EXPLORING THE ASSOCIATION OF THE ATTRIBUTES OF SELF-SERVICE KIOSKS,
CUSTOMER CHECK-IN SATISFACTION, AND CUSTOMER COMMITMENT IN
CONVENTION HOTELS:
THE CASE OF THE ROSEN CENTRE HOTEL, A CONVENTION HOTEL

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ABSTRACT

Research regarding self-service technology and its integration into the traditional service environment is relatively limited as it applies to the lodging industry. The purpose of this study was to investigate the customer check-in satisfaction and customer commitment impacts of self-service hotel kiosks as implemented in convention hotels by examining perceptions of kiosk users. It has been theorized that customer perceptions of self-service technology attributes are positively related to satisfaction and subsequent commitment. A model was employed in this study that had been previously supported outside of the hospitality industry which demonstrated support for a universal standard of investigating self-service technology impacts regardless of environment, but heretofore had not been tested in the convention hotel segment. This was a quantitative case study using survey analysis to examine customer perceptions of self-service technologies at the Rosen Centre Hotel in Orlando, Florida. The results of this study supported a direct association between positive and negatives attributes of SST and corresponding customer check-in satisfaction levels. Secondly, while results supported direct association between customer check-in satisfaction and *affective* customer commitment, virtually no association was found between satisfaction and *instrumental* commitment.

Key Words: commitment, satisfaction, self-service technology, lodging

iii

This work as dedicated to:
My father, Gary, for constantly pushing my limits to be ever-better than I once thought I could be.
My mother, Barbara, for keeping my feet on the ground through endless challenges.
My fiancé, Ilyssa, for filling a void of companionship and affection vital to the achievements that I have made and will continue to make.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE: INTRODUCTION

As businesses across the globe continue to differentiate and evolve in an effort to remain competitive in the marketplace, new strategies are emerging that provide firms with opportunities for advantage (Stockdale, 2007). One of the most significant factors of firm success in business today is the adaption and implementation of technology to more efficiently and effectively meet and exceed the needs of customers (Fisher & Beatson, 2002). In some industries, such as retail, the core business model is predominantly product-oriented, thus the tangibility of these industries make machines built for efficiency well-suited for such deployment (Kasavana, 2008). For this reason, self-service technologies (SST) have already been applied in many segments of the retail industry and are becoming commonplace in environments such as gas stations and supermarkets (Meuter, Bitner, Ostrom, & Brown, 2005).

The hotel industry, conversely, is one of the most service-intensive businesses to operate (Shanka & Taylor, 2003). Where product-oriented firms may have brief and often solitary transactions with customers, service-oriented businesses have several critical points of interaction that must all go smoothly in order to gain a positive image and create a perception of value in the mind of a consumer (Shamdasani, Mukherjee, & Malhotra; 2008). The very essence of SST, which can be defined as any facility that enables consumers to 'produce services for themselves without assistance from firm employees' speaks to the idea that hospitality and a welcoming atmosphere are being replaced by do-it-yourself machines for the purposes of productivity and reduced operating costs (Beatson, Lee, & Coote, 2007). SST, as it is currently being applied to the hotel guest check-in process, alters the logistics of the 'moment of truth' when a guest arrives and registers at a hotel by

1

allowing guests to check-in without any direct contact with agents of the firm. This change could potentially have an effect on customer check-in satisfaction perceptions, and subsequently, any change in customer check-in satisfaction levels could result in a fluctuation in customer commitment and resulting return intentions. SST is changing the dynamics of the hotel check-in transaction by limiting client-firm contact, and of course there are projected advantages of SST adoption to include time savings, control, convenience and consistency (Meuter, Ostrom, Roudtree, and Bitner, 2000). However, in theory the end product should be identical to traditional methods of check-in.

There are two opposing perspectives in the limiting of customer contact with firm personnel. The more communication a business has with its customer, the higher the risk of a negative encounter; conversely, more engagements also mean more opportunities to impress (Cunningham, Young, & Gerlach, 2008). Hence, the factors (e.g. financial investment, human capital allocation, service quality standards, etc.) contributing to the implementation of self-service technology (or lack thereof) in hotels are much more numerous and complex (Bendapudi & Leone, 2003). As if that were not enough, convention hotels in particular, which can be defined as any lodging facility that caters predominantly to hosting large conference and meeting events, have a heavy obligation to maintain consistent performance for very lucrative group business, so maintaining customer commitment is another significant consideration when developing new strategies for guest service interaction (Hanai, Oguchi, Ando, & Yamaguchi; 2008). The challenge to date is that, although preliminary research on self-service technologies and their vast array of applications has been conducted in broad scope, very little is known about the effects of self-service technology attributes on customer satisfaction and subsequent commitment in the lodging setting.

Statement of the Problem

There is an absence of information regarding the association of customer check-in satisfaction and customer commitment with the integration of self-service technology into the lodging environment. The primary type of self-service technology with which industry competitors in the convention hotel segment are currently experimenting are kiosks in strategic lobby locations that allow customers to perform procedures typical of any lodging experience: check-in, check-out, print receipts, etc. While different kiosks vary in their interface, abilities, and range of application, as a category they are strictly differentiated from other types of self-service technology (such as in-room automated services via a television or telephone) in the hotel setting (Beldona & Cobanoglu, 2007). Kiosks by nature are intended to directly replace the physical presence of a human being whereas other types of SST simply aid and assist with the operational efficiency of front-line employees (Sheldon, 2005). Relative specifically to kiosks, studies have been conducted on well-established applications such as banking with ATMs (Ding, Verma, & Iqbal, 2007; Prendergast & Marr, 1994), retail point-of-sale (POS) (Fernie, 1997; Strenk, 2008; Weijters, Rangarajan, Falk & Schillewaert, 2007), and airline transaction processing (Chang & Yang, 2008; Zhao, Mattila, & Tao, 2008). However, there exists a void of knowledge regarding the implementation of self-service kiosks in the lodging sector. The predicted advantage of these devices is increased consistency and efficiency with regard to service transactions, both of which are extremely desirable attributes for a segment that caters to a high volume of very specialized group clientele. Some firms are actively pushing this new innovation toward a goal of completely automated Front Desk environments, but most are more hesitant to place so much dependence on an untested method, and hence are only deploying one or two kiosks in a Front Desk area with twenty or more Front Desk associate stations (Lin & Hsieh, 2006). This reluctance is understandable given the risk involved with such a dramatic

change to the hotel service environment. There remains that too little is known about the impacts of these technologies on customer perception and resulting commitment for any well-informed business decisions to be made.

Significance of the Study

Without a solid foundation of research, the industry cannot make a sound decision whether or not investment in self-service kiosks for convention lodging establishments is a customer-centric strategy. Currently, hotels (e.g. Hyatt Corporation, Hilton Hotels, Rosen Hotels & Resorts) are experimenting in the field of self-service kiosks---and making a significant investment doing so---in hopes that strategies and tactics successful in retail and other industries will apply to the lodging environment, and in turn yield a substantial return on investment. It is not to say that this *could* not be the case, but there are substantial differences between the service industry and other fields. Significant required investment to 'test the water' with these new ideas acts as an inhibitor to the willingness of businesses to pursue self-service kiosks. As an additional obstacle, there is no assurance that these new tools will be well-received by the travel market. It would be poor judgment for any hotelier to risk all that is at stake from both a fiscal and a customer satisfaction perspective, by making an uninformed decision about implementing technology into their business (Selnes & Hansen, 2001). This research will help build toward a more thorough and complete foundation of knowledge upon which industry leaders can make strategic decisions regarding self-service kiosks.

Purpose of the Study

The purpose of this study was to investigate the customer check-in satisfaction and customer commitment associated with self-service hotel kiosks as implemented in convention hotels by examining perceptions of kiosk users. There are many types of self-service technologies beginning to

4

emerge as potential prospects within the lodging in industry. However, self-service kiosks in particular were chosen for their mutually exclusive nature; whereas other forms of SST in the lodging sector such as in-room television services and automated telephone information directories are designed to *enhance and/or add to* the service that hotel staff can provide, kiosks are designed to replace the physical footprint of hotel employees (Sheldon, 2005). These kiosks have been deployed to some extent by several leading competitors within the lodging industry, and specifically within the unique convention hotel segment (Amer, 2004). However, too little is known about the impacts of self-service kiosks in these environments, given the extent to which they alter the service setting. Examining the effects that the implementation of these devices may have on clientele perception helps to advance toward a new level of understanding as to whether or not these newcomers are beneficial to the convention hotel industry, and what individual properties can expect as consequences of pursuance.

The History of Self-Service Technology/Customer Interactions

SST first came about in its most simple forms in the early 1980's. The very first applications of SST included automated teller machines, transaction interfaces like those at gas stations, automated phone directory services, and vending machines (Fisher & Beatson, 2002). The initial idea was to expand the scale and scope of customers' involvement in the service production process---a concept known as coproduction---to a more extensive level of consumer participation that allows customers to play a vital role in developing the end service product (Bendapudi & Leone, 2003). This is accomplished by affording more power and control over the transaction to the customer (Xue & Harker, 2002). Early pioneers of SST slowly grew into a wide variety of uses and developments. The invention and global penetration of the internet has provided a platform for

businesses to interact and exchange with clients around the world without a need to provide physical facilities or people, which results in enormous labor and infrastructure cost reductions (Xue & Harker, 2002). Today, self-service technology is used in almost every industry for process streamlining, consistent service quality delivery, and client volume management (Cunningham *et al.*, 2008). SST has evolved to the potential of being able to function as efficiently and accurately---if not, more so---than human beings (Selnes & Hansen, 2001). These attractive advantages have naturally caught the eye of hoteliers around the world, and the move to integrate these technologies into more service-intensive landscapes has begun (Sheldon, 2005; Strenk, 2008).

The Three-Factor Theory of customer satisfaction (TFT) is the first theory discussed as it speaks directly to attribute identification and potential effects: the first construct of the model. In short, TFT implies that all attributes of a particular service delivery mode can be grouped into one of three specific categories: basic, excitement, or performance (Füller & Matzler, 2008). These categories connote an attribute's potential to either create dissatisfaction, promote satisfaction, or a combination of both. These potential relationships will be the focus of the investigation as to the ways in which SST attributes are associated with customer satisfaction with the check-in process (Deng, Kuo, and Chen, 2008). Social Cognitive Theory (SCT) is next introduced due to its application to consumer motivation. Briefly, it implies that any individual attempting to learn new things or experience a new stimulus will naturally compare the new situation with that which the individual knows to be true about past experiences. A judgment is then subconsciously created about the new experiences as perceptions contrast with the feelings of old experiences of the past. SCT provides the foundation for understanding the ways in which consumers judge self-service kiosks based on a compilation of their background and prior experiences. Furthermore, SCT proposes that these judgments are influential on future behavior (Bandura, 1986). This provides an

excellent segue into the last theory: Social Exchange Theory (SET). Simply put, SET suggests the development of relationships between firm and client after repetitious interactions and/or transactions (Kent & Chelladurai, 2003). This theory underpins the last portion of the topic investigation: impacts on customer commitment as a result of changes in customer check-in satisfaction.

There are several factors specific to the service interaction that either consciously or subconsciously guide the judgment of these experiences (Meuter *et al.*, 2005). Included in these factors are demographic traits including generational characteristics, cultural upbringing that contributes to the development of moral values and standards, and previous experience with SST (Shamdasani *et al.*, 2008). Although these factors will not be thoroughly analyzed in the study due to time restraints, the survey instrument includes a demographic section that will allow for the recording and tabulation of respondent characteristics and the identification of sample profiles.

Prior research has suggested several key attributes of SST that are most significantly associated with customer perceptions; both positive and negative, these driving events are defining moments during a customer's interaction with an SST with which customer satisfaction is most closely associated (Beatson *et al.*, 2007; Meuter *et al.*, 2005) . Positive attributes have been previously identified as problem resolution, perceived advantage of time, ease of use, or access, and fulfillment of purpose. Conversely, negative attributes include technology failure, process failure, poor design issues, and customer-driven failures. These attributes and their association with customer check-in satisfaction formed the first part of this study (Lin & Hsieh, 2006; Shamdasani *et al.*, 2008).

Customer satisfaction has been defined as an affective state or overall emotional reaction to a service experience (Beatson, Coote, & Rudd, 2006). It is also a significant antecedent to post-purchase attitude and repeat purchase intentions (Ganesh, Arnold, & Reynolds, 2000). Prior

7

research has supported five distinct dimensions of customer satisfaction most significantly associated with the implementation of SST. These dimensions are speed of service, control, enjoyment, reliability, and security/privacy. It is posited that the afore-mentioned attributes of SST (problem resolution, perceived advantage of time, ease of use, or access, and fulfillment of purpose, technology failure, process failure, poor design issues, and customer-driven failures) are most prominently perceived in these five dimensions, and as such these dimensions created the framework by which customer check-in satisfaction was measured in this study (Beldona & Cobanoglu, 2007; Meuter *et al.*, 2005).

Finally, the association of the two concepts of commitment with the self-service kiosk interaction is analyzed. Affective commitment refers to a positive feeling of attachment on the part of a consumer to a particular product/firm which underlies behavioral intentions (Dean, 2007). Instrumental commitment refers to the continuance of a relationship due to high costs of termination and/or switching service providers, either perceived or real (Mattila, 2006). These constructs of commitment speak directly to the idea of customer return intention and the ways in which it may be affected by SST in the lodging environment.

<u>Research Questions</u>

The following questions have been derived to guide investigation of the study's model:

1. How are the attributes of self-service kiosks associated with customer check-in satisfaction in the convention hotel segment?

2. How is customer check-in satisfaction associated with customer commitment in the convention hotel segment?

Operational Definitions

- Self-Service Technology (SST) – Technological interfaces that enable customers to produce a service independent of direct service employee involvement (Meuter *et al.*, 2000).

- Service Delivery Attributes – Those key driving events of customer satisfaction that are most critical in creating strong customer perceptions of either positive or negative nature (Beatson *et al.*, 2006).

- Customer Satisfaction – An affective state or overall emotional reaction to a service experience (Beatson *et al.*, 2006). It is also a significant antecedent to post-purchase attitude and repeat purchase intentions (Ganesh *et al.*, 2000).

- Affective Commitment - A positive feeling of attachment on the part of a consumer to a particular firm which underlies behavioral intentions (Dean, 2007).

- Instrumental Commitment – A consumer's continuance of a relationship due to high costs of termination and/or switching service providers, either perceived or real (Beatson *et al.*, 2006).

Acronyms

- ATM   Automated Teller Machine

- POS   Point of Sale

- SCT   Social Cognitive Theory

- SEM   Structural Equation Model

- SET   Social Exchange Theory

- SST   Self-Service Technology

- TFT   Three-Factor Theory

- TRI   Technology Readiness Index

<u>Summary</u>

Self-service technology is quickly becoming an integral part of the lodging industry. Many operations are depending on this innovation to provide and uphold a standard of service that company reputations rest upon. Too little is known about the guest perceptions and resulting impacts from these new technologies, especially for full implementation in a segment like convention hotels where invaluable business relationships are put at risk. This investigation shed light on those impacts, the best and worst characteristics of this new service interface of which firms should be watchful, and ways in which the efficiency and effectiveness of these tools can be maximized. This study served a dual purpose by both adding to the existing body of hospitality knowledge and providing information that could aid industry professionals in the pursuit of competitive strategies.

CHAPTER TWO: LITERATURE REVIEW

<u>Introduction</u>

After an extensive review of existing literature on self-service technologies, the first thing to note is that research into the subject is relatively recent. Studies in the field have predominantly explored the general ideas of technology as a strategic competitive advantage in hotel operations; these studies have remained at the strategy level (Oyedele & Simpson, 2007) and have explored very little at the operational business level. Most of these works involve employee-oriented technologies that improve productivity and boost revenues, such as advanced property managements systems (PMS) and labor-tracking systems (Gursoy & Swanger, 2007; Kim, Lee, & Law, 2008; Yuksel & Rimmington, 1998). Recently, the concept of self-service technology is drawing significant attention from both the academic and practical worlds as it is reshaping the very nature of service delivery in several industries including airline, banking, travel, lodging, financial, and retailing (Cunningham *et al.*, 2008). Contrary to most other industries however, hoteliers are infamously accused of ignoring the guest side of technology applications in favor of these new innovations that have a bigger impact on the bottom line (Beldona & Cobanoglu, 2007).

