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Interrelationships between Physical Environment Quality, Personal Interaction Quality, Satisfaction and Behavioural Intentions in Relation to Customer Loyalty: The Case of Kinmen's Bed and Breakfast Industry

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This research was aimed at exploring an empirical understanding of interrelationships between service quality, customer satisfaction and customer loyalty in the bed and breakfast (B&B) market, using Kinmen Island as an example. Better understanding of B&B customer perceptions of physical environment quality, personal interaction quality and the effects of these perceptions on behavioural intentions relating to customer loyalty and customer satisfaction is the objective of this research. The dimensions of service quality as perceived by B&B customers were identified through a literature review and focus group discussions. Customer perceptions of these constructs were compared and analysed based on the structural equation modelling analysis. The research contributes to the literature by providing an examination of service quality marketing constructs. The findings are important as they may assist lodging practitioners in developing and implementing services marketing strategies in the B&B market.

Key words: B&B, service quality, customer satisfaction, loyalty

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Introduction

Over the past 30 years, the hotel industry has developed niche properties for mass development. In recent years, moreover, hotels have become an important part of the accommodation industry and one of the most competitive businesses in the world (Harrison & Enz, 2005). As the international tourism industry expands, hotel companies are expected to benefit from the expansion of the inbound tourism market owing to high occupancy rate, which means better sales earnings and corporate performance (Chen, 2011). This tourism sector comprises a number of industries, of which accommodation is one the largest (Yang, 2005). Being a sector of the supply-side of the tourism industry (Nuntsu, Tassiopoulos, & Haydam, 2004), accommodation is a critical component of the tourism product, as the type, scale and nature of accommodation determine the type and scale of tourism that is possible at any destination (Henning & Willemse, 1999). In 2009, for example, lodging in the USA was a $127 billion industry, with over 50,800 properties (based on properties with 15 or more rooms) and 4.7 million guestrooms. International visitors accounted for 21% of all lodging sales, and 18.5 million overseas travellers stayed in a hotel during their US visit (The American Hotel & Lodging Association, 2010). In Taiwan, the average occupancy rate of hotels reached 64.53% in the first quarter of 2009, representing year-on-year growth of 6.25 percentage points, according to Tourism Bureau statistics (Taiwan Tourism Bureau, 2010); in addition, it is recognized that this sector has contributed more than the agricultural sector to the gross domestic product (GDP) (Chen, Kim, & Liao, 2009; Jang & Chen, 2008; Kim, Chen, & Jang, 2006).

Aside from the hotel industry, however, much of this market segment (specifically, non-traditional lodging operations) has remained an enigma to industry analysts – in part because they wilfully overlook it in favour of traditional lodging segments. In this regard, the study of non-traditional lodging such as bed-and-breakfast inns (B&Bs), country inns, small hotels, condominiums and vacation homes (Lanier, Caples, & Cook, 2000; Zane, 1997) has become a trend. In the past few years, B&Bs have increased dramatically in number throughout the world and have become the world's most phenomenal growth accommodation industry (Buhalis & Cooper, 1998; Kaufman & Weaver, 1998; Lanier & Berman, 1993; Lubetkin, 1999; Wanhill, 2000), with the potential of contributing to economic growth and development, and employment generation. According to Zane (1997), B&Bs can have a substantial positive economic impact on the communities where they are because most of the people who run them were once unemployed, such as housewives and single parents, etc. As the B&B industry continues to grow and more and more entrepreneurs enter this market, there is a growing need to develop a better understanding of the B&B industry for strategic planning purposes (Kaufman & Weaver, 1998; Nuntsu et al., 2004).

Kinmen, also known as Quemoy in some Western countries, is a small island group of about 150 km^2, approximately 300 km off Taiwan, and is also located off the southeastern coast of Fujian Province of the People's Republic of China. During the Cold War era, troops from both sides of the Taiwan Strait fought fiercely for Kinmen; military restrictions and martial law were strictly enforced on the island until 1992. Since then the ban on tourists visiting the island has been lifted. In 1993,

Kinmen began to develop tourism as an economic development strategy. While 40 years of military administration hampered the pace of Kinmen's urbanization and tourism development, it has, however, enabled its historical heritage and war culture to be well preserved. In 1995, Kinmen National Park was established to maintain and protect historically and culturally important sites and battlefield monuments, in addition to the conservation of natural resources. As a result, battlefield monuments, cultural heritage and traditional guest houses are the major resources for the development of the tourism industry in Kinmen.

After military rule was lifted on Kinmen, many old houses were renovated for the sake of the residents' livelihood. In terms of cultural preservation, Kinmen National Park has been actively accelerating the restoration and redecoration of these old houses, making use of them as exhibition halls, tea houses, themed shops and guest houses in the private sector. The purpose of the public sectors in Kinmen National Park is, on the one hand, to promote the "traditional guest houses" to those who have not stayed in a conventional Kinmen house before, with an attempt to give them a chance to experience the Fujianese culture inherited by the local people. On the other hand, the authorities concerned also hope to improve the business of those guest houses while striving to preserve the traditional settlements (Kinmen National Park, 2011).

According to the extant literature, the primary and sub-dimensions of service quality have been identified for a variety of industries, such as education, health care, retailing, tourism, telecommunication, technology, transport and recreational sports sectors, using a hierarchical model as a framework (Brady, Robertson, & Cronin, 2001; Caro & Garcia, 2007, 2008; Caro & Roemer, 2006; Clemes, Gan, & Kao, 2007;

Collins, 2005; Dagger, Sweeney, & Johnson, 2007; Fassnacht & Koese, 2006; Jones, 2005; Kang, 2006; Kao, 2007). Moreover, much research has focused on the relationship between service quality and customer satisfaction in the hotel industry (Akbaba, 2006; Briggs, Sutherland, & Drummond, 2007; Callan & Kyndt, 2001; Ekinci, Prokopaki, & Cobanoglu, 2003; Juwaheer, 2004). Additionally, some of the existing studies focused on the effect of customer satisfaction on behavioural intentions in the fast-food, banking, pest control, dry cleaning, technology, restaurant and medical sectors (Brady et al., 2001; Choi, Cho, Lee, Lee, & Kim, 2004; Cronin & Taylor, 1992; Lin & Hsieh, 2007; Oh, 2000). Nonetheless, the hotel industry of Taiwan still lacks a theoretical and conceptual basis for understanding behavioural intention constructs (Clemes, Wu, Hu, & Gan, 2009), still less in the B&B business.

The overall purpose of this research is to gain an empirical understanding of service quality and behavioural intentions in the Kinmen B&B sector. In particular, this research identifies the interrelationships between customers' overall behavioural intentions in relation to customer loyalty, and influential factors, which include service quality, on the aspects of physical environment quality, and personal interaction quality and customer satisfaction are also examined. The importance of exploring service quality on the aspects of physical environment quality and personal interaction quality in the B&B industry is mainly based on the following notions. First, being considered as the servicescape (Fassnacht & Koese, 2006), physical environment quality is referred to as the physical features of the service production process (Elliott, Hall, & Stiles, 1992); and second, service quality derives from the interaction between contact personnel and customers

(Lehtinen &Lehtinen, 1985), therefore some studies have identified personal interaction quality as the most significant effect on service quality perceptions (Bigné, Martinez, Miquel, & Belloch, 1996; LeBlanc, 1992). As Haastert and Grosbois (2010) indicated, three major types of barrier to adoption of environmental practices by tourism microbusinesses are budgetary constraints, lack of knowledge and conflict with customer attitudes and expectations; the other purpose of the study specifically lies in exploring the significant lack of understanding of the service quality terminology and very low awareness of the impacts of the business activity on the customer behavioural intentions by the owners of B&B establishments in order to call for additional education and training on sustainability for small business owners. More specifically, the objectives of this study are: to identify the sub-dimensions for the physical environment quality and personal interaction quality as perceived by B&B lodgers in Kinmen; to explore the relationships between physical environment quality and personal interaction quality, satisfaction and customer loyalty in the context of B&B lodgers in Kinmen; and to provide more insights into the construction and effects of the B&B service quality, such as physical environment quality and personal interaction quality. The results of this research may contribute to the validity and applicability of the model as applied to the development of the B&B industry in Taiwan as well as many other countries in the world.

Literature Review and Hypotheses

Interest in specialist lodging has become prominent in the USA as well as elsewhere in the world. Moreover, there has been an increased focus on the management and marketing of the lodgings (Reisinger, 2001). Further, Alexandris, Dimitriadis, and Markata (2002) stated that the issue of customer behavioural intentions could not be neglected in the lodging industry if lodgings were going to maintain repeat customers. As the service industry continues to grow, small businesses must decide whether they are going to use new techniques and strategies in order to enhance customer satisfaction and loyalty, which is involved in customer behavioural intentions.

