my plans or activities.
Using hospitality and tourism technologies helped me control my plans or activities.
Using hospitality and tourism technologies assisted me in adjusting my plans or activities based on my situation.
Using hospitality and tourism technologies facilitated my control over my plans or activities.
Using hospitality and tourism technologies helped me organize my plans or activities.
Using hospitality and tourism technologies assisted me in completing my plans or activities.
Using hospitality and tourism technologies supported me to have my plans or activities under control.
By using hospitality and tourism technologies, I was able to adjust my travel plans no matter what happened.

By using hospitality and tourism technologies, I was able to cope with an unexpected situation.
By using hospitality and tourism technologies, I could organize my plans or activities based on my needs.
By using hospitality and tourism technologies, I was able to alter my plans or activities.
Economical Experience
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more reasonable.
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more affordable.
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more inexpensive.
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more economical.
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more price-competitive.

4.2. RESULTS AND DISCUSSIONS OF PHASE III: MEASUREMENT ASSESSMENT

4.2.1. Respondents' Socio-demographic Profile

Four hundred one complete responses were collected from January 28, 2021 to February 4, 2021. Table 4.5 illustrates the respondents' socio-demographic profile. More than half of the respondents were female (52%) and employed full-time (54%). A majority of the respondents were relatively younger generations. More specifically, about 55% of the respondents were the Millennials, followed by Generation Z (30%), demonstrating that younger generations had more experience the hospitality and tourism technologies. More than three-quarters of the respondents (76%) were Caucasian. Approximately 60% of the respondents held Bachelor's degree or higher. About 61% of the respondents had an annual household income below $70,001, representing a similar percentage of the U.S. household income level below $75,000 (58%) (Backman, 2020). Most of the respondents (71%) said their primary purpose of travel was related to leisure.

The respondents answered that they used hospitality and tourism technologies in the lodging sector (60%), food and beverages sector (65%), travel and tourism (54%), and event sector (10%). About 38% of the respondents answered that they used hospitality and tourism technologies the most in the food and beverage sector (38%), followed by the lodging sector (37%) and travel and tourism (23%). Almost all respondents used self-service technology (e.g., Self Check-in/out, Self-Service Kiosk) (97%), Booking/Reservation Mobile Apps (96%), information-related mobile app (e.g., Travel Guide App, Restaurant Wait Check) (96%), and social mobile apps (e.g., Social Media, Online Review) (96%). Free, ubiquitous Wi-Fi and public 5G (88%), AI guest service (e.g., Mobile Concierge, Service Robot) (75%), and mobile RFID/NFC (e.g., Mobile Payment, NFC Travel Tag) (74%) were also commonly used. On the other hand, only a little bit more than half of the respondents (58%) used gamification technology (e.g., Pokemon Go Travel, Interactive Museum Games), and less than half of the respondents (43%) used AR, VR, or wearable technologies. Some respondents also answered that they used other hospitality and tourism technologies, such as digital locker and smart room control. Approximately four-fifths of the respondents (81%) stated that they used hospitality and tourism technology for convenience, followed by making a reservation (75%). More than two-thirds of the respondents (63%) utilized hospitality and tourism technologies to search for information. About 54% of the respondents used hospitality and tourism technologies for entertainment purposes, followed by comfort (44%). The primary purpose of hospitality and tourism technology adoption was convenience (37%).

Table 4.5. Respondents' Profile

Demographic Information (N = 401)	N	%
Gender		
Male	191	47.6%
Female	210	52.4%
Age Generation		
Generation Z (1994 or after)	120	29.9%
Generation Y (1976 - 1993)	220	54.9%
Generation X (1965 - 1975)	40	10.0%
Baby Boomers (1945 - 1964)	21	5.2%
Ethnicity		
Caucasian	304	75.8%
African American	39	9.7%
American Indian or Alaska Native	4	1.0%
Asian	30	7.5%
Others	24	6.0%
Employment Status		
Employed full time	217	54.1%
Employed part time	55	13.7%
Self-employed or business owner	27	6.7%
Unemployed or students	64	16.0%
Retired	5	1.2%
Others	33	8.2%
Education Level		
Less than high school diploma	3	0.7%
High school	99	24.7%
Associate degree	56	14.0%
Bachelor's degree	159	39.7%
Postgraduate degree	79	19.7%
Others	5	1.2%
Annual Household Income		
Less than $30,000	90	22.4%
$30,000 to $50,000	86	21.4%
$50,001 to $70,000	68	17.0%
$70,001 to $90,000	52	13.0%
$90,001 to $110,000	45	11.2%
More than $110,000	60	15.0%
Purpose of Travel		
Exclusively business	11	2.7%
Mostly business	28	7.0%
Business/leisure combined	83	20.7%
Mostly leisure	178	44.4%

Exclusively leisure	106	26.4%
Frequency of Travel		0.0%
Once or twice a year	211	52.6%
Three to four times a year	118	29.4%
Five times or more a year	72	18.0%
Travel Duration		
Shorter than three days	163	40.6%
Three days to a week	216	53.9%
Longer than a week	20	5.0%
Sectors of Technology Adoption in 2019		
Lodging Sector	241	60.1%
Food & Beverage Sector	261	65.1%
Travel	217	54.1%
Event	39	9.7%
Others	3	0.7%
Hospitality and Tourism Technologies Used in 2019		
Service Technology (e.g., Self check-in/out)	387	96.5%
Informative Mobile App (e.g., Travel guide apps)	383	95.5%
Booking/Planning Mobile App (e.g., Airbnb)	385	96.0%
Social Mobile App (e.g., Social media, Online review)	383	95.5%
AI Guest Service (e.g., Mobile concierge, chatbot)	300	74.8%
AR/VR/Wearables (e.g., Google glasses)	172	42.9%
Gamification (e.g., Interactive museum games)	231	57.6%
Mobile RFID, NFC (e.g., Mobile payment)	295	73.6%
Ubiquitous Wi-Fi, Public 5G	351	87.5%
Others	97	24.2%
Purpose of Technology Adoption in 2019		
Entertainment	216	53.9%
Information Search	251	62.6%
Convenience	326	81.3%
Comfort	175	43.6%
Networking & Communications	131	32.7%
Safety & Security	114	28.4%
Booking/Reservation	301	75.1%
Others	5	1.2%

4.2.2. Results of Exploratory Factor and Confirmatory Factor Analyses

In order to examine the underlying factor structure of technology experience and the observed variance accounted for by the factors (Benson & Nasser, 1998), a series of

the investigation was conducted, beginning with a series of exploratory factor analyses (EFA) with promax rotation. Principal component analysis (PCA) was also performed to extract the maximum common variance (Bandalos, 2018). Additionally, parallel analysis and simple structure analysis were performed to better understand the structure of technology experience. The results of EFA and PCA suggested the number of factors/components was nine, consistent with the a priori model. Simple structure results proposed that the sample size adjusted BIC was the minimum with nine factors as well. Although results indicated that there were nine factors in technology experience, further analyses were conducted to compare the results of analyses with the different number of factors/components in order to best understand the data. The findings further demonstrated that the number of dimensions in technology experience was nine, based on RMSEA, TLI, cumulative variance explained.

As the results of EFA indicated the number of technology experience dimensions was consistent with the a priori model, a series of covariance-based confirmatory factor analyses (CFA) were performed. The iterative procedure of CFA resulted in the deletion of 26 items due to low factor loadings and/or high correlations between the items (e.g., redundancy). After CFA, the number of items for each dimension ranged from three to six, totaling 37 items. The CFA results showed that the overall model fit of the measurement model was good (CFI = .93, TLI = .93, RMSEA = .05, SRMR = .05) (Newsom, 2012). More specifically, the standardized factor loading was equal to or greater than .719, indicating that the measured variance was greater than the error variance (Gefen, Straub, & Boudreau, 2000). The average variance explained (AVE) was equal to or greater than .56, demonstrating the shared variance was greater than the error

variance (Fornell & Larcker, 1981). Accordingly, convergent validity was established. The bivariate correlations between any two dimensions were less than the square root of AVE, showing satisfactory discriminant validity (Fornell & Larcker, 1981). Cronbach's alpha and composite reliability were equal to or greater than .83, establishing sufficient internal consistency (Nunnally & Bernstein, 1978). As the number of items in the survey was large and the data collection method was a self-administered online survey, common method bias was measured. When all items were loaded on a single factor without any rotation, the proportion variance was .32, indicating there is no presence of common method bias (Eichhorn, 2014). To ensure the adequacy of the factor structure obtained from CFA, component-based structural modeling was conducted. The employment of a component-based approach was appropriate since technology experience was developed as a second-order formative construct. As Table 4.6 depicts, all bootstrapped loadings were significant, with bootstrap mean equal to or greater than .736. The AVE was equal to or greater than .617, showing sufficient convergent validity. The bootstrapped HTMT was less than 1.0, indicating discriminant validity was established (Henseler et al., 2014). Composite reliability equal to or greater than .866, indicating sufficient internal consistency. The results confirmed the proposed conceptualization of technology experience from Phase II: a second-order formative construct with nine dimensions. Figure 4.2 illustrates the identified factor structure of technology experience.

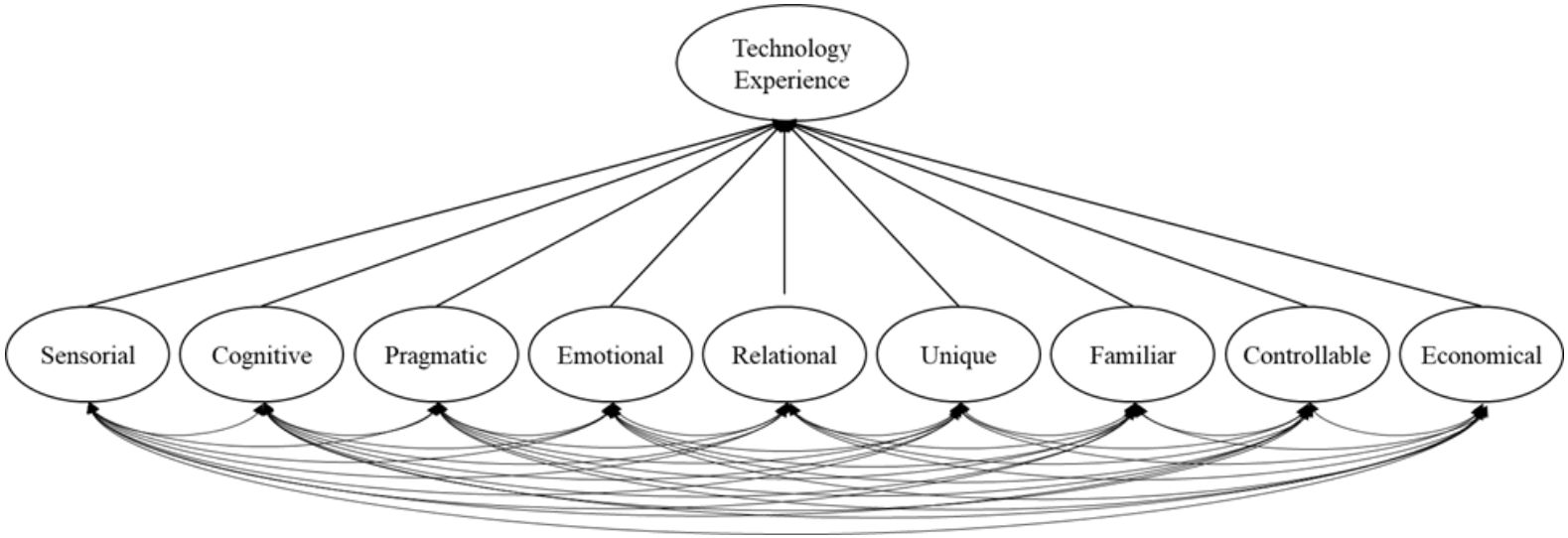


Figure 4.2. Factor Structure of Technology Experience

Table 4.6. Construct Descriptive

Constructs/Item	Mean	Std	Std. FL
Technology Experience (TE)			
Sensorial Experience (SE) (CR = 0.93, AVE = 0.80)			
Hospitality and tourism technologies were attractive to my senses (sight, sound, smell, taste, and touch).	4.90	1.31	0.88
Hospitality and tourism technologies were pleasing to my senses (sight, sound, smell, taste, and touch).	4.90	1.29	0.92
Hospitality and tourism technologies were engaging my senses (sight, sound, smell, taste, and touch).	4.80	1.36	0.89
Cognitive Experience (CE) (CR = 0.92, AVE = 0.70)			
By using hospitality and tourism technologies, I knew better about the hotel/restaurant/destination.	5.71	1.23	0.84
By using hospitality and tourism technologies, I gained rich information about the hotel/restaurant/destination.	5.38	1.22	0.84
By using hospitality and tourism technologies, I gathered more information about the hotel/restaurant/destination.	5.76	1.12	0.88
By using hospitality and tourism technologies, I processed information about the hotel/restaurant/destination.	5.70	1.03	0.78
Using hospitality and tourism technologies helped me understand more about the hotel/restaurant/destination.	5.81	1.06	0.83
Pragmatic Experience (PE) (CR = 0.89, AVE = 0.67)			
Using hospitality and tourism technologies was (1) difficult ... (7) easy.	6.10	1.02	0.85
Using hospitality and tourism technologies was (1) complex ... (7) simple.	5.87	1.16	0.79
Using hospitality and tourism technologies was (1) impractical ... (7) practical.	6.19	1.04	0.81
Using hospitality and tourism technologies was (1) non-functional ... (7) functional.	6.15	1.02	0.83
Emotional Experience (EE) (CR = 0.93, AVE = 0.67)			
Using hospitality and tourism technologies made me feel (1) frustrated ... (7) relieved.	5.62	1.30	0.84
Using hospitality and tourism technologies made me feel (1) unhappy ... (7) happy.	5.55	1.21	0.86
Using hospitality and tourism technologies made me feel (1) anxious ... (7) relaxed.	5.56	1.39	0.79
Using hospitality and tourism technologies was (1) unpleasant ... (7) pleasant.	5.99	1.10	0.86

Using hospitality and tourism technologies was (1) uninteresting ... (7) interesting.	5.49	1.29	0.78
Using hospitality and tourism technologies was (1) terrible ... (7) delightful.	5.42	1.15	0.80
Relational Experience (RE) (CR = 0.94, AVE = 0.79)			
I was able to connect with others through hospitality and tourism technologies.	4.47	1.68	0.85
I felt connected with others by using hospitality and tourism technologies.	4.29	1.76	0.91
Hospitality and tourism technologies were bridging me and others.	4.26	1.69	0.91
Using hospitality and tourism technologies made me a part of the community.	3.95	1.77	0.89
Unique Experience (UE) (CR = 0.93, AVE = 0.81)			
My experience with hospitality and tourism technologies was new.	3.66	1.83	0.89
My experience with hospitality and tourism technologies was something that I did not expect.	3.41	1.79	0.91
My experience with hospitality and tourism technologies was novel.	3.88	1.64	0.89
Familiar Experience (FE) (CR = 0.92, AVE = 0.82)			
Hospitality and tourism technologies were connectable to my daily life.	5.12	1.23	0.84
I felt something similar at the hotel/restaurant/destination by using hospitality and tourism technologies.	4.99	1.21	0.92
I felt something familiar at the hotel/restaurant/destination by using hospitality and tourism technologies.	5.10	1.25	0.91
Controllable Experience (CTE) (CR = 0.92, AVE = 0.69)			
Using hospitality and tourism technologies allowed me to control my plans or activities.	5.91	0.97	0.82
Using hospitality and tourism technologies helped me control my plans or activities.	5.90	0.99	0.86
Using hospitality and tourism technologies assisted me in adjusting my plans or activities based on my situation.	5.77	1.10	0.83
Using hospitality and tourism technologies helped me organize my plans or activities.	5.85	1.12	0.81
By using hospitality and tourism technologies, I was able to alter my plans or activities.	5.45	1.15	0.81
Economical Experience (ECE) (CR = 0.96, AVE = 0.88)			
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more affordable.	4.78	1.51	0.92
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more inexpensive.	4.59	1.56	0.95
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more economical.	4.66	1.50	0.94

Technology Satisfaction (SAT_T) (CR = 0.89, AVE = 0.73)			
Overall, I was satisfied with the hospitality and tourism technologies.	5.95	1.00	0.84
The hospitality and tourism technologies exceeded my expectations.	5.11	1.31	0.85
The hospitality and tourism technologies available were close to my ideal technologies.	5.31	1.27	0.87
Overall Experience (OE) (CR = 0.87, AVE = 0.62)			
My experience at the hotel/restaurant/destination was enjoyable.	5.91	0.89	0.83
My experience at the hotel/restaurant/destination was good.	5.91	0.86	0.80
My experience at the hotel/restaurant/destination was unforgettable.	4.92	1.42	0.74
My experience at the hotel/restaurant/destination was memorable.	5.12	1.30	0.78
Overall Satisfaction (SAT_O) (CR = 0.89, AVE = 0.74)			
Overall, I was satisfied with my experience at the hotel/restaurant/destination.	5.99	0.91	0.84
My experience at the hotel/restaurant/destination exceeded my expectations.	5.19	1.29	0.86
My experience at the hotel/restaurant/destination was close to my ideal experience at the hotel/restaurant/destination.	5.38	1.25	0.88
Behavioral Intention (INT) (CR = 0.94, AVE = 0.83)			
I want to visit the hotel/restaurant/destination again.	5.90	1.05	0.89
I would recommend the hotel/restaurant/destination to family and friends.	5.93	0.99	0.93
I would say positive things about the hotel/restaurant/destination to other people.	6.00	0.92	0.92

Table 4.7. Heterotrait-Monotrait Ratio of Correlations (HTMT) for Discriminant Validity

	TE[a]	SE[b]	CE[b]	PE[b]	EE[b]	RE[b]	UE[b]	FE[b]	CTE[b]	ECE[b]	SAT_T	OE	SAT_O	INT
Technology Experience[a]	.													
Sensorial Experience[b]	.[c]	.												
Cognitive Experience[b]	.[c]	0.46	.											
Pragmatic Experience[b]	.[c]	0.32	0.40	.										
Emotional Experience[b]	.[c]	0.46	0.48	0.73	.									
Relational Experience[b]	.[c]	0.47	0.37	0.28	0.46	.								
Unique Experience[b]	.[c]	0.24	0.11	0.10	0.16	0.37	.							
Familiar Experience[b]	.[c]	0.40	0.47	0.40	0.51	0.46	0.15	.						
Controllable Experience[b]	.[c]	0.33	0.63	0.47	0.47	0.34	0.09	0.52	.					
Economical Experience[b]	.[c]	0.38	0.37	0.22	0.37	0.45	0.23	0.35	0.39	.				
Technology Satisfaction	0.90	0.50	0.52	0.63	0.76	0.52	0.28	0.62	0.57	0.51	.			
Overall Experience	0.76	0.39	0.62	0.51	0.54	0.37	0.23	0.46	0.64	0.43	0.74	.		
Overall Satisfaction	0.78	0.39	0.52	0.49	0.61	0.40	0.27	0.52	0.59	0.44	0.90	0.91	.	
Behavioral Intention	0.58	0.26	0.45	0.41	0.44	0.27	0.09	0.46	0.53	0.29	0.62	0.72	0.81	.

Note. [a] Second-order construct of technology experience;
[b] First-order constructs (dimensions) of technology experience;
[c] Not applicable due to the hierarchical nature of the construct

4.3. RESULTS AND DISCUSSIONS OF PHASE IV: MEASUREMENT VALIDATION

Even though the results of Phase III showed satisfactory validity and reliability, a single study does not yield sufficient construct validity. The developed scale should be validated by another study with a different sample to infer acceptable construct validity (Netemeyer et al., 2003). Therefore, the scale for technology experience developed and refined from Phase II and Phase III was assessed for its validity and reliability to validate the scale.

4.3.1. Respondents' Socio-demographic Profile

A total of 777 complete responses were collected during the week of February 10, 2021. Approximately 51% of the respondents were female and about three-quarters of the respondents (74%) were Caucasian. Consistent with the previous sample composition, most of the respondents were Millennials (61%), followed by Generation X (18%), demonstrating that Millennials became the new frontier of the hospitality and tourism industry. About 70% of the respondents were working full-time. Interestingly, about 10% of the respondents were unemployed or students, which might be caused by the COVID-19 pandemic. Approximately 71% of the respondents held at least a Bachelor's degree or higher. About 43% of the respondents had their household income greater than $70,000. The majority of the respondents (64%) stated that their primary purpose of travel was leisure, followed by leisure and business combined (i.e., bleisure) (24%). About 54% of the respondents stated that they typically traveled once or twice a year. About two-thirds of the respondents (65%) answered that they had used hospitality and tourism technologies in the lodging sector of the hospitality and tourism industry, followed by the

food and beverage sector (57%) and general travel and tourism (48%). Furthermore, the respondents stated that they had used hospitality and tourism technologies most frequently in the lodging sector (39%). Almost all respondents used the following hospitality and tourism technologies: booking/planning mobile apps (96%), self-service technology (95%), information-related mobile apps (94%), and social mobile apps (e.g., social media) (91%). However, less than half of the respondents (42%) had experienced AR, VR, or wearable technologies. About three-quarters of the respondents (76%) used hospitality and tourism technologies due to their convenience, followed by making a reservation (73%) and searching information (60%). Consistent with the first survey, the primary purpose of using hospitality and tourism technology was convenience (37%).

Table 4.8. Respondents' Profile

Demographic Information (N = 777)	N	%
Gender		
Male	383	49.3%
Female	394	50.7%
Age Generation		
Generation Z (1994 or after)	72	9.3%
Generation Y (1976 - 1993)	475	61.1%
Generation X (1965 - 1975)	137	17.6%
Baby Boomers (1945 - 1964)	90	11.6%
Silent Generation (1944 or before)	3	0.4%
Ethnicity		
Caucasian	578	74.4%
African American	77	9.9%
American Indian or Alaska Native	7	0.9%
Asian	79	10.2%
Native Hawaiian or Pacific Islander	2	0.3%
Others	34	4.4%
Employment Status		
Employed full-time	545	70.1%
Employed part-time	77	9.9%
Self-employed or business owner	7	0.9%

Unemployed or students	79	10.2%
Retired	2	0.3%
Others	34	4.4%
Education Level		
Less than high school diploma	3	0.4%
High school	102	13.1%
Associate degree	112	14.4%
Bachelor's degree	398	51.2%
Postgraduate degree	154	19.8%
Others	8	1.0%
Annual Household Income		
Less than $30,000	112	14.4%
$30,000 to $50,000	172	22.1%
$50,001 to $70,000	160	20.6%
$70,001 to $90,000	129	16.6%
$90,001 to $110,000	66	8.5%
More than $110,000	138	17.8%
Purpose of Travel		
Exclusively business	29	3.7%
Mostly business	66	8.5%
Business/leisure combined	183	23.6%
Mostly leisure	275	35.4%
Exclusively leisure	224	28.8%
Frequency of Travel		
Once or twice a year	419	53.9%
Three to four times a year	246	31.7%
Five times or more a year	112	14.4%
Travel Duration		
Shorter than three days	314	40.4%
Three days to a week	407	52.4%
Longer than a week	55	7.1%
Sectors of Technology Adoption in 2019		
Lodging Sector	501	64.5%
Food & Beverage Sector	439	56.5%
Travel	376	48.4%
Event	87	11.2%
Others	3	0.4%
Hospitality and Tourism Technologies Used in 2019		
Service Technology (e.g., Self check-in/out)	734	94.5%
Informative Mobile App (e.g., Travel guide apps)	728	93.7%
Booking/Planning Mobile App (e.g., Airbnb)	743	95.6%
Social Mobile App (e.g., Social media, Online review)	703	90.5%
AI Guest Service (e.g., Mobile concierge, chatbot)	544	70.0%

AR/VR/Wearables (e.g., Google glasses)	327	42.1%
Gamification (e.g., Interactive museum games)	409	52.6%
Mobile RFID, NFC (e.g., Mobile payment)	521	67.1%
Ubiquitous Wi-Fi, Public 5G	644	82.9%
Others	137	17.6%
Purpose of Technology Adoption in 2019		
Entertainment	363	46.7%
Information Search	465	59.8%
Convenience	594	76.4%
Comfort	325	41.8%
Networking & Communications	244	31.4%
Safety & Security	222	28.6%
Booking/Reservation	565	72.7%
Others	6	0.8%

4.3.2. Results of Measurement Model Test

The standardized factor loading was equal to or greater than .70, except one item of unique experience dimension, indicating that the measured variance was greater than the measured variance (Gefen et al., 2000). Despite the relatively low loading of an item (UE_2: .647), it was not eliminated as the AVE values were equal to or greater than .655, showing the shared variance was greater than the error variance, thereby establishing sufficient convergent validity (Fornell & Larker, 1981). The HTMT revealed that there was satisfactory discriminant validity established for both first-order and second-order models (Henseler et al., 2014) (see Table 4.10). Cronbach's alpha ranged from .809 to .891, and composite reliability was equal to or greater than .876, showing sufficient internal consistency (Nunnally & Bernstein, 1978). Due to the complicated nature of technology experience and the data collection method, common method bias was tested with Harman's (1960) single factor test. The proportion variance explained by a single factor without any rotation was .38, suggesting the absence of common method bias (Eichhorn, 2014). As technology experience was developed as a second-order construct,

whether the nine dimensions were components of the second-order construct of technology experience, the weights from the nine dimensions to technology experience were measured (Becker, Klein, & Wetzels, 2012). As Table 4.11 shows, all nine dimensions were true dimensions of technology experience, demonstrating that technology experience is a second-order formative construct consisting of nine dimensions: sensorial, cognitive, pragmatic, emotional, relational, unique, familiar, controllable, and economical experiences.

