

An explorative model of customers' service quality perceptions for Leisure Farms in Taiwan

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Abstract: - The leisure farm is becoming a popular and important form of recreational destination. Successful operations of leisure farms can contribute to not only the regional economic development and tourism prosperity but also the growing source of foreign exchange earnings. However, in the face of the consumer-oriented and fierce struggle business world, the leisure farm enterprise requires making efforts to capture and analyze customers' service quality perceptions in order to build up a competition strategy for survival. Unfortunately, few works conduct a comprehensive model which enabling us to facilitate the understanding of customers' service quality perceptions for leisure farms. An explorative model using the PLS (partial least squares) path modeling is proposed and the hypotheses are tested. This empirical assessment collects 317 customers from leisure farms in Taiwan. The study results and implications are discussed. The results confirm a strong link between service quality model and perception from customers.

Keywords: - service quality; leisure farm; PLS path modeling

1. Introduction

A successful leisure farm industry can facilitate the regional economic development and tourism prosperity, as well as bringing out a growing source of foreign exchange earnings. In the recent year, the Taiwanese government is actively promoting traditional farmers to transfer into leisure farm owners. In Taiwan, the leisure farm is a farm-based recreation enterprise, which performs a business type of the farm tourism. The farm tourism provides a way of farm-based recreation for people to look for authentic experiences that challenge the mind, expand horizons, and educate in an outdoor, nature-oriented setting through such activities: sightseeing, exploring small towns, tasting local foods, and learning about the land [1]. Farm-based recreation or Agri-tourism might play a more important role in the future, both as an alternative source of farm income and as a way for rural communities to diversify and stimulate their economies.

The Taiwanese leisure farms are offering variety livestock commodities and using farming scenery, ecological environment and resources, combined with farming, forestry, fishing and rural culture to enhance the customer expectation from farming and countryside life style [2]. In recent years, due to the fast establishment of leisure farms and the leisure farm's equipments and service qualities of each leisure farms are uneven. The leisure farms is required to successfully dealing with such issues: advancing the managerial ability, promoting the appraisal, offering consultation of the laws and decrees, upgrading the technical ability of manpower, encouraging development of creative value, setting up the marketing platform, participating in the international tour exhibition, and strengthening the service quality for consumers. In the purpose of improving the service quality for leisure farms in Taiwan, several works are discussing the importance of service quality and consumer satisfaction while few focus on customers' service quality perceptions. Indeed, the perceived service quality is the key component of consumer satisfaction and has a significant influence on the choice of leisure farms [3].

However, if the leisure farm wishes to maintain their continued competitiveness in terms of customers' service quality expectation to cope with the new challenges from government new tourism and two days weekend policy. The leisure farms are

intending to rebuild an evaluation service quality model for the new coming challenges. The service quality affects all leisure farm service activities and accelerates the development of leisure farm growth. Therefore, understanding, building and integrating service quality expectation are the main concerns. It is now a leading firm strategy to develop a model from customer expectation. The performances are usually with multiple variables for many customers' expectation to judge by the best service quality performance.

Hence, service quality has been developing for several years, evaluating the expectation is critical to whether the leisure farms are aware of the importance of customer expectation. A considerable number of studies have been conducted emphasizing the variables to be considered for the evaluation [4][5]. Service quality is measured to assess service performance, diagnose service problems, and manage service delivery. The variables used for service quality effectiveness evaluation are numerous and influence one another [6][7][8]. In recent years, numerous studies have focused on service quality in the leisure farms [9][10][11][12]. The outcomes of these studies have produced several contributions in relation to understanding the construct structure of service quality. However, there is none study focusing on its link in-between the service quality perception and its variables.

An important input from business executives and managers is knowledge of essential constructs of service quality and profound impact of those constructs on leisure farm performance. This way, emphasis is placed on those constructs that add value to the organization. In such intensive competitive environment, it is important to devote the leisure farm's limited resources to creating value and to improving performance. The following research question is explored in this study:

- What are the constructs of service quality for leisure farms?
- What effects do the critical constructs of service quality is related to service quality perception?

To solve the stated research problem, partial least squares (PLS) path modeling is utilized in this study. However, when dealing with structural equation models, two important points should be analyzed in more depth. When building questionnaires for modeling studies many variables may be of interest but have to be abandoned because they are not continuous or Likert scale like variables. Another

issue is the model building strategy; when many variables are involved, expert knowledge can be too weak to build a robust and well suited model. Furthermore when variables are of mixed type the usual approach can lead to poor results. This study thus presents an adapted version of PLS path modeling for different types of data (ordinal or nominal) called partial maximum likelihood, it is especially advantageous in the case of nominal or binary variables [13][14]. This study is based on statistical testing to build the structural model using the first component of the principal components analysis on each block of the model.

The paper proposes to examine the relationship between service quality constructs and service quality perceptions using PLS. Therefore this paper makes two academics contributions. First, it develops the theoretical basis for linking service quality constructs to service quality perception. The theoretical development considers that the integration of the key points such as tangible, reliability, responsiveness, assurance, and empathy using service quality perception into a framework. The second contribution consists in testing empirically the impact of service quality on service quality perception. Hence, to facilitate the understanding of customers' service quality perceptions for leisure farms in Taiwan, this study proposes an explorative model using the PLS path modeling is proposed and tested. The remainder of this study is structured as follows: Section 2 presents the literature review; Section 3 discusses the hierarchical structure; Section 4 discusses the research method; Section 5 provides an empirical study analysis; Section 6 contains the managerial implications and Section 7 shows the conclusion and future direction of the research.

