



*International Food and Agribusiness Management Review*  
Volume 19 Issue 1, 2016

## **Employee Perceptions and Expectations of Online Marketing Service Quality: An Investigation of Farmers' Associations in Taiwan**

Chao-Chien Chen<sup>a</sup>, Hsiu-Ping Yueh<sup>b</sup>, and Chaoyun Liang<sup>ⓐc</sup>

<sup>a</sup> *Doctoral Student, Department of Bio-Industry Communication and Development, National Taiwan University,  
No. 1, Sec. 4, Roosevelt Road, Taipei, 10617, Taiwan*

<sup>b</sup> *Professor, Department of Bio-Industry Communication and Development, National Taiwan University,  
No. 1, Sec. 4, Roosevelt Road, Taipei, 10617, Taiwan*

<sup>c</sup> *Professor, Department of Bio-Industry Communication and Development, National Taiwan University,  
No. 1, Sec. 4, Roosevelt Road, Taipei, 10617, Taiwan*

---

### **Abstract**

Numerous agribusiness firms have aimed to improve their service quality to build profitable relationships with customers. Prior research has indicated that employee satisfaction could create customer loyalty, yielding favorable business results. According to previous studies, the SERVQUAL scale was used in this study to investigate the relationship between the expectations and perceptions of farmers' association employees in Taiwan. The results indicated that the largest gap between employee expectations and perceptions pertained to the tangibility of service quality, followed by reliability, empathy, responsiveness, and assurance. In addition, the results suggested that perceived responsiveness could influence expected tangibility, and that expected empathy could influence perceived assurance and empathy. To achieve higher profitability, farmers' associations should focus on low-performing areas, and the overall value of an organization should be vital to employees.

**Keywords:** employee; farmers' association; online marketing; service quality; SERVQUAL

<sup>ⓐ</sup>Corresponding author: Tel: + 011.886.3.3355681  
Email: C. Liang: cliang@ntu.edu.tw

## Introduction

Strengthening farmer access to market information and marketing channels by using modern information and communication technology (ICT) can create a potential market for agribusiness (Henderson et al. 2005). Market information and marketing channels can be provided using ICT tools, which have advanced with the increasing predominance and affordability of the Internet, enabling farmers to reach more informed decisions on where and when to sell their farm products; bypass or bargain with the intermediate distributor; and be aware of products that are increasingly in demand, scarce agriinputs, and available subsidies (World Bank 2011). The Food and Agriculture Organization (2014) indicated that e-agriculture is an emerging field in the intersection of agricultural informatics, development, and entrepreneurship and is intended to increase agricultural productivity.

Taiwan farming is a small-scale system in which farmers' associations are critical throughout all regions of the country, safeguarding farmer rights and interests, enhancing farmer knowledge and skills, modernizing agriculture, increasing crop yields, improving farmer livelihoods, and developing rural economies (The Farmers' Association Act 2015). Farmers' associations have the advantages of brands, capital, technology, and policy support, all of which are conducive to developing online marketing. Applying ICT to facilitate agricultural marketing could enable the agricultural industry of Taiwan to be more efficient in the current global market than those of other countries. However, when governments create promotional programs to integrate ICT into agriculture, they should disseminate information pertaining to online marketing and evaluate the outcomes (Liu 2011).

Enterprises must provide products and services that fulfill customer requirements. Agribusiness firms have aimed to improve their service quality to build and maintain profitable relationships with their customers (Langen et al. 2013; Tey et al. 2014). However, because services are intangible, inseparable, variable, and homogenous (de Jong et al. 2003), achieving a consistent service standard is difficult. Moreover, although numerous customer services are used in agriculture, they are not systematically evaluated in a manner similar to how products are assessed (Alsemgeest and Smit 2013; Gunderson et al. 2009). To date, little empirical assessment has been performed regarding coworker perceptions (Farner et al. 2001). Because service quality is primarily determined by actual experience, it results from employees and customers comparing their expected and actual service experiences.

To measure enterprise service quality, Parasuraman et al. (1985, 1988) proposed using a service quality concept model and developed the SERVQUAL scale. This scale is an effective tool that is employed by various service industries to analyze customer satisfaction, and can be applied within organizations (Ebrahimi and Imani 2014). Over 300 farmers' associations have been established throughout Taiwan, each of which possesses unique characteristics and business models. To ensure positive outcomes, the online marketing service quality of farmers' associations must be carefully examined. To determine this service quality and whether employee satisfaction could create customer loyalty, this study adopted the SERVQUAL scale, investigating the relationship between the expectations and perceptions of employees regarding online marketing in farmers' associations.

## Research Context

Taiwan has a well-established infrastructure in agriculture, excellent research and development, and agricultural extension services provided by the public and private sectors (Huang and Lin 2006). Because of rapid economic development in previous decades, the gross domestic product of Taiwan has grown substantially, whereas the agricultural contribution has dropped. From 1992 to 2012, the agricultural population declined from one million to 540,000 (Council of Agriculture 2012). The agricultural management style in Taiwan is primarily that of small-scale farms; thus, accumulating capital, increasing investment, and expanding the scale of operations is difficult. Introducing mechanized cultivation methods to increase production is also challenging, and consequently, farmers lack bargaining power for their product prices (Council of Agriculture 2015a).