It has been recognized that tourism satisfaction level can be attributed to different attributes, ranging from tangible products and prices to intangible service quality (Crompton & Love, 1995; Lounsbury & Hoopes, 1985; Qu & Li, 1997; Ryan, 1999; Stevens, 1992; Yu & Goulden, 2006). In this regard, some research (Bosque & Martin, 2008; Chen & Tsai, 2007; Engel, Blackwell, & Miniard, 1993; Spreng, Mackenzie, & Olshavsky, 1996) has shown that service quality and satisfaction are important constructs in a framework of analysis towards customer intentions, combining elements such as expectation and consumption experiences. Further, some research has also found that service quality has a significant positive impact on brand image, and therefore a favourable brand image in turn positively influences customer satisfaction in the tourism, restaurant, airline and telecommunication sectors (Andreassen & Lindestad, 1998; Aydin & Ozer, 2005; Chi & Qu, 2008; Park, Robertson, & Wu, 2005; Ryu, Han, & Kim, 2008; Schlosser, 1998). More specifically, customer satisfaction has been related to behavioural intentions according to the literature (Clemes, Gan, Kao, & Choong, 2008; Dabholkar & Thorpe, 1994; Kang, Okamoto, & Donovan, 2004; Lin & Hsieh, 2007). Further-

more, customer satisfaction has been suggested to have a direct impact on behavioural intentions in relation to customer loyalty in the airline, restaurant, technology and tourism sectors (Bosque & Martin, 2008; Chen, 2008; Chen & Tsai, 2007; Ladhari, Brun, & Morales, 2008; Namkung & Jang, 2007; Birgelen, van Jong, & Ruyter, 2006). From the empirical perspectives, for example, a structural equation modelling analysis reveals that attendee evaluation of festival quality positively influences satisfaction with the festival, and that satisfaction exerts a positive and direct influence on awareness of quality. In addition, festival quality appears not to affect behavioural intentions directly, whereas satisfaction and awareness have positive and direct relationships with intentions (Yuan & Jang, 2008).

Recently, the issues of service quality have been much discussed. As a consequence, past studies have established the antecedent, mediating and consequent relationships among customer perceptions of service quality, customer satisfaction and post-purchase behavioural intentions such as customer loyalty (Chen, 2008). Generally, the notion that service quality directly influences satisfaction (Baker & Crompton, 2000) has been widely accepted. Also, service quality has been seen as an antecedent of customer satisfaction (Anderson & Sullivan, 1993; Caruana, 2002; Cronin & Taylor, 1992; Ekinci, 2004; Parasuraman, Zeithaml, & Berry, 1994; Teas, 1994), and customer satisfaction as an antecedent of behavioural intentions (Anderson & Sullivan, 1993; Babin & Babin, 2001; Brady et al., 2001; Cronin, Brady, & Hult, 2000; Cronin & Taylor, 1992; Dodds, Monroe, & Grewal, 1991; Petrick & Backman, 2002; Tam, 2000). With reference to the tourism industry, for example, the term B&B conjures up a small, cozy historic building with distinctive

rooms (Siguaw & Enz, 1999, p. 39). More precisely, B&Bs are often found in a current or former residence, and are primarily operated by owners who live on the property (Hsieh, 2010), and usually comprise fewer than 10 guest rooms, but some are larger. Breakfast is the only meal served, and it is included in the room rate (Lanier et al., 2000). B&B operations provide unique alternatives for both guest and host (Dawson & Brown, 1988), and represent a unique sector in the tourism industry (Hsieh & Lin, 2010). In this sense, service quality is considered to be an important factor that influences customer behaviour intentions. Regarding the facility and environment settings, B&Bs differentiate from other lodging businesses such as hotels and inns in that they provide more opportunities for interaction between customers. Although different researchers have included different variables of service quality in their studies, this study specifically placed service quality in relation to physical environment quality and personal interaction quality under indicators that affect the satisfaction of the B&Bs' customers.

The importance of physical environment quality and personal interaction quality in customer evaluations of service quality was exemplified in a large amount of early research (Bigné et al., 1996; Dabholkar, Thorpe, & Rentz, 1996; Grönroos, 1982; Howat, Absher, Crilley, & Miline, 1996; LeBlanc, 1992; McDougall & Levesque, 1994; Wakefield, Blodgett, & Sloan, 1996). In particular, Decrop (1999) argued that the actual factors that enhance tourist joy include a relaxed, familiar and comfortable environment, which can be subtle and not obvious, and so this needs a strong appreciation of consumer behaviour and needs. Okello and Yerian (2009) also noted that customer comfort, familiar environmental ambience and compatible environmental values are some of the issues that

enhance emotional satisfaction. More recently, Ko and Pastore (2005) developed a hierarchical model by adapting Brady and Cronin's (2001) and Dabholkar et al.'s (1996) concepts. They encompassed environmental quality and inter-action quality in the model as two of the primary dimensions, whereas some pertaining corresponding factors were included in the sub-ordinate dimensions, such as: ambient con-dition, design and equipment in the environmental quality dimension; and client–employee interaction and inter-client inter-action in the interaction quality dimension (Ko & Pastore, 2005, p. 91). Additionally, Dagger et al. (2007, p. 131) conceptualized service quality using a hierarchical model that comprised environment quality and interpersonal quality. In a different area, Clemes et al. (2007, p. 310) developed a hierarchical model of service quality that contained three primary dimensions: interaction quality, physical environment quality and outcome quality. Each primary dimension was made up of at least three sub-dimensions. For instance, inter-action quality was composed of four sub-dimensions: academic staff, administration staff, academic staff availability and course content. Physical environment quality comprised three sub-dimensions: library atmos-phere, physical appeal and social factors.

In the context of the tourism industry, Caro and Roemer (2006) proposed an integrated model of service quality that was developed according to the hierarchy of perceptions as proposed by Brady and Cronin (2001). The model was made up of three primary dimensions, namely, physical environment, personal interaction and outcome, which were divided into seven sub-dimensions, respectively – conduct, expertise, problem-solving, equip-ment, ambient conditions, waiting time and value. In the hotel industry, more fundamen-tally, customers inferred physical environment quality based on their perceptions of the phys-ical facilities (Rys, Fredericks, & Luery, 1987), which may constitute the sub-dimensions ambience, décor, location, cleanliness, security and design (Clemes et al., 2009; Dagger et al., 2007; Ekinci & Riley, 2001; Heide, Laerdal, & Gronhaug, 2007; Hilliard & Baloglu, 2008; Lockyer, 2003; Spector, 1999). With regard to the notion that service quality derived from the interaction between contact personnel and customers (Lehtinen & Lehti-nen, 1985), the sub-dimensions proposed in the extant literature as constituting the per-sonal interaction quality may include exper-tise, attitude and problem-solving skills (Clemes, 2009; Connolly, 2000; Dagger et al., 2007; Gouthier & Schmid, 2003; Kim & Cha, 2002; Martin & Pranter, 1989; Wong & Keung, 2000).

In view of the findings of previous research, we propose:

H1: Physical environment quality has a positive influence on satisfaction.

H2: Personal interaction quality has a positive influ-ence on satisfaction.

Additionally, intentions to perform a behav-iour, such as a purchase or consumption behav-iour, have been widely investigated in the marketing literature (Gabler & Jones, 2000). More importantly, it is suggested that the issues of behavioural intentions in the hotel industry should be investigated further (Alex-andris et al., 2002). As customer behavioural intentions involve significant decision-marking, particularly in repurchase decisions (White & Yu, 2005), customer behavioural intentions, in this sense, were related to custo-mer satisfaction and customer loyalty, accord-ing to Kang et al. (2004). In general, behavioural intentions are associated with

customer loyalty (Alexandris et al., 2002; Rust & Zahorik, 1993; Zeithaml & Bitner, 1996), and customer loyalty is influenced by customer satisfaction (Bitner, 1990). In this regard, the behavioural intentions construct was operationalized and measured with the items pertaining to loyalty commitment and repurchase (revisit) intentions (Luo & Homburg, 2007; Žabkar, Brenčič, & Dmitrović, 2010). Based on this background, we propose:

H3: Physical environment quality has a positive influence on behavioural intentions relating to customer loyalty.

H4: Personal interaction quality has a positive influence on behavioural intentions relating to customer loyalty.

Furthermore, satisfaction is considered to be a significant determinant of repeat sales and loyalty (Anderson, 1998; Anderson & Sullivan, 1993; Liljander & Strandvik, 1995), as well as a precondition for loyalty (Anderson & Sullivan, 1993) that can lead to repeat purchases of hospitality products and positive word of mouth (Bojanic, 1996; Kozak, 2001; Kozak & Rimmington, 2000; O'Leary & Deegan, 2005; Oppermann, 2000; Pizam & Milman, 1993; Yoon & Uysal; 2005). Hence, we posit:

H5: Satisfaction has a positive influence on behavioural intentions relating to customer loyalty.