The first research investigating self-service technology from a service standpoint defined it as any technological interface that enables customers to produce a service independent of direct service employee involvement (Meuter *et al.*, 2000). More recent studies have simplified the practical definition to any facility that enables consumers to produce services for themselves without the assistance of firm employees (Beatson *et al.*, 2007). The very first studies on self-service technology emerged in the mid 1990's with a primal objective of trying to understand market segments that are interested in using self-service technology (SST), and measuring consumer interest at the time (Fernie, 1997; Wood, 1997). After an initial search, it quickly becomes obvious that very few studies have been conducted since then exploring the broad facets and applications of SST in specific

industries and businesses (Norkus & Merberg, 1994; Prendergast & Marr, 1994). It's evident that general research has been conducted investigating the broad impacts of self-service technology implementation from a holistic viewpoint of universal application; these studies were inspired by an appropriate skepticism of the application of conventional wisdom about interpersonal service encounters to the self-service arena (Cunningham *et al.*, 2008; Selnes & Hansen, 2001; Wood, 1997). Investigations were performed analyzing consumer attitudes regarding pre-emptive notions and readiness to adopt (Lin & Hsieh, 2006). The idea of co-production was also coined, and has been defined as the strategic attempt to expand the scale and scope of customers' involvement in the service production process to a more extensive level of consumer participation that allows customers to play a more elaborate role in developing the end service product (Xue & Harker, 2002). Co-production has been widely explored from angles of both firm performance analyses to customer psychological perceptions (Bendapudi & Leone, 2003; Severt & Rompf, 2006). However, few studies have undertaken the task of researching whether SST such as kiosks can uphold the same high quality service interaction standards that management would expect their staff to deliver to customers on a personal level (Chang & Yang, 2008). Additionally, few studies have explored the impacts that SST has in specific environments, in this case, the lodging industry.

<div align="center">History of Self-Service Technology</div>

SST's were first implemented in the early 1980's with the single objective of increasing the bottom line by boosting efficiency and decreasing labor costs (Weijter, Rangarajan, Falk, & Schillewaert, 2007). First emerging in the banking environment, kiosks in the form of automated teller machines (ATM's) were designed to increase the viability of bank patronage for a consumer market that may not have been necessarily conveniently located enough to see value in a particular

firm's services (Shamdasani *et al.*, 2008). By introducing these new user tools, bank institutions were able to capitalize on a market previously untapped outside of a certain branch's radius without incurring any significant additional labor or overhead. Customer convenience was a consequential benefit of an effort to increase clientele base and lower costs. Soon technologies employed with ATM's in the banking industry spread to retail; in the earliest applications, retail self-service kiosks were deployed in settings such as gas pumps and coin machines. However, the technology expanded rapidly, and soon self-service POS systems such as those that are commonly found at grocery stores and wholesale outlets emerged (Fernie, 1997). As other industries witnessed the evolution of these machines, the trend spread. Airlines first experimented with SST, and more recently, hotels have attempted to adapt the technology to a variety of applications. Today, sophisticated programming and careful design allows for these machines to all but replace the human presence requirement in their respective industries (Zhao *et al.*, 2008). Although studies have been conducted investigating SST impacts on consumers in industries where these technologies are more well-established, there is a void of knowledge regarding SST in the lodging environment due to the relatively short period of time with which these tools have been deployed in hotels. The issue in question is whether or not the reduced cost of replacing human labor with SST outweighs the potential for perceived detriment to the service encounter on the part of the consumer in lodging establishments.

SST in its most simple breakdown has been split into three distinct categories by purpose. The Customer Service category refers to those technologies designed to aid customers with information distribution and convenience. Transactions SST deals specifically with business exchanges of monetary or other value. Lastly, Self-Help SST assists consumers with simple tasks such as training, test-prep, and directory searches (Meuter *et al.*, 2000). Hotel front-office kiosks present a very interesting situation as they fall under both the Transaction and Customer Service

categories. Transaction functions are comparatively simpler because the processes of bill settlement and receipt printing are similar to ATM processes in terms of interaction. As it relates to customer relationships, trial has proven that in most applications, self-service technologies result in more productive and more cost-efficient business processes; however, most managers are reluctant to replace the human touch with machines because of the potential negative consequence of self-service on social bonding and suspicions that they would have subsequent impacts on customer commitment (Selnes & Hansen, 2001). Ironically, recent research has suggested that reducing interpersonal contact may have a positive impact on customer satisfaction and retention (Beatson *et al.*, 2007). Regardless of delivery mode, research has suggested that the key to achieving customer satisfaction with SST is in orientation and ensuring a positive and trustworthy first experience between customer and machine (Lin & Hsieh, 2006).

<u>Three-Factor Theory of Customer Satisfaction</u>

The Three-Factor Theory (TFT) of Customer Satisfaction provides solid theoretical underpinnings for the first construct of the test model: attributes of SST service delivery, and the ways in which they can potentially impact customer satisfaction. Under TFT, all attributes of a service delivery mode will fall under one of three different categories. These are basic, excitement, and performance factors (Füller & Matzler, 2008). Basic factors include minimum requirements that lead to dissatisfaction in the eyes of the customer if not fulfilled, but have no potential of creating customer satisfaction in being fulfilled. Excitement factors increase satisfaction if delivered effectively, but do not cause dissatisfaction if excluded from the process. Performance factors are those attributes that have the potential for either satisfaction or dissatisfaction depending on their presence or lack thereof during delivery. This theory has been applied to studies ranging from

14

market segmentation analysis to service benchmarking techniques (Deng *et al.*, 2008). The concept of TFT is critical to the study as it asserts an implication that in order for SST kiosks to meet service expectations for the hotel industry, defining attributes must include not only basic factors, but possibly excitement factors *and* performance factors delivered effectively.

Social Cognitive Theory

Social Cognitive Theory (SCT) forms the foundation of the relationship being investigated between SST attributes and customer check-in satisfaction; it explains the ways in which consumer judgments are formed by defining attributes of service delivery modes. In its simplest description, SCT recognizes that individuals---in our case, consumers---are motivated by three types of interacting determinants: personal, behavioral, and environmental (or situational) factors (Bandura, 1986). This theory simply implies that human behavior is interdependently related to the variables of an individual's personal experiences and history, their own behavior as well as that of others, and the surrounding environment in question. Social cognition as a basis for investigation has long been explored in the area of career development and choice (Harrison, Rainer, Hochwarter, and Thompson, 1997; Sahin, 2008). Only recently has the concept of SCT been applied to the motivations of the consumer in a service environment; Oyedele and Simpson (2007) discuss how SCT is key to understanding consumers and their choices regarding willingness (or lack thereof) to adopt and use SST. However, this concept is critical as it provides fundamental logic as to how motivating factors influence and manipulate consumer choice and resulting judgment.

Social Exchange Theory

Social Exchange Theory (SET) is the critical foundation upon which the second half of this study is conducted. It helps to explain the relationship between customer satisfaction and resulting

commitment. SET teaches that social relationships will naturally develop as a result of exchanges between two parties, and often, obligations for continuance of the relationship may be perceived as an underlying consequence (Fanny, 2008). SET has been frequently applied in studies exploring social relationships at an employee level (Kent & Chelladurai, 2003), business to business social bonding (Bolton, Smith, & Wagner, 2003), and complex relationships between businesses and their respective surrounding communities (Chhabra, 2008). Results from industry-specific studies have agreed on a general consensus that an individual's attitude toward and support for a given relationship with a business will be directly influenced by their evaluation of personal satisfaction with prior experiences with that business (Chhabra, 2008). This is particularly important to understand as SET suggests that the basis for customer commitment and brand loyalty lies firmly on a customer's evaluation of a subject hotel's performance in handling their overall experience as it compares to alternatives. In this context and all other things being equal, any customer commitment shift between interpersonal service delivery and SST delivery should be associated to a consumer's evaluation of their experience with SST.

<div align="center">The Science of Consumer Perception</div>

It is important to understand the motivating contingents behind consumer perception in order to appropriately analyze and comprehend the customer satisfaction associated with SST. From a perception perspective, researchers have studied the effectiveness and efficiency of self-service kiosks such as retail POS systems based on how well-received they are by the average consumer (Lin & Hsieh, 2006). The most logical assumption would be that any consumer would choose the service delivery mode which is most effective and efficient to their own personal objectives; however, prior research has strongly suggested that motivating factors which often take precedence in these

decisions are much more diverse and complex (Lin & Hsieh, 2006; Tsang & Ap, 2007). Therefore, studies focusing on how consumers view the marriage of automation to the service world have attempted to break down the defining categories of interaction that ultimately determine customer perception. It is critical that the intricacies of consumer judgment in a given experience are understood in order to appropriately conduct a study such as this.

Emotional value and functional value are two distinct foci of perception by which people measure service quality (Yuan & Wu, 2008). These two values are a synergy of sense, feel, think perception, and service quality. *Sense* refers to a consumer's perceptions of an experience based on interactions of the five human senses. Conversely, *feel* is an emotional reaction of feelings about an experience. *Think* involves creative thinking that may result in a reevaluation of a company and its products. The three of these perceptions, when exposed to the inherent service quality of a particular firm, will yield comprehensive emotional and functional values. Functional value refers to a customer's perception of an experience in terms of its productivity and efficiency. In simpler terms, functional value refers to whether the desired result was achieved and how quickly and effectively it was achieved. Emotional value considers the subconscious impression of feeling---like or dislike---that the experience leaves on the customer. Whether the experience was pleasurable, friendly, or aesthetically pleasing are the issues encompassed under emotional value (Yuan & Wu, 2008). As an example, one study determined that 91% of potential customers are concerned about the privacy of their personal information when interacting with a computer or a machine rather than a human being (Wirtz, Lwin, & Williams, 2007). In this case, the functional value may be optimal, or at the very least, as desired; however, if the experience causes a feeling of insecurity in the eyes of the user, the emotional value is substantially weakened.

Inherently, there are many factors influencing consumer perception above and beyond the service delivery mode and its respective characteristics. Previous research has identified culture (Fisher & Beatson, 2002), age, travel frequency, and familiarity with SST (Beatson *et al.*, 2007; Meuter *et al.*, 2005; Weijter, Ranagarajan, Falk, & Schillewaert, 2007) among others as having significant impact to the ways in which humans view new experiences. These would be the personal factors of human perception as identified in SCT. However, due to limitations in time and resources for this study, the above-mentioned factors of human demographical relationships will not be considered as a construct of the study model (as Beatson had originally designed it).

Just as there are a wide variety of factors affecting consumer perceptions of an experience, there is also a multitude of considerations as it relates to reasons and motivations for technology *adoption* by the user. As this study examined only perceptions of users *after* adoption has taken place, it does not explore those factors that affect the end user's service delivery mode choice pre-adoption.

<u>Attributes of the Self-Service Technology Service Encounter</u>

The first step in the consumer-technology relationship is an initial experience that will generate a judgment of satisfaction in the mind of the customer. Several studies have attempted to determine the defining key events and situations of the SST delivery experience that have a significant association with overall customer satisfaction (Beatson *et al.*, 2006; Meuter *et al.*, 2005; Shankra, 2003). Hereinafter, these characteristic events will be referred to collectively as "attributes" of the SST interface. As discussed earlier, SCT teaches that consumer perception is formed by a compilation of personal, behavioral, and environmental factors. With this in mind, researchers have

18

identified several key attributes of service perception based on the interactional particulars of self-service delivery.

Research investigating customer satisfaction across a broad range of SST applications has suggested seven distinct attributes of SST customer satisfaction: three promoting positive experiences, and four contributing to negative experiences (Meuter *et al.*, 2000). The ability to resolve immediate or troubling situations is the first attribute that promotes positive SST experiences. Due to the pervasive nature and easy availability of SST, it is well-suited for handling common and redundant customer issues that can be anticipated and countered. Customer perception of SST advantages such as time, ease of use, and access is the second attribute that contributes to positive service experiences. These 'perceived' advantages can be played upon, implemented and marketed strategically by the firm in question in order to promote perceptions of added value; however, whether pretentious or not, these believed advantages add a competitive edge to SST usage over traditional interpersonal service. Finally, the fulfillment of purpose is the last major SST attribute conducive to positive service encounters. Of the three, this is the simplest concept to understand; the idea implies that experiences are positive when the SST machines in question do what they were intended to do without failure. In other words, when a self-service kiosk "does its job" the customer's mission is accomplished and a feeling of efficiency and efficacy is instilled in the patron. Conceptually, the very fact that an 'underdog' approach with no track record works as expected serves as a benefit to its image (Beldona & Cobanoglu, 2007).

The attributes of negative impressions with regard to SST usage are fundamentally different from those that can generate positive impressions. The first attribute of negative experiences addresses the most widely feared aspect of self-service technology implementation: technology failure. This is by far the most popular cause of service failures with SST. In summation, this

19

attribute umbrellas any situation where consumers are prevented from using the services provided by the SST kiosk from the very beginning. An out of order sign would be an excellent example. Customers have several options when faced with a technology failure (switch firms, switch delivery modes if possible, or cancel business all together), but none of these fare well for the firm in question. Additionally, the second attribute of negative SST experiences refers to technology failures that occur at some point after the experience begins; this is known as a process failure. These types of problems are particularly unnerving for consumers because there is commonly an uncertainty as to whether a transaction was completed, completed incorrectly, or aborted before completion. This instills an immediate lack of faith in the firm on the part of the consumer, and a distrust of SST reliability and integrity. When problems are identified and communicated to the customer ahead of time (as in the first negative attribute discussed), this at least maintains an image of competence on behalf of the business. However, when a business cannot even provide a counter-measure for problems beyond their control, all hope of a positive experience is lost; this is particularly detrimental in the hotel business where there is usually a long period of constant interactions with the firm after the initial check-in process until departure. The third attribute of negative SST encounters is poor design. This refers to how user-friendly the SST interface is with the customer, and how conveniently those tasks that the customer desires can be achieved by the respective machine. Having SST available to willing and ready consumers is of no benefit if the design is complicated or difficult in such a way so that the customer sees no advantage or practical benefit to the service. The last attribute of negative SST encounters is customer-driven failures. This concept implies that customers will accept some---or all---of the fault for service failures since the service rendered is created with the help of the customer. Although this doesn't hurt the firm directly, there *are* consequences for creating a feeling of self-incompetence or failure in the minds of clientele. The

20

feeling of embarrassment due to causing a problem with SST can be enough to deter a customer from ever using the SST or the firm's services again as strategy to save face (Beldona & Cobanoglu, 2007).

<div align="center">Customer Satisfaction</div>

Customer satisfaction has been defined in prior research as an affective state or overall emotional reaction to a service experience (Beatson *et al.*, 2006). It has also been posited to act as a significant antecedent to post-purchase attitude and repeat purchase intentions (Ganesh *et al.*, 2000). Although a great deal of research has been conducted as it relates to customer satisfaction with services in the hospitality field, significantly less has been studied relating specifically to customer satisfaction with SST.

Richard Oliver first developed and posited the customer satisfaction expectancy disconfirmation theory in 1980 (Oliver, 1980), and since this idea has earned widespread support throughout various studies (Oliver & De Sarbo, 1988; Tse & Wilton, 1988). Oliver's theory proposes that consumers approach the purchase of goods and services with certain expectations, either positive or negative, based on desired outcomes, past experiences with such transactions, and other factors contributing to character and perception as supported by SCT. Expectancy disconfirmation theory avers that the levels at which consumer expectations are met or not met ultimately determines customer satisfaction (Oliver, 1980). More specifically related to this study, other researchers have applied the expectancy disconfirmation theory to investigate the ways in which the attributes of a product or service effect satisfaction perceptions, and such research has indicated a positive association between attributes and satisfaction (Pizam & Milman, 1993). The disconfirmation theory has also given rise to scales used specifically for testing such relationships

<div align="center">21</div>

(Churchill & Suprenant, 1982). Chapter 3 will discuss how these scales were applied to the survey instrument employed for this study.

