

# Measuring Service Quality in the Hospitality Industry: A Case Study in Hue City, Vietnam

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## I. Introduction

This article exhibits measuring service quality as well as investigates relationships between service quality, customer satisfaction, and repurchase intention in the hospitality industry in Vietnam. Service quality in the hospitality industry has been increasingly paid high attention from both scholars and practitioners. From scholarly aspect, research in the hospitality industry has been considered a field of multi-disciplinary study and contributed insights into many other areas such as human behavior, finance, marketing, education and the like (Casseo & Reuland, 1983; Riegel, 1990; Rivera & Upchurch, 2008). From practical aspect, there have been numerous education programs on hospitality as a major field of study growingly around the world. For instance, only in the United States, the number of post-secondary institutes offering hospitality and other related programs have increased hundreds in recent years (International Council on Hotel, 1999). Regarding this point, some questions must be cast here such as “why has service quality in the hospitality setting acquired such attentions from both academicians and practitioners?” and “how does service quality in the hotel industry link to the business’ success?” In fact, answers to such questions have never been satisfactory enough. However, it is obvious to assert that the vital role of service quality in the hotel industry is indubitable.

In spite of such important role of service quality in the setting of hospitality, knowledge and insights in this area and its relationships towards relatively close

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but distinct constructs such as customer satisfaction and repurchase intention have been left a lot of ambiguities and flaws such as conceptualizing and measuring the construct of service quality, investigating the relationships between service quality, customer satisfaction, and repurchase intention.

After all, the hospitality industry of Vietnam has gained many crowning achievements since the Vietnamese government shifted its economic policy from a command economy to a market economy in 1986 so-called “New Innovation” policy (“Đổi Mới” in Vietnamese). However, it is more likely that research in the field of hospitality industry does not catch up the real life as it is in the context of developing countries like Vietnam. The following literature review on such the settings uncovers that there is a considerable shortage of studies in this area (Bhavesh Vanpariya & Parthasarathy, 2011). And this is still the case for Hue city. Thus, it is essential to concentrate on efforts on intensively studying service quality, customer satisfaction, repurchase intention in the field of the hospitality industry. The knowledge and insights gained from such empirical research play a vital role as guides for both practitioners and policy makers to develop the hospitality industry in Hue.

## **II. Literature review**

This section exhibits a literature on the key concepts and the relationship between them as well used in this research. It starts with dealing with the main concepts including service quality, hospitality, and customer satisfaction. Then, the relationship between them are exposed.

### **1. Service quality**

Quality is an “elusive” and “indistinct” construct (Parasuraman, Zeithaml, & Berry, 1985, p. 41) and often misunderstood for imprecise properties like “goodness, luxury, shininess, or weight” (Crosby, 1979, p.17). Likewise, services are very diverse and therefore it often becomes difficult to define (Gilmore, 2003). According to Grönroos (1990), services are defined as “an activity or series of activities of more or less intangible nature that normally, but not necessarily, take

place in interactions between the customer and service employees and/ or physical resources or goods and/ or systems of the service provider, which are provided as solutions to customer problems” (p.27).

It is the vagueness of the concepts of both “quality” and “services” that makes the conceptualization of service quality be more complicated and difficult to overall capture. Despite a lot of different standpoints of view, there appears to be a common agreement that the concept of service quality refers to as a form of “attitude” that related to, but is not equal to satisfaction; generated by comparing between expectations and performance (which is based on the theory of disconfirmation) (Parasuraman et al., 1985, 1988). For this concept, the construct of service, or service quality involves perceived quality. By that, perceived quality is the consumer’s judgment about an entity’s overall excellence or superiority (Zeithaml, 1987). Also, service quality is viewed as a form of overall assess of a product or services, similar in many ways to attitude (Olshavsky, 1985). Thereby, attitude is different from satisfaction. Oliver (1981) states that “Attitude is the consumer’s relatively enduring affective orientation for a product, store, or process (e.g. customer service) while satisfaction is the emotional reaction following a disconfirmation experience which acts on the base attitude level and is consumption- specific. Attitude is therefore measured in terms more general to product or store and is less situationally oriented” (p. 42).

Along with the difference between attitude and satisfaction, there is a distinction between service quality and satisfaction: perceived service quality is a global judgment, or attitude, associated with the superiority of the service, whereas satisfaction is related to a particular transaction (Parasuraman et al., 1988). Moreover, Parasuraman et al. (1985) uncover that respondents give several circumstances that illustrate at where they are satisfied with a specific service but they do not feel the service business is of high quality. Specifically, Oliver (1981) clarifies that “satisfaction soon decays into one’s overall attitude toward purchasing products” (p. 27). Moreover, Cronin and Taylor (1992) argue that the conceptualization and operationalization of service quality based on Parasuraman et al.’ s (1985, 1988) approach- SERVQUAL scale which proposes that the

discrepancy between consumer's expectations about the performance of a *general* class of service providers and their assessment of the actual performance of a *specific* service within that class forms the perception of service, is insufficient and confounds satisfaction and attitude. Still, Carman (1990) claims that there is few theoretical or empirical evidence that backs the relevance of the expectations-performance gap as the ground for measuring service quality. Thus, the conclusion of the satisfaction and attitude literatures appears to be that "perceived service quality is best conceptualized as an attitude" (Cronin & Taylor, 1992, p.58).

Besides, the identification of determinants of service quality has been intensively carried out by prestigious scholars in the area (L. Berry, 1983; Garvin, 1983; Grönroos, 1984). However, the work of Parasuraman et al.'s (1985, 1988) is actually prominent in terms of helping to spell out how customers define and perceive service quality. By that, there are five determinants of service quality that forming acronym "RATER" as proposed by Tenner and DeToro (1992) and they are:

- *Reliability*: Ability to perform the promised service dependably and accurately.
- *Assurance*: Knowledge and courtesy of employees and their ability to inspire trust and confidence.
- *Tangibles*: Physical facilities, equipment, and appearance of personnel.
- *Empathy*: Caring, individualized attention the firm provides its customers.
- *Responsiveness*: Willingness to help customers and provide swift service.

