



# The Application of SERVQUAL Model to Construct Indicators for Improvement of Agricultural Products Exhibitions Service Quality

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## Abstract

This Agricultural Products exhibition is doing to strengthen agricultural marketing at home and abroad. The purpose of this study is to explore the extent of expected importance and perceived satisfaction of the customer regarding the various services and products provided by the agricultural product exhibition in Pingtung County of Taiwan. The “SERVQUAL” scale was used to design a questionnaire to explore the differences between expected importance and perceived satisfaction of participants. A total of 306 valid questionnaires were collected in this study. The priority ranking for improvements, as shown by the QI values of the six service quality aspects in the SERVQUAL, is as follows: first, “Caring”; second, “Guarantee”; third, “Reliability”; fourth, “Creativity”; fifth, “Reactivity”; and sixth “Tangibility”. The organizers must also continuously provide more intricate service standards to enhance the satisfaction of customer for the consumer to repeating his attendance. This study is the case study, not only the location is special, but the exhibition hall is also different, so the study conclusion can't be inferred from all agricultural exhibition activities. It is suggested that the questionnaire can include more agricultural exhibition activities to make the overall results more complete.

## Subject Areas

Business & Economics

## Keywords

SERVQUAL Model, Agricultural Product Exhibitions, Indicators for Improvement, Service Quality, Pingtung County of Taiwan

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## 1. Introduction

With the concept of world trade in agriculture, the agriculture, forestry, fisheries, and livestock industries have been improved, and added value, and have been sold internationally. In 2018, one of the efforts to improve the Pingtung County agricultural industry is the agricultural products exhibition “Pingtung International Trade Show 2018”. This event was held to tell consumers about the diverse Pingtung agriculture, and at the same time, let international buyers see the high-quality production capacity of Pingtung County.

The result of the agricultural products exhibition is a networking business that benefits the participants’ market showing prohibiting external networks. To get the benefits, the exhibition organizers must meet the expectations of consumers and know how the formation process of participants’ exhibition attachment and satisfaction works [1]. Another thing that needs to be attended is service quality, customer exhibitor satisfaction, and trust of exhibitors [2].

Measuring the quality of a product service and manufacturing will certainly be different. Measuring the quality of service products is more challenging to measure than manufactured products [2] [3]. Although it is difficult to measure and evaluate the exhibitions, service quality is the key to determining the level of success. Successful operations of exhibition services can make not only development and tourism prosperity but also the growing source of foreign exchange earnings [4].

This study aimed to explore the extent of product service expected importance and perceived satisfaction of Agricultural Products Exhibitions regarding the various services and products provided by the exhibition organizers to analyze customers’ needs. The findings can provide exhibition organizers with directions for improving their endeavors to decrease the expectation gap in comparison to customers’ needs, as well as the priority of improvements, which in turn enhance service quality to help exhibition organizers with suggestions concerning service quality and marketing strategies [4].

## 2. Literature Review

The SERVQUAL scale is the ten kinds of service quality mentioned in the “Service Quality Concept Mode” (PZB Mode) proposed by the American professors A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry (PZB) for short Properties evolved [5]. The three PZB scholars conducted research, sampling, and redefinition in 1988 based on the conceptual model of service quality pro-

posed in 1985. The first ten facets are purified and integrated into five facets, called the “SERVQUAL” scale. The agricultural exhibition has a vital role in agricultural product marketing [5]. Three scholars, Parasuram, Zeithaml, and Berry, considered the intangibility, heterogeneity, and simultaneity of services. In 1985, they selected banks, credit card companies, securities brokers, and repair shops to conduct an exploratory study. Focus group interviews of customers, which propose ten aspects of service quality: reliability, responsiveness, competence, proximity, politeness, communication, credibility, security, customer understanding, and tangibility in 1988.

Further empirical research was conducted, selecting five service industries as an electrical repair industry, banking, long-distance telephone companies, securities brokers, and credit card companies, and refining ten facets into five facets: reliability, responsiveness, authenticity, care, and tangibility. (In order of importance) Customers use these five facets to compare the gap between cognition and expectations to measure the quality of service.

The exhibition is a form of business activity to introduce and trade with consumers, and one of the leading sales promotion opportunities [6]. Companies spend millions of dollars participating in an exhibition event for selling products, identifying market prospects, testing new products, and introducing new or modified products. Servicing current customer expenditures is the second-largest item in the business marketing communications budget after advertising [7].

Exhibitions technically have a broader meaning than “trade show” that can be subdivided into three categories, of which a trade show is only one. The other two categories are consumer exhibitions and trade and consumer exhibitions [6]. Exhibitions have the essential character of the service industry that depends on Service quality. It is mean is depend on provided at the exhibitor or organizers satisfy customer needs and expectations [8].