Recent development trends in rural villages, such as establishing farmers' markets and promoting agricultural tourism and entrepreneurial ventures, have revitalized the rustic culture of Taiwan's small towns. Under the Council of Agriculture's Small Landlords and Big Tenant-Farmers Program, younger generations have also begun to play a larger role in the national agricultural sector, marking the beginning of an era in which farming is a lifestyle (Council of Agriculture 2015b). Taiwan's agricultural environment and conditions are unlike those in countries with large agricultural sectors that operate on a vast economic scale; however, Taiwan has numerous flexible modes of operation to remedy this limitation. One method is facilitating farmer cooperation as an economic scale to compete with international agricultural products in the world market.

Farmers' associations in Taiwan are a vital agribusiness and serve as a crucial intermediary between the government and farmers. Currently, farmers' associations are organized according to three levels: national, city/county, and township. National and city/county farmers' associations mainly function to supervise and coordinate the township associations. Township farmers' associations are private corporations that employ an average of 50 employees. Each township farmers' association consists of four departments that provide marketing, credit, insurance, and extension services to their farmer members. Regarding online marketing, employees of farmers' associations not only provide joint procurement of inputs, technical support, and advisory services to their members, but also assist in product sales and market promotion, helping the members to improve their lives.

Considering that the employees of farmers' associations provide valuable agricultural extension services, their professional ability, work performance, and job satisfaction play a crucial role in farmers' well-being and influence policy making. Previous studies have indicated that employee satisfaction creates customer loyalty and favorable business results (Keiningham et al. 2005; Xu and Goedegebuure 2005); in other words, firm employee satisfaction mirrors customer satisfaction. Because of the extension of national policy on e-agriculture, nearly every employee of farmers' associations in Taiwan now has adequate knowledge or experience regarding online marketing and e-commerce. To prevent a self-evaluation bias, only employees with sufficient knowledge who were uninvolved in farmers' association online marketing were included in this study.

## Online Marketing

The focus of marketing is the process created by the supplier to satisfy consumer requirements, resulting in consumer acceptance of the provided product. The Internet combines product information, promotional events, customer feedback surveys, public relations, and access to distinct marketing environments and personalized services (Chen et al. 2014a; Chou and Liang 2013). Therefore, online marketing can involve tangible products, express services, and intangible consumer experiences; satisfactory consumer experiences can be conveyed to potential customers (Bernstein and Federgruen 2007). Recently, the Taiwanese government has promoted the application of modern ICT in the agricultural industry to enhance the provision of market information as well as enable farmers and agricultural associations to develop e-commerce (Chen et al. 2014b).

The 4Ps (price, product, promotion, and place), which are traditional marketing topics, can be applied to online marketing. Using the Internet enables buyers to compare prices more easily and efficiently than in the past (Shin 2001). To survive in the Internet market, companies must develop new pricing models and offer a variety of new products that exist solely because of the Internet (Darby et al. 2003). Regarding promotion, the Internet enables firms to vary their service delivery systems, thereby increasing customer value, which can be exploited to gain a competitive advantage (Jin and Oriaku 2013). Current business promotional activities are mostly performed using Internet marketing, and small-scale businesses can promote their products in the same manner that large businesses do, creating competition in the market (Chen et al. 2014b).

The essence of online marketing strategies is the 4Cs: customer, cost, communication, and convenience. Therefore, online marketing focuses on consumer opinions when endeavoring to fulfill customer requirements, adopt the customer's point of view, and interact and communicate with customers to strengthen client relationships (Paul and Garodia 2012). Through online marketing, firms can obtain immediate feedback, enhance relationships with consumers, and increase overall efficiency and profitability (Ozituran and Roney 2004). Excellent service quality resulting in a successful online experience is the key to creating an online competitive advantage (Novak et al. 2000; Zeng et al. 2009). According to the aforementioned studies, service quality influences the success of online marketing and is derived from customer experience; however, a gap between customer perception and expectation of service quality exists. Therefore, determining the difference between customers' expected and actual experiences is crucial for developing online marketing.

## Service Quality

Buttle (1996) indicated that service quality has become a crucial research topic because of its apparent relationships to cost, profitability, customer satisfaction, customer retention, and positive word of mouth. Numerous studies have confirmed that more efficient customer service leads to greater profitability (Lülfes-Baden et al. 2008; Niraj et al. 2003; Zeithaml et al. 2001). Service quality represents the quality that consumers perceive and their service expectations during the purchasing process (Grönroos 1984). Therefore, service quality should be measured using the provider's quality and the quality of the interaction between the provider and receiver (Ramseook-Munhurrin et al. 2010). Numerous farmers' associations in Taiwan provide online

marketing services for their farmer members. Awareness of the service quality that is provided and the interaction between the associations and their customers is crucial.