## **2. Hospitality**

The concepts of "hospitality" have been widely applied and used by different scholars and in deferent means. Nevertheless, giving a definition of hospitality which precisely and correctly reflects all recognized uses of the term while its ambiguity exhibits prevailing is bound to continue (Hepple, Kipps, & Thomson, 1990). According to Kandampully et al. (2001):

Hospitality is concerned with the provision of accommodation and catering

(food and beverage) services for guests. It also refers to the reception and entertainment of travelers, the way they are treated by industry employees (with empathy, kindness, and friendliness), and an overall concern for the traveler's well-being and satisfaction. Tourists are not the only consumers of hospitality services; local residents also use them (p. 4).

### **3. Customer satisfaction**

In spite of various definitions of customer satisfaction, the most fashionable one is that it is customer's evaluation by comparing between their general expectations of a class of service and perceptions of a particular service by their experience encountered the service (Hoffman & Bateson, 2010). The comparison is basically based on the so-called expectancy disconfirmation paradigm; that is, if customer's perceptions meet his/ her expectations, the expectations are said to be confirmed, and therefore the customer is satisfied. Conversely, if the customer perceptions do not match one's expectations, then the expectations are said to be disconfirmed. Furthermore, in particular, Getty and Thompson (1995) specify satisfaction is "a summary psychological state experienced by the consumer when confirmed or disconfirmed expectations exist with respect to a specific service transaction of experience" (p. 9).

### **4. Repurchase intention**

In general, the definition of repurchase intention proposed by Hellier et al. (2003) is widely admitted. According to their definition, repurchase intention is "the individual's judgment about buying again a designated service from the same company, taking into account his or her current situation and likely circumstances" (p. 1764).

### **5. The relationship between service quality, customer satisfaction, and repurchase intention.**

Service quality and customer satisfaction have been widely recognized as decisive influences in the formation of consumer's repurchase intentions in the

services setting (Taylor & Baker, 1994). The majority of studies suggest that service quality is an important antecedent of customer satisfaction (Cronin & Taylor, 1992; Parasuraman et al., 1985, 1988). Conversely, there are still strong evidences that support for the proposition that satisfaction may be a vital outcome of service quality (Bitner, 1990; Bolton & Drew, 1991a; Oliver, 1981).

## **6. Measuring service quality- critiques on SERVPERF scale versus SERVQUAL scale**

There have been diverse service quality models such as Cronin and Taylor (1992, 1994); Dabholkar et al., (1996); Grönroos (1984); Parasuraman et al., (1985, 1988); Parasuraman et al., (1994). Among these models, however, there has been attentively emerging an eternal debate centering on between the SERVQUAL scale proposed by Parasuraman et al. (1985, 1988) and the SERVPERF scale proposed by Cronin and Taylor (1992, 1994) so far. It is more likely that SERVQUAL is the most cited measurement tool (Kandampully et al., 2001).

Notwithstanding, Cronin and Taylor (1992) protest that there are several inadequate problems existing inherently in the Parasuraman et al.'s (1985) use of the disconfirmation paradigm to measure the service quality. In particular, Cronin and Taylor (1992) strongly dispute that if the term of service quality is regarded as "similar to attitude" as Parasuraman et al. (1985; 1988, p.15) state, it can be better operationalized if represented under a conceptualization based on attitude. It means service quality should be measured based only on customer perceptions rather than the results of subtracting customer expectations by customer perceptions (i.e. SERVQUAL scale). Thus, adding the customer expectation scores to SERVQUAL scale so as to evaluate service quality may be incompetent and redundant (Carman, 1990; Cronin & Taylor, 1994). This can be explained by the fact that human beings usually have a consistent intention of giving a high expectation rate to judge about the service quality of the provider and the evaluative scores of their perceptions on service quality barely overrun their expectation scores (Babakus & Boller, 1992).

Cronin and Taylor's (1992) findings are in favor of statement that the SERVPERF scale is more superior in measuring service quality over SERVQUAL scale and suggest it for perspective researches in the field. Furthermore, Hope and Mühlemann (1997) suppose that this approach overcomes some of the problems attaching SERVQUAL- raising expectations, administration of the two- part questionnaire, and the statistical properties of different scores. Available literature in Vietnamese affirms that SERVPERF scale is preferable and favorable in the setting like Vietnam both theory and empiricism (Le & Nguyen, 2013; Nguyen & Pham, 2007). The results from Nguyen and Pham (2007) reveal that SERVPERF scale performs superiority in measuring the customers' perceptions rather than SERVQUAL scale.