2. Literature review

Due to increasing competition, enhance the service quality and ease of imitation, leisure farms must continue to have continuous improvement to maintain its competitiveness. Thus, service quality enhancement has become the primary basis of this study. Increased competition pressures are also forcing the leisure farms to continuously adopt, develop and enhance service quality from customer expectation. For these reasons, a firm must enhance its service quality model for developing the service quality model more suitable than other competitive leisure farms, and must facilitate the constructs and

variables of service quality model within its organization to strengthen its competitive advantage thereby an explorative model of customers' service quality perceptions. The next sections are discussed the leisure farms and service quality through an extensive prior literatures.

2.1 Leisure farm

Tourism-based farm diversification has increasingly been considered an effective catalyst of rural development and regeneration [15]. Currently, the leisure farm becomes fashionable recreation alternatives and acts as one of the best sort of social activities in Taiwan. Recreational farms can be divided into several basic types, such as: farm inns, snack farms, agri-product farms, equestrian farms, teaching farms, discovery farms, hunting farms, hostelry farms, and camping farms. However, the leisure farm in Taiwan is a compound form of recreational destination in which many kinds of offerings are provided such as: barbecue, camping, karaoke, storytelling, ceremony or conference, magic shows, orchards, zoo areas etc.

In early broader definitions, the scope of farm tourism comprised all tourism or recreation enterprises located on working farms [16], and the form of farm tourism includes farm-based accommodations, farm-based meals, farm-based activities, agricultural festivals and events, farm-based attractions, farm-based retail establishments, and farm-based tourism centers [1]. The farm tourism is one tourism category or a subset of the Agri-tourism which is a commercial enterprise at a working farm or woodland, ranch, or agricultural plant conducted for the enjoyment of visitors that generates supplemental income for the owner; include: outdoor recreation (fishing, hunting, wildlife photography, horseback riding) and Agri-tourism is a subset of a larger industry called rural tourism that includes resorts, nonprofit agricultural tours, and other leisure and hospitality businesses that attract visitors to the countryside. Nowadays, the farm diversification leads farm-based tourism to be more widely seen as an effective means of addressing the socio-economic problems of rural areas in general and the agricultural sector in particular.

The issues of leisure farm in Taiwan can be discussed with two perspectives: the management perspective and the marketing perspective. The achievement of customers' service quality perception

and satisfaction are crucial to succeed or even survive in the aggressive customer-oriented competition owing to service quality and customer satisfaction are key drivers that increasing customer loyalty, reducing price sensitivity, boosting positive word of mouth, enhancing corporate image, influencing customer a firm's market share, and finally affecting both profitability and financial performance [17][18]. Several works show great interests in the relationship between customer satisfaction and service quality. Some authors argue that perceived service quality is an antecedent of satisfaction while others stress that perceived service quality as both an antecedent and a consequence of satisfaction [19].

2.2 Service quality

The leisure farm is required to successfully deal with such issues: advancing the managerial ability and strengthening the service quality for consumers. In the purpose of improving the service quality, several works are discussing the importance of service quality and consumer satisfaction while few focus on customers' service quality perceptions for leisure farms. In recent decades, the service quality perceptions have been received extensive attention from researchers and practitioners; substantial literature examines the concept of service quality, its constructs, and measurement methods. Grönroos [20] places the perceived service and the expected service opposite one another. His research pioneers the proposal of having three constructs, namely, technical quality, functional quality, and image. Grönroos [21] emphasized the importance of the difference between expected quality of service and the actual quality of service experienced. By comparing customers' expected service with customer's experienced service, the organization is able to determine whether the service standard exceeds, meets, or falls below customer expectations [22]. In essence, satisfaction occurs whenever the difference between expected and experienced tends to be small. Dissatisfaction occurs when the difference between expected and experienced quality is significant. On the other hand, some authors propose measuring service quality by evaluating perceptions and expectations jointly [23]. Most research on accommodation services focus on hotels, without particular reference to the perception comparison between customers and employees [24][25][26][27][28].