The needs emphasized by customers in the consumption experience implicate the difference between expected needs and actual consumption perceptions and influences the extent of customer satisfaction with service quality. Such a great service quality leads to enhance competitive advantage and can build a more competitive advantage that is difficult to replicate [4]. Service quality affects customer satisfaction and would affect future willingness to repeat attendees.

Measuring standards of services quality are more complicated than the manufacture or other standard, but in 1985 Parasuraman, Zeithaml, and Berry proposed the “SERVQUAL” scale to measure service quality [3]; and in 1998 the system was simplified to service quality bases for the five measurable aspects of “Tangibility”, “Reliability”, “Guarantee”, “Reactivity”, and “Caring” that also call PZB model. This study adds the aspect of “Creativity” of the exhibition event that similar to the creativity that will be the added value co-creation increase consumers satisfaction [9].

### 3. Research Design and Method

This study using “SERVQUAL” that is built on the comparison of two main factors, namely consumer perception of the real service they receive (Perceived Service) with the actual service desired (Expected Service) of consumers regarding the service quality of Agricultural Products Exhibitions. The six service quality aspects are “tangibility”, “reliability”, “assurance”, “responsiveness”, “empathy”, and “entertainment”, use Likert seven-scale. Those are used as Indicators for improvement of quality are extracted to verify that priority quality elements are improved based on consumer needs. **Figure 1** shows the research framework of this study.

This study selected the Pingtung International Trade Show 2018 that has been held in Pingtung County as the research scope. The sample was collected from the customers who visit the Exhibitions. The confidence level is 95%, and the margin of error is 0.05. To measure a sample of consumer population in this research using Slovin formula [10].

The formula of sampling in this method:

$$n = N / (1 + (N \times e^2))$$

where:

$n$ : number of samples

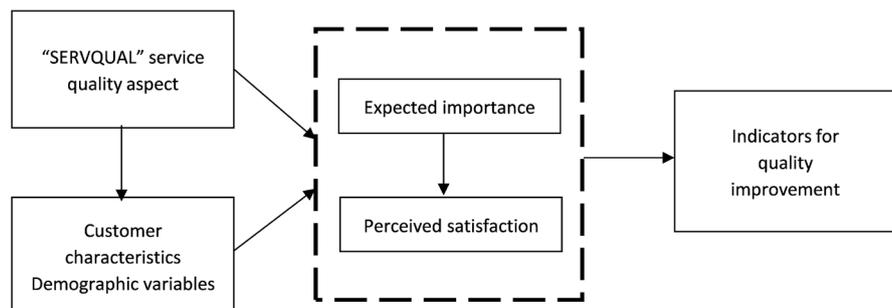
$N$ : number of populations

$e$ : estimated deviation of 0.05

Overall, 290 samples were chosen and usable questionnaires were collected and used for data analysis. This study using convenience sampling to get the respondent with 306 costumers selected for the subjects of this research. Convenience sampling is chosen because the subject makes it easier to get respondents, and this method is more in line with the exhibition activity [11].

### 4. Empirical Results and Analysis

In total, there are 306 valid questionnaires retrieved; the rate of accurate retrieval was 97.5%. The collected questionnaires used IBM SPSS 22 analysis software to analyze the reliability of the 27 questions of SEVRQUAL scale. The analysis results showed that the internal consistency coefficient of the expected value Cronbach’s  $\alpha$  was 0.961, and the internal consistency coefficient of satisfaction Cronbach’s alpha was 0.961, with acceptable reliability [12] (as in **Table 1**).



**Figure 1.** Research framework. Source: This study.

**Table 1.** Analysis of reliability (the value of Cronbach's  $\alpha$ ).

Item	Expected importance	Perceived satisfaction
Tangibility	0.883	0.840
Reliability	0.857	0.887
Reactivity	0.894	0.890
Guarantee	0.908	0.862
Caring	0.899	0.893
Creativity	0.860	0.886
Total	0.961	0.961

Source: This study.

Frequency statistics were used to analyze subject data, where it was found that 36.3% were female, and 63.7% were men. Most of 53.6%, were in the age group of 40 - 49, 25.4% were in the agricultural sector, 54.6% had university educations, 29.45 from Pingtung, 25.5% from Tainan and there is 4.6% from other country and most of them 70.3% are the first time come to the exhibition (as in **Table 2**).