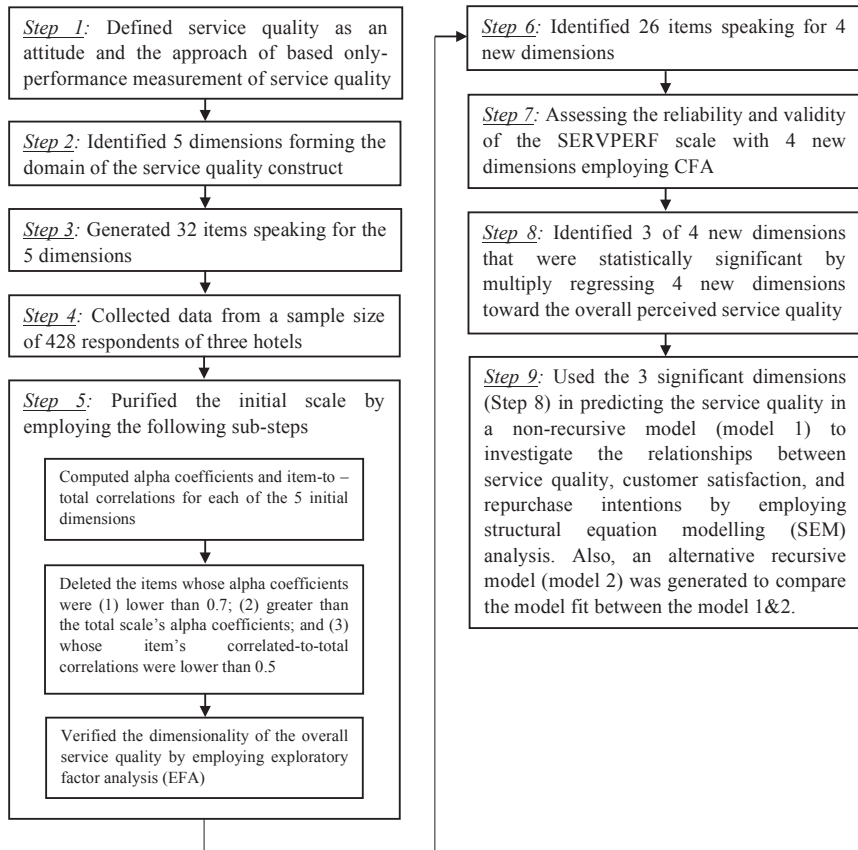
### **III. Methodology**

In order to conduct this present research, both qualitative research and quantitative research were employed. The qualitative research was aimed to realize the key differences between the viewpoints of the both sides in judging the overall perceived service quality. For qualitative research, both unstructured and semi-structured interviewing methods were hired.

Next, in order to clarify and quantify the knowledge and insights gained from qualitative research, this study was evolved further by hiring methods of quantitative research (see Figure 1). Data was gathered by using questionnaire (32 items) with seven-point Likert- type scale ranging from 1 "Strongly disagree" to 7 "Strongly agree". The questionnaire was exposed in two languages- in English for foreign visitors and in Vietnamese for domestic customers. For allocation the sample, there was an equal allocation of 160 questionnaires per hotel; of which 80 for foreign guests and 80 for domestic guests. The response rate of the sample was 89.16% (428/480). For processing and analyzing data, the Statistical Package for the Social Sciences of IBM, version 21 (IBM SPSS 21) and a plug-in program of IBM SPSS 21, namely Analysis of Moment Structures (AMOS) (IBM SPSS AMOS 21) were employed. For conducting this research, the approach of Cronin and Taylor (1992, 2000) that measures service quality using performance

perceptions or perception only was used.

Figure 1: Steps employed in empirical analyses in this research



## IV. Results and discussions

### 1. The first reliability analysis

The results of the first reliability analysis of items measuring five initial dimensions (*tangibles and adequacy, dependability, responsiveness, assurance, and empathy*) and the construct *repurchase intention* showed that all the items tested were to have a high Cronbach's  $\alpha$  ranging from 0.778 to 0.932, which



outstripped the recommended significant level of 0.7 (Sekaran, 2003; Zikmund et al., 2009). Also, the corrected item-total correlation of all the items fluctuated from 0.544 to 0.902, were remarkably higher than 0.5. Still, the Cronbach's  $\alpha$  of all the total scale were very high, ran from 0.850 to 0.951. Therefore, all the items were reliable and were able to be used for exploratory factor analysis (EFA).

## 2. Exploratory factor analysis (EFA)

Table 1 presented Kaiser-Meyer-Olkin (KMO) test and Bartlett's test. As Table 1 showed, the KMO statistic was very high, 0.964 and Bartlett's test statistic was statistically significant at 0.01 level. Therefore, it was fair to conclude that the sample used in this study was enough adequate for conducting an EFA subsequently.

Table 1 Kaiser-Meyer- Olkin and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.964
Bartlett's Test of Sphericity	Approx. Chi-Square	10103.391
	df	496
	Sig.	0.000

The results of the EFA and its associated statistics were presented in Table 2. According to Table 2, four newly extracted factors from the original 32 items labelled F1, F2, F3, F4 and renamed "*Responsiveness and caring*" (12 items), "*Tangibles and adequacy*" (9 items), "*Safety and convenience*" (6 items), and "*Dependability*" (5 items), respectively. The percent of variance of the four newly renamed and extracted dimensions explained by 66.516 % affecting to perceived service quality.

## 3. The second reliability analysis

In order to test the internal consistency of the items within these four newly dimensions, the research carried out the second reliability analysis. The results and associated statistic were presented in Table 3. As Table 3 revealed, the

reliability coefficients of the total factor scale were greater than 0.8, ran from 0.864 to 0.952. Besides, the Cronbach's  $\alpha$  of the items which belonged to each of dimensions were very high, from 0.830 to 0.950, and were lower than the Cronbach's  $\alpha$  of the total dimension scales. Furthermore, the corrected item-total correlation of these items were larger than 0.5. Briefly, all the results of the second reliability analysis were satisfied with criteria of reliability analysis. In comparison with the reliability analysis at the first time, the results of the second reliability analysis uncovered better than that one.

Table 3 Reliability reanalysis of 4 newly extracted dimensions

Label	Dimension	No. of items	Cronbach's alpha of the total scale	Corrected item-total correlation (range)	Cronbach's alpha if item deleted (range)
<i>F1</i>	Responsiveness and caring	12	0.952	0.716-0.814	0.947-0.950
<i>F2</i>	Tangibles and adequacy	9	0.925	0.661-0.798	0.912-0.921
<i>F3</i>	Safety and convenience	6	0.864	0.581-0.727	0.830-0.855
<i>F4</i>	Dependability	5	0.882	0.550-0.778	0.841-0.892

Table 2 Explanatory factor analysis for items measuring service quality construct<sup>a</sup>