Constructs need specific definitions in the

evaluation of the quality of a service. Numerous studies attempt to establish which constructs or variables to consider when evaluating service quality. Among these, the research by Parasuraman et al. [29] bears greater impact, and identifies ten constructs, which were subsequently reduced to five, namely, tangible, reliability, response, assurance, and empathy. At present, no consensus exists on the number of constructs or their applicability to which services. For example, the study of Carman [30] investigates different types of services and suggests that the constructs proposed by Parasuraman et al. [6] are not applicable to every type of service and that other constructs exist, such as convenience and cost. He also disagrees with the way that the initial constructs were combined into five. This shows the difficulty of quantifying service quality because of the very nature of service itself. Berry et al. [31] state that service quality assessment results while customers compare their service quality expectations to their perception of received service. This definition points out the significant impact of employee performance on customers' perception of service quality. The expected quality is determined by marketing communication, image, word-of-mouth and customer needs. Service quality performance is determined by technical and functional quality, mediated by service providers. This concept can be further developed to include the general approach for customers' satisfaction [32]. In recent years, numerous studies have focused on service quality in the hotel industry [9][10][11][12][33]. The outcomes of these studies have produced several contributions in relation to understanding the structure of service quality of hotels. At the same time, many studies have validated the use of SERVQUAL in several applications; for example, In this regard, many works conduct their studies focusing on the perceived service quality. For example, [34] propose a methodological framework for modeling the characteristics of the tourism destination choice including quality of service, advertising and political instability using a conditional logit regression analysis. Kelley and Turley [35] investigated the importance of service attributes used by sports fans when evaluating the quality of their service experience at sporting events. González [19] developed a model to depict how service quality perceptions and customer satisfaction influence behavioral intentions in the tourism industry. Deng and Pei [36] employed Back-propagation neural network based

importance–performance analysis for determining critical service attributes. This study learned from above discussion that the service quality approach is a favorable way to handle issues of leisure farms in Taiwan.

This preliminary literature reviewed illustrates the constructs of service quality, especially in leisure farm, is lacking of study with modeling. With this background, the service quality perceptions levels were measured with respect to twenty-two variables derived from Landrum et al. [18]; Zeithaml et al. [37]; and Hsieh et al. [38] studies. There are many applications of PLS in different fields [39][40][41] only few of studies are applied such technical approach to interpret the qualitative information. This preliminary literature reviewed illustrates the fact that customer perceptions of service quality are critically important for the success of leisure farms. The study model is description as follows:

3. Model structure

According to the objective of tourists in leisure farms, the evaluation variables should be established in accordance with the different characteristics of the PZB constructs, which are included tangibles, reliability, responsiveness, assurance, and empathy [6][42][43]. Jain and Gupta [44] noted that the problem with management of service quality in leisure farms is that quality is not easily identifiable and measurable due to inherent characteristics of services which make them different from goods. The most dominant instrument in measuring service quality has been the SERVQUAL scale separating into twenty-two items used for measuring service quality, which is usually featured as five service quality constructs. The five constructs and twenty-two variables are discussed as following:

3.1 Tangibles

Tangible is the appearance of physical facilities, equipment, personnel, and communication materials. Customers walk into the hotel that the feeling of interior decorations and hardware facilities to determine impressions of the hotels. Moreover, additional facilities and activities such as restaurants, exercise gyms, swimming pools, etc., which appear to influence consumers' perceptions of the tangible service qualities [6][33][45][46]. The measurement variables are as follows: The physical facilities and

employees are neat and clean (A1). The leisure farm information is accessible on website (A2). The leisure farm is in an easily accessible location and parking lots (A3). Brochures and other communication materials are visually appealing (A4).

3.2 Reliability

Reliability is the ability to perform the promised service dependably and accurately. Customers generally place heavy emphasis on the services and promised facilities, sanitary condition, safety and privacy. As a result, the employees provide service reliably, consistently and dependably the facility provides service and security as promised (A5). The service information and price list are always clear provided (A6); Customers feel safe and privacy in the service process (A7); The leisure farm is providing their services at the times they promise to do so (A8); When a customer has a problem, the employee shows a sincere interest in solving it (A9) are the measurement in this construct [6][33][45][46][47].

3.3 Responsiveness

Responsiveness is the willingness to help customers and provide prompt service. The quick problem-solving ability of the service personnel is a good opportunity to impress the consumers. And also, a courteous and friendly attitude by the service personnel makes the consumer feel respected, and definitely enhances the customer's appraisal of the hotel. With these premised, this construct are measured by following variables. The leisure farm provides additional service information. Eg., travel information, shuttle service, message, physical therapy, accommodation, food service etc (A10); The employees are willing and able to provide service in a timely manner (A11); and the employees are approachable and easy to contact (A12). The leisure farm provides speedy check in/out process (A13) [6][33][45][46][47].

3.4 Assurance

Assurance is the knowledge and courtesy of employees and their ability to convey trust and confident. Convenient ways of providing services such as an on-line reservation procedure, not only fulfill the customer needs and increase their satisfaction, but also enhance the service quality of

the hotel. Moreover, the service personnel with professional knowledge are usually one of the most important factors that will influence the evaluation result by customers. The variables are as follows: The employees are courteous, polite, and respectful (A14); The employees are trustworthy, believable, and honest (A15); The employees are competent (i.e. leisure farm knowledgeable and skillful) (A16); and this leisure farm provides a safety environment (A17) [6][33][45][46][47].

3.5 Empathy

Empathy is the caring, individualized attention provided to the customer. Empathy includes special needs to allow the customers with limited budgets to also enjoy the facilities of hotel. If the hotel should provide tourist route information, convenient traffic routes, or a shuttle bus to pick up customers will influence customers desire to go to the hotel. Hence, understand the customer's needs on the update information [6][45][47]. With those premised, the measurement variables are The leisure farm is offering enough information for facilities indications/directions (A18); The leisure farm is always update the service information to customers (A19); The employees make their effort to understand my needs (A20); The employees listen to me and speak in a language that I can understand (A21); and The operating hours are always convenient to all customers (A22).