Table 4.9. Construct Descriptive

Constructs/Item	Mean	Std	Std. FL
Technology Experience (TE)			
Sensorial Experience (SE) (CR = 0.93, AVE = 0.82)			
Hospitality and tourism technologies were attractive to my senses (sight, sound, smell, taste, and touch).	5.18	1.29	0.91
Hospitality and tourism technologies were pleasing to my senses (sight, sound, smell, taste, and touch).	5.16	1.30	0.92
Hospitality and tourism technologies were engaging my senses (sight, sound, smell, taste, and touch).	5.26	1.30	0.89
Cognitive Experience (CE) (CR = 0.94, AVE = 0.77)			
By using hospitality and tourism technologies, I knew better about the hotel/restaurant/destination.	5.59	1.23	0.88
By using hospitality and tourism technologies, I gained rich information about the hotel/restaurant/destination.	5.39	1.32	0.88
By using hospitality and tourism technologies, I gathered more information about the hotel/restaurant/destination.	5.65	1.28	0.90
By using hospitality and tourism technologies, I processed information about the hotel/restaurant/destination.	5.59	1.13	0.82
Using hospitality and tourism technologies helped me understand more about the hotel/restaurant/destination.	5.58	1.19	0.91
Pragmatic Experience (PE) (CR = 0.91, AVE = 0.71)			
Using hospitality and tourism technologies was (1) difficult ... (7) easy.	6.20	0.98	0.85
Using hospitality and tourism technologies was (1) complex ... (7) simple.	5.99	1.18	0.84
Using hospitality and tourism technologies was (1) impractical ... (7) practical.	6.30	0.98	0.85
Using hospitality and tourism technologies was (1) non-functional ... (7) functional.	6.32	0.96	0.85
Emotional Experience (EE) (CR = 0.94, AVE = 0.72)			
Using hospitality and tourism technologies made me feel (1) frustrated ... (7) relieved.	5.67	1.21	0.86
Using hospitality and tourism technologies made me feel (1) unhappy ... (7) happy.	5.73	1.23	0.86
Using hospitality and tourism technologies made me feel (1) anxious ... (7) relaxed.	5.82	1.22	0.85
Using hospitality and tourism technologies was (1) unpleasant ... (7) pleasant.	5.95	1.13	0.88

Using hospitality and tourism technologies was (1) uninteresting ... (7) interesting.	5.78	1.28	0.79
Using hospitality and tourism technologies was (1) terrible ... (7) delightful.	5.68	1.14	0.83
Relational Experience (RE) (CR = 0.96, AVE = 0.87)			
I was able to connect with others through hospitality and tourism technologies.	4.58	1.61	0.94
I felt connected with others by using hospitality and tourism technologies.	4.46	1.68	0.95
Hospitality and tourism technologies were bridging me and others.	4.48	1.72	0.94
Using hospitality and tourism technologies made me a part of the community.	4.36	1.73	0.91
Unique Experience (UE) (CR = 0.88, AVE = 0.71)			
My experience with hospitality and tourism technologies was new.	4.10	1.75	0.74
My experience with hospitality and tourism technologies was something that I did not expect.	3.75	1.76	0.65
My experience with hospitality and tourism technologies was novel.	4.28	1.59	0.94
Familiar Experience (FE) (CR = 0.92, AVE = 0.79)			
Hospitality and tourism technologies were connectable to my daily life.	5.26	1.26	0.84
I felt something similar at the hotel/restaurant/destination by using hospitality and tourism technologies.	5.09	1.24	0.91
I felt something familiar at the hotel/restaurant/destination by using hospitality and tourism technologies.	5.17	1.22	0.92
Controllable Experience (CTE) (CR = 0.92, AVE = 0.71)			
Using hospitality and tourism technologies allowed me to control my plans or activities.	5.86	1.04	0.84
Using hospitality and tourism technologies helped me control my plans or activities.	5.85	1.05	0.87
Using hospitality and tourism technologies assisted me in adjusting my plans or activities based on my situation.	5.75	1.13	0.85
Using hospitality and tourism technologies helped me organize my plans or activities.	5.78	1.14	0.85
By using hospitality and tourism technologies, I was able to alter my plans or activities.	5.56	1.22	0.78
Economical Experience (ECE) (CR = 0.97, AVE = 0.91)			
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more affordable.	4.61	1.58	0.95
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more inexpensive.	4.48	1.59	0.94
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more economical.	4.65	1.61	0.96

Technology Satisfaction (SAT_T) (CR = 0.89, AVE = 0.74)			
Overall, I was satisfied with the hospitality and tourism technologies.	5.98	0.96	0.80
The hospitality and tourism technologies exceeded my expectations.	5.28	1.31	0.87
The hospitality and tourism technologies available were close to my ideal technologies.	5.47	1.19	0.90
Overall Experience (OE) (CR = 0.88, AVE = 0.65)			
My experience at the hotel/restaurant/destination was enjoyable.	5.85	1.05	0.85
My experience at the hotel/restaurant/destination was good.	5.90	0.98	0.84
My experience at the hotel/restaurant/destination was unforgettable.	4.98	1.45	0.74
My experience at the hotel/restaurant/destination was memorable.	5.25	1.33	0.80
Overall Satisfaction (SAT_O) (CR = 0.89, AVE = .72)			
Overall, I was satisfied with my experience at the hotel/restaurant/destination.	5.94	0.94	0.80
My experience at the hotel/restaurant/destination exceeded my expectations.	5.12	1.24	0.86
My experience at the hotel/restaurant/destination was close to my ideal experience at the hotel/restaurant/destination.	5.34	1.18	0.89
Behavioral Intention (INT) (CR = .94, AVE = 0.83)			
I want to visit the hotel/restaurant/destination again.	5.82	1.08	0.90
I would recommend the hotel/restaurant/destination to family and friends.	5.83	1.10	0.91
I would say positive things about the hotel/restaurant/destination to other people.	5.88	1.10	0.92

Table 4.10. Heterotrait-Monotrait Ratio of Correlations (HTMT) for Discriminant Validity

	TE[a]	SE[b]	CE[b]	PE[b]	EE[b]	RE[b]	UE[b]	FE[b]	CTE[b]	ECE[b]	SAT_T	OE	SAT_O	INT
Technology Experience[a]	.													
Sensorial Experience[b]	.[c]	.												
Cognitive Experience[b]	.[c]	0.51	.											
Pragmatic Experience[b]	.[c]	0.35	0.48	.										
Emotional Experience[b]	.[c]	0.55	0.60	0.70	.									
Relational Experience[b]	.[c]	0.49	0.42	0.15	0.49	.								
Unique Experience[b]	.[c]	0.18	0.09	0.21	0.10	0.35	.							
Familiar Experience[b]	.[c]	0.56	0.63	0.44	0.61	0.60	0.14	.						
Controllable Experience[b]	.[c]	0.49	0.76	0.64	0.61	0.32	0.16	0.64	.					
Economical Experience[b]	.[c]	0.35	0.41	0.16	0.41	0.50	0.15	0.43	0.34	.				
Technology Satisfaction	0.90	0.59	0.65	0.66	0.79	0.49	0.20	0.68	0.71	0.41	.			
Overall Experience	0.84	0.55	0.69	0.56	0.70	0.46	0.20	0.68	0.71	0.37	0.82	.		
Overall Satisfaction	0.83	0.57	0.60	0.57	0.72	0.45	0.24	0.64	0.64	0.37	0.93	0.91	.	
Behavioral Intention	0.72	0.52	0.63	0.61	0.64	0.27	0.09	0.55	0.70	0.23	0.77	0.83	0.85	.

Note. [a] Second-order construct of technology experience;
[b] First-order constructs (dimensions) of technology experience;
[c] Not applicable due to the hierarchical nature of the construct

Table 4.11. Hierarchical Nature of Technology Experience

Dimensions of Technology Experience			β	*se*	*t*	*p*	Results
Sensorial Experience	→	Technology Experience	0.16	0.01	21.52	< 0.001***	Confirmed
Cognitive Experience	→	Technology Experience	0.19	0.01	23.72	< 0.001***	Confirmed
Pragmatic Experience	→	Technology Experience	0.17	0.01	23.90	< 0.001***	Confirmed
Emotional Experience	→	Technology Experience	0.21	0.01	29.42	< 0.001***	Confirmed
Relational Experience	→	Technology Experience	0.13	0.01	16.37	< 0.001***	Confirmed
Unique Experience	→	Technology Experience	0.04	0.01	3.03	< 0.05*	Confirmed
Familiar Experience	→	Technology Experience	0.19	0.01	24.68	< 0.001***	Confirmed
Controllable Experience	→	Technology Experience	0.20	0.01	27.54	< 0.001***	Confirmed
Economical Experience	→	Technology Experience	0.11	0.01	12.69	< 0.001***	Confirmed

*Note. *** p-value < .001; ** p-value < .01; * p-value < .05;*

4.3.3. Results of Structural Model Test

The variance inflation factor (VIF) was equal to or less than 5.88 (first-order) and 3.06 (second-order), indicating there was no evidence of multicollinearity issue (Gareth, Daniela, Trevor, & Robert, 2013). The adjusted R^2 was .598 for satisfaction with hospitality and tourism technologies, .584 for overall experience, .677 for overall satisfaction, and .526 for behavioral intention. When using the second-order construct of technology experience, the adjusted R^2 was .577 for satisfaction with hospitality and tourism technology and .573 for overall experience. In terms of the explained variance, both first-order and second-order model explained a substantial variance in the endogenous constructs, demonstrating the predictive accuracy of the proposed research model.

Technology experience positively influenced consumers' satisfaction with hospitality and tourism technologies (β = .76, t = 39.93, p < .001, f^2 = 1.37), supporting H1. The effect size was extremely high, indicating the notable impact of technology experience on technology satisfaction. Please note than effect size f^2 (Cohen's f^2) has no upper limit ($f^2 = R^2 / (1 - R^2)$) (Selya, Rose, Dierker, Hedeker, & Mermelstein, 2012). More specifically, among the nine dimensions of technology experience, sensorial (β = .09, t = 2.52, p < .05), pragmatic (β = .18, t = 4.96, p < .001), emotional (β = .30, t = 7.22, p < .001), unique (β = .10, t = 3.43, p < .001), familiar (β = .11, t = 2.71, p < .01), and controllable experiences (β = .17, t = 3.69, p < .001) had positive impacts on consumers' satisfaction with hospitality and tourism technologies. Particularly, the effect of emotional experience on satisfaction with technology was moderate (f^2 = .09). On the other hands, cognitive (β = .07, t = 1.32, p > .05), relational (β = .04, t = 1.15, p > .05),

and economical experiences (β = .04, t = 1.20, p > .05) had no significant impact on consumers' satisfaction with hospitality and tourism technologies.

Consumers' technology experience was a significant antecedent of their overall experience with hotels/restaurants/destinations (β = .50, t = 10.91, p < .001), and the effect size of technology experience on overall experience was noteworthy (f^2 = .25), supporting H2. More specifically, consumers' overall experience was positive influenced by cognitive (β = .16, t = 2.64, p < .01), emotional (β = .13, t = 2.38, p < .05), familiar (β = .11, t = 2.62, p < .01), and controllable experiences (β = .17, t = 2.82, p < .01). However, sensorial (β = .05, t = 1.33, p > .05), pragmatic (β = .04, t = 1.05, p > .05), relational (β = .01, t = .19, p > .05), unique (β = .03, t = 1.04, p > .05), and economical experiences (β = -.02, t = -.75, p > .05) did not influence consumers' overall experience.

Consumers' satisfaction with hospitality and tourism technology positively affected their overall experience with hotels/restaurants/destinations (β = .30, t = 6.09, p < .001, f^2 = .09), indicating H3 was supported. When consumers were satisfied with hospitality and tourism technologies, they were more likely to be satisfied with the hotels/restaurants/destinations (β = .45, t = 10.43, p < .001, f^2 = .32), therefore, H4 was supported. Consumers' overall experience positively influenced their overall satisfaction (β = .45, t = 11.57, p < .001, f^2 = .33), indicating H5 was supported. Lastly, consumers' overall satisfaction had a positive impact on their future behavioral intention (β = .73, t = 32.69, p < .001, f^2 = 1.11).

Table 4.12. Structural Model Test

Hypothesis				β	*se*	*t*	*p*	Results
H1	Technology Experience	→	Technology Satisfaction	0.76	0.02	39.93	< 0.001***	Supported
H1a	Sensorial Experience	→	Technology Satisfaction	0.09	0.03	2.52	< 0.05*	Supported
H1b	Cognitive Experience	→	Technology Satisfaction	0.07	0.05	1.32	> 0.05	Not Supported
H1c	Pragmatic Experience	→	Technology Satisfaction	0.18	0.04	4.96	< 0.001***	Supported
H1d	Emotional Experience	→	Technology Satisfaction	0.30	0.04	7.22	< 0.001***	Supported
H1e	Relational Experience	→	Technology Satisfaction	0.04	0.03	1.15	> 0.05	Not Supported
H1f	Unique Experience	→	Technology Satisfaction	0.10	0.03	3.43	< 0.001***	Supported
H1g	Familiar Experience	→	Technology Satisfaction	0.11	0.04	2.71	< 0.01**	Supported
H1h	Controllable Experience	→	Technology Satisfaction	0.17	0.05	3.69	< 0.001***	Supported
H1i	Economical Experience	→	Technology Satisfaction	0.04	0.03	1.20	> 0.05	Not Supported
H2	Technology Experience	→	Overall Experience	0.50	0.05	10.91	< 0.001***	Supported
H2a	Sensorial Experience	→	Overall Experience	0.05	0.04	1.33	> 0.05	Not Supported
H2b	Cognitive Experience	→	Overall Experience	0.16	0.06	2.64	< 0.01**	Supported
H2c	Pragmatic Experience	→	Overall Experience	0.04	0.04	1.05	> 0.05	Not Supported
H2d	Emotional Experience	→	Overall Experience	0.13	0.05	2.38	< 0.05*	Supported
H2e	Relational Experience	→	Overall Experience	0.01	0.04	0.19	> 0.05	Not Supported
H2f	Unique Experience	→	Overall Experience	0.03	0.03	1.04	> 0.05	Not Supported
H2g	Familiar Experience	→	Overall Experience	0.11	0.04	2.62	< 0.01**	Supported
H2h	Controllable Experience	→	Overall Experience	0.17	0.06	2.82	< 0.01**	Supported
H2i	Economical Experience	→	Overall Experience	-0.02	0.03	-0.75	> 0.05	Not Supported
H3	Technology Satisfaction	→	Overall Experience	0.30	0.05	5.99	< 0.001***	Supported
H4	Technology Satisfaction	→	Overall Satisfaction	0.45	0.04	10.37	< 0.001***	Supported
H5	Overall Experience	→	Overall Satisfaction	0.45	0.04	11.56	< 0.001***	Supported
H6	Overall Satisfaction	→	Behavioral Intention	0.73	0.02	32.70	< 0.001***	Supported

*Note. *** p-value < .001; ** p-value < .01; * p-value < .05.*

In order to investigate the moderating effect of voluntariness of technology adoption in the relationships between technology experience, and satisfaction with hospitality and tourism technologies and overall experience, the sample was divided into two groups: voluntary (N_{Vol} = 457) and involuntary (N_{Inv} = 320). While technology experience was a significant predictor of consumers' satisfaction with hospitality and tourism technologies, the positive effect of technology experience on technology satisfaction was much stronger for involuntary consumers ($Diff_{V\text{-}Inv}$ = -.14, z = -78.48, p < .001). The positive impact of sensorial experience on satisfaction with technology was significant only for voluntary consumers (β = .11, t = 2.21, p < .05) ($Diff_{V\text{-}Inv}$ = .03, z = 8.54, p < .001). Pragmatic and emotional experiences had positive effects on satisfaction with technology for both voluntary (β = .19, t =3.56, p < .05) and involuntary consumers (β = .13, t =2.84, p < .01). More specifically, voluntary consumers were more likely to be satisfied with hospitality and tourism technologies when they had pragmatic experiences ($Diff_{V\text{-}Inv}$ = .06, z = 16.25, p < .001). While emotional experience had positive impact on satisfaction with technology for both voluntary (β = .28, t = 4.84, p < .001) and involuntary consumers (β = .30, t = 4.89, p < .001), the effect was stronger for involuntary consumers ($Diff_{V\text{-}Inv}$ = -.02, z = -5.38, p < .001). When voluntary consumers had unique experience (β = .12, t =3.00, p < .01), they were likely to be satisfied with hospitality and tourism technologies, whereas unique experience had no significant impact of satisfaction for involuntary consumers (β = .09, t =1.78, p = .08). In other words, there was a significant difference between the two groups in how unique experience affects consumers' satisfaction with technologies ($Diff_{V\text{-}Inv}$ = .03, z = 8.46, p < .001). Familiar experience had positive impact on consumers' satisfaction with

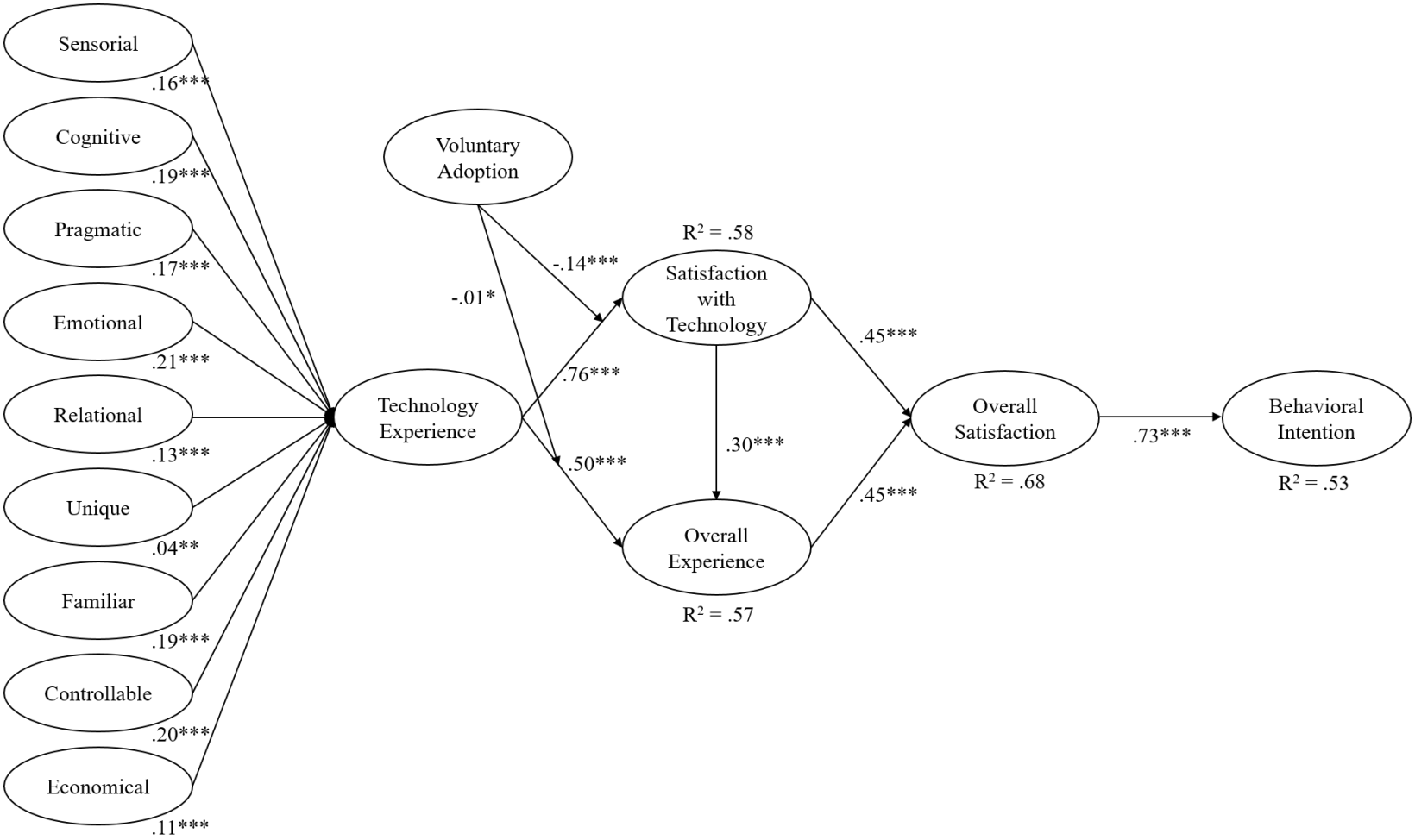
technology only when they used the technology involuntarily ($Diff_{V\text{-}Inv}$ = -.05, z = -11.50, p < .001). When consumers felt they had control over their activities or plans, they were satisfied with hospitality and tourism technologies regardless of their voluntariness. Particularly, voluntary consumers were more likely to be satisfied with technology when they had controllable experience ($Diff_{V\text{-}Inv}$ = .03, z = 6.88, p < .001).

Technology experience positively influenced consumers' overall experience with hotels/restaurants/destinations for both voluntary and involuntary consumers. However, the influence of technology experience on overall experience was stronger for involuntary consumers ($Diff_{V\text{-}Inv}$ = -.01, z = -2.44, p < .05). Cognitive experience positively affected consumers' overall experience when they voluntarily adopted the technology ($Diff_{V\text{-}Inv}$ = .06, z = 11.31, p < .001), whereas the effect was only marginal for involuntary consumers (β = .09, t = 1.78, p = .06). For involuntary consumers, emotional experience had a positive impact on their overall experience (β = .15, t = 2.41, p < .05). However, there was no significant effect of emotional experience on overall experience when they voluntarily adopted technologies (β = .10, t = 1.31, p > .05). Interestingly, familiar experience, which had a positive impact on technology satisfaction only for involuntary consumers, significantly influenced overall experience of voluntary consumers only ($Diff_{V\text{-}Inv}$ = .20, z = 3.60, p = .05). The positive effect of controllable experience was significant only for involuntary consumers ($Diff_{V\text{-}Inv}$ = .26, z = 3.60, p < .001).