To sum up, the issue of behavioural intentions has received considerable attention in different areas; however, there has not been much research conducted in the tourism field to combine identifiable variables in relation to physical environment quality, personal interaction quality, customer satisfaction and customer loyalty into a model. In this regard, the
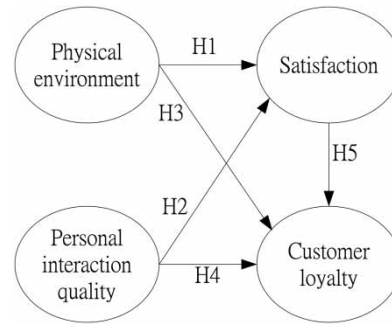

Figure 1   The Conceptual Model.

extant literature presents the relevant theories regarding the conceptualization of service quality and the related constructs, and provided the foundation for the development of the model in this study. As service quality in the context of the B&B industry is conceptualized as and focused on physical environment quality and personal interaction quality in this study, it is reasonable to hypothesize that both constructs have direct and positive influences on satisfaction and customer loyalty.

Based on the review of past studies, this study has established the aforementioned hypotheses and proposes the conceptual model shown in Figure 1.

Methodology

Measures

In realizing the elements of service quality pertaining to physical environment quality and personal interaction quality that are derived from the extant literature, the authors developed a hierarchical model of behavioural intentions to measure the determinants of service quality dimensions that coincide with the characteristics of the B&Bs in Kinmen. In this regard, nine sub-dimensions pertaining to the

primary constructs were also identified, including availability, décor and design, ambience, employees' expertise, employees' problem-solving skills, valence, perceived value, revisit intention and intention to recommend. Table 1 provides a summary of constructs and a synopsis of the items used in each construct operationalization. Accordingly, a survey questionnaire comprising the aforementioned constructs was considered as an instrument to investigate the hypotheses of interest.

In order to make the items in the questionnaire as valid as possible and to obtain in-depth information, focus group interviews were used to develop a suitable questionnaire. In the process of focus group interviews, the authors conducted three mini focus groups for this study. Each group comprised five participants, including tourists, tour guides, local scholars and government officials in charge of tourism or hotel management. The group members were encouraged to list all of the factors that might encompass their perceptions of the service quality of the B&Bs. Then, the authors summarized the discussion, drew inferences and categorized their opinions. Corrections and revisions were made according to their suggestions. Then, a self-administered questionnaire was developed to be an appropriate approach to collect the data for this research. A set of general service quality regarding physical environment quality and personal interaction quality dimensions specific to the B&B industry was identified based on the literature review and the focus group interviews.

The survey questionnaire consisted of the following major constructs: physical environment

Table 1   Construct Operationalization

Constructs	Sub-dimensions	Description of Items
Physical environment quality (PEQ)	Equipment	Physical facilities, equipment, parking lots, accessible fire exit, noticeable sprinkler system
	Décor and Design	Hotel layout, room quality,
	Ambience	Hotel atmosphere
Personal interaction quality (PIQ)	Employees' expertise	Employees' knowledge, employees' service speed
	Employees' problem-solving skills	Employees' attitude, employees' willingness, friendliness and understandability
Satisfaction (SAT)	Valence	Customers' overall perceptions of the hotel experience, right thing to use the hotel, overall evaluation of the hotel experience based on the customers' paid price
	Perceived value	Customers' overall satisfaction with staying at the hotel
Customer loyalty (CL)	Intention to recommend	Hotel recommendation
	Revisit intention	Word of mouth, future intention to visit and consider the hotel

quality, personal interaction quality, satisfaction and behavioural intentions relating to customer loyalty, which were measured using multi-item scales designed to tap all relevant domains of the constructs. More specifically, the multiple aspects of physical environment quality, including ambient conditions, facility aesthetics, layout and décor, were measured through a 19-item scale, suggested by Ekinci and Riley (2001), Choi and Chu (2001), Ko and Pastore (2005) and Chow, Lau, Lo, Sha, and Yun (2007), with slight modification. The construct of personal interaction quality was measured using an eight-item scale suggested by Caro and Roemer (2006), Dagger et al. (2007) and Caro and Garcia (2007, 2008), comprising the elements of staff service, attitude, expertise and problem-solving. Additionally, the construct of satisfaction was measured using an eight-item scale that contains customer perceived values from and comparisons with expectations, cited from Brady et al. (2001), Skogland and Siguaw (2004), Park, Robertson, and Wu (2004), Kang et al. (2004) and Gallarza and Saura (2006), with slight modification. Finally, the construct of behavioural intentions relating to customer loyalty was measured with the six-item scale developed by Baker and Crompton (2000), Dagger et al. (2007), Chen and Tsai (2008) and Lee, Lee, Lee, and Babin (2008), with a slight modification that was related to revisit, recommend and comment positively. The items in all scales were measured on a five-point Likert-type scale, anchored from "1" (strongly disagree) to "5" (strongly agree).

After completion of the questionnaire, a pretest was carried out with randomly selected postgraduate students at National Kinmen (Quemoy) University in Kinmen. They were asked to respond to the questionnaire in order to assess any potentially misleading items in the instrument. Based on feedback from a pilot sample of 30 respondents, the survey instrument was revised and finalized to improve clarity, readability and content validity.

Data Collection

A self-administered questionnaire survey was conducted in Kinmen to collect empirical data for this study. Up to now, there are 72 legal B&Bs in Kinmen. The number of B&B rooms totals about 321, which can accommodate nearly 820 tourists (Kinmen County Government, 2011). The questionnaire survey was conducted over an 8-week period between January and February 2011. Owing to time and human resource limitations, the data were collected using the convenience sampling method conducted in all of the B&Bs of Kinmen. Customers and lodgers who were willing to fill out the questionnaire were invited to participate in this survey. Ultimately, a total of 496 questionnaires were distributed. After deleting incomplete responses, 472 usable samples were collected, representing a response rate of 95.16%. This relatively high response rate was based on the aforementioned premise, that is, we asked the respondents their willingness to answer the questionnaire, and gave them an opportunity to go over the questionnaire and ask any questions about the procedure before the questionnaire survey took place. In other words, only those who were willing to take part in this survey were viewed as potential respondents. The questionnaire was tested for reliability and generated good results.

Data Analysis

To meet the objectives of this research, all valid responses were assessed using a variety of statistical techniques. The authors tried some practical data analysis techniques, such as descriptive

statistics analysis, analysis of means, etc. for a summary statistics of the involvement of attributes on the scale item bases. Factor analysis was used to determine the underlying factor structure that made up the sub-dimensions. The collected data were analysed using SPSS for Windows 18.0 and LISREL 8.72. In line with the two-step approach proposed by Gerbing and Anderson (1988), a measurement model was tested before testing the structural model. A confirmatory factor analysis (CFA) with a maximum likelihood was first performed to estimate the measurement model, which determines whether the manifest variables reflect the hypothesized latent variables. Then, the authors applied the structural equation modelling (SEM) analysis to check construct validity and the goodness-of-fit indices for the measurement model and structural model and examine further the relationships among the constructs under investigation.

Results

Respondents' Profiles

The final data set for the SEM analysis included all usable samples. In terms of gender, 53.0% of the respondents were male, whereas 47.0% were female. The largest age group was 21–30 years, representing 33.3% of the respondents. The second largest age group was 31–40 years, representing 25.6% of the respondents. With regard to the respondents' educational level, 51.5% held a college and university degree, and 22.7% had high-school education. In addition, over half (54.7%) of the respondents were tourists. The main sources of their visit were "word of mouth" (35.0%) and "surfing websites" (33.1%). On the whole, most of respondents were tourists under 40 years old, with a college education background, featuring the basic characteristics of the B&Bs' customers and lodgers.

Confirmatory Factor Analysis

Prior to further statistical analysis, the questionnaire was tested for dimensionality, reliability and validity. With the aim of identifying the determinant factors as well as reducing their dimension, a factor analysis was carried out in advance. Consequently, all attributes were classified into four groups of constructs according to their characteristics. More specifically, Table A1 shows the attributes that belong to each relating factor item, namely, "physical environment quality" (PEQ), "personal interaction quality" (PIQ), "satisfaction" (SAT) and "customer loyalty" (CL). Additionally, they were systematically arranged in the more specific factor items, including "availability" (PEQ1), "décor and design" (PEQ2), "ambience" (PEQ3), "employees' expertise" (PIQ1), "employees' problem-solving skills" (PIQ2), "valence" (SAT1), "perceived value" (SAT2), "intention to recommend" (CL1) and "revisit intention" (CL2). The overall reliability was assessed through factor analysis. As a consequence, the Cronbach's alpha value of these constructs was between 0.872 and 0.920, which was greater than the minimum value of 0.70 (Nunnally, 1967). Further, the variances explained (per cent) of the factors were 19.539 (PEQ1), 19.018 (PEQ2), 14.184 (PEQ3), 34.066 (PIQ1), 29.578 (PIQ2), 42.006 (SAT1), 23.033 (SAT2), 51.827 (CL1) and 20.674 (CL2), respectively, making the cumulative variance explained as high as 52.741% (PEQ), 63.644% (PIQ), 65.039% (SAT) and 72.501 % (CL). Therefore, the results demonstrated that it was

suitable to maintain the arranged items in each factor for a following analysis, suggesting the instrument was reliable for measuring the latent constructs in this study.