The SERVQUAL stated that expectations are subjective and consist of user wishes or beliefs that a service provider should exhibit certain characteristics by customers' perceptions of service quality [48]. However, some researchers reported that SERVQUAL is valid and reliable [42] and others argue that SERVQUAL is ambiguous in its measurement of service quality [49][50]. In particular, Bowers et al. [51] argued that SERVQUAL is not sufficient to measure service quality in health care, since SERVQUAL was developed originally for other industries. To date, their conceptualization and measurement of service quality have received widespread acceptance [52].

Hence, to ensure that these variables are representative and comprehensive, this research applied the Delphi method to gather group opinions using specialist questionnaires. And also, the relevant literatures, survey instruments developed by past studies, and information derived from experts

(academia and industry) provided the basis for developing the questionnaire. After a review of the literature and interviews with experts, twenty-two service quality variables were developed in the questionnaire. This is critical that reliable instruments be developed to measure both service quality and success. In this study, several modifications were made to SERVQUAL to reduce or eliminate problems reported with the instrument, and to incorporate a measure of success.

SERVQUAL instrument served as a foundation for development of questionnaire. Some variables were reworded to make them more applicable to leisure farm setting and additional variables were added to capture specific aspects of the leisure farm. The variables of the scale were pre-tested by selected experts (academia and industry), and leisure farm guests, for wording and comprehension. Necessary changes were made based on the recommendations after these reviews, before it was considered ready to be administered to the final sample. We were then able to add or delete variables to ensure their suitability. With this background, this study extrapolate prior results related to marketing research in the new context of leisure farm and act on survey instrument for finding the customer's perception. The evaluation framework is summarized in Appendix A. The following sections are discussed on research hypotheses, and analyses with two step cluster analysis and PLS path modeling.

4. Research Method

In the purpose to facilitate the understanding of customers' service quality perceptions for leisure farms in Taiwan, the research model is based on the five constructs of service quality developed by Parasuraman [29] using the PLS path modeling to identify the relationship between such that five constructs of service quality.

4.1 Research hypotheses

As noted earlier, service quality constructs take the form of joint planning and decision making regarding daily operations, which is consistent with arguments and empirical studies presented in the prior literatures [22][27][28][53]. A major debate has focused on whether service quality should be measured as perceptions [54][55]. Parasuraman et al. [48] counter that measuring service quality as

perceptions is valid and further, it allows service providers to identify gaps in the service provided. However, if consumers perceive service quality as satisfaction or meeting of expectations, confusion arises regarding the use of the term satisfaction. Due to their similar meanings, some authors identify a high interrelation between service quality and satisfaction [56][57], though they differ in some respects [58]. The satisfaction means to meet the service quality perception from customers. However, some questions still remain with regard to the causal relationship between customer satisfaction and service quality. The importance of this relationship, may be, the goal of this study is to consider consumer evaluations (service quality perception). According to some authors, satisfaction represents an antecedent of perceived service quality [30] satisfactory service quality experiences may lead leisure farms to develop and modify their business strategy in the long run, such that an accumulation of specific evaluations (satisfaction with leisure farm services) results in this perceived service quality evaluation. The aim of this study is to explore relationships between services quality constructs and customer perceptions on service quality. Based on the literatures, the conceptual framework presented in Fig. 1, research hypotheses are developed for the exploration of relationships between such constructs (latent variables): tangible, reliability, responsiveness, assurance, and empathy. The two major hypotheses are developed and tested in this paper. The first of hypothesis relates to service quality has to be involved in top down leisure farm daily operations, therefore, awareness of customer perception should be prioritized, and it becomes the basis for making operational decision as the goal of operational function in stiff marketplace. And understanding of the dynamics of service quality constructs has the greatest effect on service quality perception from customers. The first hypothesis is as follows:

H1: The five constructs are positively related to service quality perception.

Furthermore, there is an important issue among service quality constructs interrelationships (latent variables). Hsieh et al. [38] establishes a service quality evaluation framework for hot spring hotels and employ the analysis network process (ANP) to find the relative weights among the service quality criteria, have consistently argued that service quality

constructs have had complex interrelationships. In social science studies, the constructs are always presented as independent variables, however, in real world there are interrelationship existed among the constructs. This study argues on that the constructs are with complex relationships. Therefore, based on the literature, this research generates the following hypothesis:

H2: The five constructs are positively influenced on each other

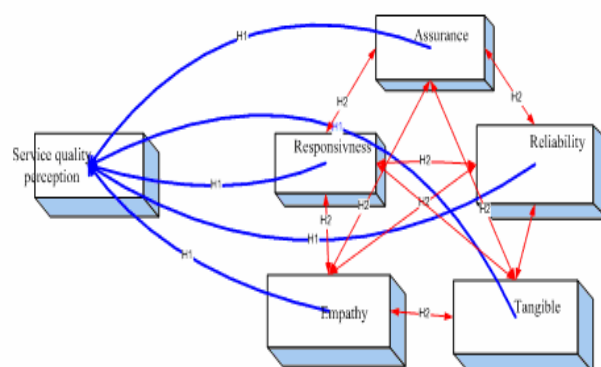


Fig. 1 The study framework and hypotheses

Through an intensive literature review, this study attempted to extract evaluation constructs and variables from the PZB service model, to test the study hypotheses and utilize a suitable method to obtain a more reasonable service quality evaluation model.