		Factor loading	Eigen-values		
F.1 1. Responsiveness and caring	q13	When you have problems, hotel is sympathetic and reassuring	0.694	15.880	
	q16	Employees are always available when in need	0.644	49.625	
	q17	Employees are always willing to help customers	0.630	49.625	
	q18	Employees tell customer exactly when services will be performed	0.743	49.625	
	q19	You receive prompt service from employees	0.767	49.625	
	q20	Employees not too busy to respond to customer requests promptly	0.762	49.625	
	q23	Employees are always consistently courteous with customers	0.556	49.625	
	q24	Employees have deeply occupational knowledge to respond customers' questions	0.687	49.625	
	q25	Employees give you individual attention	0.789	49.625	
	q26	Employees give you personal attention	0.794	49.625	
	q27	Employees understand your specific needs	0.803	49.625	
	q29	Hotel has your best interest at heart	0.624	49.625	
	F2 2. Tangibles and adequacy	q1	Hotel has modern- looking equipment	0.721	2.313
		q2	Hotel's physical facilities and buildings are appealing	0.758	7.227
q3		Service units of the hotel own fully capability	0.755	56.825	
q4		Equipment and facilities are clean and tidy	0.733	56.825	

Table 2 (*Continued*) Explanatory factor analysis for items measuring service quality construct<sup>a</sup>

Label	Factor	Items	Factor loading	Eigen-values	% of var	Cum. var.%
F2	2. Tangibles and adequacy	q5 Equipment and facilities are easy to use q6 Atmosphere and equipment are comfortable and appropriate for purpose of stay q7 Employees appear neat and tidy q8 Materials pertaining to the services are adequate and sufficient q9 Food and beverages are hygienic, adequate, and sufficient	0.677 0.722 0.577 0.534 0.582			
F3	3. Safety and convenience	q15 Hotel keeps its accurate records q21 You are imparted gradually in confidence by employees q22 You can feel safe in your transactions with employees q30 Hotel operates in hours convenient to all customers q31 Accessing to the hotel is easy q32 Gaining information about the facilities and services of the hotel is easy	0.538 0.639 0.676 0.788 0.734 0.658	1.989	6.217	63.069
F4	4. Dependability	q10 When hotel promises to do something by a certain time, it does so q11 Hotel performs its services right the first time q12 Hotel provides its services at the time it promises to do so q14 Hotel is dependable q28 When you have a problem, hotel exhibits a sincere interest in solving it	0.574 0.571 0.552 0.553 0.582	1.103	3.447	66.516

a. Rotation converged in 8 iterations.