Once the summated indicators of all the constructs are created, another CFA is used to develop and test a measurement model for the factor items, namely, physical environment quality, personal interaction quality, satisfaction and customer loyalty. Table 2 reports that the χ^2 statistic ($\chi^2 = 29.92$) is significant; and the ratio of the χ^2 value to degrees of freedom ($\chi^2/df = 2.14$) is less than the cut-off point of three, as suggested by Bagozzi and Yi (1988). Furthermore, the goodness-of-fit index ($GFI = 0.99$) and comparative-fit index ($CFI = 1.0$) are greater than the recommended value of 0.9. The root-mean-square error of approximation ($RMSEA$) is 0.05, which is less than 0.10 (Hair, Black, Babin, Anderson, & Tatham, 2006). Moreover, t-values for all the standardized factor loadings of items are found to be significant ($p < 0.05$). Therefore, the model fits the data reasonably well overall.

In addition, convergent validity refers to the agreement among indicators of a scale. The results showed that all indicators had relatively high standardized factor loadings on their constructs (values ranged from 0.69 to 0.99), and were all significant at the level of 0.05 (see Table 2), suggesting that the specified indicators were sufficient in their representation of the constructs. Furthermore, construct reliability estimates ranged from 0.71 to 0.78, satisfying the threshold value for acceptable reliability of 0.7, as suggested by Hair, Anderson, Tatham, & Black (1998). The average variance extracted (AVE) from

Table 2   Convergent Validity

| Constructs | Items | Item Reliability | | | Construct Reliability | Average Variance Extracted |
		Factor Loading	Measure Error	t-Value		
Physical facilities quality	PEQ1	0.96	0.76	9.50**	0.71	0.46
	PEQ2	0.91	0.84	24.93**		
	PEQ3	0.79	0.63	20.08**		
Personnel service quality	PIQ1	0.94	0.88	26.62**	0.75	0.70
	PIQ2	0.95	0.90	27.14**		
Satisfaction	SAT1	0.99	0.98	28.71**	0.78	0.63
	SAT2	0.84	0.70	27.52**		
Customer loyalty	CL1	0.96	0.93	31.20**	0.73	0.58
	CL2	0.90	0.81	34.14**		

Notes: $\chi^2 = 29.92$ ($p = 0.008$), $\chi^2/df = 2.14$, $RMSEA = 0.05$, $GFI = 0.99$, $AGFI = 0.96$, $NFI = 1.0$, $CFI = 1.0$.
**$p < 0.05$.

all constructs (ranging from 0.51 to 0.70) exceeded the minimum criterion of 0.50, indicating that the majority of the variance was explained by the constructs (Fornell & Larcker, 1981; Hair et al., 2006). Compared with the cut-off value of 0.5, all constructs were generally satisfactory, except for physical environment quality (0.46), which was slightly lower. These results indicated that the measurement items had moderate to high reliability and validity.

Structural Model and Test of Hypotheses

A structural model was conducted to test the predictive relationships between constructs of the proposed conceptual model. Figure 2 reports the goodness-of-fit indices of the final estimated structural model, whereas Table 2 presents standardized path coefficients resulting from testing the proposed structural model. As a result, all structural path estimates were significant ($p = 0.008$), including the

chi-square statistic ($\chi^2 = 29.92$, $df = 14$), and the ratio of the chi-square value to degrees of freedom ($\chi^2/df = 2.14$) was less than three. Meanwhile, other indices regarding the goodness-of-fit ($\chi^2 = 29.92$; $df = 14$; $\chi^2/df = 2.14$; $GFI = 0.99$; $AGFI = 0.96$; $CFI = 1.0$; $NFI = 1.0$; $RMSEA = 0.05$) also supported the appropriateness of the structural model, indicating that the signs of structural paths were consistent with the hypothesized relationships among the latent constructs.

With regard to the hypothesis tests, as demonstrated in Table 3, four of the five hypothesized relationships are supported in the estimated structural model, except for H3, which posited that physical environment quality is positively related to customer loyalty. Evidently, as shown in Figure 2, physical environment quality was found to have a significant positive influence only on satisfaction ($\gamma_1 = 0.50$, t-value $= 7.01$), not on customer loyalty. Hence, H1 is supported. Additionally, it was found that personal interaction quality has significant positive effects
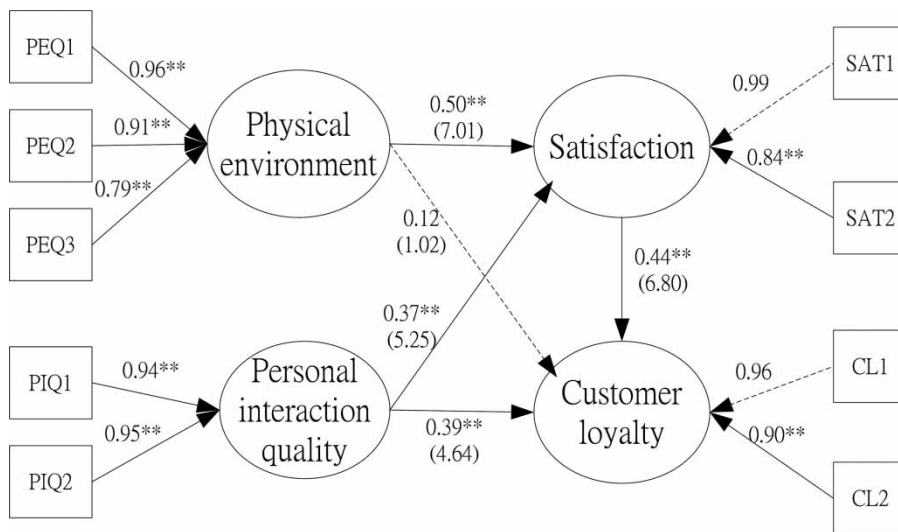

Figure 2 Estimated Model. *Notes:* The Values in Parentheses are *t*-Values. Solid Lines Denote Significance at the 5% Level, While Dashed Lines Represent Insignificance.

Table 3   Hypothesis Tests

Path	Estimate	t-Value	Hypothesis Test
H1: Physical environment quality → satisfaction	0.50	7.01**	Supported
H2: Personal interaction quality → satisfaction	0.37	5.25**	Supported
H3: Physical environment quality → customer loyalty	0.12	1.02	Rejected
H4: Personal interaction quality → customer loyalty	0.39	4.64**	Supported
H5: Satisfaction → customer loyalty	0.44	6.80**	Supported

**p < 0.05.

on both satisfaction ($\gamma_2 = 0.37$, t-value = 5.25) and customer loyalty ($\gamma_4 = 0.39$, t-value = 4.64), signifying that H2 and H4 are supported. Finally, satisfaction was also found to have a significant positive effect on customer loyalty ($\gamma_5 = 0.44$, t-value = 6.80), and thus H5 is supported.

Table 4 reports the direct, indirect and total effects of independent variables on customer loyalty. The total effect of individual variables on the customer loyalty was calculated from the sum of direct and indirect effects. As a consequence, the total effect of physical facilities quality on customer loyalty was 0.27, consisting of a direct effect of 0.05 and an indirect effect of 0.22. Further, the total effect of personnel service quality on customer loyalty was 0.39, equalling its direct effect due to no indirect effect. Finally, the total effect of satisfaction on customer loyalty was 0.44, also equalling its direct effect due to no indirect effect. These results revealed that satisfaction is the most influential determinant of customer loyalty, as it has the largest total effect. In addition, personal interaction quality also

showed its direct effect on customer loyalty. Besides, it is worth noting that physical environment quality showed its effect indirectly through the mediation of satisfaction, also denoting that satisfaction has a direct effect on customer loyalty. More interestingly, the effect of personal interaction quality on customer loyalty was greater than the physical environment quality, indicating the importance of personal interaction quality with respect to quality in the process of creating customer loyalty.