4.2 Two-Step cluster method

The study framework consists of six constructs in terms of service quality perceptions for leisure farms in Taiwan. The sixth construct is adopted from the SERVQUAL scale while the "Service quality perception" is measured by one item named as Group that categorizes respondents into high or low service quality perception using the SPSS Two-Step cluster method. This method can handle both continuous and categorical variables, which is a scalable cluster analysis algorithm designed to handle large data sets with two steps: (1) pre-cluster the cases into many small sub-clusters; and (2) cluster the sub-clusters resulting from pre-cluster step into the desired number of clusters. Particularly, it can also automatically select the number of clusters. The use of this method is acquired the service quality perception as dependent variable.

4.3 PLS path modeling

PLS has been chosen in this study as it is better suited to causal modeling when sample size is small and models are complex [59][60]. The application of PLS requires a minimum sample size of 30 and a minimum sample size that is 10 times greater than (1) the number of items comprising the most formative constructs or (2) the number of independent constructs directly influencing a dependent construct (Wixom & Watson, 2001).

For an extensive review on PLS path modeling, the reader is referred to Tenenhaus et al. [61]. This study focuses on two points: the treatment of non-continuous data and model building strategies. PLS concepts are complex and each notion is defined by many facets. In this model, answers to the survey questions are included as manifest variables (x_{jh}), which are grouped in blocks related to a concept like image, satisfaction or loyalty associated to a latent variable (ξ_j). The relations between manifest and latent variables form the outer or measurement model and relations between latent variables form the inner or structural model. The usual methods like LISREL were unlikely to be adapted to complex marketing models. This study decided to focus on PLS path modeling, which was introduced by Wold [62].

Throughout this study decided to focus on study framework for the outer estimation of the latent variables and the centroid scheme for the inner estimation. It is a deliberate choice and our approaches could be extended to the formative case and other inner schemes that are available in PLS path modeling. Furthermore, we use study framework to consider that in service quality analysis indicators are reflective. The PLS path modeling algorithm can be divided into three main steps:

(1) *A quantification step* where initial latent variables are calculated. This step is done using:

$$y_j^t = \sum_{i=1}^{pj} w_{ji}^t x_{ji}$$

(1)

where y_j^t is the outer estimate of the latent variable ξ_j at step t , x_{ji} is the manifest variable i associated with the latent variables ξ_j and pj is the number of manifest variables in block j . During this step, the initial outer weight w_{ji}^0 can be chosen

randomly. Usually it is set at 1 for the first manifest variable of each block and at 0 for the others.

(2) *An iterative algorithm* where latent variables are estimated iteratively with respect to the inner model and the outer model. *Inner estimation:* Throughout this article focuses on the centroid scheme for inner estimate z_j^t of the latent variable ξ_j :

$$z_j^t = \sum_{\xi_j \in J} \text{sign}(\text{cor}(y_j^t, y_j^t)) y_j^t$$

(2)

where J is the set of all latent variables connected to ξ_j . *Outer estimation:* Before performing the outer estimation y_j^t of latent variable ξ_j , outer weights are updated using mode A (reflective indicators) estimation:

$$w_{jh}^t = \text{COV}(x_{jh}, z_j^t)$$

(3)

Once the outer weights have been updated, the outer estimation is performed using Eq. (1). This process is repeated until convergence is obtained.

(3) *The estimation of the structural relations* between latent variables using PLS regressions. PLS path modeling has three main advantages in the framework of environmental practices analysis: it can handle very complex models and small samples [63]. Latent variables scores are obtained and there are no distributional assumptions. It is interesting to take into account the kind of manifest variables' scales involved in the model.

The latent variables estimates from the first step are all numerical, whereas the manifest variables keep their scales. Indeed, in each quantification step, even when both reference and studied manifest variables are categorical, the latent variable estimate is a score which can be considered as numerical. It is the sum of products between x_{jh} and regression coefficients.

- Inner estimation -The inner estimation is done as in the PLS path modeling using the centroid scheme (see Eq. (2)).
- Outer estimation- The outer estimation of latent variable ξ_j depends on each manifest variable scale. The manifest variable is numerical: In this case, we are in the PLS path modeling

framework and Eqs. (1) and (3) can be applied.

The PLS path modeling is the suitable modeling and analysis method due to PLS path modeling has been successfully applied to a variety of areas, such as: performing a trust-based consumer decision-making model in electronic commerce [64], making decisions for resource allocation [39], assessing the performance of business unit managers [40], performing a modified PLS path modeling algorithm handling reflective categorical variables [14], examining the role of problem recognition and cognitive bias [65], discussing the relationships among latent variables and residuals in PLS path modeling [66], defining relationship quality for customer-driven business development [67], arguing the error term in formative measurement models [68], examining the determinants of students' satisfaction and their perceived learning outcomes [69], arguing the issue of strategic sourcing [70], testing the influence of technology on user expectancies [71], investigating the relationship between interpersonal trust, employee satisfaction, and employee loyalty [72], discussing the extensions of PLS path modeling [61] etc.