Significant difference consumers perceived satisfaction in the service quality of Pingtung International Trade Show 2018 in Pingtung. There are significant differences in the six items of gender and number of participation. In terms of age, only the tangibility and reliability items are significantly different. In terms of education, there is a significant difference between guarantee and care. In the living region, the five items of tangibility, reliability, reactivity, guarantee and creativity show significant differences. Occupational differences are only tangibility in terms of form (as in **Table 3**).

Service quality values are used to obtain the ranking for means of expected importance and perceived satisfaction, as well as service quality elements, and then, the QI values of indicators for the improvement of quality are calculated. If the negative of QI is high, it means that the service element requires prioritized improvement. The items are also ranked according to QI values (as in **Table 4**).

Seen from individual QI values, tourists feel that items that should have priority in improvement are first "the arrangement of transportation routes", second, "the Citizens' Open Day can allow children under 12 years of age to enter," third, "the idea of arranging historic buildings into modern exhibition halls." Fourth, "The movement of the conference venues" sixth, "the creativity of the Pingtung Image Hall (left side of the entrance) in the main venue of the consultation meeting".

This shows that customers remain the most concerned with location arrangements and how the customer can go there. The organizers must first satisfy the basic needs of customers before giving the entertainment because the result of the QI values for the basic need like empathy is smaller than the other include the entertainment services.

**Table 2.** Statistical analysis of consumer characteristics.

Characteristics	Item	Times	Percentage	Cumulative percent	Characteristics	Item	Times	Percentage (%)	Cumulative percent (%)
Gender	Male	195	63.7	63.7	Living Region	Pingtung	127	41.5	41.5
	Female	111	36.3	100.0		Tainan, & Kaohsiung	88	28.8	70.3
Age	Under 20	4	1.3	1.3		Central Region	87	28.4	98.7
	20 - 29	12	3.9	5.2		Northern Region	4	1.3	100.0
	30 - 39	53	17.3	22.5		Occupation	Farmers	78	25.5
	40 - 49	164	53.6	76.1	Officials		90	29.4	54.9
	50 - 59	58	19.0	95.1	Labor		16	5.2	60.1
60 - 64	13	4.2	99.3	Servicers	61		19.9	80.1	
over 65	2	0.7	100.0	Medical personnel	7		2.3	82.4	
Educations	Junior	9	2.9	2.9	Students	5	1.6	84.0	
	Senior	122	39.9	42.8	Freelance	36	11.8	95.8	
	College	167	54.6	97.4	Retirement	13	4.2	100.0	
Number of participation	Institute	8	2.6	100.0	First	215	70.3	70.3	
	2 - 4	76	24.8	95.1		5 - 7	10	3.3	98.4
	5 - 7	10	3.3	98.4		over 8	5	1.6	100.0
	over 8	5	1.6	100.0					

Source: This study.

**Table 3.** Analysis of significant differences in consumer service expectations.

Item	Gender	Age	Educations	Living Region	Occupation	Number of participation
Tangibility	<b>0.016*</b>	<b>0.038*</b>	0.235	<b>0.000**</b>	<b>0.021*</b>	<b>0.000**</b>
Reliability	<b>0.000**</b>	<b>0.025*</b>	0.123	<b>0.000**</b>	0.510	<b>0.000**</b>
Reactivity	<b>0.000**</b>	0.269	0.513	<b>0.034*</b>	0.644	<b>0.019*</b>
Guarantee	<b>0.000**</b>	0.104	<b>0.011*</b>	<b>0.000**</b>	0.131	<b>0.003**</b>
Caring	<b>0.001**</b>	0.868	<b>0.007**</b>	0.258	0.887	<b>0.004**</b>
Creativity	<b>0.000**</b>	0.120	0.137	<b>0.014*</b>	0.309	<b>0.011*</b>

\*p &lt; 0.05, \*\*p &lt; 0.01; Source: This study.

**Table 4.** Service quality importance, satisfaction analysis, and indicators for the improvement of quality.

Measure aspect	Quality element	Expected importance		Perceived satisfaction		Quality gap	Relative importance (%)	Indicators for improvement of quality	
		Mean	Rank	Mean	Rank			QI value	Rank
Tangibility QI = -0.405 Ranking = 6	1. The logo text set in the conference will be easy to understand	5.388	21	5.376	3	-0.012	3.991	-0.047	26
	2. I am satisfied with the outdoor environment layout of the main stadium	5.248	26	5.199	23	-0.048	3.887	-0.187	25
	3. The cleaning and maintenance of the toilet makes me satisfied	5.339	23	5.180	25	-0.159	3.955	-0.629	21
	4. The air conditioning in the main stadium makes me feel satisfied	5.410	20	5.239	21	-0.172	4.008	-0.689	18
	5. There is a park green area outside the main venue that allows children to be outdoors, which makes me satisfied	5.495	17	5.379	2	-0.116	4.070	-0.472	24