Specific to SST usage and customer check-in satisfaction, previous research findings have posited several areas of satisfaction most closely associated with the most prominent attributes of SST as discussed earlier. Hereinafter, these areas will be referred to as "dimensions" of SST customer check-in satisfaction. These critical dimensions of interaction categorize what have been supported as some the most important criteria with which consumers view and evaluate service experiences with SST. SST, due to its highly-differentiated mode of service delivery, has several dimensions unique to technology innovations; however, it *does* share several universal dimensions that are of critical importance to service experience regardless of delivery style. One study examining service quality among SST's suggested that key dimensions of SST interaction are speed of service, ease of use, reliability, enjoyment, and control (Shamdasani *et al.*, 2008). Another study exploring technology readiness and its effect on customer perception expands this list to include security/privacy (Lin & Hsieh, 2006). Although each researcher chooses to use their own terminology for these dimensions, several can be considered synonymous; a comprehensive list has been tabulated in Table 1 below for reference.

Table 1: Self-Service Technology Satisfaction Dimensions.

Self-Service Technology Satisfaction Dimensions
Speed of Service
Control
Enjoyment
Reliability
Security/Privacy

Such dimensions are the underlying categories of service experience evaluations; customer evaluations regarding each of these dimensions are affected by the existence (or lack thereof) of the service delivery mode attributes. **Each** positive and negative attribute, as discussed earlier, has been found to correspond to one or several distinct dimensions of the SST experience. As an example, an attribute such as problem resolution may be associated with perceptions of enjoyment and ease of use, where as a technical failure may be associated with the areas of reliability, control, and speed of service (as such failures delay completion of service transactions).

In order to holistically understand all of the ways in which SST modes are associated with customer check-in satisfaction, each of the dimensions above must be assumed to be potentially crucial determinants of overall guest perception. Table 1 is a profile of the most critical factors of self-service kiosks that will ultimately determine consumer judgments of customer check-in satisfaction. As such, these dimensions were used as the categories by which respondents rated their level of satisfaction with the SST service encounter being studied.

<center>Directionality of Perception Impacts</center>

An abundance of research findings over time has supported that the implementation of self-service kiosks does in fact have some kind of association with customer check-in satisfaction perceptions in the lodging industry. However, more recently a few studies have begun to explore the topic more deeply to attempt to identify any trends in perceptions, good or bad. As discussed previously, prior research has suggested that as SST becomes more commonplace in the hotel environment, the percentage of the travel market that is willing to acknowledge and adopt these technologies is growing (Beatson *et al.*, 2007). Further industry-based studies have indicated a growing trend in positive impressions made by hotel kiosks. A study funded by kiosk supplier NCR

<center>23</center>

Corporation determined that 61% of the consumer market admitted that they were very or somewhat likely to use a hotel kiosk given the option (Carlin, 2007). Of these responses, the highest rated factors for choosing SST over interpersonal service were speed of service, privacy of information, control, and reliability, further affirming the critical dimensions of SST described earlier. Given the recent trend in consumer perception of self-service kiosks, it is reasonable to posit that kiosks will have a net positive association with customer satisfaction.

<div align="center">The Complexity and Value of Customer-Firm Relationships</div>

Regardless of the reasons, customers will naturally derive a perception of value in a firm provided a positive experience occurs. A customer's value in terms of commitment to a business is therefore, in part, decided by their initial experience with that business's service delivery. In most hotel service environments of the type examined by this study, customers are given no choice as to service delivery mode, as interpersonal service delivery is still today the exclusive standard operational protocol. Although recent consumer consensus seems to indicate a desire for the option of SST to be present in *more* hotel establishments (Sheldon, 2005), research has supported a need to maintain the option of interpersonal service to avoid deterring any customers who may prefer not to adopt SST (Meuter *et al.*, 2005). As mentioned earlier, many firms are hesitant or reluctant to pursue self-service technology due to the inherent lack of social bonding between the organization and its clientele. Social bonding has been defined as a combination of a customer's perceived obligation toward the service worker and the perception of the service provider as a resource (Selnes & Hansen, 2001). Social Exchange Theory, as explored in past research, has strongly suggested that customer commitment is a bi-product of social bonding with an organization, and, for this reason, hoteliers often choose not to jeopardize this important relationship with the implementation of SST.

The same research implies that consumers enjoy doing business with one agent of the firm with whom they have had positive experiences in the past and therefore know and trust. This concept in itself presents a fundamental problem with social bonding in that the particular service worker that the customer wishes to approach will not *always* be on duty when needed, or may be helping other customers when needed. This inherent flaw reveals a potential advantage of SST's in the ability to deliver precise consistency. Each experience with any given machine should, in theory, be exactly the same in terms of efficiency, service provisions, and the machine's interface. This simply means that a positive experience with SST affords the customer freedom in that when they return, they can choose any machine they like and expect a familiar and trustworthy transaction (Selnes & Hansen, 2001).

Customer commitment has been defined as "a psychological desire-based attachment to a service provider, reflected by the strength of the customer's identification and involvement with the provider" (Porter, Steers, Mowday, & Boulian, 1974). This definition is fairly congruent with the principles of SET in that it suggests the creation of a desire-based relationship between client and firm based on the frequency and intimacy of interactions between the two parties. Promoting and maintaining customer commitment is critical to the success of a hotel business due to the widely-accepted understanding that it is much more expensive to market and acquire new clientele as it is to support and recapture existing return business (Mattila, 2006). Many companies, especially in the lodging industry, have spent and continue to spend hundreds of millions of dollars every year on promoting individual brand commitment in an effort to create and retain a reliable customer base of returning clientele. With the relatively recent introduction of self-service technology into the industry, hoteliers cannot afford to let these new tools have any kind of negative impact on brand image and customer retention in such a highly competitive market. The meshing of traditional

service delivery and SST must proceed in a way such that strengths complement each other to provide a better overall experience for the guests in question (Patrício, Fisk, & Falcão e Cunha, 2008). As an example, such SST machines are well built and designed for both transaction speed and productivity while maintaining precision accuracy of process, allowing for the service of large quantities of customers quickly and efficiently. This frees up the hands of live personnel so that they can focus on complicated concerns that technology has not yet evolved to tackle. It is posited that, by working collaboratively in such a way, the customer experience may be enhanced from the implementation of SST without significant drawback. For this reason, the concept of commitment and its association with customer satisfaction must be considered.

Individual firms within the broader category of lodging have the sometimes confusing task of understanding their unique identities, understanding their target markets, and strategically positioning themselves to provide the highest quality of services in those areas where their specific clientele perceive the most value; this is the primary basis of differentiation and competitive advantage. A study analyzing key service characteristics that determine commitment among travel styles suggested that those aspects of a hotel stay that an individual guest traveling alone finds most important differs significantly from those of a couple, a group of friends, or a family (Hanai *et al.*, 2008). Research found that individual travelers base their opinions and behavioral intentions of return business on a very restricted number of aspects of a hotel experience, but significant importance is placed on quality service provided from hotel staff. To this implication, hesitation by the industry in pursuing SST kiosks seems prudent as this innovation seeks the objective of *replacing* hotel staff. Conversely, group travelers tend to base their perceptions on a much broader range of hotel attributes due to the fact that, directly or indirectly, they will be aware of the service experiences of not only themselves but many others in the particular travel group, through

26

eyewitness or word of mouth. These important ideas are introduced on the premise that large-scale convention hotels---specifically the firm to be examined in this study--- are extremely complex in nature with a wide variety of clientele from individual business travelers, to convention attendees in groups upwards of 20,000, to families on vacation. Therefore, the intricacies of travel style perception and its association with customer commitment must be recognized and understood.

<u>Types of Commitment</u>

The concept of commitment has been developed thoroughly in previous research and further dissected into specific categories, each representative of unique consumer motivations for continuing relations with a business. Although various research findings have debated on the number and depth of diverse categories under the general concept of commitment, this study employs two distinct foci of the idea.

Affective Commitment

The first and most-widely studied construct is that of affective commitment. Scholars agree that affective commitment includes psychological attachment on behalf of the consumer to a particular firm; however, debates in the past have arisen as to whether or not affective commitment includes intentional behavior on the part of the client to maintain a relationship with the firm. Several researchers recently have explained a distinction between the two actions in that affective commitment exclusively involves psychological attachment, and the broader idea of loyalty is what umbrellas the process of intentional behavior to maintain a relationship with the firm. Due to this strong consensus of many researchers, the definition suggested by Dean will be applied to this study, which states that affective commitment is defined as "a positive feeling of attachment which underlies behavioral intentions but is distinct from them" (Dean, 2007). Affective commitment, in

27

its simplest form, entails a sense of belonging and involvement with a firm in the eyes of a consumer, not unlike emotional bonding (Mattila, 2006). As service intangibilities---rather than products---are often the source of emotional connections between businesses and their customers, it is reasonable to posit that the implementation of self-service kiosks in hotels may have a substantial affect on customer commitment.

Instrumental Commitment

Instrumental commitment refers to a relationship between client and firm pursued and maintained because of the perception of high "switching costs", or the costs of cancelling business with the existing firm to patronize another. This type of commitment has also been referred to as cognitive or calculative commitment (Mattila, 2006). Instrumental commitment ignores any benefits of the given service provision, and narrows the scope of focus to that of the total net loss that the customer will face by switching firms. In many industries, switching costs can be a substantial deterrent to moving away from a provider. Insurance, banks, and even cellular phone subscriptions all possess relatively high switching costs. In these cases, a contract or agreement is established at the beginning of the client's relationship with the firm, and there are typically significant monetary penalties that deter customers from defaulting or breaking their agreements. Using the cell phone example, many providers stipulate a monetary 'cancellation fee' equivalent to several months usage in order to maintain their customer base in a highly-competitive market. Under this example, the consumer may see the penalty of terminating their relationship as equivalent to finishing the contract while still receiving the benefits of retaining their phone service. Accordingly, the service provided would have to be grossly unacceptable in order for the customer to find enough motivation to endure the penalties and walk away. However, regarding the hotel industry, switching costs between

28

firms are usually very low or non-existent. Previous research has suggested that most frequent hotel patrons are members of more than one loyalty program from a variety of firms due to the recent proliferation of hotel strategies to retain loyal customers (Mattila, 2006). Additionally, these consumers experience no significant barriers to switch providers unless the change is last minute, as most hotels apply a late cancellation policy. It is for this reason that the researchers were appropriately skeptical that self-service technology implementation in the hotel environment would have a minimal association with instrumental commitment.

Directionality of Consumer Commitment Impacts

Studies exploring commitment and its many intricacies have enforced over many years of research the idea that the commitment of a customer is strongly associated with their perceived level of satisfaction with their experiences. Several researchers have asserted that commitment is a subsequent consequence of customer satisfaction levels (Cranage & Mattila, 2005; Hennig-Thurau, 2004; Kirwin, 1992), and Beatson further carried the idea into the SST field to affirm that the same line of logic can be applied to self-service experiences (2007). Given the recent trend in research supporting the idea that self-service kiosks may yield superior levels of customer satisfaction among users, it is reasonable to posit that customer satisfaction will be positively associated with commitment.

Hypotheses

Lastly, the following hypotheses were posited for the purpose of this study:

As discussed earlier, prior research pioneering this area has identified positive and negative SST attributes that are directly associated with positive and negative satisfaction levels. Based on this

foundation of knowledge, it was reasonable to posit that this pattern would persist in the convention hotel setting as well. As such, our first hypothesis was split into two parts as follows:

Hypothesis #1a: Positive self-service kiosk delivery attributes (problem resolution, perceived advantage of time, ease of use, or access, and fulfillment of purpose) are directly associated with positive customer check-in satisfaction.

Hypothesis #1b: Negative self-service kiosk delivery attributes (technology failure, process failure, poor design issues, and customer-driven failure) are directly associated with negative customer check-in satisfaction.

Thereafter, well developed research regarding relationships between customer satisfaction and commitment with respect to the traditional service delivery mode strongly supports the idea that a positive association between the satisfaction of a guest and their subsequent commitment to the firm in question. Therefore, it was also reasonable to predict that this association would exist with the integration of SST as well. Following this logic, our second hypothesis was also split into two parts as follows:

Hypothesis #2a: Customer check-in satisfaction is directly associated with affective commitment.

Hypothesis #2b: Customer check-in satisfaction is directly associated with instrumental commitment.

These two hypotheses are structured so as to test the associations between each of the constructs of the study: the relationship between SST attributes and customer check-in satisfaction, and the relationship between customer check-in satisfaction and commitment.

Summary

This chapter discussed the theoretical foundation of knowledge supporting the constructs of consumer perception and its intricacies, SST delivery attributes, customer check-in satisfaction, and resulting effects on customer commitment. The schools of Social Cognitive Theory, Social Exchange Theory, and Three-Factor Customer Satisfaction Theory were discussed to provide theoretical underpinning to the proposed investigation. Motivating contingents of consumer perception were then discussed to provide a background of contributing variables. The key attributes of the SST service delivery mode were introduced and explained, and customer satisfaction along with the dimensions by which it will be measured immediately followed. Finally, the aspects of customer-firm relationship and customer commitment were explored to establish fundamental principles that could be affected by SST implementation.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

<u>Introduction</u>

The purpose of this study was to investigate the association of changes in customer satisfaction and commitment with the use of self-service hotel kiosks in convention hotels by examining perceptions of kiosk users. Naturally, this study employed a multi-level approach collaborating a great deal of previously-suggested knowledge on the subject, as well as an adapted model proposed for the very purpose of investigating this subject at an industry-specific level. A quantitative survey approach was used to collect data within the case sample of the Rosen Centre

Hotel in Orlando, Florida. The data was analyzed using the Pearson correlation coefficient test, with a goal of supporting or refuting two hypotheses directly from the model.

<u>Methodology</u>

The proposed study was quantitative in nature in that it involved standardized surveys of consumer experiences, exploring numerical responses in a scale design to gain insight into attribute perceptions contributing to customer check-in satisfaction and subsequent customer commitment (see Appendix A). The sample for this study consisted of only one hotel in the Central Florida area. Although a more thorough exploration of this topic might expand geographical boundaries to include multiple regions or nations, the study parameters were limited to the Orlando vicinity due to time and resource constraints. At the time of the study, there were only two large convention hotels in the Central Florida area experimenting with the implementation of self-service kiosks with check-in capabilities. However, the two properties, by comparison, were quite diverse characteristically, and it is prudent to suspect that their differences could---and most probably would---have a substantial impact on survey respondent demographics and circumstances surrounding the study. The Rosen Centre Hotel was the sample of choice, and the case property for this study due to ready access for data collection. The Rosen Centre was 14 years old at the time and the second-largest property in the portfolio of its parent organization, a privately held lodging company of seven properties in the Central Florida area called Rosen Hotels & Resorts. The Rosen Centre was most closely associated with the lodging segment 'convention hotel', with minimal leisure amenities and adjacency to the city's convention center, catering almost exclusively to conference and meeting attendees. It has 1,334 guest rooms and 106,000 square feet of meeting space. The Hyatt Grand Cypress was the only other property with check-in-capable self service kiosks in the Central Florida area. By contrast, it

was much older at twenty-five years, and was approximately 600 guest rooms and 40,000 square feet of convention space short of the Rosen Centre's size. Additionally, the Hyatt Grand Cypress was surrounded by a golf course, and was several miles away from the city's convention center. Therefore a strong possibility existed that such distinctions would affect consumer demographics, attributes and consumer perceptions, potentially compromising the validity of the study. With this concern in mind as well as the resource limitations of the researchers, the Hyatt was excluded from the sample, and the Rosen Centre was chosen for an exclusive case study.

Most relevant to our study at the Rosen Centre Hotel were characteristics within the Front Office environment and the self-service kiosks themselves. The self-service kiosks employed by the Centre were NCR H1000's, and there were two units positioned directly in front of the Front Desk in the main lobby. They were capable of performing check-in, check-out, and bill management for registered guests. In addition, it is also important to note that guests have the ability to book future stays through the same kiosk device before, during, or after the check-in process. The Rosen Centre had the longest Front Desk in Central Florida in terms of traditional service stations with a total of twenty-one. For the purpose of disclosing all potentially relevant characteristics of the Rosen Centre Hotel, Appendix B includes a table listing all significant features of the Rosen Centre Hotel property.