Table 4.13. Moderating Effect of Voluntariness

Hypothesis				Diff (Voluntary - Involuntary)	*z*	*p*
H7	Technology Experience	→	Technology Satisfaction	-0.14	-78.48	< 0.001***
H7a	Sensorial Experience	→	Technology Satisfaction	0.03	8.54	< 0.001***
H7b	Cognitive Experience	→	Technology Satisfaction	-0.07	-13.69	< 0.001***
H7c	Pragmatic Experience	→	Technology Satisfaction	0.06	16.25	< 0.001***
H7d	Emotional Experience	→	Technology Satisfaction	-0.02	-5.38	< 0.001***
H7e	Relational Experience	→	Technology Satisfaction	-0.02	-6.03	< 0.001***
H7f	Unique Experience	→	Technology Satisfaction	0.03	8.46	< 0.001***
H7g	Familiar Experience	→	Technology Satisfaction	-0.05	-11.50	< 0.001***
H7h	Controllable Experience	→	Technology Satisfaction	0.03	6.88	< 0.001***
H7i	Economical Experience	→	Technology Satisfaction	-0.04	-13.30	< 0.001***
H8	Technology Experience	→	Overall Experience	-0.01	-2.44	< .05*
H8a	Sensorial Experience	→	Overall Experience	-0.08	-20.89	< 0.001***
H8b	Cognitive Experience	→	Overall Experience	0.06	11.31	< 0.001***
H8c	Pragmatic Experience	→	Overall Experience	-0.06	-14.35	< 0.001***
H8d	Emotional Experience	→	Overall Experience	-0.05	-10.59	< 0.001***
H8e	Relational Experience	→	Overall Experience	0.02	4.41	< 0.001***
H8f	Unique Experience	→	Overall Experience	-0.03	-8.96	< 0.001***
H8g	Familiar Experience	→	Overall Experience	0.21	49.30	< 0.001***
H8h	Controllable Experience	→	Overall Experience	-0.16	-28.72	< 0.001***
H8i	Economical Experience	→	Overall Experience	0.05	15.45	< 0.001***

*Note. *** p-value < .001; ** p-value < .01; * p-value < .05;*
Diff indicates beta coefficient difference between voluntary group and involuntary group.



*Note. *** p-value < .001; ** p-value < .01; * p-value < .05;*

Figure 4.3. Research Framework

4.4. CHAPTER SUMMARY

In Chapter 1, five research questions were developed to achieve the goals of this study: (1) What is a consumer's technology experience?, (2) What are the dimensions of technology experience?, (3) How should technology experience be measured in the context of hospitality and tourism?, (4) To what extent does the developed technology experience scale yield appropriate levels of reliability and validity?, and (5) To what extent does technology experience influence satisfaction and future behavioral intention? This chapter illustrated the results and findings to address the developed research questions. More specifically, the findings from two focus group discussions answered the first two research questions by suggesting the potential dimensions of technology experience. The third research question was addressed as the measurement items for technology experience were developed through a series of focus group discussions and expert reviews. By employing various statistical techniques, the last two research questions were also solved. More specifically, the results of Phase III indicated that technology experience was a second-order formative construct with nine dimensions (i.e., sensorial, cognitive, pragmatic, emotional, relational, unique, familiar, controllable, and economical experiences). Furthermore, technology experience was found to be a significant antecedent of the overall experience, satisfaction, and behavioral intentions in Phase IV. Based on the findings of this chapter, Chapter 5 discusses conclusion, theoretical and practical implications, limitations, and suggestions for future studies.

CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

Chapter 5 presents detailed discussions of the findings of the study. This chapter also includes theoretical and practical implications. Limitations and directions for future research are discussed as well.

5.1. DISCUSSIONS OF TECHNOLOGY EXPERIENCE SCALE

The primary purposes of this study were (1) to develop a comprehensive conceptualization of technology experience, (2) to develop a reliable and valid set of measurement scales that capture the nature of consumers' experience with hospitality and tourism technologies, and (3) to explore relationships with other focal constructs in the discipline, such as overall experience, satisfaction, and future behavioral intention. Based on the research purposes, Chapter 2 presented the current status of technology implementation in the hospitality and tourism industry and reviewed the literature on hospitality and tourism technology and consumer experience in order to build the foundation for a conceptualization of technology experience and identify potential dimensions of technology experience. Furthermore, the possible consequences of technology were also exhibited, which served as theoretical background for the research hypotheses in this study. By employing the sequential exploratory approach, the measurement scale for technology experience was developed and validated. Particularly, by following the suggestions by Churchill (1979), Netemeyer et al. (2003), and MacKenzie et al. (2011), the scale development procedure consisted of four phases. The

conceptual domain of technology experience was specified and the potential dimensions of technology experience were identified in Phase I through an extent review of the literature. By conducting two focus group discussions in Phase II, the hidden dimensions of technology were identified, thereby capturing all facets of technology experience with nine dimensions collectively representing the dynamic nature of technology experience.

5.1.1. Technology Experience

A consumer's experience with hospitality and tourism technologies (i.e., technology experience) can be defined as a consumer's unique type of experience, which occurs from his/her interactions with hospitality and tourism technologies. While technology experience can be seen as a subset of a consumer's overall hospitality and tourism experience, technology experience itself is also holistic in its nature. More specifically, technology experience is a consumer's comprehensive evaluation of his/her experience with hospitality and tourism technologies from nine perspectives, namely sensorial, cognitive, pragmatic, emotional, relational, unique, familiar, controllable, and economical experiences. The second-order construct of technology was developed as a formative construct since the nine dimensions of technology experience form the latent construct of technology experience, and the dimensions do not share a common theme (Coltman, Devinney, Midgley, & Venaik, 2008). The following discusses the dimensions of technology experience in detail.

5.1.2. Dimensions of Technology Experience

5.1.2.1. Sensorial Experience

The results confirmed that sensorial experience is an important dimension of consumers' experience with hospitality and tourism technologies (β = .16, t = 21.52, p <

.001). When hospitality and tourism technologies appeal to consumers' senses, sensorial experiences are generated. As a majority of consumers use hospitality and tourism technologies to look for information, providing clear and vivid images along with information would be a great way to attract consumers' senses, thereby generating a sensorial experience. Furthermore, integrating multiple sensory components (i.e., visual, aural, olfactory, gustatory, and tactile) would enrich sensorial experiences. For instance, restaurants might use AR to provide a more colorful and vivid representation of their menu along with sounds highlighting the crispy texture of the food item. Hotels can generate a sensorial experience by allowing consumers to change the room temperature or light based on their personal preferences. Tourism destinations might also integrate different sensorial components to deepen consumers' immersion in their travel.

5.1.2.2. Cognitive Experience

Another important dimension was cognitive experience, which was the third strongest dimension of technology experience (β = .19, t = 23.72, p < .001). This result was consistent with previous studies (Cao, 2016; De Keyser et al., 2016; Kandampully et al., 2018) that suggested cognitive experience as a component of consumer experience, such as dining experience. Due to the intangible characteristic of the hospitality and tourism industry, which does not allow consumers to try before their consumption, consumers search for different sources of information to reduce the potential risk (Sharma, Park, & Licolau, 2020). Furthermore, Oh et al. (2007) suggested that some destinations are exclusively designed to create a cognitive experience. Particularly, tourism destinations with a long historical background would be much closely associated with a cognitive experience, as consumers would gain knowledge and process the

information about the destination. Furthermore, with the COVID-19 pandemic, the potential of cognitive experience grows as many events, conventions, and expositions are available for attendees through technological platforms. Hotels might provide rich information about the destination they are located in by utilizing technologies, such as in-room tablets, to generate cognitive experiences. Restaurants can also create cognitive experience by offering a digital menu with such information on how the menu offers one's daily calorie intake and nutritional benefits, or can be paired to best enjoy the restaurant.

5.1.2.3. Pragmatic Experience

As most consumers use hospitality and tourism technology due to its convenience, pragmatic experience cannot be neglected as a key dimension of technology experience ($\beta = .17$, $t = 23.90$, $p < .001$). As much technology adoption research (e.g., Oh et al., 2016; Min et al., 2019, Paulo et al., 2018) showed, the usability of technology has been one of the most important factors affecting consumers' adoption behavior. The finding of this research further demonstrated the significance of functional benefits and usability of technology in creating consumer experience. Not to mention the younger generations who are the digital natives, relatively older generations became more interested in using technologies for various reasons, including personal safety in the COVID-19 pandemic. Accordingly, the usability and practical benefits of using technology would become a more crucial part of technology experience. Furthermore, providing various functions in a user-friendly way would reduce unnecessary tasks, thereby leading to satisfaction.

5.1.2.4. Emotional Experience

Consistent with previous studies (e.g., Barnes et al., 2014; Hosany & Gilbert, 2010) that had demonstrated that emotional experience is an important dimension of consumer experience, the finding of this study also revealed that emotional experience is one of the key dimension of technology experience (β = .21, t = 29.42, p < .001). Particularly, emotional experience was found to be the strongest dimension among the nine dimensions of technology experience, highlighting the importance of emotional experience. Given the nature of the hospitality and tourism industry, in which consumers' primary purpose is associated with hedonic consumption (Cao, 2016), creating a positive emotional experience is vital because emotions are pivotal elements of hedonic consumption (Alba & Williams, 2013; Hosany & Gilbert, 2010). Accordingly, the hospitality and tourism industry is strongly encouraged to provoke consumers' positive emotions using various hospitality and tourism technologies. For example, tourism destinations can gamify some features of their mobile app to create travelers' excitement. Besides gamification, aesthetically attractive designs of technology would be a way to generate positive emotional experiences. As some hospitality and tourism organizations have already introduced, AI room controllers with entertainment, such as music or other content, and/or service robots, which dance after their tasks, can enhance consumers' emotional experience.

5.1.2.5. Relational Experience

While technology is believed to somewhat substitute the human interactions between stakeholders, relational experience was found to be an essential dimension of technology experience (β = .13, t = 16.37, p < .001). Particularly, hospitality and tourism

technology plays as a medium for consumers to access and interact with others, as well as a window to see others. Also, certain types of hospitality and tourism technologies that are commonly used by both locals and travelers, such as Yelp, allowed consumers to have a sense of belonging in the community by virtually joining their society. Furthermore, such technologies as 24/7 mobile chat concierge services help consumers connect with the employees no matter what time it is. This finding provides managerial implications for the hospitality and tourism industry to have a platform for consumers to virtually communicate with others. Specifically, consumers' access to local residents via technology would enhance consumers' relational experience by providing a bridge to the local community. Those restaurants, which already adopted tablet-top tablets with games, are highly encouraged to allow consumers from different tables to enjoy a game as a team or competition to generate relational experience.

5.1.2.6. Unique Experience

Unique experience was the weakest dimension of technology experience but still a significant dimension of technology experience ($\beta = .04$, $t = 3.03$, $p < .05$). Many consumers are traveling for different purposes, including for having a break from their regular routines and for experiencing something new and novel (Lam, 2017). Away from their daily life, consumers can have unique and novel experiences, using hospitality and tourism technologies. For instance, despite the popularity of robot vacuum, service robots are not commonly used by ordinary consumers. For them, encountering and interacting with service robots at a restaurant would be unique and something beyond their expectations. When hospitality and tourism technologies offer unique features that are somewhat imaginary for consumers than realistic, consumers' unique experience occurs.

Thus, the hospitality and tourism organizations are recommended to introduce more advanced technologies and/or technologies not common in consumer's daily lives to generate a unique technology experience. For example, a mobile app, specifically designed to serve the attraction visitors, would create a unique experience since consumers are not able to use it in their day-to-day lives. Furthermore, it might play as a souvenir for them to remember their experiences at the attraction.

5.1.2.7. Familiar Experience

Different from the unique experience, familiar experience, a consumers' experience similar to their daily life, was another dimension of technology experience (β = .19, t = 24.68, p < .001). When consumers find a little familiarity with hospitality and tourism technologies, their small desire to seek familiarity and consistency is fulfilled, which in turn generates familiar experience. Perhaps familiar experience would become one of the compelling dimensions in technology as many hospitality and tourism technologies become universal. Furthermore, when it comes to Generation Z, the familiar experience would be much stronger as they are digital natives born and raised with advanced technologies (Parker & Igielnik, 2020). The hospitality and tourism industry is highly recommended to add familiar features in their technologies to provide a pinch of consistent experience with consumers' day-to-day life. Also, extending their existing technologies to a global level would be a way for the industry to create a familiar experience, as a number of mobile travel apps are available in different regions.

5.1.2.8. Controllable Experience

Controllable experience, a newly found dimension from two focus group discussions, was the second most important dimension of technology experience (β = .20,

$t = 27.54$, $p < .001$). As many hospitality and tourism technologies provide real-time information, such as restaurant waiting time, traffic information, the best time to watch the sunset of the day, and recommendations for rainy days, consumers were able to adjust their plans based on the situation without making a substantial effort to change their plan to enjoy the place, creating the controllable experience. For example, if consumers want to visit a restaurant for their last dinner at the destination, the restaurant waiting time app would provide estimated waiting time for them to save their time exploring the destinations. If a tourism destination is popular for its beautiful sunset, consumers can set their schedule by checking the best time to see the sunset. If the weather does not allow the consumers to see a clear sunset, wearable AR goggles might help enjoy the sunset with some flexibility.

5.1.2.9. Economical Experience

Economical experience is the last but not least important dimension of technology experience ($\beta = .11$, $t = 12.69$, $p < .001$). As many hospitality and tourism organizations have adopted various technologies to increase operational efficiency and reduce labor-related costs (Shin & Jeong, 2020), various types of rewards, such as discounts and extra loyalty points, were provided to promote consumers' adoption of hospitality and tourism technologies. Furthermore, due to the absence of human-interactions between the consumers and service providers, tipping is unnecessary when consumers are using technologies, which in turn providing the same service at a more affordable cost. Accordingly, consumers could enjoy the economic benefits of using hospitality and tourism technologies. For example, while consumers can get their luggage delivered to their room, they do not need to spend extra money to tip the bellman if the luggage is

delivered by service robots, making their travel less expensive. Also, if consumers are using a travel guide app with a translation function, they do not need to have a travel guide to translate and explain the descriptions, saving their budget for other activities. As commonly used by consumers, using travel planning apps and online booking system also provides economic benefits.

5.2. DISCUSSIONS OF RESEARCH MODEL

Besides the first two research purposes, developing a solid conceptualization of technology experience and developing a set of valid and reliable scales for technology experience, the present study sought to investigate the relationships with other constructs within the nomological net of technology experience. More specifically, Chapter 2 of this study proposed that satisfaction with hospitality and tourism technologies, overall experience, overall satisfaction, and future behavioral intention are the outcome of technology experience based on multiple theories (i.e., expectation-confirmation theory, balance theory, cognitive dissonance theory, TRA, and TPB). Therefore, using PLS-SEM, the effects of technology experience on the overall experience, satisfaction, and future behavioral intention were empirically examined.

5.2.1. Technology Experience → Satisfaction with Hospitality and Tourism Technologies

Satisfaction refers to a consumers' positive assessment of their experience, which occurs when consumers perceive the actual performance is greater than their expectation (Oliver, 1977; Oliver, 1980; Spreng et al., 1996). As Zhao et al. (2012) suggested, this study divided consumers' satisfaction into satisfaction with hospitality and tourism technologies and overall satisfaction with hotels/restaurants/destinations. The results

revealed that consumers' technology experience, collectively represented by the nine dimensions, had a significantly positive impact on their satisfaction with hospitality and tourism technologies (β = .76, t = 39.93, p < .001, f^2 = 1.37). In other words, the second-order construct of technology experience positively affected consumers' satisfaction with technology. Particularly, the adjusted R^2 for consumers' satisfaction with hospitality and tourism technologies was .58, indicating the predictive accuracy was moderate (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). Furthermore, the effect size (f^2) suggested the substantial effect of technology experience on consumers' satisfaction with hospitality and tourism technologies. This finding demonstrating the positive impact of experience on consumers' satisfaction was consistent with previous studies (e.g., Ali et al., 2016; Jeong & Shin, 2020; Jung et al., 2015; Tom Dieck et al., 2018). Oliver (1997) proposed that consumers have specific beliefs and attitudes towards different service attributes, thereby leading to different levels of satisfaction for each attribute. While the second-order construct of technology experience was a significant antecedent of consumers' technology satisfaction, the impact of each dimension on technology satisfaction should not be neglected. Thus, the effects of each dimension of technology experience on consumers' satisfaction with hospitality and tourism technologies are presented in the following sub-sections.

5.2.1.1. Dimensions of Technology Experience as Significant Antecedents of Technology Satisfaction. Among nine dimensions of technology experience, six dimensions (i.e., sensorial, pragmatic, emotional, unique, familiar, and controllable experiences) had a significantly positive impact on consumers' satisfaction with hospitality and tourism technologies.

Sensorial Experience. Sensorial experience positively influenced consumers' satisfaction with technologies ($\beta = .09$, $t = 2.52$, $p < .05$). As found from the survey results, the most frequently used hospitality and tourism technologies were associated with the convenience and consumers' decision-making process (e.g., mobile information app). Accordingly, consumers would expect utilitarian benefits of hospitality and tourism technologies rather than hedonic values, such as sensorial stimuli from the technology (Kuikka & Laukkanen, 2012). Thus, consumers' expectations for sensorial stimuli would not be so high compared to the sensorial performance of the technology, leading to positive cognitive dissonance. In other words, when consumers have sensorial experience from the hospitality and tourism technologies, they are more likely to be satisfied, possibly due to their relatively low expectation for the sensorial aspects of the technology.

Pragmatic Experience. The findings of this study indicated that many consumers' primary purpose of using hospitality and tourism technology was convenience. As consumers are seeking to complete tasks easier and/or more efficiently, pragmatic experience positively affected their satisfaction with hospitality and tourism technologies ($\beta = .18$, $t = 4.96$, $p < .001$, $f^2 = .04$). Based on service categorization by Kano et al. (1984), the usability and practical benefits obtained from technology can be seen as a one-dimensional attribute, which has a linear relationship with consumer (dis)satisfaction (Mikulić & Prebežac, 2016). In other words, when technologies do not fulfill consumers' needs for practical benefits, it would lead to dissatisfaction, whereas offering such benefits would bring consumer satisfaction. Despite consumers' basic expectations for technology in its practical benefits, consumers tend to be more satisfied when the benefits

are greater. The linear relationship between pragmatic experience and technology satisfaction might be resulted from consumers' unconscious comparison with the efficiency of the same services provided by human staff. For example, assuming hotel guests expect check-in/out would take about 10 minutes, including getting in line, they would be (more) satisfied with self check-in kiosk if it takes less than their expected time.

Emotional Experience. Consumers were more satisfied when they had positive emotion aroused from their adoption of hospitality and tourism technologies, confirming the positive impact of emotional experience on technology satisfaction (β = .30, t = 7.22, p < .001, f^2 = .09). Given that the hospitality and tourism industry is technically based on hedonic consumption, fulfilling consumers' emotional needs was critical in creating consumer satisfaction (Kim & Park, 2017). The insignificant impact of cognitive experience and significantly positive effect of emotional experience on consumers' satisfaction with hospitality and tourism technologies provide further support for previous studies proposing the stronger impact of consumers' emotional experience in the post-consumption stages (e.g., Kim & Perdue, 2013; Kim & Park, 2017). Furthermore, emotional events last longer than neutral events, thereby strongly influencing consumers' post-consumption evaluation, such as satisfaction (Tyng, Amin, Saad, & Malik, 2017).

Unique Experience. While the effect was not huge, unique experience had a positive influence on consumers' satisfaction with hospitality and tourism technologies (β = .10, t = 3.43, p < .001, f^2 = .02). According to Chen (2009), consumers have different desires, including the desire for uniqueness, and they expect those desires to be fulfilled. Many studies in the hospitality and tourism discipline demonstrated that uniqueness and novelty are closely related to consumers' desire to experience something different from

their daily lives, influencing their cognitive and behavioral outcomes (Skavronskaya, Moyle, Scott, & Kralj, 2020). The results revealed that consumers were more likely to be satisfied with technologies when they had unique experiences through the technology, confirming previous studies (e.g., Björk, & Kauppinen-Räisänen, 2013; Piramanayagam, Sud, & Seal, 2020). More specifically, due to the lack of previous experience with the novel technology, their experience would be more memorable, enough to turn it into peak experience, thereby leading to satisfaction (Ali et al., 2016; Piramanayagam et al., 2020).

Familiar Experience. Familiar experience positively affected consumers' satisfaction with hospitality and tourism technology ($\beta = .11$, $t = 2.71$, $p < .01$, $f^2 = .02$). Although this result might seem to contract the significant influence of unique experience on technology satisfaction, the mere-exposure effect might explain. According to Zajonc (1968), when consumers are exposed to certain conditions frequently, they are more likely to have favorable attitudes toward the stimuli than other neutral stimuli because of the enhanced perceptual fluency (Fang, Singh, & Ahluwalia, 2007). Lindgaard and Dudek (2003) presented the possibility of the mere exposure effect in explaining the impact of consumers' degree of familiarity with website design, and consumers' experience and satisfaction with websites. Similarly, consumers' satisfaction with hospitality and tourism technologies might be influenced by their increased perceptual fluency resulted from their daily use of similar technologies. For example, some focus group discussants in Phase II mentioned that they were contented with using the same technologies they use in their day-to-day life since it was fulfilling their want for something familiar. Furthermore, most survey respondents were relatively younger generations who are much dependent on technologies in their daily lives. Accordingly,

the consumers' attitudes would be more favorable as they use similar technologies a lot and feel comfortable using those.

Controllable Experience. The more consumers have control over their plan and/or activities by using hospitality and tourism technologies, the more satisfied they were (β = .17, t = 3.69, p < .001, f^2 = .03). The basic psychological needs theory, a mini-theory of self-determination theory (Ryan & Deci, 2000), might explain how controllable experience positively affected consumers' satisfaction with technologies. Many hospitality and tourism technologies fulfill consumers' basic psychological needs, such as autonomy and competence, by providing real-time information to help consumers ensure their plan to work as intended or offer an opportunity to adjust their plan based on the circumstance, which in turn lead to their satisfaction with technologies (Fraguela-Vale, Varela-Garrote, Carretero-García, & Peralbo-Rubio, 2020). As hospitality and tourism technologies help consumers avoid and/or deal with unexpected situations and achieve their goals, consumers would be favorable in assessing their experience with technologies.

5.2.1.2. Dimensions of Technology Experience as Insignificant Antecedents of Technology Satisfaction. Different from the six dimensions that positively influenced consumers' satisfaction with hospitality and tourism technologies, cognitive, relational, and economical experiences did not have a significant impact on consumers' technology satisfaction.

Cognitive Experience. Interestingly, cognitive experience did not significantly affect consumers' satisfaction with technologies (β = .07, t = 1.32, p > .05). This finding might be explained by the two-factor theory (Herzberg, Mausner, & Snyderman, 1959)

and Kano model (Kano, Seraku, Takahashi, & Tsuji, 1984). According to the Kano model, when the service provides the basic functionalities that consumers expect, the services would not contribute to creating consumer satisfaction. On the other hand, when the service did not meet consumers' expectations, it leads to dissatisfaction, showing asymmetric relationships. Given that consumers have adopted hospitality and tourism technologies for their decision-making, such as information search, consumers might take the information provided by the technology for granted, as it was their basic expectation for the technology, thereby not affecting satisfaction level. Accordingly, as long as hospitality and tourism technologies provide a certain quality of information, no further investment in cognitive experience would be necessary, as it does not lead to consumer satisfaction. However, it should be noted that hospitality and tourism technologies need to meet consumers' basic/minimum expectations in order to prevent potential dissatisfaction.

Relational Experience. Interestingly, relational experience had no significant impact on consumers' satisfaction with technologies ($\beta = .04$, $t = 1.15$, $p > .05$). The indifferent attribute from the Kano model (Kano et al., 1984) would explain this finding. The survey findings revealed that only 26 respondents (3%) adopted hospitality and tourism technologies primarily for networking and communication, suggesting the potential explanation for the insignificant effect of relational experience on technology satisfaction. Since consumers' main reason to use technologies was associated with such purposes as convenience rather than networking and communications, they might be indifferent whether technologies perform as a medium for networking, leading non-significant relationship with (dis)satisfaction. Another possible explanation is that

consumers were with their travel companions when using technologies, thus focusing on their relationship with whom they were with rather than other people accessible via technologies.