To sum up, given the setting of the B&B industry in Kinmen, the results overall confirm the quality–satisfaction–customer loyalty relationship model that has been widely confirmed by previous studies. In addition, the influence of quality on customer loyalty is mediated by satisfaction. However, with reference to the main purpose of this study, service quality is differentiated into physical environment quality and personal interaction quality. Interestingly, both physical environment quality and personal interaction quality appeared to have direct effects

Table 4 Direct, Indirect and Total Effects of Customer Loyalty

Path	Effect	Estimates	t-Value
Physical environment quality → customer loyalty	Indirect effect	0.22	1.02
	Direct effect	0.05	–
	Total effect	0.27	6.02**
Personal interaction quality → customer loyalty	Indirect effect	–	–
	Direct effect	0.39	4.64**
	Total effect		4.64**
Satisfaction → customer loyalty	Indirect effect	–	–
	Direct effect	0.44	6.80**
	Total effect		6.80**

**p < 0.05.

on satisfaction. However, only personal interaction quality was found to have positive direct influences on customer loyalty, while no direct effect on customer loyalty was discovered with respect to physical environment quality. The results suggest that having the essence from which service quality derived, personal interaction quality was evaluated more significantly in relation to the effect on customer loyalty than physical environment quality, which was found to be a constructed facility in which service delivery took place, as opposed to the natural or social environment (Bitner, 1992), and was found to be mediated by satisfaction in order to inspire customer loyalty.

Conclusions and Implications

The study adapted a model for the B&B industry to gain an empirical understanding of the interrelationships between service quality, satisfaction and behavioural intentions in relation to customer loyalty. The service quality scale used in the study was conceptualized based on the specific characteristics of the B&B industry mainly pertaining to physical environment quality and personal interaction quality. As a result, the model proved to be useful for the Taiwan study as well as B&B research around the world. Furthermore, the study has identified the two primary dimensions – physical environment quality and personal interaction quality – which divided into five sub-dimensions, namely, equipment, décor and design, ambience, employees' expertise and employees' problem-solving skills. Clearly, the research adds empirical support to this vein of literature and has tested and verified the four main determinants and the sub-dimensions as important constructs for service quality, customer satisfaction and loyalty in B&Bs.

The survey results illustrate and confirm the effects of both physical environment quality

and personal interaction quality on satisfaction and customer loyalty. More specifically, the physical environment quality was positively related to customer satisfaction, and to customer loyalty via the mediation of satisfaction. On the other hand, it was found that satisfaction also has positive influences on customer loyalty. All these findings may result in an interpretation that service quality acts as an antecedent of customer satisfaction. Furthermore, both physical environment quality and personal interaction quality have positive effects on satisfaction. The results of the study conform with the notion that high-quality services will lead to high customer satisfaction (Chen & Tsai, 2007). More interestingly, physical environment quality has a positive effect on customer loyalty. However, instead of being direct, the effect is indirect and mediated by satisfaction. This implies that satisfied customers have favourable behavioural intentions to revisit or return to the same guest house after having experienced physical facilities and environment, hence producing customer loyalty. As it was noted that customer satisfaction and loyalty can be improved by reducing gap differences between expectations and performance (Hui, Wan, & Ho, 2007; Joppe, Martin, & Waalen, 2001; Pizam & Milman, 1993; Pizam, Neumann, & Reichel, 1978; Qu & Wong, 1999), which has been constructed in the expectancy-disconfirmation model (Oh & Parks, 1997), in the case of Kinmen's B&B industry it is anticipated that the perceived performance of the B&Bs must confirm or even exceed customers' expectations while providing customers with efficient and satisfactory service in order to enhance customer loyalty. More importantly, personal interaction quality is crucial and extremely important in relation to the B&Bs' service quality, based on the findings of this study indicating

that it could directly and indirectly link to customer loyalty. However, under the condition that high service quality does not necessarily lead to customer loyalty if customer satisfaction is still uncertain (Chen & Kao, 2010), it can be concluded, according to the study results, that customer satisfaction resulting from high physical environment quality is needed for the B&Bs if customer loyalty is to be guaranteed.

From the managerial perspective, the results of the study differentiate from the extant literature in that satisfaction may not directly result in customer loyalty that leads to the success of the tourism industries. For B&B industries, measuring factors such as physical environment quality, personal interaction quality, satisfaction and behavioural intentions from different angles is an important task to establish customer awareness and to ensure customer loyalty. Further, although some studies have argued that there is no direct relationship between tourist satisfaction and facilities and services (Okello & Yerian, 2009), this study's results can be attributed to the fact that managers of the B&B industries should consider both the physical environment quality and personal interaction quality and customer satisfaction constructs as determinants of behavioural intentions in relation to customer loyalty. This is an important contribution as it provides a better understanding of customer perceptions of service quality, satisfaction and favourable future intentions.

Moreover, the findings of the study are suggested for the benefit of practitioners in the lodging sector (B&Bs, hotels, etc.). More specifically, the findings are supposed to be important as they may assist lodging practitioners in developing and implementing services marketing strategies to enhance service quality, especially with regard to the physical environment quality, including all of the

objective physical factors, such as ambient conditions, spatial layout and facility aesthetics, artefacts, etc. (Bitner, 1992; Lucas, 2003; Ryu & Jang, 2007; Wakefield & Blodgett, 1999), and upgrade levels of customer satisfaction in order to ensure customer loyalty.

This study has conceptualized and measured customer perceptions of B&B service quality by two dimensions – physical environmental quality and personal interaction quality. Although this study adds a number of important concepts to the extant literature and provides important contributions, it is suggested that future research may be directed at adopting a reflective measurement using a multidimensional approach or different methodology combining a qualitative one. In addition, this research was conducted only in the B&Bs of Kinmen. In order to enhance the model's generalizability, replication of this study for targeting other B&Bs of Taiwan should be taken into consideration to increase the proposed model's generalizability.

Acknowledgements

References

Akbaba, A. (2006). Measuring service quality in the hotel industry: A study in a business hotel in Turkey. *International Journal of Hospitality Management*, *25*(2), 170–192.

Alexandris, K., Dimitriadis, N., & Markata, D. (2002). Can perceptions of service quality predict behavioural intentions? An exploratory study in the hotel section in Greece. *Managing Service Quality*, *12*(4), 224–232.

Anderson, E. W. (1998). Customer satisfaction and word of mouth. *Journal of Services Research*, *1*(1), 5–17.

Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, *12*(2), 125–143.

Andreassen, E. W., & Lindestad, B. (1998). Customer loyalty and complex services: The impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. *International Journal of Service Industry Management*, *9*(1), 7–23.

Aydin, S., & Ozer, G. (2005). The analysis of antecedents of customer loyalty in the Turkish mobile telecommunication marker. *European Journal of Marketing*, *39*(7/8), 910–925.

Babin, B., & Babin, L. (2001). Seeking something different? A model of schema typicality, consumer affect, purchase intentions and perceived shopping value. *Journal of Business Research*, *54*(2), 89–96.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academic of Marketing Science*, *16*(1), 74–94.

Baker, D., & Crompton, J. (2000). Quality, satisfaction and behavioural intentions. *Annals of Tourism Research*, *27*(3), 785–804.

Bigné, E., Martinez, C., Miquel, M. J., & Belloch, A. (1996). Una adaptacion de la escala SERVQUAL. *Revista Europea de Dirección y Economía de la Empresa*, *5*(2), 7–18.

Birgelen, M., van Jong, A. de, & Ruyter, K. de (2006). Multi-channel service retailing: The effects of channel performance satisfaction on behavioural intentions. *Journal of Retailing*, *82*(4), 367–377.

Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing*, *54*(1), 69–82.

Bitner, M. J. (1992). Servicescape: The impact of physical surroundings on customers and employees. *Journal of Marketing*, *56*(2), 57–67.

Bojanic, D. C. (1996). Consumer perceptions of price, value and satisfaction in the hotel industry: An exploratory study. *Journal of Hospitality and Leisure Marketing*, *14*(1), 5–22.

Bosque, I. R.D., & Martin, H. S. (2008). Tourist satisfaction a cognitive-affective model. *Annals of Tourism Research*, *35*(2), 551–573.

Brady, M. K., & Cronin, J. J. (2001). Some new thoughts on conceptualizing perceived service: A hierarchical approach. *Journal of Marketing*, *65*(3), 34–49.

Brady, M. K., Robertson, C. J., & Cronin, J. J. (2001). Managing behavioural intentions in diverse cultural environments: An investigation of service quality,

service value, and satisfaction for American and Ecuadorian fast-food customers. *Journal of International Management*, 7(2), 129–149.

Briggs, S., Sutherland, J., & Drummond, S. (2007). Are hotels serving quality? An exploratory study of service quality in the Scottish hotel sector. *Tourism Management*, 28(4), 1006–1019.