## Continued

	6. The staff of the consultation meeting can provide the correct booth information	5.505	16	5.363	4	-0.142	4.078	-0.580	22
Reliability QI = -0.817 Ranking = 3	7. I am satisfied with the date of the exhibition.	5.518	15	5.353	6	-0.165	4.087	-0.674	19
	8. I am satisfied with the professionalism of the staff of the consultation meeting	5.534	13	5.284	15	-0.250	4.099	-1.024	13
	9. I am satisfied with the performance program launched by the Business Council.	5.560	11	5.320	10	-0.240	4.119	-0.988	14
	10. The staff of the consultation meeting can respond quickly to my needs	5.583	9	5.363	4	-0.220	4.136	-0.911	15
Reactivity QI = -703 Ranking = 5	11. The staff of the consultation will help me enthusiastically	5.388	21	5.245	20	-0.143	3.991	-0.569	23
	12. The staff of the consultation will actively provide visit information	5.322	24	5.160	26	-0.162	3.943	-0.640	20
	13. I am satisfied with the efficiency of the cleaning staff's service in the consultation.	5.316	25	5.141	27	-0.175	3.938	-0.691	17
	14. I can quickly find the products I need in the business meeting	5.430	19	5.235	22	-0.195	4.022	-0.783	16
	15. The staff of the consultation meeting maintains a cordial and courteous attitude.	5.466	18	5.193	24	-0.273	4.049	-1.105	9
Guarantee QI = -1.050 Ranking = 2	16. The products exhibited at the trade fair meet the food safety regulations, which makes me feel at ease.	5.547	12	5.255	19	-0.292	4.109	-1.201	5
	17. The message of the conference is clear, so I can arrive at the event soon.	5.524	14	5.265	17	-0.260	4.092	-1.063	12
	18. The location and location of the business meeting are very suitable, which makes me satisfied.	5.570	10	5.304	13	-0.266	4.126	-1.098	10
	19. The trade fair is free of charge, I am satisfied	5.664	1	5.386	1	-0.279	4.196	-1.170	7
	20. I am satisfied that the Citizens 'Open Day can allow children under 12 years of age to enter.	5.625	3	5.310	11	-0.315	4.167	-1.312	2
Caring QI = -1.260 Ranking = 1	21. Satisfied with the arrangement of transportation routes of the CIFIT.	5.622	4	5.261	18	-0.361	4.165	-1.502	1
	22. The movement of the conference venues is very clear, and I am satisfied.	5.603	6	5.304	13	-0.299	4.150	-1.240	4
	23. After watching the business negotiation meeting, I can learn more about the agriculture, fishery, and flower industry in Pingtung.	5.603	6	5.343	8	-0.259	4.150	-1.077	11
	24. I am satisfied with the creativity of outdoor large-scale installation art (fun pineapple to Pingtung, fun camera, how fun bus)	5.593	8	5.310	11	-0.282	4.143	-1.170	8
Creativity QI = -0.804 Ranking = 4	25. I was satisfied with the creativity of the Pingtung Image Hall (left side of the entrance) in the main venue of the consultation meeting.	5.616	5	5.333	9	-0.282	4.160	-1.174	6
	26. I am satisfied with the idea of arranging historic buildings into modern exhibition halls.	5.645	2	5.346	7	-0.299	4.181	-1.248	3
	27. I am satisfied with the rich content and the originality of the exhibitors at this conference.	5.169	27	5.268	16	0.099	3.829	0.378	27

Note: 1. Relative importance = (expected importance ÷ 5) × 100 ÷ 27; 2. Indicators for improvement of quality QI = (perceived satisfaction – expected importance) × relative importance; 3. Quality improvement aspect QI = indicator QI value/indicators for the improvement of quality. Source: This study.

## 5. Conclusions and Suggestions

This study suggests that consumers have significant differences in their “expected importance” and “perceived satisfaction” toward services, which shows that gaps remain between the service qualities of Agricultural Products Exhibitions in Pingtung. The exhibition organizers in the “Pingtung International Trade Show 2018” need to improve service quality and operations. The priority ranking for improvements, as shown by the QI values of the six service quality aspects in the SERVQUAL, is as follows: first, “Caring”; second, “Guarantee”; third, “Reliability”; fourth, “Creativity”; fifth, “Reactivity”; and sixth “Tangibility”. The organizers must also continuously provide more intricate service standards to enhance the satisfaction of customer for the consumer to repeating his attendance.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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