Economical Experience. While economical experience is an important dimension of technology experience, the economical experience did not influence consumers' satisfaction with hospitality and tourism technologies (β = .04, t = 1.20, p > .05). This result might be explained by the social cognition model of consumer satisfaction. Sirgy (1984) proposed three states of congruity: positive and negative incongruity and congruity. The insignificant impact of economical experience on consumers' satisfaction with technology could be understood as a congruity state, which leads to a neutral satisfaction state (Yüksel, & Yüksel, 2008). More specifically, despite the economical benefits of using technologies, consumers' perceived value and/or outcome (e.g., degree of discounts) is relatively small to create positive dissonance between their expectation and evoked referent cognition. Because of the negligible rewards, consumers' satisfaction would not be increased. Another possible explanation for this insignificant relationship between economical experience and satisfaction with technology is that consumers would not weigh the economical benefits since what they are seeking is experiential values rather than economic value because of the experiential and hedonic nature of the hospitality and tourism industry.

5.2.2. Technology Experience → Overall Experience

The second-order technology experience had a significantly positive impact on consumers' overall experience with hotels/restaurants/destinations (β = .50, t = 10.91, p < .001). Particularly, it was found that technology experience had a moderate effect on

overall experience (f^2 = .25) (Hair, Hult, Ringle, & Sarstedt, 2016). This finding suggested the possibility of technology experience as a significant part of the overall experience, although technologies are not the core products of the industry. While the second-order construct of technology experience was a significant predictor of overall experience, the impact of the nine dimensions on overall experience should not be underestimated as technology experience was developed as a formative construct. Thus, how each dimension of technology experience influenced consumers' overall experience is discussed in the following sub-section.

5.2.2.1. Dimensions of Technology Experience as Significant Antecedents of Overall Experience. Among nine dimensions of technology experience, only four dimensions (i.e., cognitive, emotional, familiar, and controllable experiences) had a significantly positive impact on consumers' overall experience with hotels/restaurants/destinations.

Cognitive Experience. Despite the insignificant impact of cognitive experience on consumers' satisfaction with technologies, which could be explained by Kano model (Kano et al., 1984), the cognitive experience was a significant antecedent of consumers' overall experience (β = .16, t = 2.64, p < .01, f^2 = .03). The positive impact of cognitive experience on overall experience might be attributed to that consumers can better immerse in their overall experience by utilizing the information obtained from hospitality and tourism technologies. For example, a consumer wanted to find the historical background of a destination and obtain relevant information from hospitality and tourism technologies. Since the consumer expected he/she would get the information, it would not affect satisfaction with the technology. However, he/she would be able to further enjoy

the destination by understanding the historical background from the technology, which in turn enhances their overall experience.

Emotional Experience. Emotional experience positively influenced consumers' overall experience (β = .13, t = 2.38, p < .05). According to Holbrook and Hirschman (1982), a consumer's experience is closely associated with his/her emotional responses. Furthermore, extant research (e.g., Bastiaansen et al., 2019; Pearce & Zare, 2017) has demonstrated that consumers' emotion is the key building block of their experience. Particularly, the long-lasting effect of emotion on consumer experience was backed up by neuroscientific findings of emotions' capability in promoting the retrieval of episodic memories, such as specific aspects of their experience (LaBar & Cabeza, 2006), possibly influencing their overall experience. In addition, the significant impact of emotional experience on overall experience might be attributed to the consumers' likelihood of overemphasizing the certain aspects of their experience, such as emotional experience, due to their high memorability (Berntsen & Rubin, 2012).

Familiar Experience. When consumers had familiar experience, their overall experience was also enhanced (β = .11, t = 2.62, p < .01). The positive impact of familiar experience on overall experience can be explained by the consumers' self-efficacy resulted from their perceptual fluency (Fang et al., 2007). More specifically, when consumers view their adoption of hospitality and tourism technologies in the same way as their day-to-day technology usage, familiar experience helps consumers explore and enjoy activities at the hotels/restaurants/destinations since they are able to retrieve how to apply their daily adoption of technologies in the new context. For example, when consumers travel to a foreign country, they might feel clueless if they are not much

acquainted with the transport system of the destination. However, the availability of familiar technologies, such as Uber, might ease their anxiety, thereby enhancing their overall experience.

Controllable Experience. Controllable experience positively affected consumers' overall experience with hotels/restaurants/destinations (β = .17, t = 2.82, p < .01). The hospitality and tourism industry is strongly affected by various factors, compared to other industries (e.g., manufacturing industry). For example, a tourism attraction might be closed due to the severe thunderstorm, making consumers unable to visit the attraction, thereby interrupting their overall experience at the destination. However, when the attraction is not available due to the weather, consumers are able to adjust their plans based on the recommendations provided by hospitality and tourism technologies, thereby continuing to enjoy their experience at the destination.

5.2.2.1. Dimensions of Technology Experience as Insignificant Antecedents of Overall Experience. While cognitive, emotional, familiar, and controllable experiences positively influenced consumers' overall experience with hotels/restaurants/destinations, sensorial, pragmatic, relational, unique, and economical experiences had no significant impact on overall experience.

Sensorial Experience. While sensorial experience positively influenced consumers' satisfaction with technology, it had no significant impact on their overall experience with hotels/restaurants/destinations (β = .05, t = 1.33, p > .05). Consumers might not connect their sensorial experience with their overall experience. For example, when consumers see vivid pictures about an attraction from mobile travel app, they might link the vividness with the technology itself rather than a part of their overall travel

experience. This possibility suggested that consumers' sensorial experience might have an influence on their overall experience, if the technology is used as a part of their travel experiences, such as site exploration with AR technologies. Another potential explanation is related to consumers' relatively short memory regarding sensorial experience. According to King (1963), the duration of the sensorial experience is brief, even though it depends on the frequency and intensity of the sensory stimuli. Although consumers' satisfaction with technology is relatively specific in the time and their memory retention, due to the limited duration of sensory experience retention, the overall experience might not be significantly affected by sensorial experience. However, the findings of King (1963) propose a possibility of a positive impact of sensorial experience on overall experience if hospitality and tourism technologies provide sensorial stimuli with a certain degree of intensity and frequency.

Pragmatic Experience. Opposite to cognitive experience, pragmatic experience had a positive impact on consumers' satisfaction with technology but an insignificant effect on their overall experience ($\beta = .04$, $t = 1.05$, $p > .05$). This result might be explained by Kotler's (1972) product levels. Consumers might follow the non-compensatory model (Bigné, William, & Soria-Olivas, 2020), meaning their overall experience is not simply the sum of each experience. In the context of hospitality and tourism, the core value would be hedonic experiences (Kim & Perdue, 2013). Accordingly, pragmatic experience, which is associated with the practical benefits from technologies, would not be the core benefits or generic products, but more like an augmented or supporting product, which might add values but not the ultimate goal of consumers. When consumers have the pragmatic experience, they are more likely to be

satisfied because it provides additional values, such as convenience, leading to consumer satisfaction. However, the practical benefits would not enhance their overall experience with hotels/restaurants/destinations since the consumers' perceived importance of pragmatic experience might not be as high as the core products because it was not fulfilling their fundamental needs. For example, when consumers stay in a hotel, they probably focus more on the room conditions, which is the core of the lodging experience, rather than the convenience of the check-in process using mobile apps.

Relational Experience. Relational experience did not have a significant impact on consumers' overall experience (β = .01, t = .19, p > .05). Although hospitality and tourism technologies provide access to other people, such as local residents and other travelers, they did not have a notable impact on consumers' overall experience. This result might be attributed to consumers' personality traits. For example, while some travelers like meeting new people during their travel or looking at how other people think, other travelers might want to focus on their travel companions or themselves rather than interacting with someone they did not know before. In other words, the relational experience might not necessarily influence consumers' overall experience, possibly suggesting the moderating effect of consumers' personality traits. For example, the relational experience might positively influence the overall experience for consumers who travel by themselves and enjoy meeting new people at the destination.

Unique Experience. Unique experience was not a predictor of consumers' overall experience with hotels/restaurants/destinations (β = .03, t = 1.04, p > .05). The insignificant impact of a unique experience on overall experience might be attributed to that the uniqueness and novelty of the hospitality and tourism technologies are not

associated with the core product, similarly with pragmatic experience. While unique experience would provide a pleasant surprise to consumers, thereby leading to their satisfaction with the technology, the overall experience would not be enhanced by the fact that the technology was unique. For instance, when consumers dine in at a restaurant where robots are serving their guests, it would be surprising. However, it would not enrich the tastes of foods, which is the core product. Since consumers' low perceived importance of technology experience, the unique experience might not contribute to consumers' overall experience.

Economical Experience. Economical experience did not influence consumers' overall experience (β = -.02, t = -.75, p > .05). This finding can be explained by consumers' relative insensitivity to price for hospitality and tourism services. Masiero and Nicolau (2012) found that consumers are less sensitive when their motivations are associated with hospitality and tourism services, such as trying new food. As consumers' primary purpose of travel was mostly leisure, consumers might not be bothered by the cost to enjoy their experiences. Another explanation for this result would be the magnitude of economic benefits from using hospitality and tourism technologies. While consumers believe there were economic benefits of using technologies, the benefits would not be enough for them to invest more in other activities to enhance their overall experience without additional costs, thereby not affecting their overall experience.

5.2.3. Relationships among Satisfaction with Hospitality and Tourism Technologies, Overall Experience, Overall Satisfaction, and Future Behavioral Intention.

Consumers' overall experience was positively affected by their satisfaction with hospitality and tourism technologies (β = .30, t = 5.99, p < .001, f^2 = .09). Consumers

would be satisfied with hospitality and tourism technologies since their overall experience was enhanced with their adoption of technologies. Thus, when consumers are satisfied with technologies, their overall experience is likely to be enhanced. Given consumers' tendency to increase their congruity within their cognitive schema (Dean, 2002), when consumers have a favorable attitude toward a part of their experience (i.e., satisfaction with hospitality and tourism technologies), they would positively view their overall experience.

Consumers' satisfaction with different aspects of their experience (e.g., lodging experience, dining experience) affects their overall satisfaction (Lai, 2020). As found in the previous literature (e.g., Huang et al., 2017; Wang et al., 2017), consumers' satisfaction with technologies had a positive impact on their overall satisfaction (β = .45, t = 10.37, $p < .001$, f^2 = .32). Particularly, consumers' adoption of hospitality and tourism technologies can be seen as part of their overall experience since they facilitate consumers' travel experiences in various ways (e.g., cognitive, emotional experiences). Accordingly, consumers' positive evaluation of hospitality and tourism technologies would be closely associated with their satisfaction and their overall experience with hotels/restaurants/destinations. As previous studies suggested (e.g., Chung et al., 2018), hospitality and tourism technologies help consumers appreciate the hospitality and tourism services, leading to consumers' satisfaction with technology, which creates a positive assessment of their overall experience.

The positive impact of overall experience on overall satisfaction was found (β = .45, t = 11.56, $p < .001$, f^2 = .34). Overall experience consists of various experiences that consumers have with hotels/restaurants/destinations during their service encounters,

including technology experience, dining experience, lodging experience, and so on. When consumers' overall experience outperforms their expectations in general, the positive cognitive dissonance occurs, leading to their overall satisfaction. Thus, when consumers are satisfied with their overall experience with hotels/restaurants/destinations, they are more likely to have a favorable behavioral intention (β = .73, t = 32.70, p < .001), strengthening the findings of previous studies (e.g., Chung et al., 2018; Jeong & Shin, 2020; Sharma & Nayak, 2019; Yoon et al., 2018). The adjusted R^2 of .53 and the effect size of the path (f^2 = 1.11) also confirmed how strongly consumers' overall satisfaction influences their future behavioral intention.

5.2.4. Moderating Effect of Voluntary Adoption of Technology

The results of MGA revealed the moderating effect of consumers' voluntary adoption of hospitality and tourism technologies in the relationships between technology experience and technology satisfaction, and between technology experience and overall experience. The positive impact of technology experience on consumers' satisfaction was significant for both voluntary and involuntary consumers. Interestingly, the effect was much stronger for involuntary consumers ($Diff_{V\text{-}Inv}$ = -.14, z = -78.48, p < .001). Probably, involuntary consumers were unwilling to use hospitality and tourism technologies since they did not expect a lot. Thus, when involuntary consumers used the technologies, their technology experience would exceed their expectations, leading to a greater degree of satisfaction. The positive effect of technology experience was stronger for involuntary consumers ($Diff_{V\text{-}Inv}$ = -.01, z = -2.44, p < .05). However, the difference was not as big as in the relationship between technology experience and technology satisfaction since overall experience consists of various experiences in different contexts.

5.3. THEORETICAL IMPLICATIONS

While consumers' wants for human-oriented services have continued, consumers' demands for service efficiency using technologies (e.g., service robots) have also increased (Shin & Jeong, 2020). Accordingly, many hospitality and tourism organizations have actively introduced various technologies to cater to the different needs of consumers. As a result, as we have witnessed, technology has transformed the entire landscape of the hospitality and tourism industry (Pillai, & Sivathanu, 2020; Tussyadiah, 2020). Despite the skyrocketing importance of technologies in the industry, the current understanding of consumers' experience with hospitality and tourism technologies is still in its infancy, calling for a solid conceptualization of consumers' technology experience. Understanding consumers' technology experience is even more critical in the hospitality and tourism industry because of the experiential nature (Prebensen et al., 2013; Prebensen et al., 2016). This study theoretically contributes to the current knowledge on consumer experience by offering a concrete foundation for future research to further understand technology experience in the hospitality and tourism industry.

Furthermore, while consumers' experience with hospitality and tourism technologies is a part of the overall hospitality and tourism experience, technology experience is distinct from other general consumer experiences. Specifically, due to the industry's experiential nature, the core of consumer experience has been associated with the consumers' perception of their experience with the core products/services, such as dining experience and lodging experience. Although hospitality and tourism technologies are not the core products/services of the industry, they facilitate consumers' deep immersion in their experience with the core products by playing a role as a supporting or

augmented product. Therefore, conceptualizing consumers' experience with technologies improves the understanding of the mechanism of how consumers' diverse experiences are integrated and interplay, thereby leading to synergetic effects in enhancing consumers' overall experience.

As technologies have rapidly changed consumer behavior, and the types of technologies have been much diversified in the past few decades (Leino, 2020), it is of utmost importance to accurately portray the concept of technology experience in a timely manner. Therefore, rather than solely relying on previous literature, this study thoroughly conceptualized consumers' experience with hospitality and tourism technologies by employing multiple data sources (i.e., literature, focus group discussions, expert reviews, and online surveys). Particularly, the two focus group discussions provided a substantial insight in conceptualizing technology experience based on the discussants' actual experience with various technologies, ranged from mature technologies (e.g., websites) to technologies at early diffusion stages (e.g., service robots, AR/VR). Thus, four more dimensions of technology experience, which were not identified from the extant literature review, were found, suggesting technology experience is a second-order construct that consists of nine dimensions. Furthermore, the discussants' insights were further refined by two rounds of expert reviews with established researchers and industry professionals who had a substantial understanding of consumer behavior regarding hospitality and tourism technologies. Lastly, the two online surveys further validated the findings from qualitative inquiries (i.e., literature review, focus group discussions, expert reviews). In a nutshell, with the different sources of insights on technology experience, this study

contributed to the literature in conceptualizing and empirically validating consumers' technology experience in a timely manner.

This present study examined the mechanism of how technology experience influences overall experience and satisfaction, thereby leading to consumers' future behavioral intention. The results showed consistent findings with previous research (e.g., Huang et al., 2015; Jeong & Shin, 2020; Oh et al., 2007; Kim, 2018; Tom Dieck et al., 2018; Wang et al., 2017) that suggested consumer experience is a key predictor of satisfaction and future behavioral intention, providing corroborative support to the theoretical background. As some hospitality and tourism organizations introduced services without human staff (Weissmann, 2016), this study investigated the moderating effect of consumers' voluntary adoption of hospitality and tourism technologies. As TAM 2 (Venkatesh & Davis, 2000) suggested the moderating effect of voluntary adoption of technologies, this study examined how consumers' voluntary adoption differentiates the impacts of their technology experience on technology satisfaction and overall experience. The significant differences between the voluntary and involuntary consumers showed that voluntary adoption of technology differs by the impacts of technology experience even in post-experience aspects not limited to pre-experience stages, providing further evidence for TAM 2.

5.4. PRACTICAL IMPLICATIONS

The findings of this study provide several practical implications for the hospitality and tourism industry. The outbreak of the COVID-19 made it even more important to understand consumers' experience with hospitality and tourism technology. Before the COVID-19 pandemic, technologies have been adopted by consumers for their

convenience. However, the unprecedented pandemic, which has lasted for more than a year at the time of this writing (March 2021) and is expected to continue at least until 2022 (Randall, 2021), accelerated changes in consumers' technology adoption behavior. Specifically, due to the COVID-19 pandemic, for safety reasons, consumers have been much exposed to diverse hospitality and tourism technologies and actively adopting those technologies either voluntarily or involuntarily. In other words, hospitality and tourism technologies became a must for consumers to protect them from COVID-19 transmission and to keep them safe.

As the adoption of hospitality and tourism technologies is expected to continue in the new normal era, it is imperative to understand consumers' technology experience. However, due to the absence of a solid conceptualization of technology experience, industry professionals have struggled to understand what technology experience is and how important it is in the hospitality and tourism industry to enhance the consumer experience. Particularly, the lack of comprehensive understanding of technology experience keeps the industry from figuring out how their introduction of technologies has affected consumers' overall experience. The developed scale allows industry professionals to diagnose their performance in enriching consumers' experience using hospitality and tourism technologies.

The qualitative exploration and quantitative validation of this study suggested nine dimensions collectively represent consumers' experience with hospitality and tourism technologies. Accordingly, the developed scale consists of nine dimensions to measure all facets of technology experience. While the hospitality and tourism organizations are strongly encouraged to paying attention to all nine dimensions due to

each dimension's significance in describing technology experience, the hierarchical nature of technology experience allows the industry to focus on specific dimensions based on their needs. In other words, the hospitality and tourism industry can easily implement the developed scale to identify their strengths and weakness in creating technology experience, which in turn allowing them to allocate more resources to their weak dimensions and not to waste resources to the dimensions that do not need additional investment. Thus, hospitality and tourism organizations would be able to assess their performance in the nine dimensions, and concentrate on more critical dimensions, if their resources are limited, to improve every single dimension of technology. For example, when a travel guide mobile app has balanced scores on all nine dimensions, the developers might want to strengthen emotional and controllable experiences rather than unique experience due to the different weights of the dimensions.

The empirical investigation of the proposed research model revealed that consumers' experience with hospitality and tourism technologies positively influenced their satisfaction with technologies, overall experience, and overall satisfaction, thereby increasing future behavioral intention. Particularly, the positive impact of technology experience on overall experience was notable, providing empirical evidence for the importance of investing in appropriate technologies in order to enrich consumer experience. As all hypothesized relationships among technology experience, technology satisfaction, overall experience, overall satisfaction, and future behavioral intention were supported, the industry professionals should not neglect how important it is to create a positive technology experience for increasing consumer satisfaction, which in turn generating favorable behavioral intention (CI_{Lower} = .05, CI_{Upper} = .10).

Although technology experience was developed as a second-order construct with nine dimensions, the finding of this study also investigated the impact of each dimension on its consequences. The results revealed that emotional, familiar, and controllable positively influenced consumers' future behavioral intention mediated by technology satisfaction, overall experience, and overall satisfaction. Thus, hospitality and tourism organizations, of which consumers have unfavorable intentions toward them, are strongly recommended to improve those three dimensions of technology experience.

Lastly, the moderating effect of consumers' voluntary technology adoption indicated that the impacts of technology experience on their satisfaction with technologies and overall experience are stronger for involuntary consumers. However, the differences between the two types of consumers varied by each dimension of technology experience. Thus, the hospitality and tourism industry might want to decide whether they force consumers to use technologies or have different options based on their key technology experience dimension. For example, the findings showed that the positive impact of pragmatic experience on technology satisfaction was stronger for voluntary consumers, whereas the impact of emotional experience was stronger for involuntary consumers. If technology has its focus on convenience, the industry might want to have the technologies for voluntary usage. However, if technology is associated with emotional experience, they might want consumers to involuntarily use the technology to increase consumers' satisfaction with technologies.

5.5. LIMITATIONS AND FUTURE RESEARCH

This study is also subject to several limitations. First, as mentioned earlier, research on consumers' experience with hospitality and tourism technology is still in its

infancy. Therefore, this study considered all types of technologies available for consumers under the umbrella of the hospitality and tourism industry to understand consumers' technology experience in general. In other words, this study did not distinguish the difference between various types of technologies. While each sector of the industry has its focused technologies (e.g., restaurants: self-service kiosks; hotels: mobile guest service applications; tourism & recreation: AR/VR), this study did not distinguish the different technology implementation of various sectors of the hospitality and tourism industry. Differences between the sectors of the hospitality and tourism industry may provide a new perspective in terms of technology experience. Future research is highly encouraged to compare the different sectors of the hospitality and tourism industry to uncover consumers' different technology experiences in various settings. Also, comparing consumers' technology experience with different types of hospitality and tourism technology would provide further insight into consumer behavior toward technology.

The second limitation lies in the survey design in Phases III and IV. Due to the complex nature of technology experience, the survey consisted of a considerable number of questions, which may induce survey fatigue, thereby reducing the response rate (Adams & Umbach, 2012). As Crawford, Couper, and Lamias (2001) argued, survey fatigue and low response rate would negatively affect the quality of the online self-administered survey. However, in the survey design stage, item non-response, a type of non-response bias (Fraenkel & Wallen, 1993; Salant & Dillman, 1994), was controlled using a forced response option. Therefore, non-response bias and missing data were not major issues in this study. Also, the surveys included several set-ups, including attention

check and survey duration check. Therefore, the quality of the online survey would not be at risk.

Another limitation is also associated with the online survey method. The survey respondents were asked to recall their experience with hospitality and tourism technologies in the year 2019 rather than 2020 due to the COVID-19 pandemic. Thus, there is a possibility of recall bias, in which respondents would not accurately remember their experience with hospitality and tourism technologies (Hosany & Gilbert, 2010). Future studies are recommended to employ an experience sampling methodology, which would minimize the recall bias and increase the contextual validity of the study (Hosany & Gilbert, 2010; Vogt & Stewart, 1998). Also, research comparing consumers' technology experience during the pandemic and post-pandemic would be meaningful to understand consumer behavior regarding hospitality and tourism technologies.

5.6. CHAPTER SUMMARY

This chapter provided an in-depth discussion of the findings of this study. The theoretical and practical implications of this study were also illustrated. From a theoretical perspective, this study enriches the literature as the conceptualization and development of a measurement scale pertaining to consumers' experience with hospitality and tourism technology is beneficial for understanding a unique type of consumer experience in the hospitality and tourism setting where the interpersonal interactions between hosts and guests are core. From a practical point of view, the findings of this study offer the professionals in the hospitality and tourism industry useful insights to develop a competitive edge by generating positive technology experience, thereby increasing satisfaction and future behavioral intention.

REFERENCES

Adams, M. J., & Umbach, P. D. (2012). Nonresponse and online student evaluations of teaching: Understanding the influence of salience, fatigue, and academic environments. *Research in Higher Education*, *53*(5), 576-591.

Agapito, D., Pinto, P., & Mendes, J. (2012). Sensory marketing and tourist experiences. *Spatial and Organizational Dynamics Discussions Papers*, *10*, 7-19.

Ahn, J. A., & Seo, S. (2018). Consumer responses to interactive restaurant self-service technology (IRSST): The role of gadget-loving propensity. *International Journal of Hospitality Management*, *74*, 109-121.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1973). Attitudinal and normative variables as predictors of specific behavior. *Journal of Personality and Social Psychology*, *27*(1), 41.