Service quality has been increasingly recognized as a vital aspect of e-commerce. Santos (2003) proposed that e-service quality has incubative and active dimensions that can be used to increase hit rates, stickiness, and customer retention. Landrum et al. (2009) determined that users rate information system responsiveness and reliability higher than other service quality dimensions. Roy and Butaney (2014) indicated that aesthetics, information content, navigational quality, information quality, e-satisfaction, and customer attitude positively affect customer relative loyalty (CRL). Roy and Butaney suggested that CRL provides useful insights because it may reflect the mental representations of the customers that are obtained when they engage in consumer behavior on a website.

Parasuraman et al. (1985) first conducted 12 focus group interviews with customers from four different service industries and determined that customers primarily apply similar standards when evaluating service quality. In addition, Parasuraman et al. (1988) then developed a 22-variable SERVQUAL service quality scale, revising the scale again in 1991. The 22 variables are divided into the following five categories: (1) tangibility (appearance of physical facilities, equipment, and employees); (2) reliability (ability to accurately and reliably complete promised services); (3) responsiveness (willingness to assist customers and provide timely services); (4) assurance (employee knowledge, etiquette, and ability to instill trust and confidence in customers); and (5) empathy (individual care and attentiveness provided by service personnel).

A previous study indicated that several service gaps must be filled, including those between consumer expectation and management perception, between management perception and service quality specification, between service quality specification and service delivery, between service delivery and external communication, and between expected service and experienced service (Parasuraman et al. 1991). In addition, Behe and Barton (2000) indicated that customers ranked responsiveness and assurance as the top two quality concerns during food shopping, followed by tangibility, reliability, and empathy. Eastwood et al. (2005) determined that successful food retailing depends substantially on providing a positive shopping environment for consumers. Moreover, Lülfs-Baden et al. (2008) emphasized that store atmosphere, customer service, and product quality were the main factors influencing customer satisfaction.

Previous studies have indicated that employee service, commitment, and job satisfaction are crucial for continually improving organizational performance (Farner et al. 2001; Gupta et al. 2005; Lee 2006). Hirmukhe (2012) measured employee expectation of service quality and suggested that organizational performance must be reviewed because the expectations of both internal and external customers are constantly increasing. Musaba et al. (2014) also stressed that the service gaps between employee perceptions and expectations of quality service are related to the fair treatment and care for employees by employers. Although most companies have developed strategies to improve quality and customer service, employee satisfaction is frequently neglected. Firm employee satisfaction reflects external customer satisfaction (Bellou and Andronikidis 2008; Keiningham et al. 2005). Ramseook-Munhurrin et al. (2010) confirmed that employees have a thorough understanding of the expectations of external customers; hence, employee perception of service quality reflects that of external customers.

Although the SERVQUAL scale has been applied in diverse fields (such as aviation, health care, and food retail), few studies have applied this research instrument to examine online marketing performance. The research team in the present study adjusted the SERVQUAL scale according to industrial characteristics (such as farmland potential to provide public goods, farmers' lack of market power, and unstable agricultural prices), investigating the employee assessment regarding the service quality of farmers' association online marketing in Taiwan. Based on the aforementioned studies, two hypotheses were provided: (1) There is a gap between employee expectations and perceptions; and (2) employee expectations and perceptions influence each other.

## Methods

### *Participants and Procedure*

The participants of this study comprised the employees of 302 farmers' associations in Taiwan. Although the employees are not in charge of the online marketing at their associations, they have adequate knowledge of online marketing, and their work is affected by the service quality of the online marketing division or staff. The research team sent two copies of the questionnaire and a stamped addressed envelope to each farmers' association; 604 questionnaires were mailed, followed by reminders two weeks later. The research team provided phone numbers and e-mail addresses on the questionnaires; thus, the problems participants encountered when completing the questionnaires could be resolved directly. All participation was voluntary and anonymity was guaranteed. Data were collected between March and April 2014. A total of 214 questionnaires were returned, of which 210 were valid. No particular incentives were offered for participation, accounting for the reasonable participation rate ( $214/604 = 35.43\%$ ).

### *Measures*

In this study, the 44-item SERVQUAL scale refined by Parasuraman et al. (1991) was employed. The participants answered on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). A total of 20 experts from the agricultural industry, government, and academia participated in a pilot study that used the questionnaire. The wordings of the questionnaire was amended according to the pilot study results and suggestions, and the final questionnaire content was developed. The questionnaire was accompanied by a participant information sheet comprising study title, invitation paragraph, study purpose, reasons for participation, possible disadvantages and benefits of participation, ensured confidentiality and anonymity, use of the study results, and contact information. This questionnaire was approved by the Research and Development Committee, Department of Bio-Industry Communication and Development, National Taiwan University.