Previous research supports a positive association between SST attributes, customer check-in satisfaction, and subsequent commitment regarding the service experience. Several specific studies have been conducted to this effect in the fields of pharmaceutical prescription ordering (Meuter *et al.*, 2005), retail purchase (Fernie, 1997), banking and other financial transactions (Ding *et al.*, 2007), airlines (Chang & Yang, 2008), and of course, lodging (Beldona & Cobanoglu, 2007); all suggested positive associations between the unique characteristics of the technologies being studied and

34

consumer perceptions. In order to ensure an accurate basis for formulating survey questions, each dimension of customer check-in satisfaction will be explored individually, and the attributes of SST will then be analyzed.

<p style="text-align:center">The Model</p>

The compilation of several studies produced a solid model for examining how service delivery attributes are associated with overall customer satisfaction, and subsequently, to examine the association of said customer satisfaction and commitment. The original framework proposed (Beatson *et al.*, 2007) organized the foundation of knowledge for an investigation of these constructs that is versatile across any industry or scope. This tool carefully encompasses the relevant factors contingent to customer service experiences with SST.
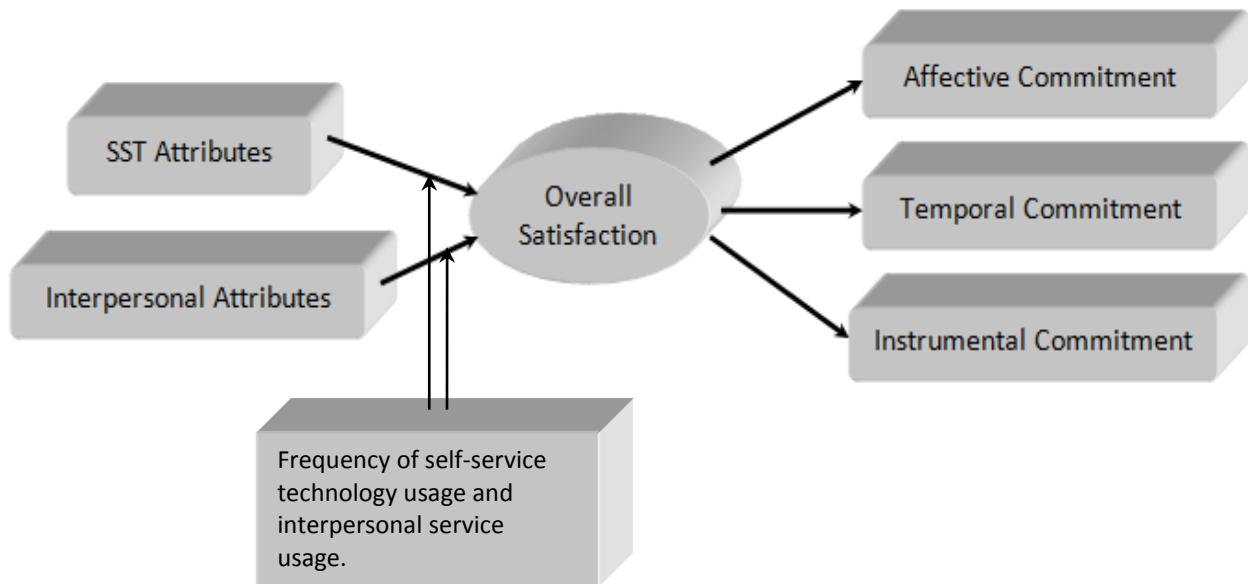

Figure 1: Beatson's Model for Service Delivery Mode Satisfaction and Commitment.

Beatson's original design, as displayed above, posited that the unique attributes of each service delivery mode, both SST and interpersonal, would be associated with both positive and

negative customer satisfaction levels. Beatson further theorized that customer satisfaction levels resulting from said attributes would have a positive association with three types of commitment: affective, temporal, and instrumental. Lastly, Beatson's model posited a moderating variable in the frequency with which consumers had experienced each delivery mode prior to use and satisfaction judgment.

For our study, Beatson's model was partially modified from its original version as pictured in Figure 1 above, and several variables have been removed from the constructs due to time and resource limitations; these include interpersonal service comparison, frequency of usage as a moderator, and temporal commitment.

Beatson's original model (Figure 1) was extensive in its attempts to include all possible factors of the service experience that could have an effect on perceptions of satisfaction and subsequent commitment. The original model was designed for a comparison of results between self-service and interpersonal service encounters, with a thorough analysis of all underlying attributes of both delivery modes; the analysis of interpersonal attributes and resulting effects was excluded from this study in order to avoid exceeding time and resource limitations. Additionally, frequency of service delivery mode usage was also considered in the original model as a moderating variable to ensure optimal validity of results; this was also dropped to simplify study parameters. Another difference between Beatson's original model and the modified version was the exclusion of temporal commitment as a subset of customer commitment. The first reason for the omission of this construct is that very little literature has been published with respect to temporal commitment, and its application to studies of this caliber has been very seldom researched; including such an unexplored concept in a study on the already-novel topic of self-service technologies could compromise the validity of results. Furthermore, what little literature *has* touched on the construct of

temporal commitment (Beatson *et al.*, 2007) suggests that it typically includes any informal feelings of obligation to continue relations with a firm, often due to a verbal understanding of intended patronage. Self-service kiosks by nature limit---and sometimes even eliminate all together---direct communication between customers and firm agents, so even if temporal commitment were an established concept appropriate for inclusion in this study, no material impact on temporal commitment would be expected. For the above reasons, the temporal commitment variable was dropped. The final distinction between Beatson's model and that which was proposed for this study lies in the name of the satisfaction construct. Beatson's model referred to the general idea of "Overall Satisfaction" so that the model would remain as versatile in application as possible. However, since the proposed study considers only the check-in process in measuring customer satisfaction, the satisfaction construct was renamed "Customer Check-In Satisfaction".

Despite these exclusions and modifications, the basic principles of the associations between the three main constructs remain the same, and they will serve as the foundation for the methodology of this research. Using a basic series of hypotheses and a quantitative survey approach, a tested and proven model has been adapted for analyzing attributes, satisfaction levels, and commitment from self-service kiosks in conventions hotels. The modified version of the model as depicted in Figure 2 below provides visual references to the constructs, their comprising factors as discussed in Chapter Two, and the hypotheses being investigated; the surveys administered will follow this pattern of theory to thoroughly explore the research questions.

SST Attributes

Positive:
-Problem Resolution
-Perceived advantage in time, ease of use, or access
-Fulfillment of Purpose (performs as intended)

Negative:

H_{2a}

Customer Check-In Satisfaction

Affective Commitment

$H_{1(a \text{ and } b)}$

H_{2b}

Instrumental
Commitment
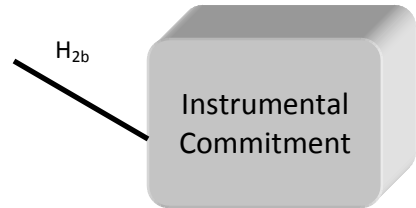
Figure 2: Adapted Model for Self-Service Kiosk Service Delivery Satisfaction and Commitment.

Hypotheses

The experiences of customers that fall within the framework of the SST service attributes naturally coincided directly with the concepts of emotional and functional value to form a perception of customer check-in satisfaction. The surveys administered to SST users were designed to capture the specific attributes of the self-service kiosk encounter and the importance thereof as it relates to their perception of the experience and association with customer check-in satisfaction. Previous research has posited a direct association between positive and negative SST attributes and positive and negative customer satisfaction, respectively (Beatson *et al.*, 2007). With that being said, our first hypothesis followed previous research in suit (model hypotheses 1_a and 1_b:

> ***Hypothesis #1a: Positive self-service kiosk delivery attributes (problem resolution, perceived advantage of time, ease of use, or access, and fulfillment of purpose) are directly associated with positive customer check-in satisfaction.***

Hypothesis #1b: Negative self-service kiosk delivery attributes (technology failure, process failure, poor design issues, and customer-driven failure) are directly associated with negative customer check-in satisfaction.

It is important to note that these hypotheses are understood to apply only to those guests who freely *opted* to use SST without any outside influence or persuasion. This presupposes the fact that the option of either service delivery mode was present in the study environment at all times, and respondents were free without any outside persuasion to choose between the two for check-in purposes; this was the case at all times during the data collection process. Only after those guests who freely chose to employ self-service kiosks for their check-in did so were they approached for research purposes. It is also important to note the projection of *positive* association with customer satisfaction. Given the recent positive trend in client feedback regarding the usage of SST as discussed in Chapter Two (Beatson *et al.*, 2007; Carlin, 2007), the researchers projected a similar outcome from this study.

The association between SST attributes and customer check-in satisfaction was the first item on the agenda of this study. The second was to explore the relationship between customer check-in satisfaction and subsequent commitment. For the purpose of more clearly identifying the areas with which customer check-in satisfaction has the closest association, the adapted model (Figure 3) breaks commitment down into the two distinct types described in Chapter Two: affective and instrumental. These subsets are factored holistically in the eyes of the consumer in an overall decision to continue business with a firm; however, they must be examined individually in the research context in order to fully understand the reasons for customer commitment, and its relationship with customer check-in satisfaction with self-service technology. Therefore, the study

sought to capture respondent feedback in terms of how SST satisfaction is associated with both affective *and* instrumental commitment (model hypotheses 2_a and 2_b).

Hypothesis #2a: Customer check-in satisfaction is directly associated with affective commitment.

Hypothesis #2b: Customer check-in satisfaction is directly associated with instrumental commitment.

Again, given the suggestion from prior research that positive customer check-in satisfaction judgments are directly associated with commitment, it was anticipated that there would be a direct association between SST implementation and customer commitment.

Survey Instrument and Measurements

The survey used for conducting this study was a compilation of reliable scales from existing literature and questions adapted to fit the unique objectives of this study that have not been explored in prior work. The survey instrument employs the use of demographic questions, Parasuraman's Technology Readiness Index (TRI), the disconfirmation scale of customer satisfaction, and the organizational commitment scales originally developed by Allen and Meyer (Churchill & Suprenant, 1982; Meyer, Bobocel, & Allen, 1991; Parasuraman, 2000).

The first part of the survey instrument (Appendix A) consisted of ten questions designed to gain an understanding of general and topic-specific demographics of the respondents. The first question examined age group with the options of 18-25, 26-40, 41-55, 56-70, and 71+ corresponding

40

to respective generations. The second question was for gender specification. The third question examined the category of traveler in which the respondents fell; international, domestic, and local were the three options. The fourth question identified ethnicity; there were four majority categories listed (Caucasian, Hispanic, Asian, and African-American) and an additional line for respondents not described by the first four. The fifth question pertained to the purpose of visit for the respondent; the three choices were leisure, convention/meeting, or corporate travel. Although these are certainly not the only driving forces behind travel, these three reasons are the most common motivations behind travelers lodging at the Rosen Centre hotel; additionally, there were no challenges, questions, or evidence suggesting confusion (i.e. missing responses) among the survey respondent population to this effect. The sixth inquired about travel frequency, with a corresponding scale of ranges. Question seven asked for the disclosure of the respondent's income range with a scale in $25K increments. Questions eight, nine, and ten inquired about past SST usage experience, the respondent's perception of their own level of proficiency with SST, and a preference of whether the respondent usually preferred to use self-service kiosks if given an option. Although these variables were removed from the model itself, they provide insight during data analysis. As discussed in Chapter Two, the variety of unique characteristics and experiences that each consumer brings to the service encounter can have substantial effects on perception. (Beatson *et al.*, 2007; Fisher & Beatson, 2002; Meuter *et al.*, 2005; Weijter, Rangarajan, Falk, & Schillewaert, 2007) These demographic questions were asked in order to gain insight into any relationships that may exist between other target variables of the study (such as customer satisfaction and commitment) and the background information and motivations of the respondents.

Part II of the survey explored the customer check-in satisfaction construct of the study model. The disconfirmation scale was chosen among alternatives for its advantages in this

particular context. The disconfirmation scale was originally developed by Suprenant and Churchill in 1982 following Oliver's pioneering of the expectancy disconfirmation theory in 1980 (discussed in Chapter Two). The scale is focused actual customer satisfaction as it compares to expectations of the consumer prior to experience, and it is typically formatted with three points, being "Better than expected", "As Expected", and "Less than Expected". There are several scales that have been used in research in the past for measuring satisfaction; other than the disconfirmation scale, two other commonly used tools would be the performance scale (Poor, Fair, Good, etc.) and the satisfaction scale (very dissatisfied to very satisfied). However, researchers (Devlin, Gwynne, & Ennew, 1993; Rust, Zahorik, & Keiningham, 1994) have recommended the use of the disconfirmation scale for several reasons. The first reason is that the disconfirmation scale is a multi-item format in that respondents are asked to compare their expectations with actual experiences (Yuksel & Yuksel, 2001). Following the posited logic of SCT, this is an important factor for the satisfaction scale to include. Also, comparison with expectations has been shown to have a stronger association with return intentions than do the other two alternatives (Rust *et al.*, 1994). This is also extremely important in that the third construct of the study model examines customer commitment and return intentions. Finally, a study conducted by Peter and Vanessa (1996) reinforced that the disconfirmation scale was the most solid and accurate representation of the data, showing less skewness and higher validity than the performance and satisfaction scales.

In consistent studies employing the disconfirmation customer satisfaction scale, this scale has yielded a high level of reliability in a variety of applications. Most work using the disconfirmation scale has employed it to measure the overall satisfaction of a given experience and its subsets of individual factors comprising that overall experience (Yuksel & Rimmington, 1998). In these studies, the disconfirmation scale has maintained Cronbach alpha coefficients of $\alpha = .910$ and

higher indicating a very high level of reliability. Even in studies using a blend of the disconfirmation scale and other satisfaction scales (Peter &Vanessa, 1996), the net alpha coefficient never dropped below .65, further attesting to the reliability of the tool. The scale is employed in this study most similarly to the first scenario, where the objective is to achieve an overall understanding of the customer check-in satisfaction felt by the respondent after experiencing service via a self-service kiosk.

Recall Figure 2 which lists in detail the SST attributes hypothesized to be associated with customer check-in satisfaction. The attributes of SST, which are explored in Part II of the survey, are those critical characteristics of the SST service delivery mode that prior research has supported as being most closely associated with customer satisfaction. However, as outlined in Figure 2, these attributes are inherently positive or negative by nature, and simply bringing up their occurrence or likelihood during or prior to the customer check-in satisfaction analysis could risk manipulating responses. For this reason, the first construct measured by the survey is that of customer check-in satisfaction, and these questions focused on the five dimensions of customer check-in satisfaction previously discussed, which are neither positive nor negative by nature without a particular context or setting. The first five questions inquired as to an objective evaluation of customer check-in satisfaction based on each of the five dimensions: speed of service, control, enjoyment, reliability, and privacy. The final question asked for an overall satisfaction rating of the check-in experience employing the same disconfirmation scale; this question was posed last so that respondents have an opportunity to fairly evaluate their answers to the first five questions related to each dimension and reflect before making a summation judgment. This final question of overall satisfaction with the check-in transaction served as the representation of the customer check-in satisfaction construct in the data analysis of this study (infra, Chapter 4). A seven-point Likert scale was applied to this

43

section as well for reasons of consistency (Peter & Vanessa, 1996). An example of the

disconfirmation scale as applied in the study survey is shown in Figure 3 below.

My check-in experience as it relates to the level of control that that I had over the process was:

	Worse than I Expected		As I Expected			Better than I Expected	
	1	2	3	4	5	6	7
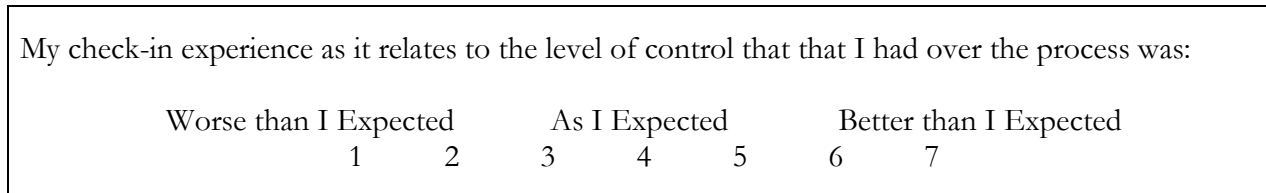
Figure 3: Example of Disconfirmation Scale of customer satisfaction applied.