Alba, J. W., & Williams, E. F. (2013). Pleasure principles: a review of research on hedonic consumption. *Journal of Consumer Psychology*, *23*(1), 2-18.

Alexen, M., & Swan, T. (2010). Designing festival experiences to influence visitor perceptions: The case of a wine and food festival. *Journal of Travel Research*, *49*(4), 436-450.

Ali, F., Amin, M., & Cobanoglu, C. (2016). An integrated model of service experience, emotions, satisfaction, and price acceptance: an empirical analysis in the Chinese

hospitality industry. *Journal of Hospitality Marketing & Management*, *25*(4), 449-475.

Ali, F., Ryu, K., & Hussain, K. (2016). Influence of experiences on memories, satisfaction and behavioral intentions: A study of creative tourism. *Journal of Travel & Tourism Marketing*, *33*(1), 85-100.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411.

Anderson, M., Perrin, A., Jiang, J., & Kumar, M. (2019, April 22). 10% of Americans don't use the internet. Who are they?. Retrieved October 30, 2019, from https://www.pewresearch.org/fact-tank/2019/04/22/some-americans-dont-use-the-internet-who-are-they/.

Andersson, T. D. (2007). The tourist in the experience economy. *Scandinavian Journal of Hospitality and Tourism*, *7*(1), 46-58.

Antun, J. M., Frash Jr, R. E., Costen, W., & Runyan, R. C. (2010). Accurately assessing expectations most important to restaurant patrons: The creation of the DinEX Scale. *Journal of Foodservice Business Research*, *13*(4), 360-379.

Attala, J. (2019, March 25). 10 ways smart technology is reshaping the hotel industry. Retrieved November 12, 2019, from https://www.hotelmanagement.net/tech/10-ways-smart-technology-reshaping-hotel-industry

Backman, M. (2020, February 18). Are You Well-Paid? Compare Your Income to the Average. Retrieved February 5, 2021, from https://www.fool.com/the-ascent/research/average-us-income/

Bandalos, D. L. (2018). *Measurement theory and applications for the social sciences*. Guilford Publications.

Barnes, S. J., Mattsson, J., & Sørensen, F. (2014). Destination brand experience and visitor behavior: Testing a scale in the tourism context. *Annals of Tourism Research*, *48*, 121-139.

Bastiaansen, M., Lub, X. D., Mitas, O., Jung, T. H., Ascenção, M. P., Han, D. I., ... & Strijbosch, W. (2019). Emotions as core building blocks of an experience. *International Journal of Contemporary Hospitality Management*. *31*(2), 651-668.

Becker, J. M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models. *Long Range Planning*, *45*(5-6), 359-394.

Beldona, S., Buchanan, N., & Miller, B. L. (2014). Exploring the promise of e-tablet restaurant menus. *International Journal of Contemporary Hospitality Management*, *26*(3), 367-382.

Beldona, S., Schwartz, Z., & Zhang, X. (2018). Evaluating hotel guest technologies: does home matter?. *International Journal of Contemporary Hospitality Management*, *30*(5), 2327-2342.

Belk, R. W. (1974). An exploratory assessment of situational effects in buyer behavior. *Journal of Marketing Research*, *11*(2), 156-163.

Belk, R. W. (1975). Situational variables and consumer behavior. *Journal of Consumer Research*, *2*(3), 157-164.

Benson, J., & Nasser, F. (1998). On the use of factor analysis as a research tool. *Journal of Vocational Education, 23*, 13-33

Berntsen, D., & Rubin, D. C. (Eds.). (2012). *Understanding autobiographical memory: Theories and approaches*. Cambridge University Press.

Bigné, E., William, E., & Soria-Olivas, E. (2020). Similarity and consistency in hotel online ratings across platforms. *Journal of Travel Research, 59*(4), 742-758.

Björk, P., & Kauppinen-Räisänen, H. (2013). Destination countries' risk image as perceived by Finnish travellers. *Matkailututkimus, 9*(1), 21-38.

Blichfeldt, B. S., Chor, J., & Ballegaard, N. L. (2010). The Dining Experience: A Qualitative Study of Top Restaurant Visits in a Danish Context. *Journal of Tourism, 11*(1).

Bolton, R. N., Gustafsson, A., McColl-Kennedy, J., Sirianni, N. J., & Tse, D. K. (2014). Small details that make big differences: a radical approach to consumption experience as a firm's differentiating strategy. *Journal of Service Management, 25*(2), 253-274.

BrainBoxol. (207, August 21). The Tech Evolution And How We All Fit In (Infographic).Retrieved November 15, 2019, from https://blog.brainboxol.com/index.php/2017/08/21/the-tech-evolution-and-how-we-all-fit-in-infographic/

Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: what is it? How is it measured? Does it affect loyalty?. *Journal of Marketing, 73*(3), 52-68.

Britton, A. (2018, August 10). How to Justify the Cost of Kiosks for Restaurants. Retrieved February 29, 2020, from https://pos.toasttab.com/blog/self-ordering-kiosk-cost

Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. (2019). Technological disruptions in services: lessons from tourism and hospitality. *Journal of Service Management*. *30*(4), 484-506.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data?. *Perspectives on psychological science*, *6*(1), 3-5.

Buzztime Business (2017, November 3). 9 Must-Have Restaurant Technologies That Improve Business. Retrieved September 14, 2020, from https://www.buzztime.com/business/blog/top-restaurant-technologies/

BuzztimeBusiness (2018, June 6). Top 8 Hotel Room Technologies of 2018 (Smart TVs, Hotel Tablets, and More). Retrieved February 28, 2020, from https://www.buzztime.com/business/blog/hotel-room-technologies-hotel-tablets-more/

Cai, W., Richter, S., & McKenna, B. (2019). Progress on technology use in tourism. *Journal of Hospitality and Tourism Technology*. *10*(4), 651-672.

Cao, Y. (2016). Memorable Dining Experiences: Formative Index And Model Development.

Carbonell, P., & Rodriguez Escudero, A. I. (2015). The negative effect of team's prior experience and technological turbulence on new service development projects with customer involvement. *European Journal of Marketing*, *49*(3/4), 278-301

Carlson, R. A. (1997). *Experienced cognition*. Psychology Press.

Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Computers in Human Behavior, 29*(6), 2156-2160.

Cattell, R. (Ed.). (1978). *The scientific use of factor analysis in behavioral and life sciences*. Springer Science & Business Media.

Cetin, G., & Bilgihan, A. (2016). Components of cultural tourists' experiences in destinations. *Current Issues in Tourism, 19*(2), 137-154.

Champion, E. M., (2019, March 4). Virtual reality adds to tourism through touch, smell and real people's experiences. Retrieved November 12, 2019, from http://theconversation.com/virtual-reality-adds-to-tourism-through-touch-smell-and-real-peoples-experiences-101528

Chen, Y. (2009). Possession and access: Consumer desires and value perceptions regarding contemporary art collection and exhibit visits. *Journal of Consumer Research, 35*(6), 925-940.

Chevers, D., & Spencer, A. (2017). Customer satisfaction in Jamaican hotels through the use of information and communication technology. *Worldwide Hospitality and Tourism Themes, 9*(1), 70-85.

Choi, H., Kandampully, J., & Stafford, K. (2019). The implication of servicescape, emotion and trust to a positive customer service experience: wellness spa context in the USA. *International Journal of Service Management and Sustainability, 1*(1), 1-17.

Chung, N., Lee, H., Kim, J. Y., & Koo, C. (2018). The role of augmented reality for experience-influenced environments: The case of cultural heritage tourism in Korea. *Journal of Travel Research*, *57*(5), 627-643.

Churchill Jr, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, *16*(1), 64-73.

Cohen, E. (1979). A phenomenology of tourist experiences. *Sociology*, *13*(2), 179-201.

Cohen, J. (1968). Weighted kappa: nominal scale agreement provision for scaled disagreement or partial credit. *Psychological Bulletin*, *70*(4), 213.

Cohen, J. B., & Areni, C. S. (1991). Affect and consumer behavior.

Collier, J. E., Moore, R. S., Horky, A., & Moore, M. L. (2015). Why the little things matter: Exploring situational influences on customers' self-service technology decisions. *Journal of Business Research*, *68*(3), 703-710.

Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research*, *61*(12), 1250-1262.

Connolly, D. & Kim, J. (2019). Unlocking ROI: Balancing Customer Experience with Business Enhancement. Retrieved November 5, 2019, from https://hospitalitytech.com/unlocking-roi-balancing-customer-experience-business-enhancement

Crawford, S. D., Couper, M. P., & Lamias, M. J. (2001). Web surveys: Perceptions of burden. *Social Science Computer Review*, *19*(2), 146-162.

Creamer, D. (2019, March 30). Powering High-Touch with High-Tech. Retrieved November 5, 2019, from https://hospitalitytech.com/powering-high-touch-high-tech

Creswell, J. W., & Creswell, J. D. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Cumella, T. (2020, August 20). The 9 Most Important Types of Restaurant Technology and Hardware. Retrieved September 14, 2020, from https://pos.toasttab.com/blog/types-of-restaurant-technology

De Keyser, A., Lemon, K. N., Klaus, P., & Keiningham, T. L. (2015). A framework for understanding and managing the customer experience. *Marketing Science Institute Working Paper Series*, *15*(121), 1-48.

Dean, D. H. (2002). Associating the corporation with a charitable event through sponsorship: Measuring the effects on corporate community relations. *Journal of Advertising*, *31*(4), 77-87.

DeMuro, R. (2018, February 19). Robots Take Over Luggage Duties at New Hotel. Retrieved February 28, 2020, from https://ktla.com/morning-news/technology/luggage-robots-sheraton-hotel-san-gabriel/

Desjardins, J. (2018, February 14). The Rising Speed of Technological Adoption. Retrieved October 30, 2019, from https://www.visualcapitalist.com/rising-speed-technological-adoption/

DeWalt, K. M., & DeWalt, B. R. (2011). Participant observation: A guide for fieldworkers.

Diamantopoulos, A., & Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research, 38*(2), 269-277.

Digital Media Solutions (2019, December 10). Boomers And Gen Xers Are Embracing Technology At A Faster Rate Than Millennials. Retrieved December 24, 2020, from https://insights.digitalmediasolutions.com/articles/technology-adoption-older-generations

Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and Perspectives*, *38*(1), 105.

Dubé, L., Bel, J. L., & Sears, D. (2003). From customer value to engineering pleasurable experiences in real life and online. *Cornell Hotel and Restaurant Administration Quarterly*, *44*(5-6), 124-130.

Dugdale, M. (2019, April 30). Experience Pompeii in AR with ARtGlass. Retrieved November 12, 2019, from https://vrworldtech.com/2019/04/30/experience-pompeii-in-ar-with-artglass/

Eichhorn, B. R. (2014). Common method variance techniques. *Cleveland State University, Department of Operations & Supply Chain Management. Cleveland, OH: SAS Institute Inc*, 1-11.

Fang, X., Singh, S., & Ahluwalia, R. (2007). An examination of different explanations for the mere exposure effect. *Journal of Consumer Research, 34*(1), 97-103.

Festinger, L. (1962). *A theory of cognitive dissonance* (Vol. 2). Stanford university press.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (1993). *How to design and evaluate research in education* (Vol. 7). New York: McGraw-Hill.

Fraguela-Vale, R., Varela-Garrote, L., Carretero-García, M., & Peralbo-Rubio, E. M. (2020). Basic psychological needs, physical self-concept, and physical activity among adolescents: Autonomy in focus. *Frontiers in Psychology*, *11*, 491.

Fussell, S. (2019, January 11). The Quiet Ways Automation Is Remaking Service Work. Retrieved November 27, 2019, from https://www.theatlantic.com/technology/archive/2019/01/automation-hotel-strike-ai-jobs/579433/

Gallay, A. (2019, November 19). Food Delivery Robots Invade University of Houston, Turning it Into Campus of Future. Retrieved February 29, 2020, from https://www.papercitymag.com/culture/food-delivery-robots-invade-university-houston-create-campus-future/

Gao, L. (2012). *An exploratory study of the boutique hotel experience: Research on experience economy and designed customer experience* (Doctoral dissertation, Purdue University).

Gareth, J., Daniela, W., Trevor, H., & Robert, T. (2013). *An introduction to statistical learning: with applications in R*. Spinger.

Gefen, D., Straub, D., & Boudreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, *4*(1), 7.

Gentile, C., Spiller, N., & Noci, G. (2007). How to sustain the customer experience: An overview of experience components that co-create value with the customer. *European Management Journal*, *25*(5), 395-410.

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, *25*(2), 186-192.

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data collection in a flat world: The strengths and weaknesses of Mechanical Turk samples. *Journal of Behavioral Decision Making*, *26*(3), 213-224.

Granger, B. (2017, November 29). Will Machines Replace Humans in the Hospitality Industry?. Retrieved November 27, 2019, from https://www.hospitalityupgrade.com/techTalk/November-2017/Will-Machines-Replace-Humans-in-the-Hospitality-In/

Guevarra, P. (2014, October 1). Then and Now: How Technology Has Changed Our Lives. Retrieved October 7, 2020, from http://asi.cpp.edu/campuscrop/?p=13151

Gupta, S., & Vajic, M. (2000). The contextual and dialectical nature of experiences. *New Service Development: Creating Memorable Experiences*, *15*, 33-51.

Gursoy, D., Cai, R. R., & Anaya, G. J. (2017). Developing a typology of disruptive customer behaviors. *International Journal of Contemporary Hospitality Management*. *29*(9), 2341-2360.

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (Vol. 5, No. 3, pp. 207-219). Upper Saddle River, NJ: Prentice hall.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139-152.

Hall, R. E., Bowerman, B., Braverman, J., Taylor, J., Todosow, H., & Von Wimmersperg, U. (2000). *The vision of a smart city* (No. BNL--67902; 04042). Brookhaven National Lab., Upton, NY (US).

Harman, H. H. (1960). Modern factor analysis. Chicago: Univer.

Hecht, J. (2018, November 30). How Technology Is Driving Change In Almost Every Major Industry. Retrieved February 28, 2020, from https://www.forbes.com/sites/jaredhecht/2018/11/30/how-technology-is-driving-change-in-almost-every-major-industry/#1a37a1b82f6f

Heider, F. (1946). Attitudes and cognitive organization. *The Journal of Psychology*, *21*(1), 107-112.

Heider, F. (1958). *The psychology of interpersonal relations*. Psychology Press.

Hemmington, N. (2007). From service to experience: Understanding and defining the hospitality business. *The Service Industries Journal*, *27*(6), 747-755.

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., ... & Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods*, *17*(2), 182-209.

Herrero, Á., & San Martín, H. (2012). Developing and testing a global model to explain the adoption of websites by users in rural tourism accommodations. *International Journal of Hospitality Management*, *31*(4), 1178-1186.

Herzberg, F., Mausner, B., & Snyderman, B. (1959). The motivation to work.

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, *21*(5), 967-988.

Hinkin, T. R., Tracey, J. B., & Enz, C. A. (1997). Scale construction: Developing reliable and valid measurement instruments. *Journal of Hospitality & Tourism Research*, *21*(1), 100-120.

Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: emerging concepts, methods and propositions. *Journal of Marketing*, *46*(3), 92-101.

Hitlin, P. (2018, September 28). Internet, social media use and device ownership in U.S. have plateaued after years of growth. Retrieved October 8, 2020, from https://www.pewresearch.org/fact-tank/2018/09/28/internet-social-media-use-and-device-ownership-in-u-s-have-plateaued-after-years-of-growth/

Hogarty, K. Y., Hines, C. V., Kromrey, J. D., Ferron, J. M., & Mumford, K. R. (2005). The quality of factor solutions in exploratory factor analysis: The influence of sample size, communality, and overdetermination. *Educational and Psychological Measurement*, *65*(2), 202-226.

Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research, 9*(2), 132-140.

Horton, J., Macve, R., & Struyven, G. (2004). Qualitative research: experiences in using semi-structured interviews. In *The Real Life Guide to Accounting Research* (pp. 339-357). Elsevier.

Hosany, S., & Gilbert, D. (2010). Measuring tourists' emotional experiences toward hedonic holiday destinations. *Journal of Travel Research, 49*(4), 513-526.

Hospitality Technology (2019, March 8). 2019 Restaurant Technology Study: Exponential Digital Drives Quantum Convenience. Retrieved November 1, 2019, from https://hospitalitytech.com/2019-restaurant-technology-study-exponential-digital-drives-quantum-convenience

Hospitality Technology (2019, October 16). How Chatbots Are Changing the Way Hotels Interact with Guests. Retrieved November 1, 2019, from https://hospitalitytech.com/how-chatbots-are-changing-way-hotels-interact-guests

Hospitality Technology. (2019, November 5). Travelers Look to New Technology to Enhance Experiences. Retrieved November 5, 2019, from https://hospitalitytech.com/travelers-look-new-technology-enhance-experiences

Huang, C. D., Goo, J., Nam, K., & Yoo, C. W. (2017). Smart tourism technologies in travel planning: The role of exploration and exploitation. *Information & Management, 54*(6), 757-770.

Huang, S., Weiler, B., & Assaker, G. (2015). Effects of interpretive guiding outcomes on tourist satisfaction and behavioral intention. *Journal of Travel Research*, *54*(3), 344-358.

Hultén, B., Broweus, N., & Van Dijk, M. (2009). What is sensory marketing?. In *Sensory marketing* (pp. 1-23). Palgrave Macmillan, London.

Hung, K., & Law, R. (2011). An overview of Internet-based surveys in hospitality and tourism journals. *Tourism Management*, *32*(4), 717-724.

Hussung, T. (2015, October 16). Emerging Trends in Psychology: Tech Dependency. Retrieved February 28, 2020, from https://online.csp.edu/blog/psychology/technology-dependency

Hwang, J., & Seo, S. (2016). A critical review of research on customer experience management: Theoretical, methodological and cultural perspectives. *International Journal of Contemporary Hospitality Management*, *28*(10), 2218-2246.

Hwang, J., Yoon, Y. S., & Park, N. H. (2011). Structural effects of cognitive and affective reponses to web advertisements, website and brand attitudes, and purchase intentions: The case of casual-dining restaurants. *International Journal of Hospitality Management*, *30*(4), 897-907.

I-CHRIE. (2004). College Guide to Programs in Hospitality, Tourism & Culinary Arts (8th ed). Richmond, VA: Author.

Ismail, A. R. (2011). Experience marketing: An empirical investigation. *Journal of Relationship Marketing*, *10*(3), 167-201.

ITSG Global. (2017, July 18). The Demand For Technology Services Is Going To Sky-Rocket. Retrieved November 15, 2019, from https://itsg-global.com/demand-technology-services/

Ivanov, S., & Webster, C. (2019). Perceived appropriateness and intention to use service robots in tourism. In *Information and Communication Technologies in Tourism 2019* (pp. 237-248). Springer, Cham.

Ives, B., Palese, B., & Rodriguez, J. A. (2016). Enhancing Customer Service through the Internet of Things and Digital Data Streams. *MIS Quarterly Executive*, *15*(4).

Jain, R., Aagja, J., & Bagdare, S. (2017). Customer experience–a review and research agenda. *Journal of Service Theory and Practice*.

Jeong, M., & Shin, H. H. (2020). Tourists' experiences with smart tourism technology at smart destinations and their behavior intentions. *Journal of Travel Research*, *59*(8), 1464-1477.

Jeong, M., Oh, H., & Gregoire, M. (2005). The role of website quality in online hotel reservations. *Information Technology in Hospitality*, *4*(1), 3-13.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112-133.

Jovicic, D. Z. (2019). From the traditional understanding of tourism destination to the smart tourism destination. *Current Issues in Tourism*, *22*(3), 276-282.

Jung, T. H., Lee, H., Chung, N., & tom Dieck, M. C. (2018). Cross-cultural differences in adopting mobile augmented reality at cultural heritage tourism sites. *International Journal of Contemporary Hospitality Management*, *30*(3), 1621-1645.

Jung, T., Chung, N., & Leue, M. C. (2015). The determinants of recommendations to use augmented reality technologies: The case of a Korean theme park. *Tourism Management*, *49*, 75-86.

Jüttner, U., Schaffner, D., Windler, K., & Maklan, S. (2013). Customer service experiences. *European Journal of Marketing*, *47(*5/6), 738-768.

Kabadayi, S., Ali, F., Choi, H., Joosten, H., & Lu, C. (2019). Smart service experience in hospitality and tourism services. *Journal of Service Management, 30*(3), 326-348.

Kandampully, J., Zhang, T. C., & Jaakkola, E. (2018). Customer experience management in hospitality. *International Journal of Contemporary Hospitality Management*. *30*(1), 21-56

Kang, J., Manthiou, A., Sumarjan, N., & Tang, L. (2017). An investigation of brand experience on brand attachment, knowledge, and trust in the lodging industry. *Journal of Hospitality Marketing & Management*, *26*(1), 1-22.

Kang, J., Manthiou, A., Sumarjan, N., & Tang, L. (2017). An investigation of brand experience on brand attachment, knowledge, and trust in the lodging industry. *Journal of Hospitality Marketing & Management*, *26*(1), 1-22.

Kano, N., Seraku, N., Takahashi, F., & Tsuji, S. (1984). Attractive and normal quality. *Quality*, *14*(2), 39-48.

Karamustafa, K., & Ülker, P. (2020). Impact of tangible and intangible restaurant attributes on overall experience: a consumer oriented approach. *Journal of Hospitality Marketing & Management*, *29*(4), 404-427.

Khaliq, A. (2019, July 1). M-Commerce: Why Going Mobile Is Important For Businesses. Retrieved November 1, 2019, from https://www.hongkiat.com/blog/why-m-commerce-important/

Khan, M. A. (2020). Technological Disruptions in Restaurant Services: Impact of Innovations and Delivery Services. *Journal of Hospitality & Tourism Research, 44*(5), 715-732.

Kim, D., & Park, B. J. R. (2017). The moderating role of context in the effects of choice attributes on hotel choice: A discrete choice experiment. *Tourism Management, 63*, 439-451.

Kim, D., & Perdue, R. R. (2013). The effects of cognitive, affective, and sensory attributes on hotel choice. *International Journal of Hospitality Management, 35*, 246-257.

Kim, E., Tang, L. R., & Bosselman, R. (2018). Measuring customer perceptions of restaurant innovativeness: Developing and validating a scale. *International Journal of Hospitality Management, 74*, 85-98.

Kim, H. C., Chua, B. L., Lee, S., Boo, H. C., & Han, H. (2016). Understanding airline travelers' perceptions of well-being: The role of cognition, emotion, and sensory experiences in airline lounges. *Journal of Travel & Tourism Marketing, 33*(9), 1213-1234.

Kim, J. H. (2018). The impact of memorable tourism experiences on loyalty behaviors: The mediating effects of destination image and satisfaction. *Journal of Travel Research, 57*(7), 856-870.

Kim, J. H. (2018). The impact of memorable tourism experiences on loyalty behaviors: The mediating effects of destination image and satisfaction. *Journal of Travel Research, 57*(7), 856-870.

Kim, J. H., Ritchie, J. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. *Journal of Travel Research, 51*(1), 12-25.

Kim, J. H., Ritchie, J. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. *Journal of Travel Research, 51*(1), 12-25.

Kim, J., & Hardin, A. (2010). The impact of virtual worlds on word-of-mouth: Improving social networking and servicescape in the hospitality industry. *Journal of Hospitality Marketing & Management, 19*(7), 735-753.

Kim, M. J., Lee, C. K., & Jung, T. (2020). Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. *Journal of Travel Research, 59*(1), 69-89.

Kim, M., & Qu, H. (2014). Travelers' behavioral intention toward hotel self-service kiosks usage. *International Journal of Contemporary Hospitality Management, 26*(2), 225-245.