The data were analyzed using SPSS Version 17.0 software. An exploratory factor analysis was employed to determine the factor structure of the questionnaire items. Pearson's correlation was used to analyze the linear relationship between employee expectations and perceptions of the service quality involved in online marketing. A paired sample *t* test was applied to examine the gap between expectations and perceptions. Furthermore, multiple regression analysis was used to explore whether an interactive effect existed between expectations and perceptions.

## Results

### *Descriptive Analysis*

The measured items were organized by item analysis according to the mean ( $M$ ) ranges of employee expectations and perceptions (4.16–5.57), standard deviation ( $SD$ ) (0.601–1.050), skewness (-1.151–0.160), and Kurtosis (-1.727–0.114) of the data acquired during the formal survey, demonstrating that the measured items were appropriate.

The reliability of the questionnaire was evaluated according to the Cronbach's  $\alpha$  values of each item and factor. The general standard indicated an adequate reliability of  $\geq 0.7$ . The results demonstrated that the Cronbach's  $\alpha$  values of each factor measuring employee expectations ranged from .847 to .915, whereas the Cronbach's  $\alpha$  values of each factor measuring employee perceptions ranged from .891 to .948, suggesting that the questionnaire items were highly reliable. Regarding validity, first, the questionnaire was designed, and a standard SERVQUAL scale was adopted. Second, the pilot study was performed using 20 experts on agricultural marketing. Finally, the results of the follow-up factor analysis were used to explain the high total item variance. All of these measures ensured that the questionnaire employed in this study was valid.

### *Exploratory Factor Analysis*

The Kaiser–Meyer–Olkin (KMO) measure of employee expectations determined in this study was 0.940, and the Bartlett's test of sphericity was significant ( $\chi^2 = 3924.174$ ,  $df = 231$ ,  $p = 0.000$ ). The KMO measure of employee perceptions was 0.959, and the Bartlett's test of sphericity was significant ( $\chi^2 = 4415.349$ ,  $df = 231$ ,  $p = 0.000$ ). These analyses indicated that the sampling was satisfactory and that factor analysis could be performed. Principal Axis Factoring (PAF) analysis employing promax rotation was conducted to determine the dimensionality of the scale.

On the basis of the method developed by Parasuraman et al. (1991), two sets of a five-factor solution, which explained variables of 68.512% for employee expectations and 78.509% for employee perceptions, conceptually provided the appropriate factor structure. For both employee expectations and perceptions, Factor 1 was named *Tangibility*; Factor 2 was called *Reliability*; Factor 3 was referred to as *Responsiveness*; Factor 4 was named *Assurance*; and Factor 5 was titled *Empathy*. Table 1 summarizes the detailed results of  $M$ ,  $SD$ , Cronbach's  $\alpha$ , and PAF.

In this study, a paired sample t test (95% confidence interval) was conducted to compare the differences between internal-customer expectations and perceptions (Table 2). The gaps in tangibility, reliability, responsiveness, assurance, and empathy achieved significance; hence, the first hypothesis was supported. In addition, multiple regression analysis was performed to explore the interactive effects between expectations and perceptions (Tables 3 and 4). The results indicated that perceived responsiveness influenced expected tangibility, whereas expected empathy influenced perceived assurance and empathy. Therefore, the second hypothesis was partially supported.