- Factor loadings less than 0.5 were not shown

## 4. The first-order confirmatory factor analysis (CFA)

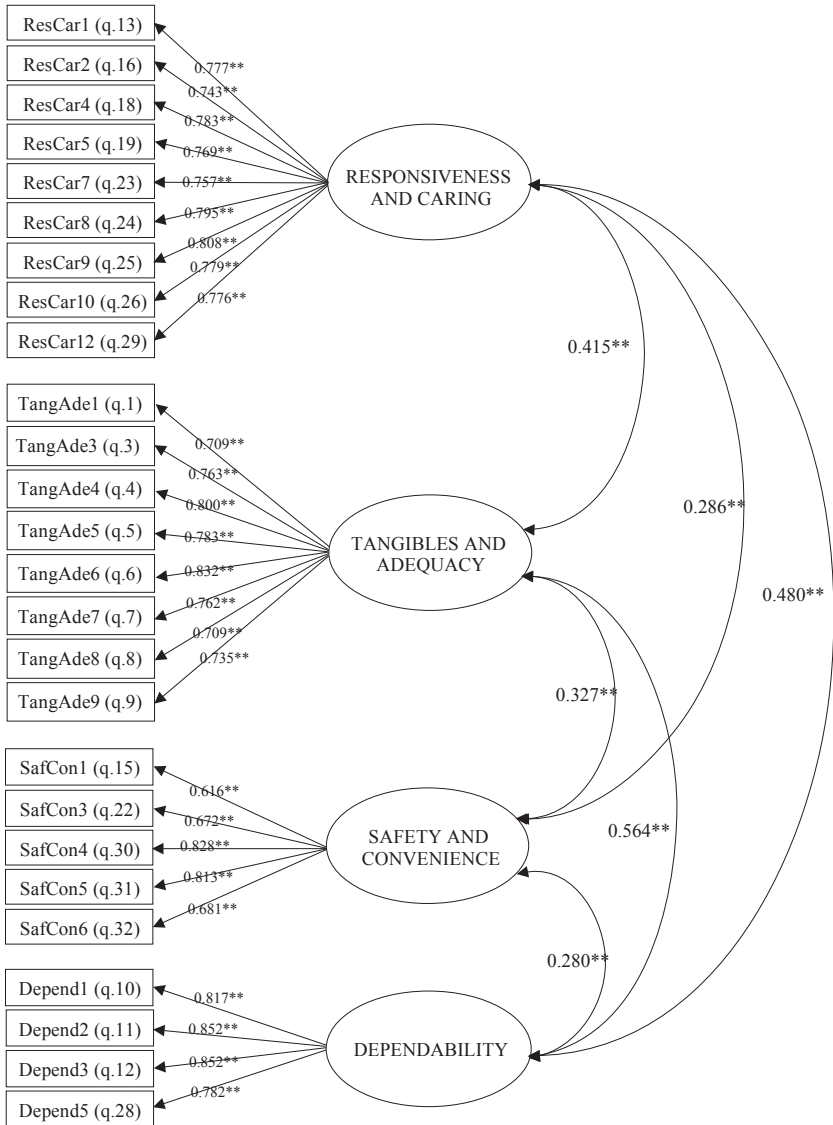
### (1) The goodness-of-fit model

Because the initial model fit test presented CMIN/DF was 3.422 that was statistically significant at 0.5 level and there were high correlations between several the error terms. This somewhat denoted the initial model including the four newly extracted dimensions with 32 attributes should be modified (see Figure 2). Therefore, the initial model was modified and re-estimated by joining error terms with high covariance each other, in which belonged to each of factor/dimension. Specifically, they were combinations of: 1) error term of question 25 and question 26; 2) error term of question 16 and question 18; 3) error term of question 18 and question 19; 4) error term of question 13 and question 29; and 5) error term of question 13 and question 16 in the in the initial model. Item of question 14 was discarded because its factor loading was much lower than the remains in the *dependency* dimension. Also, a re-examination of the wording of all indicators and their associated factors suggested that items of question 2, 17, 20, 21, and 27 were considered wiped out. This consideration was similar to Olorunniwo et al.'s (2006) and Parasuraman et al.'s (1988). The results of the goodness-of-fit test were exhibited in Table 4. According to Table 4, almost the indices (excepted from the CMIN/DF) used to test the goodness-of-fit of the proposed model (i.e. SERVPERF model in this dissertation) were really good and therefore the model was quite creditable. Regarding to Chi-square goodness-of-fit, this could be reconciled by the fact that Chi-square statistic is very sensitive to the increase of sample size (Hair et al., 2010). In case of large sample sizes (i.e. 404 in the present research) and large numbers of indicators (63), other indices of the model fit measures such as goodness-of-fit index, root mean square residual are recommended to access model adequacy (Bollen Kenneth, 1989; Hayduk, 1988; Jöreskog & Sörbom, 1989; Marsh & Hocevar, 1988; Segars g& Grover, 1993). Therefore, it was fair to conclude that the goodness-of-fit of the model was quite good and can be used for the subsequent analyses.

Table 4 Testing for the model fit of SERVPERF scale

Criteria	Reference levels	Value
CMIN/DF	The smaller $\chi^2$ value, the better fit of the model	2.426, $p < 0.05$
GFI	GFI ~ [0-1]: - 0: poor fit - 1: perfect fit	0.882
RMSEA	- RMSEA=0: badness-of-fit - RMSEA~[0.05;0.08]: deemed acceptable - RMSEA~[0.08;0.10]: mediocre fit - RMSEA>0.10: poor fit	0.059
TLI	Range ~ [0,1]	0.936
NFI		0.901
RFI	- 0: no better than the null model	0.908
IFI		0.944
CFI	- 1: perfect fit	0.944
PNFI		0.805
AIC	AIC values closer to 0 is better fit. Chosen model with the smallest value	824.475 (smallest, the default model)

Figure 2: The first-order confirmatory factor analysis of the SERVPERF model



Note: \*\*  $p < 0.01$

## (2) Assessing construct reliability

As Table 5 showed, the composite reliability (CR) coefficients of four factors in the measurement model were very high, ran from 0.847 to 0.931, which indicated that the constructs used for assessing the overall service quality in this study were really firmly good.

Table 5 Construct reliability analysis of the SERVPERF model

Construct	Composite Reliability (CR)
F1: Responsiveness and caring	0.931**
F2: Tangibles and adequacy	0.917**
F3: Safety and convenience	0.847**
F4: Dependability	0.896**

\*\* $p < 0.01$  level (two-tailed test)

## (3) Assessing construct validity

### - Convergent validity

Table 6 showed up the results of construct validity test of the SERVPERF model. The results of the factor loadings test in Table 6 revealed that all the items used in this study showed a high convergent validity to the construct that they belonged to. Also, Table 6 unearthed that the average variance extracted (AVE) of the four factors were higher 0.5, ranged from 0.528 to 0.683. The tests were statistically significant at 0.01 level that meant that the construct validity of the four constructs in the SERVPERF model were completely adequate. In other words, the items correlated pretty well with each other within the same construct, or latent factor (i.e. *responsiveness and caring*, *tangibles and adequacy*, *safety and convenience*, and *dependability*) in the model.



Table 6 Convergent validity analysis of the SERVPERF model

Construct	Factor loadings range	Average Variance Extracted (AVE)
<i>F1: Responsiveness and caring</i>		0.601**
Items of Q1.3, Q.16, Q.18, Q.19, Q.23, Q.24, Q.25, Q.26, and Q.29	0.743** 0.808**	
<i>F2: Tangibles and adequacy</i>	0.709** 0.832**	0.580**
Items of Q.1, Q.3, Q.4, Q.5, Q.6, Q.7, Q.8, and Q.9		
<i>F3: Safety and convenience</i>		0.528**
Items of Q.15, Q.22, Q.30, Q.31, and Q.32	0.616** 0.828**	
<i>F4: Dependability</i>		0.683**
Items of Q.10, Q.11, Q.12, and Q.28	0.782** 0.852**	

\*\* $p < 0.01$  level (two-tailed test)

### - Discriminant validity

For this test, it was not really easy to show up here the distinction among the four constructs in this study by testing discriminant validity for the first-order CFA in the SERVPERF model. This was because the constructs were theoretically related to a hierarchically higher order construct of the SERVPERF model as the case here in this research. This point was in line with (Olorunniwo et al., 2006). Furthermore, Olorunniwo et al. (2006) advocate that “the existence of a second-order factor structure suggests the sub-dimensions of service quality share common variance” (p.66). Instead of, thus, showing up the test of discriminant validity for the first-order CFA here, the results of the discriminant validity test of the second-order CFA of the non-recursive model.

### 5. Multiple regression toward the overall perceived service quality

The results of this analysis were exhibited in Table 7. As Table 7 showed, *safety and convenience*, *responsiveness and caring*, and *tangibles and adequacy*

were dimensions which had statistically significant effects on the overall perceived service quality at 0.01 level. Specifically, customers supposed that *safety and convenience* was the most important factor affecting service quality, with the slope coefficients was 0.557. Whereas, *tangibles and adequacy* factor had the least statistically significant effect on the service quality at 0.01 level. The results supported for the hypotheses of the research that *safety and convenience*, *responsiveness and caring*, and *tangibles and adequacy* had positive and statistically significant effect on the service quality. Mathematically, the equation for estimating the overall perceived service quality by using SERVPERF approach in this study could be written as follows:

$$SERVPERF = -0.724 + 0.373RESCAR + 0.172TANADE + 0.557SAFCON$$

The value of adjusted  $R^2$  was 0.622 that meant the three factors consisting of *responsiveness and caring*, *tangibles and adequacy*, and *safety and convenience* could explained 62.2% of variance in prediction of the overall service quality.