Buhalis, D. & Cooper, C. (1998). Competition or co-operation? Small and medium sized enterprises at the destination. In E. Laws, B. Faulkner & G. Moscardo (Eds.), *Embracing change in tourism*. London: Routledge.

Callan, R. J., & Kyndt, G. (2001). Business travellers' perception of service quality: A prefatory study of two European city centre hotels. *International Journal of Tourism Research*, 3(4), 313–323.

Caro, L. M., & Garcia, J. A.M. (2007). Measuring perceived service quality in urgent transport service. *Journal of Retailing and Consumer Services*, 14(1), 60–72.

Caro, L. M., & Garcia, J. A.M. (2008). Developing a multi-dimensional and hierarchical service quality model for the travel agency industry. *Tourism Management*, 29(4), 706–720.

Caro, L. M. & Roemer, E. (2006). *Developing a multi-dimensional and hierarchical service quality model for the travel and tourism industry* (Working Paper Rep. No. 0618). Bradford, UK: Bradford University.

Caruana, A. (2002). Service loyalty: The effects of service quality and the mediating role of customer satisfaction. *European Journal of Marketing*, 36(7/8), 811–830.

Chen, C. F. (2008). Investigating structural relationships between service quality, perceived value, satisfaction, and behavioural intentions for air passengers: Evidence from Taiwan. *Transportation Research Part A*, 42(4), 709–717.

Chen, C. F., & Kao, Y. L. (2010). Relationships between process quality, outcome quality, satisfaction, and behavioural intentions for online travel agencies – Evidence from Taiwan. *The Service Industries Journal*, 30(12), 2081–2092.

Chen, C. F., & Tsai, D. C. (2007). How destination image and evaluative factors affect behavioural intentions? *Tourism Management*, 28(4), 1115–1122.

Chen, C. F., & Tsai, M. H. (2008). Perceived value, satisfaction, and loyalty of TV travel product shopping: Involvement as a moderator. *Tourism Management*, 29(6), 1166–1171.

Chen, M. H. (2011). The response of hotel performance to international tourism development and crisis events. *International Journal of Hospitality Management*, 30(1), 200–212.

Chen, M. H., Kim, W. G., & Liao, C. N. (2009). The impact of government weekend policy changes and foreign institutional holdings on weekly effect of tourism stock performance. *Journal of Hospitality and Tourism Research*, 33(2), 139–160.

Chi, C. G.Q., & Qu, H. (2008). Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach. *Tourism Management*, 29(4), 624–636.

Choi, K. S., Cho, W. H., Lee, S., Lee, H., & Kim, C. (2004). The relationships among quality, value, satisfaction and behavioural intention in health care provider choice: A South Korean study. *Journal of Business Research*, 57(8), 913–921.

Choi, T. Y., & Chu, R. (2001). Determinants of hotel guests' satisfaction and repeat patronage in the Hong Kong hotel industry. *International Journal of Hospitality Management*, 20(3), 277–297.

Chow, I. H.S., Lau, V. P., Lo, T. W.C., Sha, Z., & Yun, H. (2007). Service quality in restaurant operations in China: Decision- and experiential-oriented perspectives. *International Journal of Hospitality Management*, 26(3), 698–710.

Clemes, M. D., Gan, C. E. C., & Kao, T. H. (2007). University student satisfaction: An empirical analysis. *Journal of Marketing for Higher Education*, 17(2), 292–325.

Clemes, M. D., Gan, C. E.C., Kao, T. H., & Choong, M. (2008). An empirical analysis of customer satisfaction in international air travel. *Innovative Marketing*, 4(1), 49–62.

Clemes, M. D., Wu, H. C.J., Hu, B. D., & Gan, C. E.C. (2009). An empirical study of behavioral intentions in the Taiwan hotel industry. *Innovative Marketing*, 5(3), 30–50.

Collins, M. J. (2005). *Spectator satisfaction in professional sport: A test of a hierarchical model* (Unpublished master's thesis). Lincoln University, Canterbury, New Zealand.

Connolly, D. J. (2000). Shifting paradigms: Using information to enhance service dyads in Luxury hotel. *Journal of Hospitality and Leisure Marketing*, 7(2), 3–38.

Crompton, J. L., & Love, L. L. (1995). The predictive value of alternative approaches to evaluating quality of a festival. *Journal of Travel Research*, 34(1), 11–24.

Cronin, J. J., Brady, M. K., & Hult, G. T.M. (2000). Assessing the effects of quality, value and customer satisfaction on consumer behavioural intentions in service environment. *Journal of Retailing*, 76(2), 193–218.

Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, 56(3), 55–68.

Dabholkar, P. A., & Thorpe, D. I. (1994). Does customer satisfaction predict shopper intentions. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour*, 7(1), 161–171.

Dabholkar, P. A., Thorpe, D. I., & Rentz, J. O. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of the Academy of Marketing Science*, 24(1), 3–16.

Dagger, T. S., Sweeney, J. C., & Johnson, L. W. (2007). A hierarchical model of health service quality: Scale development and investigation of an integrated model. *Journal of Service Research*, 10(2), 123–142.

Dawson, C. P., & Brown, T. L. (1988). B&Bs: A matter of choice. *Cornell Hotel and Cornell Hotel and Restaurant Administration Quarterly*, 29(1), 17–21.

Decrop, A. (1999). Tourists' decision-making and behavior processes. In A. Pizam & Y. Mansfield (Eds.), *Consumer behavior in travel and tourism* (pp. 103–133). New York: Haworth.

Dodds, W., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, 28(1), 307–319.

Ekinci, Y. (2004). An investigation of the determinants of customer satisfaction. *Tourism Analysis*, 8(2), 193–196.

Ekinci, Y., Prokopaki, P., & Cobanoglu, C. (2003). Service quality in Cretan accommodations: Marketing strategies for the UK holiday market. *International Journal of Hospitality Management*, 22(1), 47–66.

Ekinci, Y., & Riley, M. (2001). Validating quality dimensions. *Annals of Tourism Research*, 28(1), 202–223.

Elliott, K. M., Hall, M. C., & Stiles, G. W. (1992). Service quality in the health care industry: How are hospitals evaluated by the general public? *Journal of Hospital Marketing*, 7(1), 113–124.

Engel, J., Blackwell, R. & Miniard, P. (1993). *Consumer behaviour*. Orlando, FL: Dryden Press.

Fassnacht, M., & Koese, I. (2006). Quality of electronic services: Conceptualising and testing a hierarchical model. *Journal of Service Research*, 9(1), 19–37.

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

Gabler, J. & Jones, M. Y. (2000). *Behaviour and behavioural intentions in a retail setting*. Retrieved May 26, 2007, from http://smib.vuw.ac.nz:8081/www/ANZMAC2000/CDsite/papers/g/Gabler.PDF

Gallarza, M. G., & Saura, I. G. (2006). Value dimensions, perceived value, satisfaction and loyalty: An investigation of university student's travel behaviour. *Tourism Management*, 27(3), 437–452.

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

Gouthier, M., & Schmid, S. (2003). Customers and customer relationships in service firms: The perspective of the resource-based view. *Marketing Theory*, 3(1), 119–143.

Grönroos, C. (1982). An applied service marketing theory. *European Journal of Marketing*, 16(7), 30–41.

Haastert, M., & Grosbois, D. (2010). Environmental initiatives in bed and breakfast establishments in Canada: Scope and major challenges with implementation. *Tourism and Hospitality, Planning and Development*, 7(2), 179–193.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.

Hair, J. F., Black, W. C., Babin, J. B., Anderson, R. E. & Tatham, R. L. (2006). *Multivariate Data Analysis* (6th ed.). Upper Saddle River, NJ: Pearson Education.

Harrison, J. S. & Enz, C. A. (2005). *Hospitality strategic management: Concepts and cases*. Hoboken, NJ: Wiley.

Heide, M., Laerdal, K., & Gronhaug, K. (2007). The design and management of ambience: Implications for hotel architecture and service. *Tourism Management*, 28(5), 1315–1325.

Henning, R. & Willemse, C. (1999). *Effective guest house management*. Kenwyn: Juta & Co.

Hilliard, T. W., & Baloglu, S. (2008). Safety and security as part of the hotel servicescape for meeting planners. *Journal of Convention & Event Tourism*, 9(1), 15–34.

Howat, G., Absher, J., Crilley, G., & Miline, I. (1996). Measuring customer service quality in sports and leisure centres. *Managing Leisure*, 1(2), 77–89.

Hsieh, Y. C. (2010). Bed-and-breakfast innkeepers in the United States: When the boundary between work and personal life is blurred. *Journal of Human Resources in Hospitality & Tourism*, 9(2), 200–217.

Hsieh, Y. C., & Lin, Y. H. (2010). Bed and breakfast operators' work and personal life balance: A cross-cultural comparison. *International Journal of Hospitality Management*, 29(4), 576–581.