PLS is well suited to the early stages of theory building and testing [73]. It is particularly applicable in research areas where theory is not as well developed as that demanded by linear structural relationship (LISREL) [74] as is the case with this research study. PLS is most appropriately used when the researcher is primarily concerned with prediction of the dependent variable [75].

5. Empirical Analysis

Questionnaires were used for collection of customer perceptions. First, a Chinese version of the modified SERVQUAL instrument used to measure service quality in leisure farm. The SERVQUAL instrument developed by Parasuraman et al. [6] was modified by researchers. The instrument was translated into Chinese, back-translated into English, and then the original English and back-translated versions were tested for equivalence.

The survey instrument was pre-tested for content validity in two stages. In the first stage, six experienced researchers were asked to review the questionnaire for the ambiguity, clarity and appropriateness of measuring items used to measure each construct. Based on the obtained feedback, the instrument was modified to enhance clarity and

appropriateness of the measures purporting to tap the constructs. In the second stage, the survey instrument was mailed to five academicians and professionals affiliated with leisure farms in Taiwan. These academicians and professionals were asked to review the questionnaire for structure, readability, ambiguity and completeness. The final survey instrument incorporated feedback received from these executives, which enhanced the comprehensibility of the instruments. This process yielded a survey instrument that was judged to exhibit high content validity. This instrument has 22 items related to expectations and 22 items related to performances. Then, this survey instrument was distributed to the target respondents. Related measuring variables are as shown in Table 1.

5.1 Sample and survey

Using purpose sampling method, the studying samples for the study were collected from experienced guests of leisure farms in Taiwan. A total of 317 customers' respondents were obtained during the four month period following the distribution of the questionnaires. A PLS model is usually analyzed and interpreted in two stages. In the first stage, the measurement model was tested by performing validity and reliability analyses on each of the measurements obtained using the model. In the second stage, the structural model was tested by estimating the paths between the constructs and dependents variables in the model, then determining their significance as well as the predictive ability of the model. This sequence was followed to ensure that reliable and valid measurements of the constructs are used before conclusions about the nature of the relationships between the various constructs are drawn [60].

For this study, this study adopts the favorable software named "SmartPLS" [76] to perform data analyses with the PLS path modeling. The PLS path modeling handles two models meanwhile: (1) a measurement model called the outer model relating the MVs (Manifest Variables) to their own LVs (Latent Variables) and (2) a structural model called the inner model relating some endogenous LVs to other LVs. The measurement model is tested by the reliability and validity analyses, and the structural model is tested by path coefficients between constructs in the model [72]. The MVs in each outer model are such as: A1, A2, A3 and A4 for the

Tangibles. The following sections are the testing of hypotheses in this study.

5.2 Convergent reliability and validity

According to Fornell and Larcker [74], Reliability and validity were tested by looking at: (1) the reliability of individual items; and (2) the convergent validity of the measures associated with individual constructs. The figures for reliability of individual items are reported in Figure 2. It is acceptable that the CR (Composite Reliability) value is higher than 0.7 while the AVE (Average Variance Extracted) value is higher than 0.5. As shown in Table 2, the values of CR are all higher than 0.7 and the values of AVE are all higher than 0.5. With the lowest value being 0.53, indicates high convergent validity, this means the study reach satisfied convergent reliability and validity.

Table 2 Convergent reliability and validity

Constructs	AVE	CR	R ²	Cronbach's α	Communality	Redundancy
Assurance	0.530	0.818	0.732	0.704	0.530	0.070
Empathy	0.651	0.880	0.500	0.816	0.651	0.323
Reliability	0.792	0.884	0.497	0.738	0.792	0.141
Responsiveness	1.000	1.000	0.413	1.000	1.000	0.242
Tangibles	0.613	0.826		0.685	0.613	
SQ perception	1.000	1.000	0.546	1.000	1.000	0.185

5.3 Path coefficients and predictive ability

Table 3 merely shows that item loadings are significant. Regarding the best contributors to constructs in this model, see Fig. 2, for Tangibles is the A1 (The physical facilities and employees are neat and clean) of 0.767, A2 (The leisure farm information is accessible on website) of 0.774, and A3 (The leisure farm is in an easily accessible location and parking lots) of 0.806.

Table 3 Item loadings

Constructs	Original sample	Sample Mean	Standard Deviation	Standard Error	T Statistic
A14 < Assurance	0.284	0.279	0.035	0.035	8.130
A15 < Assurance	0.334	0.348	0.036	0.036	9.538
A16 < Assurance	0.332	0.328	0.028	0.028	11.750

A17	<	Assurance	0.404	0.414	0.046	0.046	8.803
A5	<	Reliability	0.557	0.563	0.029	0.029	19.028
A6	<	Reliability	0.557	0.563	0.035	0.035	16.104
A1	<	Tangibles	0.408	0.412	0.039	0.039	10.513
A2	<	Tangibles	0.411	0.406	0.032	0.032	12.791
A3	<	Tangibles	0.457	0.460	0.039	0.039	11.643
A18	<	Empathy	0.345	0.342	0.028	0.028	12.354
A19	<	Empathy	0.326	0.326	0.022	0.022	14.829
A20	<	Empathy	0.311	0.314	0.021	0.021	14.868
A21	<	Empathy	0.251	0.249	0.032	0.032	7.960
A10	<	Responsiveness	1.000	1.000	0.000		
Group	<	SQ perception	1.000	1.000	0.000		