**Table 1.** Descriptive statistics of the questionnaire items ( $n = 210$ )

Factor / Item	<i>M</i>	<i>SD</i>	Cronbach's $\alpha$	PAF
<b>Employee Expectations</b>				
Tangibility	5.36			
OM should constantly update website content and hardware equipment.	5.39	.699	.824	.713
OM websites should be visually appealing.	5.46	.620	.813	.747
OM employees should have a professional image.	5.37	.672	.768	.880
OM service documents should be visually appealing.	5.23	.762	.820	.738
Reliability	5.41			
OM promised services should be completed within a designated time.	5.49	.654	.855	.724
OM service personnel should solve all problems posed by customers.	5.48	.621	.825	.871
OM should complete all services correctly the first time.	5.46	.676	.832	.806
OM should provide services during the promised timeframe.	5.46	.653	.826	.876
OM should insist on a flawless service record.	5.16	.764	.888	.626
Responsiveness	5.40			
OM employees should be able to provide a precise service timeframe to customers.	5.42	.680	.822	.776
OM employees should be able to provide customers with immediate service.	5.34	.680	.833	.744
OM employees should enjoy helping customers.	5.51	.629	.808	.835
OM employees should respond to customer requests even if they are busy.	5.32	.699	.825	.777
Assurance	5.49			
OM employees should strengthen customer confidence through service.	5.44	.675	.796	.845
OM services should enable customers to relax during the purchasing process.	5.57	.601	.813	.803
OM employees should always respect customers.	5.46	.713	.844	.710
OM employees should possess the knowledge required to respond to customer questions.	5.47	.653	.820	.766
Empathy	5.28			
OM employees should be attentive to each customer.	5.11	.806	.903	.768
OM service times should be convenient for all customers.	5.39	.676	.887	.859
OM employees should prioritize customer care.	5.42	.710	.904	.754
OM should strive to maximize benefits for customers.	5.23	.775	.880	.862
OM employees should understand specific customer requests.	5.27	.762	.876	.889
<b>Employee Perceptions</b>				
Tangibility	4.34			
Our OM constantly updates website content and hardware equipment.	4.53	1.050	.898	.705
Our OM website is visually appealing.	4.30	.907	.830	.918
Our OM employees have a professional image.	4.37	.960	.857	.829
Our OM service documents are visually appealing.	4.16	.953	.830	.842
Reliability	4.68			
Our promised OM services are completed within a designated time.	4.76	.950	.911	.836
Our OM service personnel solve all problems posed by customers.	4.83	.919	.899	.902
Our OM completes all services correctly the first time.	4.80	.921	.898	.914
Our OM provides services during the promised timeframe.	4.84	.863	.904	.880
Our OM insists on a flawless service record.	4.17	.958	.933	.707
Responsiveness	4.80			
Our OM employees can provide a precise service timeframe to customers.	4.75	.952	.889	.893
Our OM employees provide customers with immediate service.	4.67	.913	.913	.808
Our OM employees enjoy helping customers.	4.96	.905	.888	.901
Our OM employees respond to customer requests even if they are busy.	4.81	.926	.901	.854
Assurance	4.93			
Our OM employees strengthen customer confidence through service.	4.90	.871	.928	.923
Our OM services enable customers to relax during the purchasing process.	4.96	.823	.929	.919
Our OM employees always respect customers.	5.01	.824	.926	.932
Our OM employees possess the knowledge required to respond to customer questions.	4.84	.880	.946	.856
Empathy	4.66			
Our OM employees are attentive to each customer.	4.48	.991	.937	.826
Our OM service times are convenient for all customers.	4.69	.966	.929	.867
Our OM employees prioritize customer care.	4.79	.955	.923	.910
Our OM strives to maximize benefits for customers.	4.71	.871	.933	.850
Our OM employees understand specific customer requests.	4.63	.928	.920	.925

**Note.** *M* refers to mean; *SD* refers to standard deviation, PAF refers to principal axis factoring; and OM refers to online marketing.



**Table 2.** Paired sample *t* test of the differences between expectations and perceptions ( $n = 210$ )

Paired Samples	Paired Differences						<i>t</i>	df	Sig.
	Mean	Std. Mean	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1	4.600	3.869	.292	4.023	5.177	15.730	209	.000	
Pair 2	4.571	4.345	.328	3.923	5.220	13.918	209	.000	
Pair 3	3.023	3.570	.270	2.490	3.556	11.201	209	.000	
Pair 4	2.937	3.439	.260	2.424	3.450	11.297	209	.000	
Pair 5	3.954	5.117	.387	3.191	4.718	10.223	209	.000	

**Note.** Pair 1 refers to Expected Tangibility - Perceived Tangibility; Pair 2 refers to Expected Reliability - Perceived Reliability; Pair 3 refers to Expected Responsiveness y - Perceived Responsiveness; Pair 4 refers to Expected Assurance - Perceived Assurance; and Pair 5 refers to Expected Empathy - Perceived Empathy.

**Table 3.** Summary of multiple regression analysis for perceptions predicting expectations ( $n = 210$ )

Variables/Factors	Expectation Tangibility			
	Beta	<i>t</i>	<i>p</i>	
Perception	Tangibility	-.093	-.827	.410
	Reliability	.043	.249	.804
	Responsiveness	.444	2.068	<b>.040</b>
	Assurance	-.360	-1.669	.097
	Empathy	-.044	-.258	.797
Summary	$R^2$		.033	
	F		1.150	
	P		.336	

\*  $p < .05$  , \*\*  $p < .01$  , \*\*\*  $p < .001$

**Table 4.** Summary of multiple regression analysis for expectations predicting perceptions ( $n = 210$ )

Variables/Factors	Perception						
	Assurance			Empathy			
	Beta	<i>t</i>	<i>p</i>	Beta	<i>t</i>	<i>p</i>	
Expectation	Tangibility	-.067	-.575	.566	-.007	-.062	.951
	Reliability	-.002	-.013	.989	-.024	-.146	.884
	Responsiveness	.205	1.282	.202	.215	1.343	.181
	Assurance	.113	.773	.441	.062	.424	.672
	Empathy	-.264	-2.039	<b>.043</b>	-.290	-2.234	<b>.027</b>
Summary	$R^2$		.030		.031		
	F		1.046		1.082		
	P		.393		.372		

\*  $p < .05$  , \*\*  $p < .01$  , \*\*\*  $p < .001$

## Discussion

The results indicated that assurance was rated as the highest expectation of service quality ( $M = 5.49$ , Table 1), indicating that professional conduct, such as possessing sufficient knowledge to respond to questions, respecting and enabling customers to relax, and building customer

confidence, were the most critical performance factors for online marketing agricultural services. In addition, the employees rated reliability ( $M = 5.41$ ) and responsiveness ( $M = 5.40$ ) highest, suggesting that resolving customer problems efficiently and promptly is crucial. Tangibility ( $M = 5.36$ ) and empathy ( $M = 5.28$ ) were rated as the least crucial expectations, probably because agricultural customers focus more on product quality than on visual appearance. In addition, the convenience and low price typically provided by e-companies have created the empathy that customers require. The rating sequence of perceptions was similar to that of expectations (Table 1). These results are consistent with those of previous studies (Behe and Barton 2000; Landrum et al. 2009; Paul and Garodia 2012; Ramseook-Munhurrun et al. 2010; Santos 2003).