Table 7 Multiple regression of the overall perceived service quality

	Unstandardized Coefficients	Std. Error	Standardized Coefficients
(Constant)	-0.724	0.245	
Responsiveness and Caring	0.373**	0.052	0.320
Tangibles and Adequacy	0.172**	0.051	0.150
Safety and Convenience	0.557**	0.055	0.426
Dependability	0.060	0.051	0.055

\*\*  $p < 0.01$  (two-tailed test)

$N = 404$ . Adjusted  $R^2 = 0.622$

## 6. Investigating the relationships between service quality, customer satisfaction, and repurchase intention

This study proposed a non-recursive model (model 1, Figure 3) presenting the relationships between among these concepts by using structural equation modeling (SEM) analysis. First of all, however, in order to determine the non-

recursive model as proposed in this research was reliable and superior to apply, an alternative recursive model (model 2, Figure 4) was employed to test the goodness-of-fit of these two models.

### **(1) The goodness-of-fit of the two models**

The results of testing the fit of the two models were presented in Table 8. As Table 8 showed, all of the fit indices of the alternative model- model 2 signified a worse-off on investigating the relationships between the constructs. In particular, the RMSEA index of the model 2 was 0.088 that pointed out that the goodness-of-fit of the model 2 was mediocre or poor. Still, the effect of *tangibles and adequacy* dimension on the service quality was only statistically significant at 0.05 level in the model 2 comparing to 0.01 level in the model 1. The results of the goodness-of-fit analysis between the two models uncovered that the model 1 showed a superiority over the model 2 in expressing the relationships between service quality, customer satisfaction, and repurchase intention- three main constructs in the model.

Figure 3 Model 1-The proposed non-recursive causal model between service quality, satisfaction, and repurchase intention

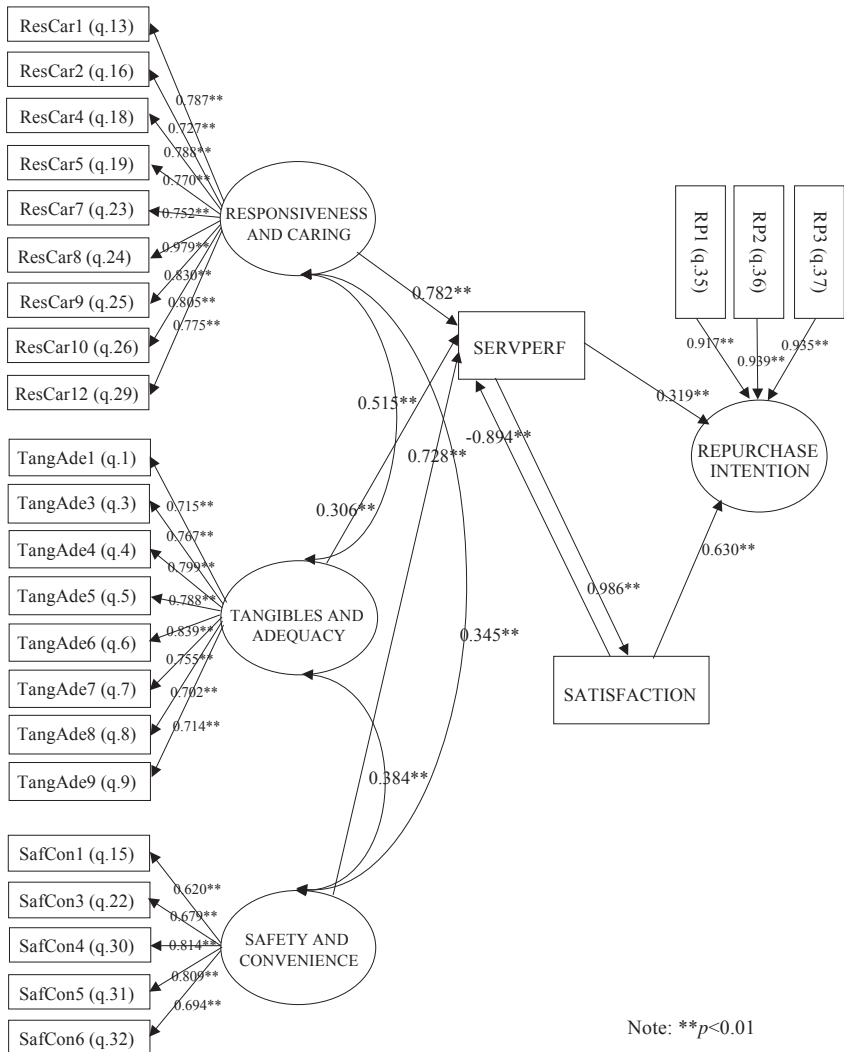


Figure 4 Model 2-The alternative recursive causal model measuring direct effect of service quality and satisfaction on repurchase intention