The second half of Part II of the survey was split into two distinct sections. Respondents

were required to complete only one section, based on their answer to the last-posed question

regarding overall satisfaction of the check-in process (as described above). Respondents were

directed to one of the two sections depending on whether they rated their experience as being

overall satisfactory or overall unsatisfactory on the scale. Each of the two corresponding sections of

questions was related to the attributes of SST delivery, the first section pertaining to positive

attributes and the second negative. As mentioned earlier, these attributes of the SST interface have

been posited to be closely associated with satisfaction, and as such their importance to guest

perception should be factored in accordance with respective positive or negative satisfaction

judgment. Each of the statements in this section corresponded to one of the seven attributes

previously identified: three positive and four negative (see Figure 2). The scale for this section was

adapted from Parasuraman's TRI scale (Parasuraman, 2000). Parasuraman developed and tested a

National Technology Readiness Survey with 1,000 interviewees across the nation. Through several

reliability tests and scale-purification processes, Parasuraman was able to identify the most critical

indicators of consumer perceptions on relatively new and untested technologies. The final index

scale consists of four different categories and sixty-six unique statements that are measured on a 5-

point rating scale identical to that employed in the survey. The range of Cronbach alpha coefficients for Parasuraman's index varied from $\alpha = .74$ to $.81$, indicating solid reliability throughout the scale. Again, the factors rated in each of the two sections are derived directly from prior studies and listed in Figure 2; they represent each of the positive and negative attributes of SST delivery. Parallels can also be found between the attributes and items on the original TRI scale, further attesting to the appropriation of the instrument. As an example, Parasuraman's index lists one point under the "Insecurity" category:

"There should be caution in replacing important people-tasks with technology because new technology can breakdown or get disconnected."

(Parasuraman, 2000)

Under the section of the survey dealing with dissatisfied customers, respondents are asked to rate the following experience:

"I attempted to use the kiosk, but the kiosk made an error during the check-in process and it failed to check me in correctly."

Similar correspondences can be found between each of the attribute questions listed in the sub-parts of section two and Parsuraman's index. Each of the two sections was concluded with a final question "Was there anything else not listed that significantly impacted your experience?" This

question was intended to help identify any areas of the SST user interface that may have eluded prior research. This was also intended to help determine if there were any SST attributes specific to the lodging environment but less prominent in other settings. An example of Parasuraman's TRI scale as applied to the study survey is depicted in Figure 5 below:

Please rate the following items in terms of how significantly they influenced your perceptions today.						
	Low Importance			High Importance		
The kiosk was difficult to understand and operate.	1	2	3	4	5	

Figure 4: Example of Parasuraman's Technology Readiness Index scale applied.

It is also worthy of note that one of the positive SST attribute items and three of the negative SST attribute included a sixth response option, "N/A" to indicate that a particular attribute was not applicable to the user's experience due to the non-occurrence of the specific event. For example, the positive attribute of problem resolution included a "N/A" response option so that those respondents who did not experience a problem or have a problem which the kiosk did resolve or *could* have resolved could answer as such on the survey. Accordingly, those respondents completing the negative attribute section could indicate the lack of a technology failure, a process failure, and/or a user error. The quantity and significance of these responses were considered during data analysis and disclosed in Chapter Four for the purpose of explaining results.

The last construct of the model to be measured was commitment. Prior research has explored the efficacy of multi-item scales for measuring commitment (Söderlund, 2006), and more specifically through the context of organizational commitment (Meyer *et al.*, 1991). The scale of organizational commitment was first developed by Allen and Meyer (1984) and was originally designed to explore the facets of employee commitment to work organizations. However, the scale

46

specifically measures each of the types of commitment proposed by the study model (Allen & Meyer, 1993). Allen and Meyer refer to instrumental commitment in their studies as "continuance commitment", but their definitions and distinctions between the two match those being applied in this study, which makes the scale an effective choice. The scale is formatted with seven points ranging from "Strongly Disagree" to "Strongly Agree". The questions are posed in an "It is likely (or *not* likely) that I would return to do business with this firm…" format with the conditions of each sub-part of the construct completing each statement. In consistent studies, Cronbach alphas ranged from $\alpha = .84$ to .88 for the affective commitment scales, and from $\alpha = .70$ to .84 for the continuance commitment scales, indicating a high level reliability (Meyer *et al.*, 1991).

The application of this scale in the commitment portion of the survey, Part III, corresponded to the two co-constructs of commitment being measured. The first two questions related specifically to affective commitment. Each of the two questions required the respondent to rate the validity of a statement; one question stated that the respondent would be more likely to return to the *current* establishment due to circumstances related to affective commitment, and the other conversely stated that they would be more likely to patronize a *different* firm given the same circumstances. The reason for this second reverse-coded question was to ensure consistency of responses, which would support the validity of the data and indicate proper interpretation of the questions by respondents. The third question asked in this final section requires the respondent to disclose whether or not they have a contractual obligation or some informal agenda to return to the firm in question. The answer to this helped to determine whether there were any significant switching costs affecting the answers to the proceeding questions, which are related to instrumental commitment. The final two questions are posed in identical format to that of the affective commitment questions, including the reverse-coding strategy. The only distinction is that the

47

circumstances revolve around changes in instrumental commitment, costs to switch service providers for the consumer. An example of the scale as applied in the survey instrument is provided in Figure 6 below.

I will be more likely to return to this hotel because my feelings about the quality of this hotel and/or its company have changed as a result of my service experience with the check-in kiosk today.

Strongly Disagree   Strongly Agree

1   2   3   4   5   6   7
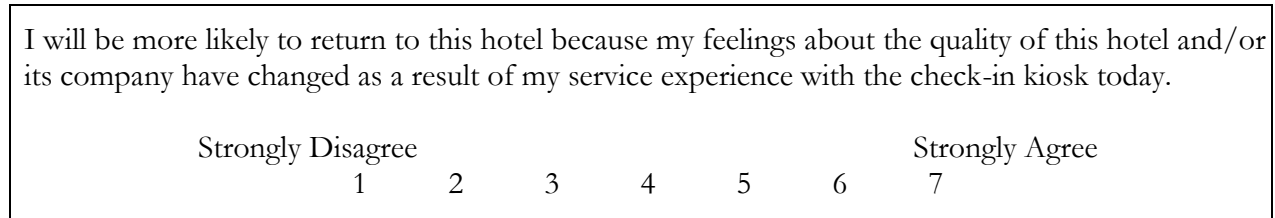
Figure 5: Example of the organizational commitment scale applied.

The IRB process was relatively smooth for the approval of the study and the survey material. After a preliminary review, the IRB expedited the approval of the study absent a full review due to the minimal impact and risk associated. Very minor editing and adjustment to the survey and associated study material was required after the first submission of materials, and the study was approved immediately after second review. The IRB approval letter for this study has been included as Appendix C.

<u>Pre-Testing for Face Validity</u>

A pre-test of approximately 20 individuals was conducted prior to administering the survey, consisting of industry professionals both within and outside of the Rosen Centre Hotel. Based on feedback and critique, several minor improvements were made to the aesthetics and verbiage of the survey instructions so as to ensure readability. However, there were no comments of material or substantial concern regarding the structure or content of the survey instrument.

Data Collection

The data collection, in its entirety, was conducted in the main lobby of the Rosen Centre Hotel. A total of 175 surveys were collected to ensure adequate quantities for analysis. The primary researcher of this study, at the time of data collection, was employed as a Hotel Manager at the Rosen Centre Hotel; however, at the time of conducting data collection, the primary researcher was dressed in plain civilian clothes and did not introduce himself or indicate in any other way agency with the hotel.

In terms of procedure, respondent guests selected were observed entering the hotel and approaching and utilizing the self-service kiosks at their own free will without any interference or knowledge of the study taking place prior to kiosk usage. At all times during the data collection, there was at least one (if not several) Front Desk agent(s) at the Rosen Centre Hotel's traditional Front Desk immediately behind the kiosks assisting guests, and there were very rarely any lines or delays to access either one of the two service delivery modes. During one day of the collection process, the kiosks were out of order due to technical difficulties for a period of approximately 30 minutes; no guests attempted to use the kiosk during this time, and so no potential respondents were approached under these circumstances. To the best of the researcher's knowledge, at no other time during data collection periods were the kiosks inoperable for any reason. Through observation, and through conversation with respondents immediately after usage, the primary researcher---who was the exclusive data collector for the study---determined and verified that the target respondents utilized the kiosk for the function which the study is examining: check-in. After confirmation of the afore-mentioned, target respondents were invited to fill out the brief survey previously outlined earlier in the Chapter. Approximately 70% of those individuals approached agreed to participate in the study, at which point the data collector provided them with the survey, a writing utensil if

needed, and counter space at the hotel's front desk and/or bell stand desk with which to complete the survey. Although data collection was not conducted during fixed timeframes, most of the surveys were administered during peak check-in times at the hotel, between 1300 hours and 1700 hours daily, as these were the periods of time where arrivals were most frequent. The data collection process was conducted daily during varying hours of the standard check-in times (1500 hrs – 2400 hrs) from May 12, 2009 to May 27, 2009, until the target survey total of 175 was collected. Per IRB stipulations, copies of the study documentation explaining purpose and confidentiality were provided to all respondents.

<div align="center">Data Analysis</div>

Once all surveys were accounted for, data was entered in spreadsheet format and analyzed using SPSS version 17.0. The more appropriate method of analysis would be Structural Equation Modeling (SEM), but the data from the survey did not conform to this tool. Therefore, for the purposes of simplicity and clarity of analysis, the approach of basic Pearson correlation analysis was chosen. These correlations indicated the basic desired understanding of associations between the key components of the study.

Pearson correlation coefficients have been utilized in countless quantitative studies due to their universal application. Pearson correlation coefficients (r) allow for the examination of the linear correlation between item-to-item relationships across a range from -1.0 to 1.0. A value of $r = 1.0$ would reveal a perfectly direct or positive relationship between two items, whereas a value of $r = -1.0$ would indicate an exact inverse relationship. A value of $r = 0$ indicates no relationship whatsoever. This interpretation of Pearson coefficient values is based upon a widely supported ratings scale as first posited by Cohen (1988). Table 2 below displays Cohen's ratings scale:

Table 2: Cohen's Rating Scale for Pearson Correlation Coefficient

Pearson Correlation Coefficients	Association Magnitude
r = .100 to .290 or r = -.100 to -.290	Weak Association
r = .300 to .490 or r = -.300 to -.490	Moderate Association
r = .500 to 1.000 or r = -.500 to -1.000	Strong Association

In addition to its versatility of application, Pearson Correlation also has a history of supported research as it relates to the specific constructs being measured in our study. Two relatively recent papers have applied this data analysis method to employee job satisfaction and subsequent commitment with significant success (Hsu-I, 2006; Stedham & Mitchell, 1996).

In addition to the Pearson Correlation Coefficient for the purpose of measuring association, the p-values of significance were also computed and included, and the Cronbach alpha reliability tests were conducted on each of the variables of the study for a more thorough disclosure of results

Summary

Chapter Three provided a thorough overview of the methodology of this study. The model as adapted from its original design by Beatson was first introduced along with individual components of each construct. Secondly, hypotheses were identified and traced to the model. Next, the survey instrument was discussed with each of the three scales utilized: Parsuraman's TRI Scale, the disconfirmation scale of satisfaction, and Allen & Meyer's Commitment Scale for organizational commitment. The exact details of data collection were then outlined including circumstances time frames, and conditions surrounding the collection process itself. Lastly, a brief overview of data analysis strategy employed was provided. More on this subject will be discussed in Chapter Four.

CHAPTER FOUR: RESULTS

The data analysis for this study was conducted using the Pearson correlation test. For purposes of efficiency with this report, Appendix D includes all data statistics relevant to the following dictation including absolute and relative frequencies as well as modes for each item in the survey instrument. As Appendix D illustrates, there were moderate levels of unanticipated missing data in the survey responses; the data was cleaned using average and mode statistics to replace missing values where appropriate and necessary, and at the completion of this process, 175 usable surveys remained for further analysis.

Recognition of Error/Adjustments

Upon completion of data collection and initial data entry into SPSS, a flaw in the survey directions affecting a proportion of the sample set was discovered by the research committee. Recall that in Part II of the survey instrument, respondents were asked to proceed to one of two sections to rate SST attributes based on their answer to question #6 as it related to their overall satisfaction.

The directions for this section, as published read as follows (see Appendix A): "If you answered question #6 above between 4 and 7, please proceed to Section 1. If you answered between 1 and 4, please proceed to Section 2." It was realized only at this late point in the research process that the above instructions are inherently confusing by way of ambiguity. Those respondents who answered either 1 through 3 or 5 through 7 for questions were given clear instruction moving forward. However, those who responded with "4" were left with a choice to make regarding which section to respond to, as either section would satisfy the instructions given. Although it appears peculiar that none of the respondents questioned or challenged the ambiguity of the erroneous instructions, this mistake is an accepted shortcoming of the study. In order to salvage the remaining value of the dataset, the decision was made to remove those respondents from the data sample who answered "4" for question #6. This avoided compromising data validity by eliminating those cases to which the confusing instructions applied. As such, the respondents in question, a total of 48 cases, were removed from the sample, leaving 127 viable survey responses with which to conduct the analysis. Although the removal of 27.4% of the survey population may give rise to concerns of interpretive biases, it is worthy of note that when comparing the removed 48 cases with the remaining 127, modes and data trends---in both demography and questions related to the study model and hypotheses--- were remarkably similar, attesting to some level of relative consistency before *and* after the identification of mistake and subsequent changes. While it is conceded that the exclusion of the 48 removed cases may have altered the study output to some degree, there is little evidence to suggest a substantial skew in results from such a change; furthermore a recollection of survey responses was not feasible due to time and resource constraints.

<div align="center"><u>Demographics</u></div>

Although demographics---and specifically prior kiosk usage frequency---were excluded from the study model due to time and resource constraints, it is important to discuss basic demographic trends discovered among the respondent population. As discussed in Chapter Two, these factors can have substantial weight in the expectations and perception of customers utilizing SST in the hotel service environment (Beatson *et al.*, 2007; Fisher & Beatson, 2002; Meuter *et al.*, 2005; Weijter, Ranagarajan, Falk, & Schillewaert, 2007). Table 3 below provides an overview of demographic statistics for the survey sample.