The results of the paired sample  $t$  test suggested that employee expectations and perceptions differed substantially (Table 2). The largest gap occurred in the tangibility of service quality, followed by reliability, empathy, responsiveness, and assurance. Although tangibility was not ranked high according to expectations and perceptions, it could be increased if funding were available and professional staff could be hired. Reliability was ranked high according to expectations and perceptions, and the second largest gap existed in this category, indicating that the most effort should be expended in improving reliability. Behaviors such as promptly solving customer problems and providing effective services should be demanded and fostered. Consistent with the findings of previous studies (Parasuraman et al. 1988; Ramseook-Munhurrun et al. 2010), employees believed that the ability of farmers' associations to provide accurate, reliable, timely, friendly, and convenient services and instill confidence in customers requires improvement.

In addition, the results indicated that expectations may interact with perceptions. The responsiveness perceived by the employees could have influenced the tangibility they expected (Table 3), suggesting that satisfying the current responsiveness would increase future expectations of tangibility. This also implied that precise and immediate service is more essential than updating facilities and creating visually appealing exteriors. Moreover, the empathy the employees expected could have influenced the assurance and empathy they perceived (Table 4), indicating that the customers were concerned that empathy would influence their judgment regarding the current quality of assurance and empathy. This also implied that customers who demanded more personalized services cared more about the existing services, particularly with respect to assurance and empathy. Although few interactive effects were observed between expectations and perceptions in this study, the implications of the results warrant future investigation.

Although this study contributes to the relevant literature, a few limitations should be noted. First, to avoid a self-evaluation bias, only employees that were not involved in the online marketing of farmers' associations were studied. Although the respondents possessed adequate knowledge of online marketing, they may not have been able to answer all of the operational questions in detail. Marketing staff members could be included in future studies to facilitate a comparison with their counterparts. Second, the opinions of external customers were not investigated in this study. Future researchers should consider the differences resulting from internal and external perspectives regarding service quality.

In the context of agriculture, customer satisfaction and online marketing are influenced by product quality and differentiation (Cranfield et al. 2012; Wirthgen 2005), two factors that should be considered in future research. In addition, the organizational operation (farmers' associations or agricultural companies) and the surrounding socioeconomic context profoundly influence the service quality of online marketing (Carpio and Isengildina 2009; Gupta et al. 2005; Tey et al. 2014) and should be explored. Cross-industrial coordination is a beneficial strategy that is used to develop new products and enter new markets (Fritz and Canavari 2008; Hanf and Kühl 2005); employee perceptions regarding this aspect should be studied.

## Conclusion

The employees rated assurance as the highest expectation (perception) in service quality, followed by reliability (responsiveness), responsiveness (reliability), tangibility (empathy), and empathy (tangibility). The correlations between expectations and perceptions were minimal, and the differences between expectations and perceptions were substantial. The two largest gaps occurred for the tangibility and reliability of service quality. In addition, the responsiveness that employees perceived influenced the tangibility that they expected, and the empathy that employees expected influenced the assurance and empathy that they perceived. In conclusion, farmers' associations should focus on the dimensions that received the highest expectation ratings and the lowest perception ratings as well as on the attributes for which gaps in the scores were found.

## References

- Alsemgeest, Liezel and A. v. A. Smit. 2013. The contribution of business units to overall company customer satisfaction and profitability. *Journal of Applied Business Research* 29(4): 1093–1102.
- Behe, Bridget K. and Susan Barton. 2000. Consumer perceptions of product and service quality attributes in six U.S. states. *Journal of Environmental Horticulture* 18(2): 71–78.
- Bellou, Victoria and Andreas Andronikidis. 2008. The impact of internal service quality on customer service behaviour: Evidence from the banking sector. *International Journal of Quality & Reliability Management* 25(9): 943–954.
- Bernstein, Fernando and Awi Federgruen. 2007. Coordination mechanisms for supply chains under price and service competition. *Manufacturing and Service Operations Management* 9(3): 242–262.
- Buttle, Francis A. 1996. SERVQUAL: Review, critique, research agenda. *European Journal of Marketing* 30(1): 8–32.
- Carpio, Carlos E. and Olga Isengildina. 2009. Consumer willingness to pay for locally grown products: The case of South Carolina. *Agribusiness* 25(3): 412–426.