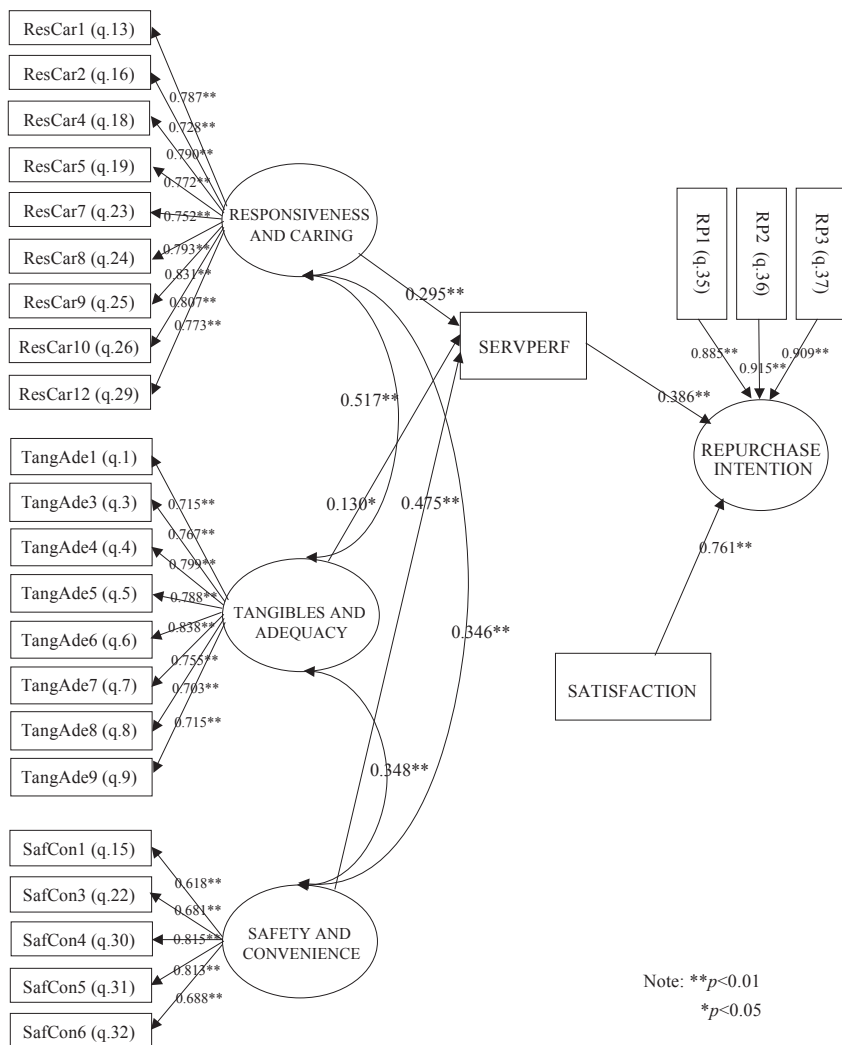


Table 8 Testing the model fit indices between the model 1 and the model 2

Criteria	Reference levels	Model 1	Model 2
CMIN/DF	The smaller $\chi^2$ value, the better fit of the model	2.734, $p < 0.05$	4.127, $p < 0.05$
GFI	GFI ~ [0-1]: - 0: poor fit - 1: perfect fit	0.858	0.827
RMSEA	- RMSEA=0: badness-of-fit - RMSEA~[0.05;0.08]: deemed acceptable - RMSEA~[0.08;0.10]: mediocre fit - RMSEA>0.10: poor fit	0.066	0.088
TLI	Range ~ [0,1]	0.929	0.872
NFI		0.903	0.853
RFI	- 0: no better than the null model	0.892	0.838
IFI		0.936	0.884
CFI	- 1: perfect fit	0.936	0.884
PNFI		0.813	0.773
AIC	AIC values closer to 0 is better fit. Chosen model with the smallest value	987.835 (the default model)	1432.339 (the default model)

## (2) The second-order confirmatory factor analysis (CFA)

### - Assessing the construct reliability of the proposed model- The model 1

In an effort to gain a strong reliability, the second-order CFA of the model 1 was performed in this research. The results of the construct reliability analysis of the model 1 were exhibited in Table 9. According to Table 9, the CR of the three factors affecting the service quality were very high, ran from 0.861 to 0.938, which indicated that the three dimensions used for assessing the overall service quality in association with the non-recursive model in this study were really good.

Table 9 Construct reliability analysis of the model 1 in the second-order CFA

Construct	Composite Reliability (CR)
F1: Responsiveness and caring	0.938**
F2: Tangibles and adequacy	0.905**
F3: Safety and convenience	0.861**

\*\* $p < 0.01$  level (two-tailed test)

## (2) Assessing the validity of the proposed model- model 1

### - Convergent validity

Table 10 revealed that the loading factors of 22 items of the three dimensions measuring the overall perceived service quality were quite considerable, ranged from 0.620 to 0.839, that were higher than the critical ratio 0.5. Also, the tests were statistically significant at 0.01 level that suggested the complete adequacy of the construct validity of the three dimensions in prediction the overall perceived service quality.

Table 10 Testing convergent validity analysis of the model 1 in the second-order CFA

Construct	Factor loadings range	Average Variance Extracted (AVE)
<i>F1: Responsiveness and caring</i>		0.603**
Items of Q.13, Q.16, Q.18, Q.19, Q.23, Q.24, Q.25, Q.26, and Q.29	0.727**- 0.830**	
<i>F2: Tangibles and adequacy</i>		0.525**
Items of Q.1, Q.3, Q.4, Q.5, Q.6, Q.7, Q.8, and Q.9	0.702**- 0.839**	
<i>F3: Safety and convenience</i>		0.511**
Items of Q.15, Q.22, Q.30, Q.31, and Q.32	0.620**- 0.814**	

\*\* $p < 0.01$  level (two-tailed test)

What's more, Table 10 revealed that the AVE coefficient of three constructs were statistically significant at 0.01 level and were higher than the critical ratio 0.5. Thus, the results of this tests supported the point that there was no problem with the convergent validity in the model 1.

**- Discriminant validity**

As Table 11 revealed, all the AVE coefficients of each of two constructs were always greater than the squared correlation coefficients (the values in parentheses) between them. In brief, the results of discriminant validity analysis for the second-order CFA suggested there was no problem with discriminant validity in the model 1 and the model as proposed (SERVPERF model) in this research were adequately reliable and valid.