Table 4 merely shows that path coefficients are significant between constructs in the model. Especially, the path coefficient, “Tangibles→Empathy” with 0.706 has the greatest positive direct effect, followed by “Empathy→Service quality perception” with 0.698. As for the R² value of endogenous constructs, the “Assurance” has the best ability to explain 71.5% in this model. On the whole, the combination of Tangibles, Reliability, Responsiveness, Assurance, and Empathy, has the predictive ability for 48.8% of the “the Service quality perception”. Although the predictive ability of 48.8% was not so high, the analysis results using PLS path modeling confirmed certain relations between five SERVQUAL constructs and the Service quality perception. The study hypothesis H1 is partly supported by the data and showed that the empathy has merely positive influence on service quality perception. The research hypothesis H2 is partly supported by the results and presented that tangible has merely positive influence on assurance, empathy, responsiveness and reliability, the details showed in Figure 2.

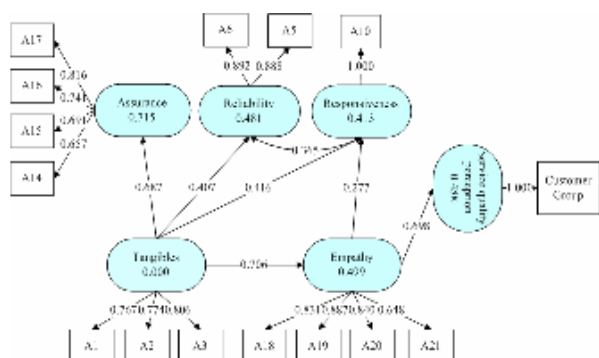


Fig. 2 Relations between constructs

Table 4 Path coefficients

Constructs to	Original	Sample	Standard	Standard	T
Constructs	Sample	Mean	Deviation	Error	Statistics
Empathy = Responsiveness	0.277	0.279	0.117	0.117	2.363
Empathy = SQ perception	0.698	0.706	0.041	0.041	17.082
Reliability = Assurance	0.261	0.254	0.082	0.082	3.185
Responsiveness = Reliability	0.365	0.341	0.114	0.114	3.125
Tangibles = Assurance	0.657	0.660	0.069	0.069	9.493
Tangibles = Empathy	0.706	0.707	0.059	0.059	12.023
Tangibles = Reliability	0.407	0.425	0.105	0.105	3.878
Tangibles = Responsiveness	0.416	0.409	0.114	0.114	3.653

6. Managerial Implications

While it is important to consider these findings against the backdrop of earlier empirical work, assessing theoretical implications ultimately lays the groundwork for systematic improvements in service quality and future research. Service quality is a complex con-current encountering situation for leisure farms. There are following points of managerial implication from the empirical results.

First, the outcome of Empathy is the key manifestation of service quality. This construct is unexpectedly close to the meaning of the higher order construct as it perfectly reflects the consumer evaluations of service quality. Managers should pay particular attention to the Empathy in creating favorable customer’s perceptions of overall variables. As customers seek for the staff at this facility understands the needs of cues to describe the service encounter, contact employees must be able to deliver

both “functional” quality and “technical” quality [20]. For leisure farm services, room service and housekeeping employees etc., are unique in that they deliver outcomes (technical quality) as well as a service process (functional quality).

Second, the findings suggest that the leisure farm should offering enough information for facilities indications/ and directions and should always updated the service information to customers. Moreover, service quality evaluations are quite well defined by the judgments regarding how the service is delivered, and this approach agrees with the relevance of “customer interaction” in the service marketing literature [21]. The leisure farms should notice that the operating hours are always convenient to all customers. The service environments will have their own “most important” employees in terms of creating and delivering quality and value and further to improve service quality perception from customers such as the employees listen to me and speak in a language that I can understand.

Third, this internal service quality proposes that organizations operate within an organization of relationships developed and fostered through strategic-level variables’ measurement interaction to customers. The primary emphasis of the research related to the relational view focuses on service quality activities pertaining to customer perception. For example, the leisure farm is always updated the service information to customers or the operating hours are always convenient to all customers. All of these internal variables are primarily associated with what could be viewed as “core” operations. However, the research conducted within the relational paradigm is rather silent on historically non-core service activities such as those related to the natural environment. This study’s results have direct implications for leisure farms’ practice. Service quality with internal operations contributed to a relatively broad range of competitive benefits.

7. Conclusions

This research is based on the five constructs of PZB service quality with the concept to build an evaluation framework of leisure farms in Taiwan. This study presents numerous interactions with multi-constructs and follows the customer perception. For the service quality requires organizations’ strategic objective, training to all employees and to follow the customer

perceptions to ensure the survival of business. More specifically, two direct outcomes of service quality are the development of well organizing organization and the development of the service capabilities to integrate internal coordination [38]. Such a well service quality leads to enhance a competitive advantage of leisure farms. The study results can initiate or prompt the development of service capabilities for integration of internal improvement based on study results. These tacit service quality variables, as it expands and deepens, can build more competitive advantage that is difficult to replicate, leading in turn to a competitive advantage consistent with its unique service quality provided to customers.