- Chen, C.-C., Chaoyun Liang, and H.-P. Yueh. 2014a. The business policy and strategy of online marketing: A case study of the Sinyi Township farmers association in Taiwan. Paper presented at the 2014 International Conference on Business and Information (BAI2014), International Business Academics Consortium, Osaka, Japan. July 3–5.
- Chen, C.-C., Chaoyun Liang, and H.-P. Yueh. 2014b. The current status regarding the e-commerce of farmers association in Taiwan. Paper presented at the 9th Conference of the Asian Federation for Information Technology in Agriculture, Perth, Australia. September 29–October 2.
- Chou, Y.-C. and Liang, Chaoyun 2013. The influences of virtual experiences and purchase situations on consumer behavior: A case study of online apparel shopping. 2013 e-CASE & e-Tech International Conference, Japan, Kitakyushu, April 3–5.
- Council of Agriculture 2012. *Agricultural Statistics Yearbook*. Taipei: Executive Yuan.
- Council of Agriculture 2015a. Taiwan's small farmers unite for future growth and development. <http://eng.coa.gov.tw/suggest.php?issue=2500562> [accessed June 10, 2015].
- Council of Agriculture 2015b. Taiwan villages to 'touch your heart'. <http://eng.coa.gov.tw/suggest.php?issue=2446420> [accessed June 12, 2015].
- Cranfield, John, Spencer Henson and Jose Blandon. 2012. The effect of attitudinal and sociodemographic factors on the likelihood of buying locally produced food. *Agribusiness* 28(2): 205–221.
- Darby, Roger, James Jones, and Ghada Al Madani. 2003. E-commerce marketing: Fad or fiction? *Logistics Information Management* 16(2): 106–113.
- de Jong, J. P. J., A. Bruins, W. Dolfsma, and J. Meijaard. 2003. Innovation in service firms explored: What, how and why? EIM Report, Strategic Study B200205, Zoetermeer.
- Eastwood, David B., John R. Brooker, and James D. Smith. 2005. Developing marketing strategies for green grocers: An application of SERVQUAL. *Agribusiness* 21(1): 81–96.
- Ebrahimi, Mohammad S., and Farshad Imani. 2014. Evaluating customer satisfaction in Iranian agricultural cooperatives by use of SERVQUAL model. *International Journal of Agriculture and Crop Sciences* 7(4): 202–206.
- Farner, Steve, Fred Luthans, and Steve M. Sommer, 2001. An empirical assessment of internal customer service. *Managing Service Quality* 11(5): 350–358.
- Fritz, Melanie and Maurizio Canavari, 2008. Management of perceived e-business risks in food-supply networks: E-trust as prerequisite for supply-chain system innovation. *Agribusiness* 24(3): 355–368.

- Grönroos, Christian 1984. A service quality model and its marketing implications. *European Journal of Marketing* 18(4): 36–44.
- Gunawardane, Gamini 2009. Relationship between dimensions of internal service quality and the nature of the internal service encounter: A study in the healthcare industry. *California Journal of Operations Management* 7(1): 21–30.
- Gunderson, Michael A., Allan W Gray and Jay T. Akridge. 2009. Service quality in agronomic inputs: Does the hierarchical model apply? *Agribusiness* 25(4): 500–519.
- Gupta, Atul, Jason C. McDaniel and S. Kanthi Herath. 2005. Quality management in service firms: Sustaining structures of total quality service. *Managing Service Quality* 15(4): 389–402.
- Hanf, Jon H. and Rainer Kühl. 2005. Branding and its consequences for German agribusiness. *Agribusiness* 21(2): 177–189.
- Henderson, Jason, Frank Dooley, Jay Akridge and Antonio Carerre. 2005. Adoption of Internet strategies by agribusiness firms. *International Food and Agribusiness Management Review* 8(4): 42–61.
- Hirmukhe, Jyotsna. 2012. Measuring internal customers' perception on service quality using SERVQUAL in administrative services. *International Journal of Scientific and Research Publications* 2(3): 1–6.
- Huang, W.-C. and J.-S. Lin. 2006. Urban/peri-urban agriculture: Status and challenges in Taiwan. Paper presented at the 2006 FFTC-PCARRD International Workshop on Urban/Peri-Urban Agriculture in the Asian and Pacific Region, Tagaytay City, Philippines, May 22–26.
- Jin, Yan and Ngozi Oriaku. 2013. E-service flexibility: Meeting new customer demands online. *Management Research Review* 36(11): 1123–1136.
- Keiningham, Timothy L., Terry G. Vavra, Lerzan Aksoy and Henri Wallard. 2005. *Loyalty Myths*. New York, NY: Wiley.
- Landrum, Hollis, Victor Prybutok, Xiaoni Zhang, and Daniel Peak. 2009. Measuring IS system service quality with SERVQUAL: Users' perceptions of relative importance of the five SERVPERF dimensions. *Informing Science: The International Journal of an Emerging Transdiscipline* 12:17–35.
- Langen, Nina, Carola Grebitus and Monika Hartmann. 2013. Success factors of cause-related marketing in Germany. *Agribusiness* 29(2): 207–227.
- Lee, S. Young 2006. Expectations of employees toward the workplace and environmental satisfaction. *Facilities* 24(9/10): 343–353.