Table 11 Testing discriminant validity analysis of the model 1 in the second-order CFA

Construct	Average Variance Extracted (AVE)	Responsiveness and caring	Tangibles and adequacy	Safety and convenience
F1: Responsiveness and caring	0.603**	1		
F2: Tangibles and adequacy	0.525**	0.718 (0.515)	1	
F3: Safety and convenience	0.511**	0.671 (0.450)	0.668 (0.446)	1

Note: The values in parentheses indicate the squared correlation estimates

**(3) Investigating the relationships between service quality, customer satisfaction, and repurchasing intention**

For investigating this relationships, the results of this analyses were showed in Table 12 (the number of observations were 404 by using listwise). Also, the causal relationships between these constructs were presented in the following equations:

$$SERVICEQUALITY = -0.894 SATISFACTION \quad (*)$$



$$SATISFACTION=0.986 SERVICEQUALITY \quad (**)$$

$$REPURCHASEINTENTION=0.319 SERVICEQUALITY \quad (***)$$

$$REPURCHASEINTENTION=0.630 SATISFACTION \quad (****)$$

As Table 12 showed, the effect of service quality on customer satisfaction was highly statistically significant at the 0.001 level. This results supported for the hypothesis that service quality has positively significant effect on customer satisfaction. However, the effect of customer satisfaction on service quality was negative significant at 0.001 level with the slope coefficients was quite high (-0.894). In terms of causal relationship between the two constructs, it could be sense in real life. Specifically, for a period of time after the customers were satisfied with the improvement of service quality, it was more likely that the guests used new criteria to judge the overall service quality that had not been improved for a long time after the previous time of the enhancement of service quality. Thence, it was more likely that the customers supposed that the service quality of the provider had been decreasing. Furthermore, these findings pointed out that either service quality or customer satisfaction was the antecedent of the other and vice versa. Also, according to Table 12, the direct effect of service quality and of customer satisfaction on repurchase intention were statistically significant at 0.001 level with the slope coefficients were 0.319 and 0.630, respectively. These results supported for the hypotheses in this research that service quality and customer satisfaction have positively significant effect on repurchase intention. Besides, the results from Table 12 suggested that the indirect effect of service quality on repurchase intention via customer satisfaction was greater than the direct effect of service quality on repurchase intention. Specifically, this was mathematically demonstrated as follows:

Replacing the equation (\*\*) into the equation (\*\*\*\*) we yielded

$$REPURCHASEINTENTION=0.630*(0.896 SERVICEQUALITY)$$

$$REPURCHASEINTENTION=0.564 SERVICEQUALITY \quad (*****)$$

The equation (\*\*\*\*\*) revealed that the slope coefficient was 0.564 that was greater than the slope coefficient in the equation (\*\*) (0.319). Therefore, the

equation (\*\*\*\*\*) suggested that customer satisfaction could play a good mediating role in the relationship between the overall perceived service quality and repurchase intention in the context of hospitality industry.

Table 12 The causal model between service quality, customer satisfaction, and repurchase intention

Models	Standardized Estimates	Std. Error	Critical Ratio
<i>SATISFACTION -&gt; SERVICE QUALITY</i>	-0.894***	0.146	-5.073
<i>SERVICE QUALITY -&gt; SATISFACTION</i>	0.986***	0.050	23.600
<i>SATISFACTION -&gt; REPURCHASE INTENTION</i>	0.630***	0.040	15.441
<i>SERVICE QUALITY -&gt; REPURCHASE INTENTION</i>	0.319***	0.046	8.097

\*\*\*  $p < 0.001$  (two-tailed test)

$N=404$

## V. Conclusions, theoretical and practical implications

This research contributes knowledge and insights to service quality measurement in the hospitality industry in the context of developing countries like Vietnam. The findings from this study uncovered that the SERVPERF scale including three determinants with 22 items as developed in this research showed its good reliability and validity and adequately captured the domain of service quality in the hotel industry in the setting of developing countries like Vietnam. Of which, *safety and convenience* is the most important dimension affecting overall service quality perceived by customers. In addition, the findings supported the point that either service quality or customer satisfaction is an antecedent of the other and vice versa. Finally, the findings from this study confirm that both service quality and customer satisfaction have the direct effect on repurchase intention. Specifically, the indirect impact of service quality on repurchase intention through customer satisfaction is greater than its direct impact on repurchase intention. Therefore, customer satisfaction plays a mediating role in the indirect effect of service quality on repurchase intention.

This study is also considered exemplary one in terms of theoretical and practical implications. For theoretical implication, the present research has significant contribution to theory of as well as model (i.e. the SERVPERF scale with three determinants in this study) for measuring service quality in the hotel setting as a whole as well as in the context of developing countries. For practical implications, identifying and pointing out accurately dimensions (3 dimensions) affecting the overall perceived service quality are extremely vital for the managers in the area, especially in the context of developing countries like Vietnam, where services sector is still quite undeveloped. Additionally, SERVPERF battery with three components as employed in this research is a concise multi-item scale with quite high reliability and good validity that hotel managements can use to measure customers' perceptions toward the quality of the services they are offering. Finally, the findings from this study suggest that customer satisfaction acts as a mediating construct on the indirect effect of service quality on repurchase intention. Therefore, in order to increase satisfaction, practitioners should focus on their services quality. Once services quality improved, customer satisfaction immediately goes up. As a result, hotel businesses make more and more profits for their long prosperity in future.

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## **Measuring Service Quality in the Hospitality Industry - A Case Study in Hue City, Vietnam**

<Summary>

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This research is a study on service quality in the hospitality industry in the context of a developing country. The key purposes of this study are twofold. First, it examines the conceptualization and measurement of service quality in the hotel setting. Second, the relationships between service quality, customer satisfaction, and repurchase intention are taken into considerations. The findings from this study confirm that there are three determinants affecting statistically on service quality including *responsiveness and caring*, *tangibles and caring*, and *safety and convenience*. Also, the results of this study suggests that both service quality and customer satisfaction have direct significant effect on repurchase intention. Furthermore, it reveals that either service quality or customer satisfaction is the antecedent of the other and vice versa. Still, the indirect of service quality through customer satisfaction on repurchase intention is stronger than that one of the direct effect; that suggests customer satisfaction playing a mediating role in the effect of service quality on repurchase intention. Finally, some conclusions and theoretical and practical implications, and limitations are generated.