Kim, S., Cha, J., Knutson, B. J., & Beck, J. A. (2011). Development and testing of the Consumer Experience Index (CEI). *Managing Service Quality: An International Journal, 21*(2), 112-132

King, H. E. (1963). The retention of sensory experience: III. Duration. *The Journal of Psychology, 56*(2), 299-306.

Klaus, P., & Maklan, S. (2012). EXQ: a multiple-item scale for assessing service experience. *Journal of Service Management, 23*(1), 5-33.

Kobres, E. (2018, June 28). New Technologies Will Revolutionize The Hospitality Industry. Retrieved October 21, 2020, from https://www.forbes.com/sites/forbestechcouncil/2018/06/28/new-technologies-will-revolutionize-the-hospitality-industry/#67c6385073c3

Kotler, P. (1972). *Management: Analysis, planning, and control*. Prentice-Hall Internat.

Krishna, A. (2010) *Sensory Marketing*. Routledge, New York.

Kuikka, A., & Laukkanen, T. (2012). Brand loyalty and the role of hedonic value. *Journal of Product & Brand Management*. *21*(7), 529-537.

LaBar, K. S., & Cabeza, R. (2006). Cognitive neuroscience of emotional memory. *Nature Reviews Neuroscience, 7*(1), 54-64.

Ladhari, R., Souiden, N., & Dufour, B. (2017). The role of emotions in utilitarian service settings: The effects of emotional satisfaction on product perception and behavioral intentions. *Journal of Retailing and Consumer Services*, *34*, 10-18.

Lam, J. (2017, January 16). What is the purpose of traveling?. Retrieved February 16, 2021, from https://medium.com/@jeffreylam/what-is-the-purpose-of-traveling-1ac782bd6617

Lashley, C. (2009). Marketing hospitality and tourism experiences. In *Handbook of Hospitality Marketing Management* (pp. 25-53). Routledge.

Law, R., Leung, D., & Chan, I. C. C. (2020). Progression and development of information and communication technology research in hospitality and tourism: A state-of-the-art review. *International Journal of Contemporary Hospitality Management*. *32*(2), 511-534.

Law, R., Leung, R., & Buhalis, D. (2009). Information technology applications in hospitality and tourism: a review of publications from 2005 to 2007. *Journal of Travel & Tourism Marketing*, *26*(5-6), 599-623.

Lebeau, M. D. (2019, October 6). All Your Questions Answered about Disney MagicBands. Retrieved November 27, 2019, from https://www.travelingmom.com/walt-disney-world/disney-magicbands/

Lee, W., Gretzel, U., & Law, R. (2010). Quasi-trial experiences through sensory information on destination web sites. *Journal of Travel Research*, *49*(3), 310-322.

Leino, I. L. K. (2020, December 23). The History and Future of Travel Technology Briefly. Retrieved February 19, 2021, from https://packitup.io/blog/the-history-and-future-of-travel-technology-briefly/

Leiper, N. (1979). The framework of tourism: Towards a definition of tourism, tourist, and the tourist industry. *Annals of Tourism Research*, *6*(4), 390-407.

Lemke, F., Clark, M., & Wilson, H. (2011). Customer experience quality: an exploration in business and consumer contexts using repertory grid technique. *Journal of the Academy of Marketing Science*, *39*(6), 846-869.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, *80*(6), 69-96.

Levine, A. (December 4, 2018). What Is a 4-D Movie?. Retrieved October 5, 2020, from https://www.tripsavvy.com/what-is-a-4-d-movie-3226334

Lewis, B. R., & McCann, P. (2004). Service failure and recovery: evidence from the hotel industry. *International Journal of Contemporary Hospitality Management*, *16*(1), 6-17.

Li, Y., Hu, C., Huang, C., & Duan, L. (2017). The concept of smart tourism in the context of tourism information services. *Tourism Management, 58,* 293-300.

Lin, H., Zhang, M., Gursoy, D., & Fu, X. (2019). Impact of tourist-to-tourist interaction on tourism experience: The mediating role of cohesion and intimacy. *Annals of Tourism Research, 76,* 153-167.

Lin, J. S. C., & Hsieh, P. L. (2007). The influence of technology readiness on satisfaction and behavioral intentions toward self-service technologies. *Computers in Human Behavior*, *23*(3), 1597-1615.

Lindgaard, G., & Dudek, C. (2003). What is this evasive beast we call user satisfaction?. *Interacting with Computers*, *15*(3), 429-452.

Littman, J. (2019, January 30). Robot delivery market to triple by 2024. Retrieved February 29, 2020, from https://www.restaurantdive.com/news/robot-delivery-market-to-triple-by-2024/547162/

Litvin, S. W., Goldsmith, R. E., & Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism Management*, *29*(3), 458-468.

Liu, R., Hannum, M., & Simons, C. T. (2019). Using immersive technologies to explore the effects of congruent and incongruent contextual cues on context recall, product evaluation time, and preference and liking during consumer hedonic testing. *Food Research International*, *117*, 19-29.

Lu, J., Mao, Z., Wang, M., & Hu, L. (2015). Goodbye maps, hello apps? Exploring the influential determinants of travel app adoption. *Current Issues in Tourism*, *18*(11), 1059-1079.

Luo, M. M., Remus, W., & Sheldon, P. J. (2007). Technology acceptance of the Lonely Planet website: An exploratory study. *Information Technology & Tourism*, *9*(2), 67-78.

Lynch, P., Molz, J. G., Mcintosh, A., Lugosi, P., & Lashley, C. (2011). Theorizing hospitality. *Hospitality & Society*, *1*(1), 3-24.

MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly*, *35*(2), 293-334.

Malivuk, M. (2017, April 13). 5 Festival Tech Trends That Are Reshaping the Industry. Retrieved November 1, 2019, from https://intellitix.com/hub/5-festival-tech-trends-reshaping-industry

Manschot, M., & Sleeswijk Visser, F. (2011). Experience-value: a framework for determining values in service design approaches. *Proceedings of IASDR*.

Marriott Bonvoy. (2019, August 22). Marriott Bonvoy App: Access more. Retrieved April 13, 2020, from https://mobile-app.marriott.com/en-us

Mascarenhas, O. A., Kesavan, R., & Bernacchi, M. (2006). Lasting customer loyalty: a total customer experience approach. *Journal of Consumer Marketing*, *23*(7), 397-405.

Masiero, L., & Nicolau, J. L. (2012). Price sensitivity to tourism activities: looking for determinant factors. *Tourism Economics*, *18*(4), 675-689.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370-96.

Maslow, A. H. (1964). *Religions, values, and peak-experiences* (Vol. 35). Columbus: Ohio State University Press.

Maxwell, S. E., Delaney, H. D., & Kelley, K. (2017). *Designing experiments and analyzing data: A model comparison perspective*. Routledge.

McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica: Biochemia medica*, *22*(3), 276-282.

McNamara, C. (2009). General guidelines for conducting interviews.

Mehraliyev, F., Kirilenko, A. P., & Choi, Y. (2020). From measurement scale to sentiment scale: Examining the effect of sensory experiences on online review rating behavior. *Tourism Management*, *79*, 104096.

Meyer, C., & Schwager, A. (2007). Understanding customer experience. *Harvard Business Review*, *85*(2), 116.

Mikulić, J., & Prebežac, D. (2016). The Kano model in tourism research: a critical note. *Annals of Tourism Research*, *61*, 25-27.

Min, S., So, K. K. F., & Jeong, M. (2019). Consumer adoption of the Uber mobile application: Insights from diffusion of innovation theory and technology acceptance model. *Journal of Travel & Tourism Marketing*, *36*(7), 770-783.

Mitel. (2019, February 4). Top 10 Communication Trends in Hotel Technology for 2019. Retrieved September 30, 2019, from https://www.mitel.com/blog/top-10-communication-tech-trends-hospitality.

Mody, M., Hanks, L., & Dogru, T. (2019). Parallel pathways to brand loyalty: Mapping the consequences of authentic consumption experiences for hotels and Airbnb. *Tourism Management, 74*, 65-80.

Morosan, C., & DeFranco, A. (2016). Co-creating value in hotels using mobile devices: A conceptual model with empirical validation. *International Journal of Hospitality Management*, *52*, 131-142.

Mossberg, L. (2007). A marketing approach to the tourist experience. *Scandinavian Journal of Hospitality and Tourism*, *7*(1), 59-74.

Motorola Solutions (2019, September 30). Enhancing Guest Experiences with Unified Communications and Video Security. Retrieved November 1, 2019, from https://hospitalitytech.com/enhancing-guest-experiences-unified-communications-and-video-security

Murphy, H. C., Chen, M. M., & Cossutta, M. (2016). An investigation of multiple devices and information sources used in the hotel booking process. *Tourism Management*, *52*, 44-51.

Muskat, B., Hörtnagl, T., Prayag, G., & Wagner, S. (2019). Perceived quality, authenticity, and price in tourists' dining experiences: Testing competing models of satisfaction and behavioral intentions. *Journal of Vacation Marketing*, *25*(4), 480-498.

Nabben, A., Wetzel, E., Oldani, E., Huyeng, J., Boel, M., & Fan, Z. (2016). Smart technologies in tourism: Case study on the influence of iBeacons on customer experience during the 2015 SAIL Amsterdam event. In *the International Tourism Student Conference* (pp. 1-32).

Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Sage Publications.

Neuhofer, B., Buhalis, D., & Ladkin, A. (2012). Conceptualising technology enhanced destination experiences. *Journal of Destination Marketing & Management*, *1*(1-2), 36-46.

Neuhofer, B., Buhalis, D., & Ladkin, A. (2015). Smart technologies for personalized experiences: a case study in the hospitality domain. *Electronic Markets*, *25*(3), 243-254.

Newsom, J. T. (2012). Some clarifications and recommendations on fit indices. *USP*, *655*, 123-133.

No, E., & Kim, J. K. (2015). Comparing the attributes of online tourism information sources. *Computers in Human Behavior*, *50*, 564-575.

Oh, H., Fiore, A. M., & Jeoung, M. (2007). Measuring experience economy concepts: Tourism applications. *Journal of Travel Research*, *46*(2), 119-132.

Oh, H., Jeong, M., Lee, S., & Warnick, R. (2016). Attitudinal and situational determinants of self-service technology use. *Journal of Hospitality & Tourism Research*, *40*(2), 236-265.

Okumus, B., Ali, F., Bilgihan, A., & Ozturk, A. B. (2018). Psychological factors influencing customers' acceptance of smartphone diet apps when ordering food at restaurants. *International Journal of Hospitality Management, 72*, 67-77.

Oliver R. L. (1997). Satisfaction: A behavioral perspective on the consumer. *New York ' NY: Irwin-McGraw-Hill*.

Oliver, R. L. (1977). Effect of expectation and disconfirmation on postexposure product evaluations: An alternative interpretation. *Journal of Applied Psychology*, *62*(4), 480.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460-469.

Ooi, C. S. (2005). A theory of tourism experiences: The management of attention. In *Experiencescapes* (pp. 51-68).

Ottenbacher, M., Harrington, R., & Parsa, H. G. (2009). Defining the hospitality discipline: A discussion of pedagogical and research implications. *Journal of Hospitality & Tourism Research, 33*(3), 263-283.

Otto, J. E., & Ritchie, J. B. (1996). The service experience in tourism. *Tourism Management, 17*(3), 165-174.

Ozturk, A. B. (2016). Customer acceptance of cashless payment systems in the hospitality industry. *International Journal of Contemporary Hospitality Management, 28*(4), 801-817.

Ozturk, A. B., & Hancer, M. (2015). The effects of demographics and past experience on RFID technology acceptance in the hospitality industry. *International Journal of Hospitality & Tourism Administration, 16*(3), 275-289.

Ozturk, A. B., Bilgihan, A., Salehi-Esfahani, S., & Hua, N. (2017). Understanding the mobile payment technology acceptance based on valence theory. *International Journal of Contemporary Hospitality Management*. *29*(8), 2027-2049.

Park, S., & Huang, Y. (2017). Motivators and inhibitors in booking a hotel via smartphones. *International Journal of Contemporary Hospitality Management*. *29*(1), 161-178.

Parker, K. & Igielnik, R. (2020, May 14). On the Cusp of Adulthood and Facing an Uncertain Future: What We Know About Gen Z So Far. Retrieved February 16,

2021, from https://www.pewresearch.org/social-trends/2020/05/14/on-the-cusp-of-adulthood-and-facing-an-uncertain-future-what-we-know-about-gen-z-so-far-2/

Paulo, M. M., Rita, P., Oliveira, T., & Moro, S. (2018). Understanding mobile augmented reality adoption in a consumer context. *Journal of Hospitality and Tourism Technology*, *9*(2), 142-157.

Pearce, P. L., & Zare, S. (2017). The orchestra model as the basis for teaching tourism experience design. *Journal of Hospitality and Tourism Management*, *30*, 55-64.

Petit, O., Velasco, C., & Spence, C. (2019). Digital sensory marketing: Integrating new technologies into multisensory online experience. *Journal of Interactive Marketing*, *45*, 42-61.

Petter, S., Straub, D., & Rai, A. (2007). Specifying formative constructs in information systems research. *MIS Quarterly*, 623-656.

Pijls, R., Groen, B. H., Galetzka, M., & Pruyn, A. T. (2017). Measuring the experience of hospitality: Scale development and validation. *International Journal of Hospitality Management*, *67*, 125-133.

Pillai, R., & Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management*. *32*(10), 3199-3266.

Pilon, A. (2016, August 2). Mobile Travel Apps Survey: Deals, Research Among Top Motivators. Retrieved November 1, 2019, from https://aytm.com/blog/mobile-travel-apps-survey/

Pine, B. J., & Gilmore, J. H. (1998). Welcome to the experience economy. *Harvard Business Review, 76*, 97-105.

Pine, J., & Gilmore, J. H. (1999). *The experience economy: Work is theatre & every business a stage*. Harvard Business Press.

Piramanayagam, S., Sud, S., & Seal, P. P. (2020). Relationship between tourists' local food experiencescape, satisfaction and behavioural intention. *Anatolia, 31*(2), 316-330.

Prayag, G., Hosany, S., Muskat, B., & Del Chiappa, G. (2017). Understanding the relationships between tourists' emotional experiences, perceived overall image, satisfaction, and intention to recommend. *Journal of Travel Research, 56*(1), 41-54.

Prebensen, N. K., Kim, H., & Uysal, M. (2016). Cocreation as moderator between the experience value and satisfaction relationship. *Journal of Travel Research, 55*(7), 934-945.

Prebensen, N. K., Vittersø, J., & Dahl, T. I. (2013). Value co-creation significance of tourist resources. *Annals of Tourism Research, 42*, 240-261.

Qiu, H., Li, M., Shu, B., & Bai, B. (2019). Enhancing hospitality experience with service robots: The mediating role of rapport building. *Journal of Hospitality Marketing & Management*, 1-22.

Quadri-Felitti, D., & Fiore, A. M. (2012). Experience economy constructs as a framework for understanding wine tourism. *Journal of Vacation Marketing, 18*(1), 3-15.

Quan, S., & Wang, N. (2004). Towards a structural model of the tourist experience: An illustration from food experiences in tourism. *Tourism Management*, *25*(3), 297-305.

Rageh, A., Melewar, T. C., & Woodside, A. (2013). Using netnography research method to reveal the underlying dimensions of the customer/tourist experience. *Qualitative Market Research: An International Journal*.

Raghunathan, R., & Corfman, K. (2006). Is happiness shared doubled and sadness shared halved? Social influence on enjoyment of hedonic experiences. *Journal of Marketing Research*, *43*(3), 386-394.

Rahman, N. H. A., Khalifah, Z., & Ismail, H. N. (2016). The role of sensory experiences in appreciating the cultural heritage attractions. *Tourism, Leisure and Global Change*, *3*, 117-128.

Ramseook-Munhurrun, P., Naidoo, P., Seebaluck, N. V., & Puttaroo, A. (2018, June). The Effects Of Push And Pull Travel Motivation On Tourist Experience, Tourist Satisfaction And Loyalty. In *8th Advances In Hospitality And Tourism Marketing And Management (Ahtmm) Conference* (p. 838).

Randall, T. (2021, February 4). When Will Life Return to Normal? In 7 Years at Today's Vaccine Rates. Retrieved February 19, 2021, from https://www.bloomberg.com/news/articles/2021-02-04/when-will-covid-pandemic-end-near-me-vaccine-coverage-calculator

Ren, L., Qiu, H., Wang, P., & Lin, P. M. (2016). Exploring customer experience with budget hotels: Dimensionality and satisfaction. *International Journal of Hospitality Management*, *52*, 13-23.

Resendes, S. (2020, August 18). 6 Restaurant Technology Trends to Look Out For in 2020. Retrieved September 14, 2020, from https://upserve.com/restaurant-insider/restaurant-technology-trends/

Revfine (2020, February 14). How Augmented Reality is Revolutionising the Travel Industry. Retrieved February 29, 2020, from https://www.revfine.com/augmented-reality-travel-industry/

Revfine (2020, February 7). Smart Hotel Room; What Are the Benefits for Hotel Owners and Guests. Retrieved April 11, 2020, from https://www.revfine.com/smart-hotel-room/

Rivera, M., Gregory, A., & Cobos, L. (2015). Mobile application for the timeshare industry: the influence of technology experience, usefulness, and attitude on behavioral intentions. *Journal of Hospitality and Tourism Technology*, *6*(3), 242-257.

Rogers, L. (2018, December 5). THE 10 BEST TRAVEL APPS TO PLAN A TRIP. Retrieved October 22, 2020, from https://viewfinder.expedia.com/best-travel-planning-apps/

Rouse, S. V. (2015). A reliability analysis of Mechanical Turk data. *Computers in Human Behavior*, *43*, 304-307.

Roy, S. K., Singh, G., Hope, M., Nguyen, B., & Harrigan, P. (2019). The rise of smart consumers: role of smart servicescape and smart consumer experience co-creation. *Journal of Marketing Management*, *35*(15-16), 1480-1513.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68.

Saariluoma, P., & Jokinen, J. P. (2014). Emotional dimensions of user experience: A user psychological analysis. *International Journal of Human-Computer Interaction*, *30*(4), 303-320.

Sagar, P. (2018, August 20). Why Restaurants Should Create An Augmented Reality App. Retrieved September 14, 2020, from https://www.digitaldoughnut.com/articles/2018/august/why-should-restaurants-decide-to-create-an-ar-app#:~:text=An%20Augmented%20reality%20restaurant%20app,engagement%20and%20improve%20brand%20visibility.

Salant, P., Dillman, I., & Don, A. (1994). *How to conduct your own survey* (No. 300.723 S3.).

Saldaña, J. (2013). *The coding manual for qualitative researchers*. Sage.

Samarathunga, W. H. M. S., Cheng, L., & Weerathunga, P. R. (2020). Transitional domestic tourist gaze in a post-war destination: A case study of Jaffna, Sri Lanka. *Tourism Management Perspectives*, *35*, 100693.

Sandell, R. G. (1968). Effects of attitudinal and situational factors on reported choice behavior. *Journal of Marketing Research*, *5*(4), 405-408.

Saratchandran, V. (2018, December 31). How Hotels are Using Technology for Competitive Advantage. Retrieved February 28, 2020, from

https://www.fingent.com/blog/how-hotels-are-using-technology-for-competitive-advantage

Schmitt, B. (1999). Experiential marketing. *Journal of Marketing Management*, *15*(1-3), 53-67.

Selya, A. S., Rose, J. S., Dierker, L. C., Hedeker, D., & Mermelstein, R. J. (2012). A practical guide to calculating Cohen's f^2, a measure of local effect size, from PROC MIXED. *Frontiers in Psychology*, *3*, 111.

Sharma, A., Park, S., & Nicolau, J. L. (2020). Testing loss aversion and diminishing sensitivity in review sentiment. *Tourism Management*, *77*, 104020.

Sharma, P., & Nayak, J. K. (2019). Understanding memorable tourism experiences as the determinants of tourists' behaviour. *International Journal of Tourism Research*, *21*(4), 504-518.

Sheldon, P. J., & Fox, M. (1988). The Role Of Foodservice I n Vacation Choice And Experience: A Cross-Cultural Analysis. *Journal of Travel Research*, *27*(2), 9-15.

Shi, S., Gursoy, D., & Chen, L. (2019). Conceptualizing home-sharing lodging experience and its impact on destination image perception: A mixed method approach. *Tourism Management*, *75*, 245-256.

Shin, H. H., & Jeong, M. (2020). Guests' perceptions of robot concierge and their adoption intentions. *International Journal of Contemporary Hospitality Management*, *32*(8), 2613-2633.

Shin, H., & Perdue, R. R. (2019). Self-Service Technology Research: a bibliometric co-citation visualization analysis. *International Journal of Hospitality Management*, *80*, 101-112.

Siebert, W. (2017, July 28). Using Restaurant Technology to Improve Customer Experiences. Retrieved February 29, 2020, from https://www.trycake.com/press/all/using-restaurant-technology-improve-customer-experiences/

Simon, F., & Usunier, J. C. (2007). Cognitive, demographic, and situational determinants of service customer preference for personnel-in-contact over self-service technology. *International Journal of Research in Marketing*, *24*(2), 163-173.

Singh, J., Goolsby, J. R., & Rhoads, G. K. (1994). Behavioral and psychological consequences of boundary spanning burnout for customer service representatives. *Journal of Marketing Research, 31*(4), 558-569.

SinglePlatform (2018, December 24). 8 Ways Customer-Facing Dining Tech Improves the Guest Experience. Retrieved February 29, 2020, from https://www.singleplatform.com/blog/restaurant-customer-experience/dining-experience/8-ways-customer-facing-dining-tech-improves-guest-experience/

Sipe, L. J., & Testa, M. R. (2018). From satisfied to memorable: An empirical study of service and experience dimensions on guest outcomes in the hospitality industry. *Journal of Hospitality Marketing & Management*, *27*(2), 178-195.

Skavronskaya, L., Moyle, B., Scott, N., & Kralj, A. (2020). The psychology of novelty in memorable tourism experiences. *Current Issues in Tourism*, *23*(21), 2683-2698.

Skelia (2019, December 26). TOP 9 IT TRENDS IN TRAVEL INDUSTRY 2020. Retrieved February 28, 2020, from https://skelia.com/news/top-9-it-trends-in-travel-industry-2020/

Smith, S. L., Xiao, H., Nunkoo, R., & Tukamushaba, E. K. (2013). Theory in hospitality, tourism, and leisure studies. *Journal of Hospitality Marketing & Management*, *22*(8), 875-894.

SMSValet (2016, November 16). Hotels Are Embracing New Technology to Simplify Parking. Retrieved February 28, 2020, from https://smsvalet.com/blog/hotels-embracing-new-technology-simplify-parking/

Song, H. J., Lee, C. K., Park, J. A., Hwang, Y. H., & Reisinger, Y. (2015). The influence of tourist experience on perceived value and satisfaction with temple stays: The experience economy theory. *Journal of Travel & Tourism Marketing*, *32*(4), 401-415.

Spreng, R. A., MacKenzie, S. B., & Olshavsky, R. W. (1996). A reexamination of the determinants of consumer satisfaction. *Journal of Marketing, 60*(3), 15-32.

Stanley, C. (2018, February 26). 9 Must-Have Guest Facing Technologies for a Restaurant. Retrieved February 29, 2020, from https://revelsystems.com/blog/2018/02/26/9-must-have-guest-facing-technologies-for-a-restaurant/

Starkov, Max (2019, March 6). Hospitality Digital Technology: Challenges, Priorities, and Buzzwords. Retrieved November 1, 2019, from https://www.nextguestdigital.com/blog/hospitality-digital-tech/

Sternberg, E. (1997). The iconography of the tourism experience. *Annals of Tourism Research, 24*(4), 951-969.

Stfalcon (2018, December 6). Top 10 Travel Industry Trends in 2019. Retrieved February 29, 2020, from https://medium.com/swlh/top-10-travel-industry-trends-in-2019-d43d157de7b9

Suarez, N., Berezina, K., Yang, W., & Gordon, S. (2019). Are restaurant customers ready for tablet-based menus?. *International Journal of Contemporary Hospitality Management*, *31*(7), 2914-2931.