Table 3: Survey Respondent Demographics

Age	18-25	26-40	41-55	56-70	71+	
	10(7.9%)	79(62.2%)	15(11.8%)	17(13.4%)	3(2.4%)	
Gender	Male	Female				
	86(67.7%)	41(32.3%)				
Traveler Category	Int'l.	Domestic	Local			
	29(22.8%)	73(57.5%)	25(19.7%)			
Ethnicity	Caucasian	Hispanic	Asian	African-American		
	78(61.4%)	18(14.2%)	20(15.7%)	9(7.1%)		
Purpose of Visit	Leisure	Convention /Meeting	Corporate Travel			
	7(5.5%)	106(83.5%)	14(11.0%)			
Hotel Stays Annually	1-5 stays	6-10 stays	11-15 stays	16+ stays		
	50(39.4%)	62(48.8%)	14(11.0%)	1(0.8%)		
Income Range	$0-$25K	$26K-$50K	$51K-$75K	$76K-$100K	$101K+	
	3(2.4%)	69(54.3%)	26(20.5%)	19(15.0%)	4(3.1%)	
Prior Kiosk Usage	1-3 times	4-6 times	7-9 times	10+ times		
	71(55.9%)	37(29.1%)	12(9.4%)	7(5.5%)		

Sufficient Experience	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)
	0(0%)	0(0%)	3(2.4%)	12(9.4%)	18(14.2%)	29(22.8%)	65(51.2%)
Kiosk As Delivery Preference	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)
	0(0%)	0(0%)	0(0%)	6(4.7%)	16(12.6%)	16(12.6%)	89(70.1%)

Beginning with age, a vast majority of respondents fell under the 26-40 range; only 3 respondents omitted the question. In terms of gender, approximately two thirds of the respondent sample was male. As far as traveler category, most respondents indicated that they were domestic travelers from within the United States; International and Local visitors were of nearly equal proportions among the sample. This variable is helpful to know on a case-by-case basis, but the clientele at a property like the Rosen Centre can change drastically in terms of traveler category from one day or week to the next, depending on the nature of meetings that are arriving and departing during the timeframe. Next was ethnicity; approximately 60% of respondents were Caucasian, and the other identified ethnicities were all with 20 or less representatives. In terms of the "Other" category provided in the event that any respondent did not identify with any of the four provided choices, there were a few respondents who chose to define themselves as being of a unique background. However, the author felt that all responses provided under "Other" broadly fell under at least one of the four provided choices (i.e. Indian falls under Asian) and so they were grouped together as such. Question #5 dealt with purpose of visit, and to no surprise, a large majority of the sample was staying at the case property for "convention/meeting" purposes. Question #6 inquired as to hotel annual hotel stay frequency, and responses were spread fairly evenly between the first two responses. It was interesting to note that very few respondents indicated that they stay at hotels in

excess of ten times per year, and no respondents indicated a stay frequency in excess of 15 stays per year; this could be indicative of the specific group(s) currently in house at the Rosen Centre, but it is not surprising as a 2010 study indicated that the average business traveler will travel 8 times per year (TravelHorizons™, 2010). Question #7 asked respondents to identify an income range, and the response spread was noticeably unusual; the one slight abnormality was that no respondents selected an income range of "$0-$25K".However, the Rosen Centre Hotel is a 3 to 4 diamond property with room rates in excess of $400 per night at times, so this situation could be indicative of a lack of low income clientele in the hotel, or perhaps more specifically a lack of low income kiosk users. Proceeding, question #8 dealt with the moderating variable of kiosk usage frequency that was removed from the original model in the study due to time and resource constraints. It was interesting to find that a large majority of respondents had used self-service kiosks between 1 and 6 times in the past. The question does not specify any parameters for the type of kiosk used previously, but one explanation for these very high numbers could be that respondents were not considering ATM's, automated gas pumps, and other types of kiosks besides hotel-related devices to fall under the same category of experience. Question #9 asked for respondents to self-evaluate their kiosk usage competency based on prior experience, and despite the predominantly low reported usage experiences from most of the respondents, evaluations of competency were relatively high on the 7-point Likert scale provided. This may indicate that guests feel comfortable operating SST of this nature after only a few experiences, a testament either to the user-friendliness of the machines, a comfort zone created, at least in part, by prior SST experience, or a combination of both . The final demographic question asked respondents to evaluate whether they prefer to use self-service kiosks over traditional interpersonal service delivery if given an option. Since all surveyed guests had a clear option of either human service delivery or self-service kiosk usage upon arrival at the hotel, and as

discussed earlier, there was minimal to no delay in accessing either delivery mode upon arrival, a high level of kiosk preference responses (121 at 95.3%) is not a surprise.

<p style="text-align:center">Analysis: Hypotheses #1a and #1b</p>

The first area of analysis in the study was that of the association between SST attributes and customer check-in satisfaction. To recap, respondents were first asked to rate their service experience on the 7-point scale according to the five dimensions of customer check-in satisfaction (speed, control, enjoyment, reliability, and privacy). After disclosing satisfaction as it pertains to these five dimensions, respondents were then asked in the final question to rate "overall" satisfaction resulting from the check-in experience. This final question was used as the variable representative of "customer check-in satisfaction" for the purposes of our hypotheses. The logic behind this is that by first evaluating satisfaction based on the five dimensions previously discussed, respondents had an opportunity to carefully reflect upon their impression of the experience in question before disclosing a summation judgment of "overall" check-in satisfaction. The decision was made to implement and utilize a final question inquiring as to "overall" check-in satisfaction in this manner as *opposed* to utilizing of a calculation of the mean of the five preceding questions pertaining to the five dimensions because the former allows for a respondent's subjective interpretation and unique weight to be applied to each dimension. In other words, while the mean of the first five responses computes the most frequently submitted response among the questions, it does not consider the unique and often differing values placed on each individual dimension by the respondent. In the interest of comparing the results of these two strategies, the means of the five satisfaction dimension variables were computed during data analysis and compared to responses for the final "overall" check-in satisfaction question; it is worthy of note that in 119 of the 127

<p style="text-align:center">57</p>

responses at 93%, the means of the five dimension questions matched the responses for "overall" check-in satisfaction. However, as discussed above, the validity of the remaining nine questions should not be questioned based on these results, because particular weight may have been considered by the respondent toward particular dimensions of check-in satisfaction in answering the "overall" check-in satisfaction question, and the responses to those dimensions more heavily weighted may not have been consistent with the mean response for those cases.

Recall that the two survey sections immediately following satisfaction ratings pertained to the SST attribute construct of the model. Respondents rated each of the SST attributes according to their importance in judging satisfaction with the transaction in question. As discussed earlier, a fundamental error in the directions for the section led to the necessary elimination of 48 responses to ensure data validity. This left a total of 127 total responses. All of the respondents in the remaining sample followed instructions appropriately and answered one and only one of the two sub-sections of this portion of the survey. A total of 104 respondents identified in the "overall" customer check-in satisfaction question that their experience fell between a (5) and (7) on the scale, indicating that they were overall satisfied with their experience to some magnitude; conversely, the remaining 23 respondents identified their experience in the same question as lying between a (1) and (3) on the same scale, which indicated a less than satisfactory or 'dissatisfactory' experience.

The 104 satisfied respondents subsequently proceeded to Section 1 of the attributes portion of the survey. Applying the "overall" check-in satisfaction responses as the customer check-in satisfaction variable, our first hypothesis posited a direct association between the positive attributes of SST and positive customer check-in satisfaction. Below are the results of the data analysis between these variables.

Table 4: Association between Positive SST Attributes and Customer Check-in Satisfaction (H_{1a}).

SST Attribute	Hypothesis #1a Result	Pearson's Correlation Coefficient (r)	Significance (p)	Cronbach Alpha Coefficient (α)
Problem Resolution	Not Supported	.068	.059	.627
Perceived Advantage of Time, Ease of Use, or Access	Supported	.530*	.042	.932
Fulfillment of Purpose	Supported	.453*	.029	.844

(*) Association shows significance at p<.05.

Although the second attribute, "Perceived Advantage of Time, Ease of Use, or Access" was split into three distinct questions accordingly, the Pearson's correlation coefficients of these three items on the survey were averaged, and the result indicated a strong association with customer check-in satisfaction ($r = .530, p = .042$). As this was the strongest association of the three, an emphasis on speed of service and control might be implied from the data. The 'Fulfillment of Purpose' attribute yielded a moderate association with customer check-in satisfaction ($r = .453, p = .029$); consistent with Chapter Two, this association seemed to corroborate past research as prior studies have posited that those respondents with apprehension for technologies based on a fear of the unpredictable tend to be pleased with a lack of surprises in such encounters (Beldona & Cobanoglu, 2007). The final positive attribute, 'Problem Resolution', yielded a nearly non-existent association with customer check-in satisfaction ($r = .068, p = .059$). However, this is most certainly in large part due to the majority of responses of "N/A" (59 at 56.7% of the sample set) indicating that there was no problem to speak of (supra, Chapter Two). Responses among the variables of

'Perceived Advantage of Time, Ease of Use, or Access', and 'Fulfillment of Purpose' were judged to be fairly reliable for the sample set with whom the survey was conducted, with Cronbach alpha reliability coefficients of $\alpha = .932$ and $\alpha = .844$ respectively.

After analyzing correlations of the positive SST attributes, we then to the 23 remaining respondents who indicated an overall negative satisfaction with the check-in process. Table 5 displays the data analysis results pertaining to the association of negative SST attributes and customer check-in satisfaction in accordance with Hypothesis #1b.

Table 5: Association between Negative SST Attributes and Customer Check-in Satisfaction (H_{1b}).

SST Attribute	Hypothesis #1b Result	Pearson's Correlation Coefficient (r)	Significance (p)	Cronbach Alpha Coefficient (α)
Technology Failure	Supported	.711*	.031	.817
Process Failure	Supported	.873*	.018	.905
Poor Design Issues	Supported	.812*	.022	.743
Customer-Driven Failure	Supported	.644	.063	.800

(*) Association shows significance at p<.05.

The first interesting observation about these results is that the associations between the negative SST attributes and customer check-in satisfaction are higher than that of the positive attributes. As discussed in the previous section, this may also be partially due to the fact that consumers tend to be much more passionate and outspoken about negative experiences than they do positive ones (Han & Back, 2006; Valera-Neira, Vazquez-Casielles, & Iglesias-Argueilles, 2008).

Conversely, this may be an isolated product of the unique characteristics of this particular study. 'Process Failure' was most strongly associated with customer check-in satisfaction of the four attributes ($r = .873$, $p = .018$); five respondents at 21.7% of the applicable sample selected "N/A" for this variable, which suggests that a majority of the sample which evaluated the overall customer check-in process to be of dissatisfaction experienced a process failure of some kind. 'Poor Design Issues' held the second-strongest association with customer check-in customer check-in satisfaction ($r = .812$, $p = .022$). Next in terms of association strength was 'Technology Failure' ($r = .711$, $p = .031$); however, a majority of the respondent population (14 at 60.9%) selected "N/A" indicating the lack of a technology failure, which is consistent with the observed circumstances of the data collection process, which included no down times of the kiosks whatsoever (supra, Chapter Three). The weakest association was that between 'Customer Driven Failure' and customer check-in satisfaction ($r = .644$, $p = .063$); additionally, a majority of the applicable respondent sample (15 at 65.2%) selected "N/A" to indicate that a user error was not contributory to the negative experience. These results may suggest support for the posit that consumers may be less-inclined to admit to making a mistake in efforts to maintain dignity and avoid embarrassment (Beldona & Cobanoglu, 2007). Responses for all four negative SST attribute variable were judged to be fairly reliable for the sample set with whom the survey was conducted, with Cronbach alpha reliability coefficients between $\alpha = .743$ and .905.

<center>Analysis: Hypotheses #2a and #2b</center>

Lastly, the associations between customer check-in satisfaction and customer commitment were analyzed. Both co-constructs of commitment---affective and instrumental---were evaluated independently in order to determine if one was more significantly influenced than the other. For

<center>61</center>

question #1 in Part III dealing with commitment, where respondents were asked to evaluate whether the transaction in question will affect their commitment to the firm in anyway, responses were widespread, and did not show a close correlation to any of the other commitment items, nor did it relate in any way to the attribute or satisfaction constructs, so for the purposes of the study this question was dropped.

Immediately following, the association between customer check-in satisfaction and affective commitment was analyzed. There were only two questions for affective commitment, and they were reverse-coded to determine if commitment toward the same firm or toward competing firms may have been impacted disproportionally. After recoding the responses accordingly, it was identified that a very close correlation ($r = .911$, $p = .033$) existed between the two items, suggesting that any changes in affective commitment resulting from the study were fairly consistent between the propensity for a customer to do business with the case firm versus its competitors. In other words, it was very likely that a respondent who experienced a drop in commitment from the transaction deterring them from staying at the Rosen Centre Hotel again would also experience a similar increase in motivation to stay at another competing firm in the future based on feelings of relation to the firm.

The association between the affective commitment variable items and the customer check-in satisfaction construct is displayed below in Table 5 (Hypothesis #2a):

Table 6: Association between Affective Commitment and Customer Check-in Satisfaction (H_{2a}).

Commitment Item	Hypothesis #2a Result	Pearson's Correlation Coefficient (r)	Significance (p)	Cronbach Alpha Coefficient (α)
Improvement in Affective	Supported	.770*	.026	.817

Commitment				
Diminishment in Affective Commitment (reverse-code)	Supported	.713*	.029	

(*) Association shows significance at p<.05.

Obviously, both items indicate a strong association between customer check-in satisfaction and affective commitment, with 'Improvement in Affective Commitment' having a slightly stronger association ($r = .770$, $p = .026$). These results indicate strong support for Hypothesis #2a, suggesting a direct association between customer check-in satisfaction and affective commitment. Responses for both affective commitment items were judged to be fairly reliable for the sample set with whom the survey was conducted, with Cronbach alpha reliability coefficients of $\alpha = .810$ and .824.

The next question related to commitment asked respondents to identify whether they had previous contractual obligations to return to the hotel, and only 18.1% of the survey sample answered in the affirmative, which suggested that most respondents of the study did *not* have any pre-existing financial commitment to the case hotel.

The other co-construct of commitment was that of instrumental commitment. Recall that the same two questions as with affective commitment (the second a reverse-coding of the first) were asked of the respondents. However, unlike affective commitment, the association between the two items of instrumental commitment, considerate of the reverse-coding, was almost perfectly inverse. Whereas the two affective commitment items were highly associated, the first instrumental commitment item, 'Improvement in Instrumental Commitment', and the second, 'Diminishment in Instrumental Commitment', were nearly polar opposites ($r = -.908$, $p = .021$). Upon consideration that the modes for both of these items were "Strongly Disagree (1)", it appeared that the vast

majority of respondents experienced a very low level of change in instrumental commitment, both to the case firm and to competitors. In other words, a rise in switching costs would typically create a pressure to remain committed to the firm in question, whereas a drop in the same would induce just the opposite, allowing the consumer a lesser sacrifice to change providers; in this case, the majority of respondents felt very little change in their switching costs in either direction. This clearly suggests that barriers to provider change (a.k.a. switching costs) saw very little volatility from the transaction in question.

Finally, the association between the items of instrumental commitment and customer check-in satisfaction is displayed in Table 7 below:

Table 7: Association between Affective Commitment and Customer Check-in Satisfaction (H_{2a}).

Commitment Item	Hypothesis #2b Result	Pearson's Correlation Coefficient (r)	Significance (p)	Cronbach Alpha Coefficient (α)
Improvement in Instrumental Commitment	Not Supported	.012*	.037	.743
Diminishment in Instrumental Commitment (reverse-code)	Not Supported	-.035*	.041	

(*) Association shows significance at p<.05.

The extremely poor association between 'Improvement in Instrumental Commitment' and customer check-in satisfaction ($r = .012$, $p = .037$) and the *indirect* association between 'Diminishment in Instrumental Commitment (reverse-code)' and customer check-in satisfaction ($r = -.035$, $p = .041$) strongly support the implication discussed immediately prior that instrumental

commitment is not strongly associated with the satisfaction yields from interactions with the SST being studied. Responses for both commitment items were judged to be fairly reliable for the sample set with whom the survey was conducted, with Cronbach alpha reliability coefficients of $\alpha = .718$ and .767.

Summary

The data analysis of this quantitative study was expressed using the Pearson correlation coefficient test. An initial error in survey design was identified, and the potentially invalid data results were removed, leaving 127 viable respondent cases of the 175 originally collected. Basic demographic analysis indicated that most respondents were characterized as male, Caucasian, domestic travelers with relatively low experience with SST and comparatively high self-evaluations of technology competencies. Of the 127 cases analyzed, 104 indicated an overall positive satisfaction with the experience, while the remaining 23 indicated the opposite. The association between positive SST attributes and customer check-in satisfaction was first analyzed, and it was discovered that while 'Fulfillment of Purpose' and 'Perceived Advantage of Time, Ease of Use, or Access' were strongly associated with positive customer check-in satisfaction and supported Hypothesis #1a, 'Problem Resolution' did not. The association between negative SST attributes and customer check-in satisfaction were also analyzed, and all four attributes including 'Technology Failure', 'Process Failure', 'Poor Design Issues', and 'Customer-Driven Failure' were all strongly associated with negative customer check-in satisfaction and thusly supported Hypothesis #1b. Lastly, the associations between customer check-in satisfaction and the two types of commitment, affective and instrumental, were analyzed; this produced a clear indication that, while affective commitment was positively associated with satisfaction, instrumental commitment was not.

CHAPTER FIVE: CONCLUSION

The main agenda of this study was to develop a foundation of knowledge on the topic of self-service kiosks and their application in the lodging industry. Although the purpose of this study was to investigate the customer check-in satisfaction and customer commitment impacts of self-service hotel kiosks as implemented in convention hotels by examining perceptions of kiosk users certain inferences were established from previous work on the subject.