Empirically, the results are also consistent with a recent study that linked service quality activities to customer satisfaction and enhance competitiveness. For example, Existing empirical research on perceived quality and customer satisfaction in the area of tourism frequently yields contradictory results [77]. However, the converse relationship does not hold, in contrast with the findings of Iacobucci et al. [78]. Furthermore, the results do not confirm those of McAlexander et al. [79], who obtain identical results for models in which either perceived quality or satisfaction serves as the dependent variable. Oh [80] maintains that the value perceived by customers must appear in any study that attempts to evaluate service quality and satisfaction, because the combination of value and quality may intercede between consumer perceptions and satisfaction. However, these studies are focused on the satisfaction of customer, none of them are discussed the perception of customers to the service quality model itself are interrelated. The results here enrich our understanding of how different constructs of service quality are purely judgment from the perceptions of customers.

A service quality practice was defined as the interaction of inter organizations components pertaining to joint service planning and shared service information knowledge. As such, any monitoring or control variables usually include in internal service process. This way, service quality practice was predominantly linked to superior customer interaction. Most likely, empathy, being a form of proactive key construct service practice to service quality perceptions, and also it links with other constructs. Practically, manufacturers should strive to improve on multiple constructs of service quality model to arrive at the full realization of benefits, which may improve customer image and thus, possibly,

economic benefits. The contribution of this research is to build up the theoretical model to gain the competitive advantage. This study takes a step in that direction by clarifying, organizing and integrating terms and concepts relevant to service improvement in the leisure farms' processes and conducting an empirical investigation of this causality. Despite the fact that this study is the first largest and comprehensive in the empirical study, it does suffer from limitations, and these give rise to a number of suggestions for the future study.

7.1 Limitations

PLS path modeling has been successfully applied to a variety of areas, but few published works using PLS path modeling to deal with such an issue of the relationship between service quality constructs and service quality perception. This study is presented as a test case to extend practical applications of PLS path modeling in the field of service quality, it also surely provides useful and profound insights that helping leisure farm management achieve better understanding about service quality constructs and customer perceptions. This study reveals some meaningful facts, but it must be admitted the following limitations.

While studying a single industry allows for greater control over contextual and operational factors, it is not without its drawbacks. First, using a single industry in the leisure farm allowed greater specificity in detailing and surveying the types of integration constructs underway, but potentially limits external generalizability. Future research would benefit from expanding this investigation across multiple industries approaches. This study is unable to test and account for the cross sectional study, for the lags between the existence of practices and performance, for the lack of follow through on the progress of particular; all of which is a limitation of all such studies.

A second limitation of the design of this study is the fact that it used only one respondent, which might potentially create grounds for bias. Any potential bias introduced by the single respondent cannot be explicitly ruled out; however, earlier research suggests no major concerns [81], and careful targeting of a knowledgeable respondent can assist in

overcoming potential problems with common method variance [82]. Finally, in order to enhance the overall performance of leisure farms, the results of this paper provide the leisure farms in Taiwan with direction for future improvement.

7.2 Future study

There exists a wide scope for future research on the instrumentation issues of this service quality model. The validation of this scale is an ongoing process, and validity is established only over a series of studies that further refine and test the measurement items across industries and countries. Development of valid and reliable measurement items will only be

accomplished through the use and refinement of the measurement scale in subsequent studies. These measurements can evolve and progress into many new areas supporting the construction and confirmation of theories. However, the authors are suggesting that this service quality model might apply to the respondents for fuzzy set theory in order to rule out the bias from the qualitative measurement [83] in future study. The bias computation can be resolved by the fuzzy set theory. However, the computation is quite complicated needed to be computed step by steps. Although the internal validity of our research variables is acceptable, the research is of a purely single industrial snapshot, the future study might include cross industries study.

Appendix A

Measurement leisure farm service quality variables

Constructs		Measurement variables	
C1	Tangible	A1*	The physical facilities and employees are neat and clean
		A2*	The leisure farm information is accessible on website.
		A3*	The leisure farm is in an easily accessible location and parking lots
		A4	Brochures and other communication materials are visually appealing
		A5*	The employees provide service reliably, consistently and dependably
		A6*	The service information and price list are always clear provided
		A7	Customers feel safe and privacy in the service process
C2	Reliability	A8	The leisure farm is providing their services at the times they promise to do so
		A9	When a customer has a problem, the employee shows a sincere interest in solving it
		A10*	The leisure farm provides additional service information. Eg., travel information, shuttle service, message, physical therapy , accommodation, food service etc
		A11	The employees are willing and able to provide service in a timely manner
C3	Responsiveness	A12	The employees are approachable and easy to contact
		A13	The leisure farm provides speedy check in/out process
		A14*	The employees are courteous, polite, and respectful
C4	Assurance	A15*	The employees are trustworthy, believable, and honest
		A16*	The employees are competent (i.e. leisure farm knowledgeable and skillful)
		A17*	This leisure farm provides a safety environment
		A18*	The leisure farm is offering enough information for facilities indications/ directions
		A19*	The leisure farm is always update the service information to customers
C5	Empathy	A20*	The operating hours are always convenient to all customers.
		A21*	The employees listen to me and speak in a language that I can understand
		A22	The employees make their effort to understand my needs

Note: * Significant to final result

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