Susskind, A. M., Awan, S., Parikh, R., & Suri, R. (2019). Guests' Reactions to Tabletop Technology in Full-Service Restaurants. *The Next Frontier of Restaurant Management: Harnessing Data to Improve Guest Service and Enhance the Employee Experience*, 194.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5). Boston, MA: Pearson.

Tang, L. R., Jang, S. S., & Morrison, A. (2012). Dual-route communication of destination websites. *Tourism Management*, *33*(1), 38-49.

Tankovska, H. (2020, August 27). Technology products' household penetration rates in the U.S. in 2018. Retrieved October 8, 2020, from https://www.statista.com/statistics/895973/united-states-tech-product-penetration-rate/

Tankovska, H. (2020, September 30). iPad - Statistics & Facts. Retrieved October 7, 2020, from https://www.statista.com/topics/877/ipad/

Taylor, J. (2018, March 16). From Boomers To Gen Z: How Different Generations Adapt And React To New Trends And Technologies. Retrieved October 1, 2019, from https://emea.epsilon.com/blog/from-boomers-to-gen-z.

Tetreault, A., & Beltis A. (2019, July 17). 60 Restaurant Industry Statistics for Restaurant Owners in 2019. Retrieved February 29, 2020, from https://pos.toasttab.com/blog/restaurant-management-statistics

Thorne, F. C. (1963). The clinical use of peak and nadir experience reports. *Journal of Clinical Psychology*.

Titz, K. (2007). Experiential consumption: Affect–emotions–hedonism. *Handbook of Hospitality Marketing Management*, 324-352.

tom Dieck, M. C., Jung, T. H., & Rauschnabel, P. A. (2018). Determining visitor engagement through augmented reality at science festivals: An experience economy perspective. *Computers in Human Behavior*, *82*, 44-53.

Tribe, J., & Mkono, M. (2017). Not such smart tourism? The concept of e-lienation. *Annals of Tourism Research*, *66*, 105-115.

Truong, N., Nisar, T., Knox, D., & Prabhakar, G. (2017). The influences of cleanliness and employee attributes on perceived service quality in restaurants in a developing country. *International Journal of Culture, Tourism and Hospitality Research*.

Tsaur, S. H., Chiu, Y. T., & Wang, C. H. (2007). The visitors behavioral consequences of experiential marketing: An empirical study on Taipei Zoo. *Journal of Travel & Tourism Marketing*, *21*(1), 47-64.

Tseng, A. (2017). Why do online tourists need sellers' ratings? Exploration of the factors affecting regretful tourist e-satisfaction. *Tourism Management*, *59*, 413-424.

Tsourela, M., & Roumeliotis, M. (2015). The moderating role of technology readiness, gender, and sex in consumer acceptance and actual use of Technology-based services. *The Journal of High Technology Management Research*, *26*(2), 124-136.

Tung, V. W. S., & Au, N. (2018). Exploring customer experiences with robotics in hospitality. *International Journal of Contemporary Hospitality Management*, *30*(7), 2680-2697.

Tung, V. W. S., & Ritchie, J. B. (2011). Exploring the essence of memorable tourism experiences. *Annals of Tourism Research*, *38*(4), 1367-1386.

Turner III, D. W. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report*, *15*(3), 754.

Turner, A. (2020, February 20). HOW MANY SMARTPHONES ARE IN THE WORLD?. Retrieved February 29, 2020, from https://www.bankmycell.com/blog/how-many-phones-are-in-the-world

Tussyadiah, I. (2020). A review of research into automation in tourism: Launching the Annals of Tourism Research Curated Collection on Artificial Intelligence and Robotics in Tourism. *Annals of Tourism Research*, *81*, 102883.

Tussyadiah, I. P. (2016). The influence of innovativeness on on-site smartphone use among American travelers: Implications for context-based push marketing. *Journal of Travel & Tourism Marketing*, *33*(6), 806-823.

Tussyadiah, I. P., & Park, S. (2018). Consumer evaluation of hotel service robots. In *Information And Communication Technologies In Tourism 2018* (pp. 308-320). Springer, Cham.

Tussyadiah, I. P., Jung, T. H., & tom Dieck, M. C. (2018). Embodiment of wearable augmented reality technology in tourism experiences. *Journal of Travel Research, 57*(5), 597-611.

Tussyadiah, I., & Zach, F. (2011, January). The influence of technology on geographic cognition and tourism experience. In *ENTER* (pp. 279-291).

Tyng, C. M., Amin, H. U., Saad, M. N., & Malik, A. S. (2017). The influences of emotion on learning and memory. *Frontiers in Psychology, 8*, 1454.

Ukpabi, D. C., & Karjaluoto, H. (2017). Consumers' acceptance of information and communications technology in tourism: A review. *Telematics and Informatics, 34*(5), 618-644.

Uriely, N. (2005). The tourist experience: Conceptual developments. *Annals of Tourism Research, 32*(1), 199-216.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204.

Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer experience creation: Determinants, dynamics and management strategies. *Journal of Retailing, 85*(1), 31-41.

Vidal, B. (2019, December 5). The New Technology and Travel Revolution. Retrieved February 28, 2020, from https://www.wearemarketing.com/blog/tourism-and-technology-how-tech-is-revolutionizing-travel.html

Vogt, C. A., & Stewart, S. I. (1998). Affective and cognitive effects of information use over the course of a vacation. *Journal of Leisure Research, 30*(4), 498-520.

Volpe, M. (2019, June 19). Are You Ready For The AR/VR Revolution In Restaurant Online Ordering? Retrieved September 14, 2020, from https://9fold.me/ar-vr-in-restaurant-online-ordering/

Walker, J. R. (2016). *Exploring the hospitality industry* (3rd ed.). Boston: Pearson.

Walls, A. R., Okumus, F., Wang, Y. R., & Kwun, D. J. W. (2011). An epistemological view of consumer experiences. *International Journal of Hospitality Management*, *30*(1), 10-21.

Walls, A., Okumus, F., Wang, Y., & Kwun, D. J. W. (2011). Understanding the consumer experience: An exploratory study of luxury hotels. *Journal of Hospitality Marketing & Management*, *20*(2), 166-197.

Wang, Y., So, K. K. F., & Sparks, B. A. (2017). Technology readiness and customer satisfaction with travel technologies: A cross-country investigation. *Journal of Travel Research*, *56*(5), 563-577.

Weissmann, A. (2016, October 9). Hotels without humans. Retrieved February 19, 2021, from https://www.travelweekly.com/Arnie-Weissmann/Hotels-without-humans

Wong, J., & Law, R. (2005). Analysing the intention to purchase on hotel websites: a study of travellers to Hong Kong. *International Journal of Hospitality Management*, *24*(3), 311-329.

Xiang, Z. (2018). From digitization to the age of acceleration: On information technology and tourism. *Tourism Management Perspectives*, *25*, 147-150.

Yim, M. Y. C., Chu, S. C., & Sauer, P. L. (2017). Is augmented reality technology an effective tool for e-commerce? An interactivity and vividness perspective. *Journal of Interactive Marketing*, *39*, 89-103.

Yoo, C. W., Goo, J., Huang, C. D., Nam, K., & Woo, M. (2017). Improving travel decision support satisfaction with smart tourism technologies: A framework of tourist elaboration likelihood and self-efficacy. *Technological Forecasting and Social Change*, *123*, 330-341.

Yoon, S., Kim, J., & Connolly, D. J. (2018). Understanding motivations and acceptance of location-based services. *International Journal of Hospitality & Tourism Administration*, *19*(2), 187-209.

York, J. (2017, March 17). PaycomVoice: The Millennial Expectation of Technology in the Workplace. Retrieved October 24, 2017, from https://www.forbes.com/sites/paycom/2017/03/08/the-millennial-expectation-of-technology-in-the-workplace/#64ce6a34a507

Young, S. N. (2008). The neurobiology of human social behaviour: an important but neglected topic. *Journal of Psychiatry & Neuroscience: JPN*, *33*(5), 391.

Yueksel, A. (2000). Foodservice experience and tourist satisfaction and their implications for destinations.

Yüksel, A., & Yüksel, F. (2008). Consumer satisfaction theories: a critical review. *Tourist satisfaction and complaining behavior: Measurement and management issues in the tourism and hospitality industry*, 65-88.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, *9*(2p2), 1.

Zhang, T. C., Jahromi, M. F., & Kizildag, M. (2018). Value co-creation in a sharing economy: The end of price wars?. *International Journal of Hospitality Management*, *71*, 51-58.

Zhang, T. C., Omran, B. A., & Cobanoglu, C. (2017). Generation Y's positive and negative eWOM: use of social media and mobile technology. *International Journal of Contemporary Hospitality Management, 28*(2), 732-761.

Zhao, L., Lu, Y., Zhang, L., & Chau, P. Y. (2012). Assessing the effects of service quality and justice on customer satisfaction and the continuance intention of mobile value-added services: An empirical test of a multidimensional model. *Decision Support Systems, 52*(3), 645-656.

APPENDIX A

IRB APPROVAL FOR FOCUS GROUP DISCUSSION

OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for EXEMPT REVIEW

Hyejo Hailey Shin
College of Hospitality, Retail & Sport Management
Hospitality Management
701 Assembly Street, Room 1014-A,
Columbia, SC 29208

Re: **Pro00105143**

Dear Ms. Hyejo Hailey Shin:

This is to certify that the research study ***Exploratory Technology Experience*** was reviewed in accordance with 45 CFR 46.104(d)(2) and 45 CFR 46.111(a)(7), the study received an exemption from Human Research Subject Regulations on **10/15/2020**. No further action or Institutional Review Board (IRB) oversight is required, as long as the study remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research study could result in a reclassification of the study and further review by the IRB.

Because this study was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

All research related records are to be retained for at least three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Lisa Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager

APPENDIX B

FOCUS GROUP DISCUSSION RECRUITMENT FLYER

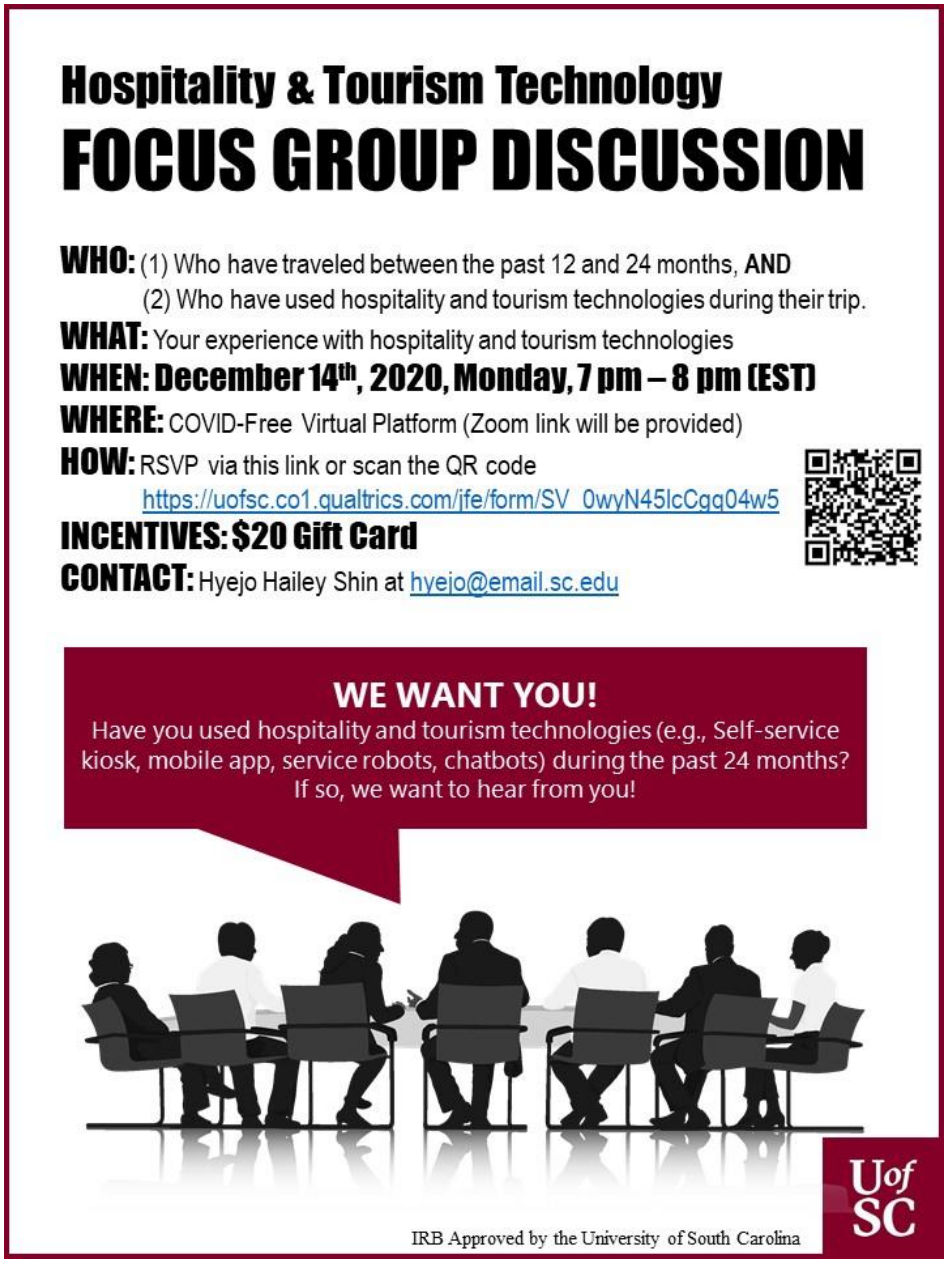


Figure B.1. Focus Group Discussants Recruitment Advertisement

APPENDIX C

FOCUS GROUP DISCUSSION CONSENT FORM

HRTM
School of Hotel, Restaurant and Tourism Management

Hospitality & Tourism

Technology Experience

Dear Participants,

I am Hyejo Hailey Shin, a Ph.D. Candidate in School of Hotel, Restaurant & Tourism Management at the University of South Carolina. I am conducting a research study as part of the requirements of my degree in Hospitality Management under the guidance of Dr. Miyoung Jeong.

The purpose of this study is to develop a comprehensive understanding of individuals' experience with hospitality and tourism technology (Definitions are provided at the end for a clear understanding of the concept). You are invited to participate in a focus group discussion to investigate how individuals' experience with hospitality and tourism technology is shaped. The information obtained from this focus group discussion will be used for educational purposes, including publication in professional/scientific journals.

As part of this study, you will be placed in a group of approximately 5 individuals. A moderator will ask you several questions while facilitating the discussion about your experience with hospitality and tourism technology. You do not have to answer any questions that you do not wish to answer.
You can choose whether or not to participate in the focus group, and you may stop at any time during the course of the study. You will receive a **$20 gift card** upon your complete participation in the discussion.

The discussion will take place on **the following dates**, and should last about **an hour**.

- **December 14th, 2020, Monday, at 7 pm (EST)**
- **December 21st, 2020, Monday, at 7 pm (EST)**

As approved through the University of South Carolina's Institutional Review Board, this focus group will be audio-recorded and a note-taker will be present so that the discussion can be transcribed accurately. However, your responses will remain confidential, and no names will be included in the final report. The tapes will only be reviewed by members of the research team and destroyed upon completion of the study.

Please note that there are no right or wrong answers to focus group questions. The researchers want to hear the many varying viewpoints and would like for everyone to contribute their thoughts. Out of respect, please refrain from interrupting others. However, feel free to be honest even when your responses counter those of other group members.

Your participation may benefit you and other potential users of hospitality and tourism technology by helping further understanding of how individuals' experiences with technology are shaped and affect overall experiences. However, no risks are anticipated beyond those experienced during an average conversation.

Participation is confidential, which means that no one (not even the research team) will know what your answers are. Others in the group will hear what you say, and it is possible that they could tell someone else. Because we will be talking in a group, we cannot promise that what you say will remain completely private, but we will ask that you and all other group members respect the privacy of everyone in the group. So, please do not write your name or other identifying information on any of the study materials and respect the privacy of other focus group members by not disclosing any content discussed during the study. The researchers will analyze the data, but—as stated above—your responses will remain confidential and anonymous. In other words, no personally identifiable information will be included in any reports.

We will be happy to answer any questions you have about the study.
If you have any questions or concerns regarding this study, please contact me at hyejo@email.sc.edu, (803) 777 – 9656.

If you would like to participate, please sign the consent form below and complete the following sections.

With kind regards

Hyejo Hailey Shin
hyejo@email.sc.edu
(803) 777 – 9656
School of Hotel, Restaurant & Tourism Management
University of South Carolina
1705 College St, Columbia, SC 29208, USA

I understand the information about this research project and agree to participate fully under the conditions stated above.

- ☐ Yes
- ☐ No

Please select the "Participate" option that best works to your availability.

- ☐ Participate on December 14th, 2020, Monday at 7 pm EST
- ☐ Participate on December 21st, 2020, Monday at 7 pm EST
- ☐ Withdraw

I would commit to thoughtfully provide my best answers to each question in the following sections and during the discussion.

- ☐ Yes
- ☐ No

APPENDIX D

FOCUS GROUP DISCUSSION PROTOCOL

Introduction

- Hello, I am Hyejo Hailey Shin, a Ph.D. Candidate in Hospitality Management at the University of South Carolina. I appreciate your time and help participating in this study.
- The discussion will be taking around an hour and it will be tape recorded and transcribed for further data analysis.
- Your identity and all information you will be providing during the discussion will be strictly confidential. None of your personal information, such as your name, will be reported. Also, your personal information will not be attached to the comments you would be making today's discussion. The information collected today is solely used for my dissertation and academic research.
- In today's discussion, I want to talk about your experience with hospitality and tourism technologies. I believe you are familiar with the terms, such as the hospitality and tourism industry, hospitality and tourism technology, and technology experience, as they were explained in the consent form. However, I would like to reiterate the definition of those important terms for a smoother discussion today.
    - (Definitions will be shared via Zoom Screen share)
- The goal of this study is to how you feel about your experience with hospitality and tourism technology. And, I am mostly interested in your perception of your experience with hospitality and tourism technology, regardless the type of technology.
- If you have any questions about this project or what I have told you so far, feel free to ask me. Also, you can ask me questions after the discussion.

Opening & Type of Technologies

- I would like to go back to when we were not in the pandemic, a time you traveled, stayed at a hotel, and enjoyed your life.
- Before the COVID-19 pandemic, please remember your last trip and the place (e.g., hotel, restaurant, museum, destination overall) you used technology to facilitate your travel. Please tell me about the type of the place (e.g., hotel), name of the place, how long you were there, and what technologies you used.

Specific Technology:

- You used many technologies. Which one did you use the most? (Heavily? frequently?) Which one do you have clearest memory?
- How many times did you use the technology?
- Why did you use the technology?

Pragmatic Experience:

- Can you tell me more about how it was easier or convenient?
    - How long did it take for the service?
    - Was the technology responding immediately?
- How did you feel about using the technology?
- Is there any other issue with the technology? (in terms of technical aspects?)

Relational Experience:

- By the way, were you alone (by yourself) or with others?
    - Can you please tell me about your interpersonal activities while using the technology?
- Were you able to communicate with others while using the {technology}?
    - Did the {technology} help you connect you to others?
    - Did the {technology} promote new relationships?
- Did you have anyone with you when using the {technology}?
    - Did the {technology} play any role in the relationship between you and the person you were with when you were using the {technology}?
    - Did the {technology} help you improving your relationship with the person you were with when you were using the {technology}?

Emotional Experience:

- Can you please describe how you felt when you were using the {technology}?
    - Would you please give me some adjectives that would describe your feelings while you were using the {technology}?

  You can tell me your feelings when you were using other technologies.
- Did you use other technologies while you were traveling?

Sensorial Experience:

- Can you please tell me how technologies gave you sensorial appeals?
    - Any technology you used while you were traveling is fine.
- How about the sensorial appeals the {technology} gave you?
- Did {technology} gave you any visual, aural, olfactory, gustatory, or tactile stimulus?

Cognitive Experience:

- Did you use any other technology while you were traveling to help you learn about, getting information, or solve problem?
    - If you had, please tell me about it.
- Can you tell me more about it?

Overall:

- Thank you for your answers.
- How did you feel about using hospitality and tourism technologies?
- If you have to describe or summarize your technology experience using more than 5 but less than 10 words or phrases, what would be your description?
- How was your overall assessment of your experience with those technologies?
- How much satisfied were you with those technologies?
- How was your overall evaluation of your travel experience?
- How much satisfied were you with your entire trip?

- Do you think the technologies you used during your travel influenced your travel experience/satisfaction?
    - If technology affected your overall experience/satisfaction, how it influenced your travel? And to what extent it affected?
    - If technology did not affect your overall experience/satisfaction, what would be the reason?

Others:

- Among your various experience with technology, was there any particular point you think very important to you?
- Were there any particular factors that you think less important in your overall technology experience?
- Do you think you can get the same service from human employees?
- If you were able to get the same service from human, would your experience be different?
    - What do you think would be the main difference between human service and technology service?
- Please tell me if you have any other thought you would like to share.

APPENDIX E

IRB APPROVAL FOR ONLINE SURVEY

UNIVERSITY OF
SOUTH CAROLINA

OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for EXEMPT REVIEW

Hyejo Hailey Shin
College of Hospitality, Retail & Sport Management
Hospitality Management
701 Assembly Street, Room 1014-A,
Columbia, SC 29208

Re: **Pro00105310**

Dear Ms. Hyejo Hailey Shin:

This is to certify that the research study ***Technology Experience: Measurement Validation*** was reviewed in accordance with 45 CFR 46.104(d)(2) and 45 CFR 46.111(a)(7), the study received an exemption from Human Research Subject Regulations on **1/21/2021**. No further action or Institutional Review Board (IRB) oversight is required, as long as the study remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research study could result in a reclassification of the study and further review by the IRB.

Because this study was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

All research related records are to be retained for at least three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Lisa Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager

APPENDIX F

MEASUREMENT ASSESSMENT SURVEY

[SECTION 1] CONSENT FORMS AND SCREENING QUESTIONS

Consent Form.
Dear Participants,

I am Hyejo Hailey Shin, Ph.D. Candidate in Hospitality Management at the University of South Carolina.
You are being kindly invited to participate in this study about individuals' experience with hospitality and tourism technology. Your response will help us better understand how people's experience with hospitality and tourism technology is shaped.

The expected duration of the survey is approximately 15 minutes. Your participation is entirely voluntary and you may refuse to participate or withdraw your participation at any time. The results of this study may be published in professional/scientific journals or used for educational purposes, but no information about you will be identified.

If you have any questions or concerns, please feel free to contact me at hyejo@email.sc.edu or (803) 777 – 9656.

Thank you for your participation.

Sincerely,

Hyejo Hailey Shin
Ph.D. Candidate
School of Hotel, Restaurant & Tourism Management
University of South Carolina

Miyoung Jeong, Ph.D.
Professor
School of Hotel, Restaurant & Tourism Management
University of South Carolina

Consent 1.
Please select “Participate” if you would like to participate in this research study.

- Participate
- Withdraw

Consent 2.
Please note that if you don't provide sincere and genuine responses to questions and/or you answer "incorrect attention check questions", your MTurk HIT will be rejected.

- I understand.
- I would like to withdraw.

Hospitality and Tourism Industry.
Please read the following concepts carefully.
The hospitality and tourism industry: a service industry consists of a variety of industry segments, including lodging, food & beverage, travel, and event (I-CHRIE, 2004; Ottenbacher, Harrington, & Parsa, 2009).

The Hospitality & Tourism Industry			
Lodging	Foods and Beverages	Events	Travel
Hotels Motels Resorts Sharing Accommodations Vacation Ownerships Time Shares	Full-service Restaurants Quick-service Restaurants Caterings Bars & Taverns Food Trucks	Meetings Conventions Incentive Travel Exhibitions Expositions	Visitor Attractions Gaming Parks Recreations Cruise Transportations

Screening 1.
Do you understand the concept of the hospitality and tourism industry?