Demographics

Demographics were not the main focus of this study. However, given that all respondents had a free and uninfluenced choice of whether or not to utilize SST in the subject hotel, some characteristics of a strong sample profile are worth noting. First of all, there were a few

characteristics that the vast majority of study respondents---which were chosen completely at random---identified with. By age, most were between 26 and 40. By gender, more than 3 of every 5 respondents were male. By race, respondents were predominantly Caucasian. Most respondents were also domestic travelers, and doing business with the hotel for the purpose of attending a meeting or convention. Income range was a bit more evenly spread, as a little more than half of the respondents indicated an income level between $26K and $50K. In terms of annual hotel stay frequency, most respondents were not extremely frequent travelers; the majority indicated that they stayed at hotels between 6 and 10 times per year, and only 15 of the 127 respondents indicated a higher stay frequency. Additionally, more than 80% of respondents indicated that they had only used self-service kiosks 6 or less times in the past. Finally, the questions of SST usage competency and preference were posed. A large majority of respondents indicated that they were both proficient in the use of such technologies *and* biased toward them---all else being equal. Although this data was captured as a frame of reference to the survey sample from which responses were collected, it was not included in any way as a part of the study model or as a factor in the subsequent hypotheses. Additionally, as this research was a case study on one hotel, such statistical figures should be assumed representative only so far as they pertain to *this* study. As discussed previously, demographic trends can change drastically among convention hotels in different nations and regions, and even within the same property as different groups move in and out of the hotel and/or the surrounding city. Considering this volatility among the demographic variables, making any implications from this portion of the case study data would be ill-advised.

The next section explores the main research questions and hypotheses of the study. Recall that the primary focus of the study is to examine the association between SST attributes and

customer check-in satisfaction, and the subsequent association between customer check-in satisfaction and the two types of commitment: affective and instrumental.

<u>Discussion: Hypotheses #1a and #1b</u>

First, it was hypothesized that positive SST attributes are positively associated with customer satisfaction with the check-in process (Hypothesis #1a). The first thing to note is that a vast majority of respondents indicated positive customer satisfaction (104 at 82%). Those 104 went on to analyze the attributes of positive SST encounters in Section 1 of Part II. On the (1) to (5) Likert scale measuring importance, most respondents rated the identified attributes of positive experiences at a score of (3) or higher. Of the three positive attributes, one was strongly associated with customer check-in satisfaction (Perceived Advantage in Time, Ease of Use, or Access), and one was moderately associated with customer check-in satisfaction (Fulfillment of Purpose); this finding supports Hypothesis #1a positing a direct association between SST attributes and customer check-in satisfaction. The strong association between customer check-in satisfaction and the first part of the 'Perceived Advantage in Time, Ease of Use, and Accessibility', a perceived advantage in time, could possibly be indicative of the noticeable trend in society that people---and more specifically, travelers---are on much more sensitive time schedules than ever before, and that such time savings are of critical importance to the modern hotel guest (Cherlow, 1981; Taylor, 2007). The second part of the attribute, ease of use or access, provokes the idea that a simple, convenient, and easy-to-understand interface is critical to the perception of satisfaction when dealing with SST; this is not surprising as it is likely that self-service technology without an appealing or user-friendly design, may in some instances cause confusion or frustration, and increase the dissatisfaction associated with checking in this way as the hassle of using it increases greatly. Past research in other industries has suggested that

an effective and appealing design and operating protocol for self-service technologies is one of the most critical factors in promoting adoption and satisfaction therein (Lin & Hsieh, 2006; Fisher & Beatson, 2002). For the last attribute on the survey instrument, regarding the importance of the kiosk's ability to resolve a particular problem during the check-in process, 57% of respondents indicated absence of such a problem, and another 14% omitted the question all together for unknown reasons. This pattern may serve as a testament to the lack of service failures in the process which would warrant the need for recovery of any kind.

The second part of the first hypothesis (Hypothesis #1b), by contrast, posited a direct association between negative SST attributes and negative satisfaction. The remaining 23 respondents indicated a net negative satisfaction level with the experience and responded to Section 2 of Part II accordingly. The first obvious observation with regard to the negative attributes was that a perceived difficulty in interfacing with the kiosks and apparent errors caused by the kiosks were most strongly associated with customer check-in satisfaction. Among the four negative attributes, *all four* resulted in strong correlations with customer check-in satisfaction; however, only three of the four were statistically significant at the .05 level ('Customer Driven Failures' being the exception). These findings support Hypothesis #1b that negative SST attributes are directly associated with negative customer check-in satisfaction. The most strongly associated attribute, errors caused by the kiosks, implies that problems, either real or perceived, may still exist with regard to the check-in process with such machines. The parameters of this study did not allow for the researchers to determine with certainty whether such alleged "errors" were in fact caused by faulty equipment or user mistake, but in either scenario the resultant perception can be the same, and following in the classic proverb that 'the guest is always right', this is an area of concern for hoteliers employing such technology. The second-most strongly-associated negative attribute, 'Poor Design Issues', suggests that a

majority of dissatisfied respondents attributed such feelings to problems with the kiosk's interface and communication strategies. Whether legitimate or exaggerated; this is an important observation which implies that efforts in simplifying usability even further may aid in raising satisfaction levels among SST users. Another figure that stands out in the data pertaining to Hypothesis #1b lies in the attribute of 'Technology Failure', where 61% of respondents indicated that no such event occurred, and another 17% omitted the question completely. The remaining respondents chose among the five points on the scale, and since it is the understanding of the researchers that at no time were the kiosks out of service during data collection, it might be speculated that some users may have perceived a difficulty interfacing with a kiosk or another problem of some sort during the transaction, and subsequently those users may have misrepresented such occurrences on the survey as an out-of-service or problematic kiosk. Again, as the limitations of the study did not allow for deeper exploration into the specific reasons behind service failures, such implications are purely inferences drawn from existing knowledge. Lastly, question #4 of Section II pertaining to the 'Customer-Driven Failure' attribute inquired as to the importance of respondents' potentially having made a mistake during utilization of the machine in evaluating customer check-in satisfaction. For this item, 17 of the 23 respondents failed to acknowledge any such occurrences. Although the correlation of this item to overall check-in satisfaction was strong like the other three negative attributes, as mentioned earlier this correlation was the only one of the four not statistically significant at the .05 level (however, it was approaching such significance). As prior research has proposed, this figure might suggest that respondents were very prone to protect their dignity and refute the idea that they could be responsible for a failed transaction or poor experience.

In conclusion, two of the three positive SST attributes supported Hypothesis #1a, with a perceived advantage in time, ease of use, or access being most critical to promoting positive

satisfaction. Conversely all four of the negative SST attributes generally supported Hypothesis #1b, and the data suggested that technology failures were among the most determinative of negative satisfaction.

<center>Discussion: Hypotheses #2a and #2b</center>

The second hypothesis posited a direct association between the customer check-in experience and commitment. Question #1 of Part III of the survey, exploring whether guests felt any impact on commitment, regardless of direction, yielded an odd variety of responses that did not correlate strongly with any other item of the construct. Furthermore, this question was not statistically significant. Due to this combination of circumstances, this variable was excluded from the analysis to avoid compromising the validity of results.

Recall that questions #2 and #3 inquired as to changes in the affective commitment variable as a result of the SST experience in question. Most respondents indicated that they felt an increase in affective commitment to the Rosen Centre Hotel based on their experience with self-service kiosks. The highest two scale points comprised nearly 60% of the sample set, and the reverse-coded question roughly mirrored the first in terms of response statistics. Having established that affective commitment was closely associated with customer check-in satisfaction from the transaction in question, the next step was to analyze the association between customer check-in satisfaction and affective commitment. As reported in Chapter Four, both questions under the affective commitment construct were strongly associated with customer check-in satisfaction. This provided strong support for Hypothesis #2a.

The fourth question of Part III pre-empts the two questions pertaining to instrumental commitment. Data indicated that more than three fourths of respondents had no contractual

<center>71</center>

obligations to return to the Rosen Centre Hotel for future visits. However, it is worth noting that this circumstance also varies with the guest's purpose of visit (i.e. corporate travelers may be bound by contractual obligations to stay with a particular hotel) and specific convention or meeting characteristics (i.e. if a convention is held annually at the same hotel v. a one-time function such as a wedding). The final two questions inquire about changes in instrumental commitment as a result of the SST experience of the respondents. In this instance, a vast majority of respondents strongly indicated that their experience with the self-service kiosk at the Rosen Centre Hotel had very little or no impact on their instrumental commitment, both to the Rosen Centre Hotel as in the first question, and to its competitors as in the latter reverse coded question. Although the kiosks allow for future reservation booking at the time of check-in, the data suggests that this feature is not popularly used by guests, or if it is, the penalty of cancellation fees by the hotel may not be a clear or influential switching cost to users of the service. In any event, it appeared from these results that, although affective commitment clearly saw a rise based on the survey response as discussed above, instrumental commitment saw *very little* change in either direction as a result of the transaction in question. After examining the responses for the instrumental commitment items, the last step was to determine the level of support (if any) that existed in the data for Hypothesis #2b, positing that customer check-in satisfaction would be directly associated with instrumental commitment. Chapter Four reported that associations between the two instrumental commitment items and the customer check-in satisfaction variable were extremely weak, suggesting that despite the strong association observed between customer satisfaction and affective commitment, any association between satisfaction and *instrumental* commitment is not prevalent in this study, and furthermore appeared to be almost non-existent. Thusly, Hypothesis #2b is *not* supported by the data.

Based on the above, it can be concluded that Hypothesis #2a, positing that customer check-in satisfaction is directly associated with affective commitment, is supported by the data. However, Hypothesis #2b, positing the same association with instrumental commitment, is *not* supported.

Implications for Management

As SST becomes more commonplace and practical in the convention hotel landscape, hotel owners and managers will need to be well-educated on the anticipated effects of deploying such technologies in order to make wise and effective self-service investment decisions. There are several points of the study results that can be applied to practicum in order to maximize the efficiency of SST in the lodging environment:

- **Attributes To Pursue.** First, the analysis of SST attributes and subsequent satisfaction identified several key characteristics of kiosks that are most closely associated with positive experiences. For those respondents that had positive experiences during the study, time savings and ease of use and accessibility was the top identified contributor. With that being said, hoteliers and those with the authority to invest in SST and other similar apparatuses should look to promote hardware and software that is efficient and easily understood. The research conducted would suggest that the faster a guest can complete the check-in process using a kiosk, the easier it is for the average traveler to interface with such a device, the higher perceived satisfaction.

- **Attributes To Avoid.** The study also identified key attributes related to *negative* experiences. For those who had negative overall experiences, the two most popular causes of dissatisfaction were that the kiosk caused an error which resulted in a failed check-in, and that the kiosk was difficult to understand and operate. The first cause, regarding errors from

the kiosks, only reinforces the previously identified implication that management should ensure the highest possible levels of reliability from these machines. With regard to user-friendliness, although it is only natural to assume that a person's perception of how difficult a task like using SST is largely formulated from past experiences, much lies within the ergonomics and complexity of the design and interface. This attribute seems to reinforce the importance of easy usability as identified in the positive attributes; managers and hoteliers should push for the simplest design with the least amount of new and unfamiliar tech that a customer would have to work with. As an example, peripherals such as keyboards and touch pads are fairly common forms of interface found in utilizing PC's, cell phones, etc. so firms should try to incorporate these points of commonality into their tech in order to make the process less intimidating for the consumer. This is a classic example of 'keeping it simple'.

The second portion of the study analyzed the relationship between customer check-in satisfaction and commitment. More than three fourths of the respondent populations indicated that, overall, they were satisfied with their experience with SST, and the rest obviously indicated a negative experience. Recall that two types of commitment were measured in the study: affective and instrumental.

- **Focusing On Affective Commitment.** Of the 104 respondents that confirmed a satisfactory experience with the check-in process, nearly all indicated on the affective commitment questions that their experience with the self-service kiosk positively affected their propensity to return to the firm in question. Likewise, most all of the 23 respondents that indicated unsatisfactory check-in experiences also indicated that they would be less likely to return to the hotel as a result of their experiences. An average of only 16 indicated a lack of noticeable change in the subject. Now considering that these two questions relate to

74

affective commitment---a relationship based on feelings of the customer about the firm---it is reasonable to assume that high levels of customer check-in satisfaction from SST experiences should be associated with improved levels of affective commitment for a firm. Therefore, management should focus on areas identified for improving customer check-in satisfaction levels, and closely monitor affective commitment for fluctuations. With the understanding that retaining existing customers is much more cost-efficient for a business than obtaining new ones, the research suggests that SST could be utilized as a key strategy for promoting return patronage in the lodging industry.

- **Restrategizing Instrumental Commitment.** The final questions of the survey, relating to instrumental commitment, suggested that respondents' experiences with the kiosks had very little association with switching costs whatsoever, suggesting that any kiosk features that *could* manipulate switching costs typically do not do so, *or* that these features are simply not receiving enough use or attention by operators to provoke such effects. Many kiosks in the industry, such as those implemented at the Rosen Centre, have the ability to book new reservations for customers. Research should certainly be done to determine whether it would be more prudent to research and develop those functions of SST kiosks that have a propensity to manipulate instrumental commitment, or drop the pursuit altogether. However, in the interim and with no immediate answers to these questions in sight, hoteliers and general managers should monitor and evaluate the effectiveness of any kiosk features that *may* be associated with switching costs within the hotels, and at the same time consider redirecting such operations to other service delivery resources (such as Front Desk staff members) that may be more adept in working this area to the advantage of the firm in question.

<u>Limitations</u>

There were several limitations of this study and its parameters. Most by far were a direct result of time and funding constraints. As this study was not funded by any other means than the personal sponsorship of the primary researcher, money and time expenditures were fairly limited.

- **Sample limitations.** Due to deadlines and travel costs, the sample geographical region for this study was restricted to the immediate Central Florida area within reasonable driving distance of the University of Central Florida campus. As a result, only one hotel firm within the area was chosen for the study, and thusly sample size was fairly limited. Subsequently, the fact that only one hotel was chosen may have impacted the characteristics and diversity of the survey sample; considerations such as room rate, location, conventions being held, etc. all play a role in a consumer's decision to stay at a particular hotel, so the results of this study should be considered in no way generalizable. A wider variety of properties would ensure variety among the respondent pool.

- **Time limitations.** Time constraints also prevented the opportunity for collection of a more substantial survey population. The deadlines of the University of Central Florida were such that the data collection timeframe was fairly limited, which yielded a total of 175 useable surveys (127 after data cleaning). However, similar studies will sometimes spend months gathering hundreds or even thousands of surveys for the purpose of more accurate results. Additionally, such limitations also prevented a more comprehensive investigation into all SST offered by a firm like the Rosen Centre. As discussed in Chapter Two, there are many other types of SST such as in-room television check-out and bill management services.

However, deadlines were such that the study could only explore one particular application of this technology, and so kiosks were chosen as the focus.

- **Other factors not considered.** With reference to the literature review, research has suggested that there are a plethora of other factors manipulating the relationships examined in this study that were excluded from the model in the interest of time, such as demographic variables, kiosk usage frequency as a moderating construct to the model, and a parallel analysis of interpersonal service delivery with which to compare results. This study also did not explore with any depth the specific events within the check-in process that were responsible for survey responses; a further breakdown of individual exchanges within the check-in transaction itself may reveal that certain aspects of the process are more or less problematic than others.

- **Insufficient pretesting.** A noticeable limitation to this study was acknowledged in that insufficient pretesting allowed for a technical error in the survey instrument to compromise the validity of more than one quarter of the survey sample. Although a pretest of approximately 20 respondents revealed no noticeable defect in the face validity of the data collection instrument, a more thorough pre-testing process would most likely have avoided such a complication and allowed for a more legitimate sample of valid and usable data.

<u>Implications for Future Research</u>

This study should provide a beginning platform for future research narrowing the focus of this investigation by region and market. However, there are many opportunities for future researchers to expand the boundaries and parameters of this study and subsequently achieve and even higher level of understanding as to the effects of SST implementation in our the hotel industry.

77

- **Expand geographical boundaries.** As discussed earlier, resource constraints presented a geographical limitation to this study, whereby research could be conducted only within the boundaries of the Orlando area. Although Orlando is currently one of the most popular meeting and convention travel destinations on the planet (Top 10 Destinations Update, 2009), this does not necessarily provide grounds for a firm judgment of these results being valid around the world. The author strongly suggests that the physical parameters of future research be expanded to different regions of the world to compare results based on cultural background and nationalities. Subtle differences in the methods consumers use to view their environment are what often cause immense chasms of confusion for providers in the service world.