Hui, T. K., Wan, D., & Ho, A. (2007). Tourists' satisfaction, recommendation and revisiting Singapore. *Tourism Management*, 28(4), 965–975.

Jang, S. C., & Chen, M. H. (2008). Financial portfolio approach to optimal tourist market mixes. *Tourism Management*, 29(4), 761–770.

Jones, E. T. (2005). *The importance of communication quality in services* (Unpublished master's thesis). Florida State University, Tallahassee.

Joppe, M., Martin, D. W., & Waalen, J. (2001). Toronto's image as a destination: A comparative importance-satisfaction analysis by origin of visitor. *Journal of Travel Research*, 39(3), 252–260.

Juwaheer, T. D. (2004). Exploring international tourists' perceptions of hotel operations by using a modified SERVQUAL approach: A case study of Mauritius. *Managing Service Quality*, 14(5), 350–364.

Kang, G. D. (2006). The hierarchical structure of service quality: Integration of technical and functional quality. *Managing Service Quality*, 16(1), 37–50.

Kang, S. S., Okamoto, N., & Donovan, H. A. (2004). Service quality and its effect on customer satisfaction and customer behavioural intentions: Hotel and ryokan guests in Japan. *Asia Pacific Journal of Tourism Research*, 9(2), 189–202.

Kao, T. H. (2007). *University student satisfaction: An empirical analysis* (Unpublished master's thesis). Lincoln University, Canterbury, New Zealand.

Kaufman, T. J., & Weaver, P. A. (1998). Marketing efforts of bed and breakfast operations: Do they influence success? *Journal of Travel and Tourism Marketing*, 7(4), 61–77.

Kim, H. Y., Chen, M. H., & Jang, S. C. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism Management*, 27(5), 925–933.

Kim, W. G., & Cha, Y. (2002). Antecedents and consequences of relationship quality in hotel industry. *International Journal of Hospitality Management*, 21(4), 321–338.

Kinmen County Government. (2011). *B&B industry in Kinmen*. Retrieved March 16, 2011, from http://www.kinmen.gov.tw/Layout/main_ch/News_NewsContent.aspx?NewsID=80505&frame=17&LanguageType=1

Kinmen National Park. (2011). *Theme tour*. Retrieved March 27, 2011, from http://www.kmnp.gov.tw/en/index.php?option=com_content&view=article&id=57&Itemid=77

Ko, Y. J., & Pastore, D. L. (2005). A hierarchical model of service quality for the recreational sport industry. *Sport Marketing Quarterly*, 14(2), 84–97.

Kozak, M. (2001). Repeaters' behaviour at two distinct destinations. *Annals of Tourism Research*, 28(3), 784–807.

Kozak, M., & Rimmington, M. (2000). Tourist satisfaction with Mallorca, Spain, as an off-season holiday destination. *Journal of Travel Research*, 38(3), 260–269.

Ladhari, R., Brun, I., & Morales, M. (2008). Determinants of dining satisfaction and post-dining behavioural intentions. *International Journal of Hospitality Management*, 27(4), 563–573.

Lanier, P., & Berman, J. (1993). Bed-and-breakfast inns come of age. *Cornell Hotel and Restaurant Administration Quarterly*, 34(1), 15–23.

Lanier, P., Caples, D., & Cook, H. (2000). How big is small? *Cornell Hotel and Restaurant Administration Quarterly*, 41(5), 90–95.

Leblanc, G. (1992). Factor affecting customer evaluation of service quality in travel agencies: An investigation of customer perception. *Journal of Travel Research*, 30(4), 10–17.

Lee, Y. K, Lee, C. K., Lee, S. K., & Babin, B. J. (2008). Festivalscapes and patrons' emotions, satisfaction, and loyalty. *Journal of Business Research*, 61(1), 56–64.

Lehtinen, U. & Lehtinen, J.R. (1985). *Service quality: A study of quality dimensions*, Paper presented at the Second World Marketing Congress, Scotland, UK, University of Stirling.

Liljander, V. & Strandvik, T. (1995). The relation between service quality, satisfaction and intentions in managing service quality. In P. Kunst & J. Lemmink (Eds.), *Managing service quality* (pp. 45–63). London: Paul Chapman Publishing.

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

Lockyer, T. (2003). Hotel cleanliness: How do guests view it? Let us get specific. A New Zealand study. *International Journal of Hospitality Management*, 22(3), 297–305.

Lounsbury, J. W., & Hoopes, L. L. (1985). An investigation of factors associated with vacation satisfaction. *Journal of Leisure Research*, 17(1), 1–13.

Lubetkin, M. (1999). Bed and breakfasts advertising and promotion. *Cornell Hotel and Restaurant Administration Quarterly*, 40(4), 84–90.

Lucas, A. F. (2003). The determinants and effects of slot servicescape satisfaction in a Las Vegas hotel casino. UNLV. *Gaming Research & Review Journal*, 7(1), 1–17.

Luo, X., & Homburg, C. (2007). Neglected outcomes of customer satisfaction. *Journal of Marketing*, 71(2), 133–149.

Martin, C. L., & Pranter, C. A. (1989). Compatibility management: Customer-to-customer relationships in service environments. *Journal of Services Marketing*, *3*(3), 6–15.

Mcdougall, G.H. G., & Levesque, T. J. (1994). A revised view of service quality dimension: An empirical investigation. *Journal of Professional Service Marketing*, *11*(1), 189–209.

Namkung, Y., & Jang, S. J. (2007). Does food quality really matter in restaurants? Its impact on customer satisfaction and behavioural intentions. *Journal of Hospitality & Tourism Research*, *31*(3), 387–410.

Nunnally, J. C. (1967). *Psychometric theory*. New York: McGraw-Hill Book Company.

Nuntsu, N., Tassiopoulos, D., & Haydam, N. (2004). The bed and breakfast market of Buffalo City (BC), South Africa: Present status, constraints and success factors. *Tourism Management*, *25*(2), 515–522.

Oh, H. (2000). Diners' perceptions of quality, value and satisfaction. *Cornell Hotel and Restaurant Administration Quarterly*, *41*(3), 58–66.

Oh, H., & Parks, S. C. (1997). Customer satisfaction and service quality: A critical review of the literature and research implications for the hospitality industry. *Hospitality Research Journal*, *20*(3), 35–64.

Okello, M. M., & Yerian, S. (2009). Tourist satisfaction in relation to attractions and implications for conservation in the protected areas of the Northern Circuit, Tanzania. *Journal of Sustainable Tourism*, *17*(5), 605–625.

O'leary, S., & Deegan, J. (2005). Ireland's image as a tourism destination in France: Attribute importance and performance. *Journal of Travel Research*, *43*(3), 247–256.

Oppermann, M. (2000). Tourism destination loyalty. *Journal of Travel Research*, *39*(1), 78–84.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: Implications for further research. *Journal of Marketing*, *58*(1), 111–125.

Park, J. W., Robertson, R., & Wu, C. L. (2004). The effect of airline service quality on passengers' behavioural intentions: A Korean case study. *Journal of Air Transport Management*, *10*(6), 435–439.

Park, J. W., Robertson, R., & Wu, C. L. (2005). Investigating the effects of airline service quality on airline image and passengers' future behavioural intentions: Findings from Australian international air passengers. *Journal of Tourism Studies*, *16*(1), 2–11.

Petrick, J. F., & Backman, S. J. (2002). An examination of the construct of perceived value for the prediction of golf travellers' intentions to revisit. *Journal of Travel Research*, *41*(1), 38–45.

Pizam, A., & Milman, A. (1993). Predicting satisfaction among first time visitors to a destination by using the expectancy disconfirmation theory. *International Journal of Hospitality Management*, *12*(2), 197–209.

Pizam, A., Neumann, Y., & Reichel, A. (1978). Dimensions of tourist satisfaction with a destination area. *Annals of Tourism Research*, *5*(3), 314–322.

Qu, H., & Wong, E. (1999). A service performance model of Hong Kong cruise travellers' motivation factors and satisfaction. *Tourism Management*, *20*(2), 237–244.

Qu, H. L., & Li, I. (1997). The characteristics and satisfaction of mainland Chinese visitors to Hong Kong. *Journal of Travel Research*, *35*(4), 37–41.

Reisinger, Y. (2001). Concepts of tourism, hospitality, and leisure services. In J. Kandampully, C. Mok & B. Sparks (Eds.), S*ervice quality management in hospitality, tourism, and leisure* (pp. 1–14). New York: Haworth Hospitality Press.

Rust, R. T., & Zahorik, A. J. (1993). Customer satisfaction, customer retention, and market share. *Journal of Retailing*, *69*(2), 193–215.