- Yes
- No

Screening 2.
Did you use hospitality and tourism services in 2019?

- Yes
- No

Hospitality and Tourism Technology
Hospitality and tourism technology: both general and specific technology that is used to enhance stakeholders’ experience and to increase the added-values.
Examples of hospitality and tourism technology include: mobile applications for information (e.g., travel application, such as Lonely Planet, transportation, such as Uber), self-service technologies (SSTs) at hotels and restaurants (e.g., self-check-in/out, self-ordering kiosks), service robots (e.g., luggage delivery robot, such as Botlr), artificial intelligence (e.g., chatbot), smart technology (e.g., smart room in a hotel), virtual/augmented reality (e.g., heritage sites with Google glasses), and so on.

Please see the attached file for more examples of hospitality and tourism technologies. (Hospitality and Tourism Technology Examples.pdf)

Screening 3.
Do you understand the concept of hospitality and tourism technology?

- Yes
- No

Screening 4.
Did you use hospitality and tourism technologies in 2019?

- Yes
- No

[SECTION 2] HOSPITALITY AND TOURISM TECHNOLOGY USAGE

Last Time.
When was your last time using hospitality and tourism technologies?

- January 2019 (1) … December 2019 (12)

Where All.
Where did you use hospitality and tourism technologies last time? (Please choose all that apply)

- Lodging Sector (e.g., Hotel, Resorts, Airbnb)
- Food & Beverage Sector (e.g., Restaurants, Bars)
- Travel (e,g., Attractions, Parks, Gaming, Tourism Destinations, Transportations)
- Event related (e.g., Meetings, Conventions, Expositions, Exhibitions)
- Others (please specify) _____

Where Most.
Where did you use hospitality and tourism technologies the most?

- Forward selected choice from the previous question.

All Technology Use.

How often did you use the following hospitality and tourism technology?

Item	Never	Rarely	Occasionally/ Sometimes	Frequently	Extremely Frequently
Self-Service Technology (e.g., Self Check-in/out, Self-Service Kiosk/Ordering)	○	○	○	○	○
Informative Mobile App (e.g., Travel Guide App, Maps, Restaurant Wait Check, TripIt)	○	○	○	○	○
Booking/Reservation/Planning Mobile App (e.g., Airbnb, Uber)	○	○	○	○	○
Social Mobile App (e.g., Social Media, Online Review)	○	○	○	○	○
AI Guest Service (e.g., Mobile Concierge, Voice-Assistant (Alexa), Robot, Chatbot)	○	○	○	○	○
Augmented Reality (AR), Virtual Reality (VR), Wearables (e.g., Google Glass)	○	○	○	○	○
Gamification (e.g., Pokemon Go Travel, Interactive Museum Games)	○	○	○	○	○
Mobile RFID, NFC (e.g., Mobile Payment, NFC Travel Tag)	○	○	○	○	○
Ubiquitous Wi-Fi, Public 5G	○	○	○	○	○
Others (please specify)	○	○	○	○	○

Technology Purpose.
What were the purposes of using hospitality and tourism technologies? (Please choose all that apply)

- Entertainment
- Information Search
- Convenience
- Comfort
- Networking & Communications
- Safety & Security
- Booking/Reservation
- Others (please specify) _____

Primary Purpose.
What was the primary purpose of using hospitality and tourism technologies?

- Forward selected choice from the previous question.

Voluntariness.
Please check the option that best represents your usage of hospitality and tourism technologies.
Using hospitality and tourism technologies was...

- Involuntary (1) … Voluntary (7)
- Compulsory (1) … Noncompulsory (7)
- Required (1) … Optional (7)

Voluntariness Reason
What was the main reason you voluntarily or involuntarily used the hospitality and tourism technology?

_____
_____
_____

Options
Did you have any other options other than the technology, such as human staff?

- Yes (please specify the available options) _____
- No

[SECTION 3] TECHNOLOGY EXPERIENCE

Instruction.
The following section will ask you about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Sensorial Experience.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Hospitality and tourism technologies appealed to my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○
Hospitality and tourism technologies provided sensuous descriptions about the hotel/restaurant/destination (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○
Hospitality and tourism technologies provided vivid descriptions about the hotel/restaurant/destination (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○
Hospitality and tourism technologies were attractive to my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○

Hospitality and tourism technologies were pleasing to my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○
Hospitality and tourism technologies were engaging my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○

Cognitive Experience.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
By using hospitality and tourism technologies, I knew better about the hotel/restaurant/destination.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I gained rich information about the hotel/restaurant/destination.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I gathered more information about the hotel/restaurant/destination.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I processed information about the hotel/restaurant/destination.	○	○	○	○	○	○	○
Using hospitality and tourism technologies helped me understand more about the hotel/restaurant/destination.	○	○	○	○	○	○	○

Pragmatic Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)

- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Hospitality and tourism technologies were...

- Useless (1) … Useful (7)
- Inapplicable (1) … Applicable (7)

Using hospitality and tourism technologies was...

- Difficult (1) … Easy (7)
- Complex (1) … Simple (7)
- Impractical (1) … Practical (7)
- Non-functional (1) … Functional (7)
- Flawed (1) … Seamless (7)

Please indicate the option that best represent your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Using hospitality and tourism technologies required considerable effort.	○	○	○	○	○	○	○
Using hospitality and tourism technologies needed a substantial effort.	○	○	○	○	○	○	○
Using hospitality and tourism technologies imposed me large endeavor.	○	○	○	○	○	○	○

Emotional Experience.
Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Using hospitality and tourism technologies made me feel…

- Frustrated (1) … Relieved (7)
- Unhappy (1) … Happy (7)
- Anxious (1) … Relaxed (7)

Using hospitality and tourism technologies was...

- Unpleasant (1) … Pleasant (7)
- Boring (1) … Fun (7)
- Dull (1) … Exciting (7)
- Uninteresting (1) … Interesting (7)
- Terrible (1) … Delightful (7)
- Unamusing (1) … Amusing (7)

Instruction.
Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Relational Experience.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
I was able to connect with others through hospitality and tourism technologies.	○	○	○	○	○	○	○
I was able to communicate with others through hospitality and tourism technologies.	○	○	○	○	○	○	○
I felt connected with others by using hospitality and tourism technologies.	○	○	○	○	○	○	○
Hospitality and tourism technologies were bridging me and others.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made me a part of the community.	○	○	○	○	○	○	○

Unique Experience.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
My experience with hospitality and tourism technologies was new.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was something that I did not expect.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was novel.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was innovative.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was extraordinary.	○	○	○	○	○	○	○

Instruction.
Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Familiar Experience.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Using hospitality and tourism technologies at the hotel/restaurant/destination was not that different from my day-to-day life.	○	○	○	○	○	○	○
Hospitality and tourism technologies were connectable to my daily life.	○	○	○	○	○	○	○
I felt something similar at the hotel/restaurant/destination by using hospitality and tourism technologies.	○	○	○	○	○	○	○
I felt something familiar at the hotel/restaurant/destination by using hospitality and tourism technologies.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, my travel experience was consistent with my daily life.	○	○	○	○	○	○	○

By using hospitality and tourism technologies, I was able to experience what I used to feel in my daily life.	○	○	○	○	○	○	○

Instruction.
Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Controllable Experience.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Using hospitality and tourism technologies allowed me to control my plans or activities.	○	○	○	○	○	○	○
Using hospitality and tourism technologies helped me control my plans or activities.	○	○	○	○	○	○	○
Using hospitality and tourism technologies assisted me in adjusting my plans or activities based on my situation.	○	○	○	○	○	○	○
Using hospitality and tourism technologies facilitated my control over my plans or activities.	○	○	○	○	○	○	○
Using hospitality and tourism technologies helped me organize my plans or activities.	○	○	○	○	○	○	○

Using hospitality and tourism technologies assisted me in completing my plans or activities.	○	○	○	○	○	○	○
Using hospitality and tourism technologies supported me to have my plans or activities under control.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I was able to adjust my travel plans no matter what happened.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I was able to cope with an unexpected situation.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I could organize my plans or activities based on my needs.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I was able to alter my plans or activities.	○	○	○	○	○	○	○

Economical Experience.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more reasonable.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more affordable.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more inexpensive.	○	○	○	○	○	○	○

Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more economical.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more price-competitive.	○	○	○	○	○	○	○

[SECTION 4] CONSEQUENCES OF TECHNOLOGY EXPERIENCE

Overall Experience with Hospitality and Tourism Technologies.

The following questions are about your overall experience with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
My experience with hospitality and tourism technologies was enjoyable.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was good.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was unforgettable.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was memorable.	○	○	○	○	○	○	○

Overall Experience.

The following questions are about your overall experience at the hotel/restaurant/destination.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
My experience at the hotel/restaurant/destination was enjoyable.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was good.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was unforgettable.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was memorable.	○	○	○	○	○	○	○

Satisfaction with Hospitality and Tourism Technologies.

The following questions are about your satisfaction with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Overall, I was satisfied with the hospitality and tourism technologies.	○	○	○	○	○	○	○
The hospitality and tourism technologies exceeded my expectations.	○	○	○	○	○	○	○

The hospitality and tourism technologies available were close to my ideal technologies.	○	○	○	○	○	○	○

Overall Satisfaction.

The following questions are about your satisfaction with the hotel/restaurant/destination.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Overall, I was satisfied with my experience at the hotel/restaurant/destination.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination exceeded my expectations.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was close to my ideal experience at the hotel/restaurant/destination.	○	○	○	○	○	○	○

Intention toward Hospitality and Tourism Technologies.

The following questions are about your satisfaction with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
I want to use hospitality and tourism technologies again.	○	○	○	○	○	○	○

I would recommend the hospitality and tourism technologies to family and friends.	○	○	○	○	○	○	○
I would say positive things about hospitality and tourism technologies to other people.	○	○	○	○	○	○	○

Intention toward Hotel/Restaurant/Destination.

The following questions are about your future intention toward the hotel/restaurant/destination.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
I want to visit the hotel/restaurant/destination again.	○	○	○	○	○	○	○
I would recommend the hotel/restaurant/destination to family and friends.	○	○	○	○	○	○	○
I would say positive things about the hotel/restaurant/destination to other people.	○	○	○	○	○	○	○

[SECTION 5] SOCIO-DEMOGRAPHIC INFORMATION
A few more questions about yourself.

Gender.
Your gender:
- Male
- Female

Age.
The year you were born: (e.g., 1990)
_____

Education Level.
Your highest level of education:
- Less than high school degree
- High school graduate (High school diploma or equivalent)
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Postgraduate Degree
- Others

Employment Status.
You are:
- Employed full time
- Employed part time
- Self-employed or business owner
- Unemployed or Students
- Retired
- Others

Household Income.
Your household income before taxes:
- $30,00 or less
- $30,001 to $50,000
- $50,001 to $70,000
- $70,001 to $90,000
- $90,001 to $110,000
- More than $110,000

Ethnicity.
Your ethnicity:
- Caucasian
- Black or African American
- American Indian or Alaska Native

- Asian
- Native Hawaiian or Pacific Islander
- Other

Travel Motivation.
What is your typical travel motivation?
- Exclusively business
- Mostly business
- Business/leisure combined
- Mostly leisure
- Exclusively leisure

Frequency of Travel.
How frequently do you travel per year? (Please specify in a numeric format, e.g., 3)
_____

Travel Duration.
How long is your typical travel duration? (Please specify in a numeric format)
e.g., 2 nights 3 days: 3
_____

Greeting.
Thank you so much for your participation.

Sincerely,

Hyejo Hailey Shin
Ph.D. Candidate
Miyoung Jeong. Ph.D.
Professor
School of Hotel, Restaurant & Tourism Management
University of South Carolina
1705 College St, Columbia, SC 29208, USA

APPENDIX G

MEASUREMENT VALIDATION SURVEY

[SECTION 1] CONSENT FORMS AND SCREENING QUESTIONS

Consent Form.
Dear Participants,

I am Hyejo Hailey Shin, Ph.D. Candidate in Hospitality Management at the University of South Carolina.
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If you have any questions or concerns, please feel free to contact me at hyejo@email.sc.edu or (803) 777 – 9656.

Thank you for your participation.

Sincerely,

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Ph.D. Candidate
School of Hotel, Restaurant & Tourism Management
University of South Carolina

Miyoung Jeong, Ph.D.
Professor
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University of South Carolina

Consent 1.
Please select “Participate” if you would like to participate in this research study.

- Participate
- Withdraw

Consent 2.
Please note that if you don't provide sincere and genuine responses to questions and/or you answer "incorrect attention check questions", your MTurk HIT will be rejected.

- I understand.
- I would like to withdraw.

Hospitality and Tourism Industry.
Please read the following concepts carefully.
The hospitality and tourism industry: a service industry consists of a variety of industry segments, including lodging, food & beverage, travel, and event (I-CHRIE, 2004; Ottenbacher, Harrington, & Parsa, 2009).

The Hospitality & Tourism Industry			
Lodging	Foods and Beverages	Events	Travel
Hotels Motels Resorts Sharing Accommodations Vacation Ownerships Time Shares	Full-service Restaurants Quick-service Restaurants Caterings Bars & Taverns Food Trucks	Meetings Conventions Incentive Travel Exhibitions Expositions	Visitor Attractions Gaming Parks Recreations Cruise Transportations

Screening 1.
Do you understand the concept of the hospitality and tourism industry?

- Yes
- No

Screening 2.
Did you use hospitality and tourism services in 2019?

- Yes
- No

Hospitality and Tourism Technology.
Hospitality and tourism technology: both general and specific technology that is used to enhance stakeholders’ experience and to increase the added-values.
Examples of hospitality and tourism technology include: mobile applications for information (e.g., travel application, such as Lonely Planet, transportation, such as Uber), self-service technologies (SSTs) at hotels and restaurants (e.g., self-check-in/out, self-ordering kiosks), service robots (e.g., luggage delivery robot, such as Botlr), artificial intelligence (e.g., chatbot), smart technology (e.g., smart room in a hotel), virtual/augmented reality (e.g., heritage sites with Google glasses), and so on.

Please see the attached file for more examples of hospitality and tourism technologies. (Hospitality and Tourism Technology Examples.pdf)

Screening 3.
Do you understand the concept of hospitality and tourism technology?

- Yes
- No

Screening 4.
Did you use hospitality and tourism technologies in 2019?

- Yes
- No

[SECTION 2] HOSPITALITY AND TOURISM TECHNOLOGY USAGE

Last Time.
When was your last time using hospitality and tourism technologies?

- January 2019 (1) … December 2019 (12)

Where All.
Where did you use hospitality and tourism technologies last time? (Please choose all that apply)

- Lodging Sector (e.g., Hotel, Resorts, Airbnb)
- Food & Beverage Sector (e.g., Restaurants, Bars)
- Travel (e,g., Attractions, Parks, Gaming, Tourism Destinations, Transportations)
- Event related (e.g., Meetings, Conventions, Expositions, Exhibitions)
- Others (please specify) _____

Where Most.
Where did you use hospitality and tourism technologies the most?

- Forward selected choice from the previous question.

All Technology Use.

How often did you use the following hospitality and tourism technology?

Item	Never	Rarely	Occasionally/ Sometimes	Frequently	Extremely Frequently
Self-Service Technology (e.g., Self Check-in/out, Self-Service Kiosk/Ordering)	○	○	○	○	○
Informative Mobile App (e.g., Travel Guide App, Maps, Restaurant Wait Check, TripIt)	○	○	○	○	○
Booking/Reservation/Planning Mobile App (e.g., Airbnb, Uber)	○	○	○	○	○
Social Mobile App (e.g., Social Media, Online Review)	○	○	○	○	○
AI Guest Service (e.g., Mobile Concierge, Voice-Assistant (Alexa), Robot, Chatbot)	○	○	○	○	○
Augmented Reality (AR), Virtual Reality (VR), Wearables (e.g., Google Glass)	○	○	○	○	○
Gamification (e.g., Pokemon Go Travel, Interactive Museum Games)	○	○	○	○	○
Mobile RFID, NFC (e.g., Mobile Payment, NFC Travel Tag)	○	○	○	○	○
Ubiquitous Wi-Fi, Public 5G	○	○	○	○	○
Others (please specify)	○	○	○	○	○

Technology Purpose.
What were the purposes of using hospitality and tourism technologies? (Please choose all that apply)

- Entertainment
- Information Search
- Convenience
- Comfort
- Networking & Communications
- Safety & Security
- Booking/Reservation
- Others (please specify) _____

Primary Purpose.
What was the primary purpose of using hospitality and tourism technologies?

- Forward selected choice from the previous question.

Voluntariness.
Please check the option that best represents your usage of hospitality and tourism technologies.
Using hospitality and tourism technologies was...

- Involuntary (1) … Voluntary (7)
- Compulsory (1) … Noncompulsory (7)
- Required (1) … Optional (7)

Voluntariness Reason.
What was the main reason you voluntarily or involuntarily used the hospitality and tourism technology?

_____
_____
_____

Options.
Did you have any other options other than the technology, such as human staff?

- Yes (please specify the available options) _____
- No

[SECTION 3] TECHNOLOGY EXPERIENCE

Sensorial Experience.

The following section will ask you about your experience with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Hospitality and tourism technologies were attractive to my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○
Hospitality and tourism technologies were pleasing to my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○
Hospitality and tourism technologies were engaging my senses (sight, sound, smell, taste, and touch).	○	○	○	○	○	○	○

Cognitive Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
By using hospitality and tourism technologies, I knew better about the hotel/restaurant/destination.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I gained rich information about the hotel/restaurant/destination.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I gathered more information about the hotel/restaurant/destination.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I processed information about the hotel/restaurant/destination.	○	○	○	○	○	○	○
Using hospitality and tourism technologies helped me understand more about the hotel/restaurant/destination.	○	○	○	○	○	○	○

Pragmatic Experience.
Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Using hospitality and tourism technologies was...

- Difficult (1) … Easy (7)
- Complex (1) … Simple (7)
- Impractical (1) … Practical (7)
- Non-functional (1) … Functional (7)

Emotional Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Using hospitality and tourism technologies made me feel…

- Frustrated (1) … Relieved (7)
- Unhappy (1) … Happy (7)
- Anxious (1) … Relaxed (7)

Using hospitality and tourism technologies was...

- Unpleasant (1) … Pleasant (7)
- Uninteresting (1) … Interesting (7)
- Terrible (1) … Delightful (7)

Relational Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
I was able to connect with others through hospitality and tourism technologies.	○	○	○	○	○	○	○
I felt connected with others by using hospitality and tourism technologies.	○	○	○	○	○	○	○
Hospitality and tourism technologies were bridging me and others.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made me a part of the community.	○	○	○	○	○	○	○

Unique Experience.
Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
My experience with hospitality and tourism technologies was new.	○	○	○	○	○	○	○

My experience with hospitality and tourism technologies was something that I did not expect.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was novel.	○	○	○	○	○	○	○

Familiar Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Hospitality and tourism technologies were connectable to my daily life.	○	○	○	○	○	○	○
I felt something similar at the hotel/restaurant/destination by using hospitality and tourism technologies.	○	○	○	○	○	○	○
I felt something familiar at the hotel/restaurant/destination by using hospitality and tourism technologies.	○	○	○	○	○	○	○

Controllable Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Using hospitality and tourism technologies allowed me to control my plans or activities.	○	○	○	○	○	○	○
Using hospitality and tourism technologies helped me control my plans or activities.	○	○	○	○	○	○	○
Using hospitality and tourism technologies assisted me in adjusting my plans or activities based on my situation.	○	○	○	○	○	○	○
Using hospitality and tourism technologies helped me organize my plans or activities.	○	○	○	○	○	○	○
By using hospitality and tourism technologies, I was able to alter my plans or activities.	○	○	○	○	○	○	○

Economical Experience.

Please continue answering the following questions about your experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more affordable.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more inexpensive.	○	○	○	○	○	○	○
Using hospitality and tourism technologies made my experience with the hotel/restaurant/destination more economical.	○	○	○	○	○	○	○

[SECTION 4] CONSEQUENCES OF TECHNOLOGY EXPERIENCE

Overall Experience with Hospitality and Tourism Technologies.
The following questions are about your overall experience with hospitality and tourism technologies.
You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
My experience with hospitality and tourism technologies was enjoyable.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was good.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was unforgettable.	○	○	○	○	○	○	○
My experience with hospitality and tourism technologies was memorable.	○	○	○	○	○	○	○

Overall Experience.
The following questions are about your overall experience at the hotel/restaurant/destination.
Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
My experience at the hotel/restaurant/destination was enjoyable.	○	○	○	○	○	○	○

My experience at the hotel/restaurant/destination was good.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was unforgettable.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was memorable.	○	○	○	○	○	○	○

Satisfaction with Hospitality and Tourism Technologies.

The following questions are about your satisfaction with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
Overall, I was satisfied with the hospitality and tourism technologies.	○	○	○	○	○	○	○
The hospitality and tourism technologies exceeded my expectations.	○	○	○	○	○	○	○
The hospitality and tourism technologies available were close to my ideal technologies.	○	○	○	○	○	○	○

Overall Satisfaction.

The following questions are about your satisfaction with the hotel/restaurant/destination.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree

Overall, I was satisfied with my experience at the hotel/restaurant/destination.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination exceeded my expectations.	○	○	○	○	○	○	○
My experience at the hotel/restaurant/destination was close to my ideal experience at the hotel/restaurant/destination.	○	○	○	○	○	○	○

Intention toward Hospitality and Tourism Technologies.

The following questions are about your satisfaction with hospitality and tourism technologies.

You answered that you have used the following hospitality and tourism technologies:

- Display Selected Choice For All Technology Use Question (Extremely frequently)
- Display Selected Choice For All Technology Use Question (Frequently)
- Display Selected Choice For All Technology Use Question (Occasionally/Sometimes)
- Display Selected Choice For All Technology Use Question (Rarely)

Please keep those technologies in mind when answering the following questions.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
I want to use hospitality and tourism technologies again.	○	○	○	○	○	○	○
I would recommend the hospitality and tourism technologies to family and friends.	○	○	○	○	○	○	○
I would say positive things about hospitality and tourism technologies to other people.	○	○	○	○	○	○	○

Intention toward Hotel/Restaurant/Destination.

The following questions are about your future intention toward the hotel/restaurant/destination.

Please indicate the option that best represents your opinion.

Item	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly agree
I want to visit the hotel/restaurant/destination again.	○	○	○	○	○	○	○
I would recommend the hotel/restaurant/destination to family and friends.	○	○	○	○	○	○	○
I would say positive things about the hotel/restaurant/destination to other people.	○	○	○	○	○	○	○

[SECTION 5] SOCIO-DEMOGRAPHIC INFORMATION
A few more questions about yourself.

Gender.
Your gender:
- Male
- Female

Age.
The year you were born: (e.g., 1990)
_____

Education Level.
Your highest level of education:
- Less than high school degree
- High school graduate (High school diploma or equivalent)
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Postgraduate Degree
- Others

Employment Status.
You are:
- Employed full time
- Employed part time
- Self-employed or business owner
- Unemployed or Students
- Retired
- Others

Household Income.
Your household income before taxes:
- $30,00 or less
- $30,001 to $50,000
- $50,001 to $70,000
- $70,001 to $90,000
- $90,001 to $110,000
- More than $110,000

Ethnicity.
Your ethnicity:
- Caucasian
- Black or African American
- American Indian or Alaska Native

- Asian
- Native Hawaiian or Pacific Islander
- Other

Travel Motivation.
What is your typical travel motivation?
- Exclusively business
- Mostly business
- Business/leisure combined
- Mostly leisure
- Exclusively leisure

Frequency of Travel.
How frequently do you travel per year? (Please specify in a numeric format, e.g., 3)
_____

Travel Duration.
How long is your typical travel duration? (Please specify in a numeric format)
e.g., 2 nights 3 days: 3
_____

Greeting.
Thank you so much for your participation.

Sincerely,

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