- Liu, F.-S. 2011. E-commerce in Taiwan's agricultural marketing. [http://www.fftc.agnet.org/html\\_area\\_file/library/20110725174056/eb525.pdf](http://www.fftc.agnet.org/html_area_file/library/20110725174056/eb525.pdf). [accessed June 15, 2015].
- Lülfes-Baden, Frederike, Achim Spiller, Anke Zühlsdorf, and Matthias Mellin. 2008. Customer satisfaction in farmer-to-consumer direct marketing. *International Food and Agribusiness Management Review* 11(2): 49–72.
- Musaba, Chileshe N., Emmanuel C. Musaba, and Simon I.R. Hoabeb. 2014. Employee perceptions of service of service quality in the Namibian hotel industry: A SERVQUAL Approach. *International Journal of Asian Social Science* 4(4): 533–543.
- Niraj, Rakesh, George Foster, Mahendra Gupta and Chakravarthi Narasimhan. 2003. Understanding customer level profitability implications of satisfaction programs. <http://apps.olin.wustl.edu/workingpapers/pdf/2003-09-001.pdf> [accessed June 12, 2015].
- Novak, Thomas P., Donna L. Hoffman and Y.-F. Yung. 2000. Measuring the customer experience in online environments: A structural modeling approach. *Marketing Science* 19(1): 22–42.
- Ozituran, Meltem and Sevgin A. Roney. 2004. Internet use among travel agencies in Turkey: An exploratory study. *Tourism Management* 25(2): 259–266.
- Parasuraman, A., Valarie A. Zeithaml and Leonard L. Berry. 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing* 49(4): 41–45.
- Parasuraman, A., Valarie A. Zeithaml and Leonard L. Berry. 1988. SERVQUAL: A multiple-item scale for measuring customer expectations of service. *Journal of Marketing* 64(1): 41–45.
- Parasuraman, A., Valarie A. Zeithaml and Leonard L. Berry. 1991. Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing* 67(4): 420–450.
- Paul, Tarak and Ekta Garodia. 2012. Equity investors' expectation and experience: A gap analysis. *Asia Pacific Journal of Marketing & Management Review* 1(3): 46–55.
- Ramseook-Munhurrin, Prabha, Soolakshna D. Lukea-Bhiwajee, and Perunjodi Naidoo. 2010. Service quality in the public service. *International Journal of Management and Marketing Research* 3(1): 37–50.
- Roy, Sanjit K. and Gul T. Butaney. 2014. Customer's relative loyalty: An empirical examination. *Journal of Strategic Marketing* 22(3): 206–221.
- Santos, Jessica 2003. E-service quality: A model of virtual service quality dimensions. *Managing Service Quality* 13(3): 233–246.

- Shin, Namchul 2001. Strategies for competitive advantage in electronic commerce, *Journal of Electronic Commerce Research* 2(4): 164–171.
- Tey, Y.S., M. Brindal, M.A. Fatimah, M.N.Kusairi, I.A.H. Hanis Ahmad, and D. Suryani. 2014. The impact of service quality on business commitment in B2B segment of agribusiness: An exploratory study of HORECA sector in Malaysia. *International Food Research Journal* 21(3): 883-889.
- The Farmers' Association Act 2015. [http://eng.coa.gov.tw/content\\_view.php?catid=13544&hot\\_new=8874](http://eng.coa.gov.tw/content_view.php?catid=13544&hot_new=8874) (accessed June 20, 2015).
- The Food and Agriculture Organization 2014. E-agriculture. <http://www.e-agriculture.org/> [accessed June 18, 2015].
- Wirthgen, Antje 2005. Consumer, retailer, and producer assessments of product differentiation according to regional origin and process quality. *Agribusiness* 21(2): 191-211.
- World Bank 2011. Strengthening agriculture marketing with ICT. The e-Sourcebook. [http://www.e-agriculture.org/sites/default/files/uploads/media/eAg\\_Sourcebook\\_1\\_Dec2011.pdf](http://www.e-agriculture.org/sites/default/files/uploads/media/eAg_Sourcebook_1_Dec2011.pdf). [accessed June 15, 2015].
- Xu, Yingzi and Robert Goedegebuure. 2005. Employee satisfaction and customer satisfaction: Testing the service-profit chain in a Chinese Securities firm. *Innovative Marketing* 1(2): 49-59.
- Zeithaml, Valarie A., Roland T. Rust, and Katherine N. Lemon, 2001. The customer pyramid: Creating and serving profitable customers. *California Management Review* 43(4): 118–142.
- Zeng, Liang, Robert W. Proctor, and Gavriel Salvendy. 2009. Fostering creativity in service development: Facilitating service innovation by the creative cognition approach. *Service Science* 1(3): 142–153.