Ryan, C. (1999). From the psychometrics of SERVQUAL to sex: Measurements of tourism satisfaction. In A. Pizam & Y. Mansfield (Eds.), *Consumer behavior in travel and tourism* (pp. 267–286). New York: The Haworth Hospitality Press.

Rys, M. E., Fredericks, J. O. & Luery, D. (1987). Value= quality? Are service value and service quality synonymous: A decompositional approach? In C.F. Surprenant (Ed.), *Add value to your service* (pp. 25–28). Chicago, IL: American Marketing Association.

Ryu, K., Han, H., & Kim, T. H. (2008). The relationships among overall quick-casual restaurant image, perceived value, customer satisfaction, and behavioural intentions. *International Journal of Hospitality Management*, *27*(3), 459–469.

Ryu, K., & Jang, S. (2007). The effect of environmental perceptions on behavioral intentions through emotions: The case of upscale restaurants. *Journal of Hospitality and Tourism Research*, *31*(1), 56–72.

Schlosser, A. E. (1998). Applying the functional theory of attitudes to understanding the influence of store atmosphere on store inferences. *Journal of Consumer Psychology*, *7*(4), 345–369.

Siguaw, J., & Enz, C. (1999). Best practices in marketing. *Cornell Hotel and Restaurant Administration Quarterly*, *40*(5), 31–39.

Skogland, I., & Siguaw, J. A. (2004). Are your satisfied customer loyal? *Cornell Hotel and Restaurant Administration Quarterly*, *45*(3), 221–234.

Spector, A. (1999). Customer satisfaction: Ambience. *Nation's Restaurant News*, *33*(37), 118–119.

Spreng, R., Mackenzie, S., & Olshavsky, R. (1996). A re-examination of the determinants of consumer satisfaction. *Journal of Marketing*, *60*(3), 15–32.

Stevens, B. F. (1992). Price value perceptions of travelers. *Journal of Travel Research*, *31*(2), 44–48.

Taiwan Tourism Bureau. (2010). *Statistics of Taiwan's hotel industry*. Retrieved June 20, 2011, from http://admin.taiwan.net.tw/indexc.asp

Tam, J. L.M. (2000). The effects of service quality, perceived value and customer satisfaction on behavioural intentions. *Journal of Hospitality and Leisure Marketing*, *6*(4), 31–43.

Teas, R. K. (1994). Expectations as a comparison standard in measuring service quality: An assessment of a reassessment. *Journal of Marketing*, *58*(1), 132–140.

The American Hotel & Lodging Association. (2010). *2010 Lodging industry profile*. Retrieved July 15, 2011, from http://www.ahla.com/content.aspx?id=30505

Wakefield, K. L., & Blodgett, J. G. (1999). Customer response to intangible and tangible service factors. *Psychology & Marketing*, *16*(1), 51–68.

Wakefield, K. L., Blodgett, J. G., & Sloan, H. J. (1996). Measurement and management of the sportscape. *Journal of Sports Management*, *10*(1), 15–31.

Wanhill, S. (2000). Small and medium tourism enterprises. *Annals of Tourism Research*, *27*(1), 132–147.

White, C., & Yu, Y. T. (2005). Satisfaction emotions and consumer behavioural intentions. *Journal of Services Marketing*, *19*(6/7), 411–420.

Wong, S., & Keung, C. (2000). Tourists' perceptions of hotel frontline employees' questionable job-related behaviour. *Tourism Management*, *21*(2), 121–134.

Yang, B. (2005). *Strategic branding and customer's visitation intentions in the accommodation industry: A focus on motels* (Unpublished master's thesis). Lincoln University, Canterbury, New Zealand.

Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: A structural model. *Tourism Management*, *26*(1), 45–56.

Yu, L., & Goulden, M. (2006). A comparative analysis of international tourists' satisfaction in Mongolia. *Tourism Management*, *27*(6), 1331–1342.

Yuan, J., & Jang, S. C. (2008). The effects of quality and satisfaction on awareness and behavioral intentions: Exploring the role of a wine festival. *Journal of Travel Research*, *46*(3), 279–288.

Žabkar, V., Brenčič, M. M., & Dmitrović, T. (2010). Modelling perceived quality, visitor satisfaction and behavioural intentions at the destination level. *Tourism Management*, *31*(4), 531–546.

Zane, B. (1997). The B&B guest: A comprehensive view. *Cornell Hotel and Restaurant Administration Quarterly*, *38*(4), 69–75.

Zeithaml, V. A. & Bitner, M. J. (1996). *Services marketing*. New York: McGraw Hill.

Appendix

Table A1 Factorial Analysis of Attributes

	Factor Items								
	Physical Environment Quality (PEQ)			Personal Interaction Quality (PIQ)		Satisfaction (SAT)		Customer Loyalty (CL)	
Attributes	PEQ1 (Availability)	PEQ2 (Décor and Design)	PEQ3 (Ambience)	PIQ1 (Employees' Expertise)	PIQ2 (Employees' Problem-solving Skills)	SAT1 (Valence)	SAT2 (Perceived Value)	CL1 (Perceived Value)	CL2 (Revisit Intention)
There are accessible emergency exits at this guest house	0.875								
The overall facility in the room of the guest house is sufficient	0.754								
The guest house provides useful customer notices	0.699								
The sign for the sprinkler systems is clear at this guest house	0.672								
The environment of this guest house is the best I have experienced	0.609								
The guest house has sufficient parking spaces	0.577								

(*Continued*)

Table A1. Continued

	Factor Items								
	Physical Environment Quality (PEQ)			Personal Interaction Quality (PIQ)		Satisfaction (SAT)		Customer Loyalty (CL)	
Attributes	PEQ1 (Availability)	PEQ2 (Décor and Design)	PEQ3 (Ambience)	PIQ1 (Employees' Expertise)	PIQ2 (Employees' Problem-solving Skills)	SAT1 (Valence)	SAT2 (Perceived Value)	CL1 (Perceived Value)	CL2 (Revisit Intention)
The décor of this guest house is stylish and attractive		0.757							
The style of décor is to my liking at this guest house		0.732							0.929
The décor of this guest house exhibits a great deal of thought and style		0.685							0.616
The layout of this guest house serves my purposes/needs		0.672							
The layout of this guest house makes it easy for me to move around		0.610							
The guest house's food and beverage are of high quality		0.533							
The guest house's room is clean		0.499							
The guest house's room is aesthetically attractive		0.476							
The atmosphere of the room is what I expect in a guest house			0.843						
I really enjoy the atmosphere of this guest house			0.736						

This guest house really makes me feel like at home	0.637		
The ambience of this guest house is excellent	0.524		
I really enjoy staying in the room of this guest house	0.520		
The employees of this guest house are competent		0.840	
The employees of this guest house understand that I rely on their professional knowledge to meet my needs		0.839	
The attitude of the employees of this guest house demonstrates their professional knowledge		0.680	
The employees of this guest house always provide the best service for me		0.664	
The employees of this guest house are able to handle my complaints directly and immediately			0.827
The attitude of the employees of this guest house shows me that they understand my needs			0.728
When I have a problem, the employees of this guest house show a sincere interest in solving it			0.722

Table A1. Continued

	Factor Items								
	Physical Environment Quality (PEQ)			Personal Interaction Quality (PIQ)		Satisfaction (SAT)		Customer Loyalty (CL)	
	PEQ1	PEQ2 (Décor and Design)	PEQ3	PIQ1	PIQ2 (Employees' Problem-solving Skills)	SAT1	SAT2 (Perceived Value)	CL1 (Perceived Value)	CL2 (Revisit
Attributes	(Availability)		(Ambience)	(Employees' Expertise)		(Valence)			Intention)
I can rely on the employees at this guest house to address my needs					0.620				
This guest house provides me with high-quality services						0.881			
I have always had a good impression of this guest house						0.831			
This guest house has satisfied my needs						0.719			
The quality of this guest house could be considered superior when compared with other hotels						0.684			
The value that this guest house offers for its price is high						0.650			
Overall, the value of this guest house is good						0.555			
I have always had a good impression of this guest house							0.872		

Overall, I am satisfied with the value of this guest house experience								0.866	
I would recommend this guest house to my friends and relatives								0.869	
I always consider this guest house to be the first one on my list when searching for accommodation								0.845	
In my opinion, this hotel has a good image in the minds of its customers								0.813	
I would say positive things about this guest house to other people								0.869	
If I could, I would stay at this guest house again									0.929
Overall, my stay at this guest house was a pleasant experience									0.616
Eigenvalue	3.908	3.804	2.837	3.066	2.662	3.781	20.73	3.628	1.447
Variance explained (%)	19.539	19.018	14.184	34.066	29.578	42.006	23.033	51.827	20.674
Cumulative variance explained (%)	19.539	38.557	52.741	34.066	63.644	42.006	65.039	51.827	72.501
Cronbach's α	0.904		0.920		0.872		0.873		