- **Explore other hotel segments.** Another way by which future research could contribute to the body of lodging SST knowledge would be to explore different segments of our industry from small tour and travel properties to the largest convention and resort hotels, which would provide diversified clientele upon which to compare results. Conducting this study across a broad range of firms by size, location, purpose and target markets would provide a much more unbiased set of results for comparison and conclusions.

- **Explore other SST.** This study was focused exclusively on one type of SST---kiosks---due to resource constraints. Future studies may consider analyzing and comparing the effectiveness of other methods of hotel front service, such as in-room technologies that perform similar functions or the various modes of blending self-service and interpersonal service delivery.

- **Reapply other considerations.** The previous section explained that a key limitation to this study was the fact that time and funding constraints required that certain ancillary variables be excluded from consideration in this study. Future researchers may consider reapplying the constructs of Beatson's original model that were excluded from this study, such as demographic variables, frequency of delivery mode usage as a moderating construct, and a side-by-side comparison between SST and interpersonal service delivery. By including these factors, a more holistic picture of the ways in which SST impacts the service environment may be achieved.

- **Pursue larger sample volume.** Regardless of the direction pursued by future research, a more abundant population of survey responses would undoubtedly increase the validity and accuracy of study results. Resource constraints can be a major obstacle to this effect---as was the case in this study, but if time and funding allow, follow-up research should consider a wider survey population to ensure that the most accurate conclusions can be drawn from such studies.

Overall, this was a very interesting study with a lot of practical information that firms can apply to their own operations in order to make educated decisions regarding technology initiatives. As we continue to press into the new millennium, a firm's adaptability and strategic usage of the latest technology is proving to be critically related to business success, and hopefully this research sheds light on the most successful direction in which lodging establishments should steer their ships in order to remain competitive.

<u>Summary</u>

Chapter Five discussed the findings of the study as they relate to the original research questions and hypotheses set forth. A basic overview of the demographic sample profile and implications there from were provided with the understanding that they were an ancillary consideration of the study, but not included as variables in the analysis of the research questions. Then each association between the variables of the study model was analyzed to establish or refute support for the hypotheses. Implications were provided for management to apply the results of this study in the field. Limitations of research were also discussed, as time and funding constraints played a major role in shaping the parameters of the objectives. Finally, several suggestions were provided for future research to continue work in this relatively new area. Limitations of this study left many areas of the topic unexplored and many questions left to be answered.

APPENDIX A: CUSTOMER SURVEY

Self-Service Kiosks Customer Survey

PART I: Please circle the most accurate answer below:

1. Age demographic: 18-25   26-40   41-55   56-70   71+

2. Gender: Male   Female

3. Traveler Category: International   Domestic   Local

4. Ethnicity (optional):   Caucasian   Hispanic   Asian   African-American

                                 Other (Please Explain): _____

5. Purpose of Visit: Leisure   Convention/Meeting   Corporate Travel

6. Hotel Stay Frequency (annually): 1-5 stays   6-10 stays   11-15 stays   16 or more stays

7. Income Range: $0-$25K $26K-$50K $51K-75K $75K-$101K $101K+

8. I have used self-service kiosks in the past approximately

           1-3 times   4-6 times   7-9 times   10 or more times

9. I feel that I have sufficient experience with self-service kiosks to use them without issue.

           Strongly Disagree   Strongly Agree
            1   2   3   4   5   6   7

10. I currently prefer to use self-service kiosks if given an option.

           Strongly Disagree   Strongly Agree
            1   2   3   4   5   6   7

PART II: Please circle the most accurate answer below:

1. My check-in experience as it relates to the speed in which I was able to do business was:

           Worse than I Expected   As I Expected   Better than I Expected
            1   2   3   4   5   6   7

2. My check-in experience as it relates to the level of control that that I had over the process was:

           Worse than I Expected   As I Expected   Better than I Expected
            1   2   3   4   5   6   7

3. My check-in experience as it relates to the enjoyment of service was:

           Worse than I Expected   As I Expected   Better than I Expected
            1   2   3   4   5   6   7

4. My check-in experience as it relates to the reliability of the technology that I used was:

           Worse than I Expected   As I Expected   Better than I Expected
            1   2   3   4   5   6   7

5. My check-in experience as it relates to the privacy and security of my information was:

           Worse than I Expected   As I Expected   Better than I Expected
            1   2   3   4   5   6   7

6. Overall, my check-in experience with the self-service kiosk that I used today was:

           Worse than I Expected   As I Expected   Better than I Expected
            1   2   3   4   5   6   7

If you answered question #6 above between4 and 7, please proceed to Section 1. If you answered between 1 and 4, please proceed to Section 2.

Section 1

Please rate the following items in terms of how significantly they influenced your perceptions today.

	Low Importance			High Importance		
The kiosk saved me time with my check-in.	1	2	3	4	5	
The kiosk was very easy to understand and operate.	1	2	3	4	5	
The kiosk allowed me easy access to my information.	1	2	3	4	5	
The kiosk did exactly what it is intended to do without a hitch.	1	2	3	4	5	
I had a problem with the details of my stay (incorrect dates, payment discrepancies, etc.) and the self-service kiosk helped me to resolve the issue (if applicable).	1	2	3	4	5	N/A

Was there anything else not listed that significantly impacted your experience?

_____

_____

Section 2

Please rate the following items in terms of how significantly they influenced your perceptions today.

	Low Importance			High Importance		
I attempted to use the kiosk, but it was out of service.	1	2	3	4	5	N/A
I attempted to use the kiosk, but the kiosk made an error during the check-in process and it failed to check me in correctly.	1	2	3	4	5	N/A
The kiosk was difficult to understand and operate.	1	2	3	4	5	
I attempted to use the kiosk, but I made a mistake during the check-in process that caused a problem (i.e. pushed a wrong button, selected an incorrect option, etc.).	1	2	3	4	5	N/A

Was there anything else not listed that significantly impacted your experience?

_____

_____

PART III: Please circle the most accurate answer below:

1. My experience with the service that I experienced today will affect the possibility of my returning to this hotel.

Strongly Disagree   Strongly Agree
1   2   3   4   5   6   7

2. I will be more likely to return to this hotel in the future because my feelings about the quality of this hotel and/or its parent company have changed as a result of my service experience with the check-in kiosk today.

Strongly Disagree   Strongly Agree
1   2   3   4   5   6   7

3. I will be more likely to stay at a different hotel in the future because my feelings about the quality of this hotel and/or its parent company have changed as a result of my service experience with the check-in kiosk today.

Strongly Disagree   Strongly Agree
1   2   3   4   5   6   7

4. I currently have contractual obligations, reservations and/or plans to return to this hotel.

Yes   No

5. I will be more likely to return to this hotel in the future because the costs of changing and/or terminating future obligations to stay at this hotel have changed as a result of my service experience today.

Strongly Disagree   Strongly Agree
1   2   3   4   5   6   7

6. I will be more likely to stay at a different hotel in the future because the costs of changing and/or terminating future obligations to stay at this hotel have changed as a result of my service experience today.

Strongly Disagree   Strongly Agree
1   2   3   4   5   6   7

Thank You for Your Time!

APPENDIX B: ROSEN CENTRE CHARACTERISTICS

Table 8: Rosen Centre Hotel Characteristics.

	Rosen Centre
Owner/Operator	Rosen Hotels & Resorts
Year Built	1995
Rooms	1,334
Meeting Space	106,000 sq. ft.
Food & Beverage	(1) Fine-dining restaurant (1) Buffet restaurant (1) Deli-style quick casual restaurant (1) Coffee/bakery shop (3) Bars/lounges (1) Room Service with daily hours

Leisure Activities (Spa, Golf, etc.)	-Spa/Fitness Center -Tennis -Pool -Offers Golf services through Rosen Shingle Creek Golf Course
Internet	-Ethernet in-room -Wireless in public areas
Additional Amenities	-Gift Shop -Business Center with daily hours
Proximity to Orlando International Airport	13.46m
Proximity to Orange County Convention Center	0m (directly adjacent)
Number of traditional Front Desk stations	21
Number of self-service kiosks	2
Kiosk Functions	check-in, check-out, and bill management

APPENDIX C: IRB APPROVAL LETTER

Notice of Exempt Review Status

From: **UCF Institutional Review Board**
          FWA00000351, Exp. 10/8/11, IRB00001138

To: **Gary L. Deel**

Date: **January 22, 2009**

IRB Number: SBE-09-06001

Study Title: **A NEW FACE: SELF-SERVICE KIOSKS IN CONVENTION HOTELS**

Dear Researcher:

Your research protocol was reviewed by the IRB Vice-chair on 1/22/2009. Per federal regulations, 45 CFR 46.101, your study has been determined to be **minimal risk for human subjects and exempt from 45 CFR 46 federal regulations** and further IRB review or renewal unless you later wish to add the use of identifiers or change the protocol procedures in a way that might increase risk to participants. Before making any changes to your study, call the IRB office to discuss the changes. **A change which incorporates the use of identifiers may mean the study is no longer exempt, thus requiring the submission of a new application to change the classification to expedited if the risk is still minimal.** Please submit the Termination/Final Report form when the study has been completed. All forms may be completed and submitted online at https://iris.research.ucf.edu.

The category for which exempt status has been determined for this protocol is as follows:

4. Research involving the collection or study of existing data, documents, records, pathological specimens or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. (*"Existing"* means already collected and/or stored before your study starts, not that collection will occur as part of routine care.)

A waiver of documentation of consent has been approved for all subjects. Participants do not have to sign a consent form, but the IRB requires that you give participants a copy of the IRB-approved consent form, letter, information sheet, or statement of voluntary consent at the top of the survey.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 01/22/2009 09:50:25 AM EST

IRB Coordinator

APPENDIX D: DATA STATISTICS

Table 9: Data Statistics.

	Mode	18-25	26-40	41-55	56-70	71+			Missing
Age	26-40	10(7.9%)	79(62.2%)	15(11.8%)	17(13.4%)	3(2.4%)			3(2.4%)
Gender	Mode	Male	Female						Missing
	Male	86(67.7%)	41(32.3%)						0(0.0%)
Traveler Category	Mode	International	Domestic	Local					Missing
	Domestic	29(22.8%)	73(57.5%)	25(19.7%)					0(0%)
Ethnicity	Mode	Caucasian	Hispanic	Asian	African-American				Missing
	Caucasian	78(61.4%)	18(14.2%)	20(15.7%)	9(7.1%)				2(1.6%)
Purpose of Visit	Mode	Leisure	Convention/Meeting	Corporate Travel					Missing
	Convention/Meeting	7(5.5%)	106(83.5%)	14(11.0%)					0(0%)
Hotel Stays Annually	Mode	1-5 stays	6-10 stays	11-15 stays	16+ stays				Missing
	6-10 stays	50(39.4%)	62(48.8%)	14(11.0%)	1(0.8%)				0(0%)
Income Range	Mode	$0-$25K	$26K-$50K	$51K-$75K	$76K-$100K	$101K+			Missing
	$26K-$50K	3(2.4%)	69(54.3%)	26(20.5%)	19(15.0%)	4(3.1%)			6(4.7%)
Prior Kiosk Usage	Mode	1-3 times	4-6 times	7-9 times	10+ times				Missing
	1-3 times	71(55.9%)	37(29.1%)	12(9.4%)	7(5.5%)				0(0%)
Sufficient Experience	Mode	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)	Missing
	(7)	0(0%)	0(0%)	3(2.4%)	12(9.4%)	18(14.2%)	29(22.8%)	65(51.2%)	0(0%)
Kiosk As Delivery Preference	Mode	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)	Missing
	(7)	0(0%)	0(0%)	0(0%)	6(4.7%)	16(12.6%)	16(12.6%)	89(70.1%)	0(0%)

		Much Worse Than I Expected (1)	Worse Than I Expected (2)	Mildly Worse Than I Expected (3)	As I Expected (4)	Mildly Better Than I Expected (5)	Better Than I Expected (6)	Much Better Than I Expected (7)	Missing
Satisfaction with Speed	Mode								
	(7)	12(9.4%)	6(4.7%)	6(4.7%)	1(0.8%)	13(10.2%)	22(17.3%)	67(52.8%)	0(0.0%)
Satisfaction with Control	Mode								
	(7)	11(8.7%)	5(3.9%)	6(4.7%)	2(1.6%)	12(9.4%)	21(16.5%)	70(55.1%)	0(0.0%)
Satisfaction with Enjoyment	Mode								
	(7)	14(11.0%)	5(3.9%)	5(3.9%)	10(7.9%)	18(14.2%)	33(26.0%)	42(33.1%)	0(0.0%)
Satisfaction with Reliability	Mode								
	(7)	19(15.0%)	1(0.8%)	3(2.4%)	8(6.3%)	8(6.3%)	16(12.6%)	72(56.7%)	0(0.0%)
Satisfaction with Privacy	Mode								
	(7)	9(7.1%)	5(3.9%)	4(3.1%)	19(15.0%)	11(8.7%)	19(15.0%)	57(44.9%)	3(2.4%)
Satisfaction Overall	Mode								
	(7)	14(11.0%)	4(3.1%)	6(4.7%)	0(0.0%)	13(10.2%)	24(18.9%)	66(52.0%)	0(0.0%)

	Mode	Very Low Importance (1)	Low Importance (2)	Moderate Importance (3)	High Importance (4)	Very High Importance (5)	N/A	Missing
Kiosk Improved Transaction Time	(5)	6(5.8%)	8(7.7%)	17(16.3%)	24(23.1%)	49(47.1%)		0(0.0%)
Kiosk Was Easy To Use	(5)	11(10.6%)	11(10.6%)	18(17.3%)	27(26.0%)	37(35.6%)		0(0.0%)
Kiosk Improved Accessibility of Information	(5)	7(6.7%)	13(12.5%)	17(16.3%)	28(26.9%)	39(37.5%)		0(0.0%)
Kiosk Functioned As Expected	(5)	3(2.9%)	5(4.8%)	15(14.4%)	22(21.2%)	59(56.7%)		0(0.0%)
Kiosk Resolved A Problem	N/A	6(5.8%)	3(2.9%)	8(7.7%)	6(5.8%)	8(7.7%)	59(56.7%)	14(13.5%)
Kiosk Was Out Of Service	N/A	1(4.3%)	1(4.3%)	0(0.0%)	2(8.7%)	1(4.3%)	14(60.9%)	4(17.4%)
Kiosk Caused An Error	(5)	1(4.3%)	2(8.7%)	1(0.8%)	2(8.7%)	12(52.2%)	5(21.7%)	0(0.0%)
Kiosk Was Difficult To Operate	(5)	1(4.3%)	2(8.7%)	3(13.0%)	2(8.7%)	15(65.2%)		0(0.0%)
User Caused An Error	N/A	2(8.7%)	1(4.3%)	1(4.3%)	0(0.0%)	2(8.7%)	15(65.2%)	2(8.7%)

Kiosk Improved Affective Commitment	Mode	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)	Missing
	(7)	12(9.4%)	9(7.1%)	4(3.1%)	14(11.0%)	12(9.4%)	23(18.1%)	53(41.7%)	0(0.0%)
Kiosk Diminished Affective Commitment	Mode	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)	Missing
	(7)	13(10.2%)	9(7.1%)	3(2.4%)	18(14.2%)	10(7.9%)	25(19.7%)	49(38.6%)	0(0.0%)
Contractual Obligations To Return	Mode	Yes	No						Missing
	No	23(18.1%)	99(78%)						5(3.9%)
Kiosk Improved Instrumental Commitment	Mode	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)	Missing
	(1)	62(48.8%)	28(22.0%)	13(10.2%)	2(1.6%)	10(7.9%)	5(3.9%)	7(5.5%)	0(0.0%)
Kiosk Diminished Instrumental Commitment	Mode	Strongly Disagree (1)	Disagree (2)	Mildly Disagree (3)	No Opinion (4)	Mildly Agree (5)	Agree (6)	Strongly Agree (7)	Missing
	(1)	59(46.5%)	27(21.3%)	14(11.0%)	4(3.1%)	10(7.9%)	6(4.7%)	6(4.7%)	0(0.0%)

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