EFFECTS OF FACTORS OF SERVICE QUALITY ON CUSTOMER SATISFACTION IN THE DOMESTIC AVIATION MARKET IN VIETNAM

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Abstract

The primary objective of this study is to identify factors of service quality that influence customer satisfaction in the domestic aviation market in Vietnam by an empirical study on Vietnam Airlines customers. This study applies and compares SERVPERF and Airlines Industry models. A sample of 420 domestic passengers was administered at Tân Sơn Nhất Airport. The results indicate that modified SERVPERF model includes four factors: Professionalism, Staff, Empathy and Tangibles; Airlines Industry model comprises four factors: Airlines capacity, In-flight Comforts, Bumping procedures and Baggage handling, and both models ensure reliability. Structural Equation Modeling (SEM) was conducted to test the theoretical models. The result of SEM indicates that both theoretical models fit to market data. The service quality dimensions that influence customer satisfaction are: Professionalism, Staff, In-flight comforts, Bumping procedures and Airlines Capacity. Of these factors, Professionalism exerts the biggest effect on the customer satisfaction. And the results also suggest that SERVPERF model accounts for customer satisfaction better than Airlines Industry model does.

1. Introduction

In the past few years, need to travel and transport goods by air in Vietnam has been on the increase. According to the GSO, growth rate of the aviation industry in 2007 was 20% and many experts believed that the growth rate would stay high in years to come.

The domestic aviation market got more active and competitive after Quantas bought 30% of Pacific Airlines shares from the SCIC and Jetstar Pacific brand name was officially came into being. In addition, the amended Aviation Law 2006 stipulates that airlines are established according to the Companies Law and priority previously given to development of the flag carrier is revoked, and equal opportunity is offered instead to all airlines. This law paves the way for establishment of two private airlines – VietJet and Indochina Airlines – in 2008, not to mention others waiting for license such as Phu Quoc Air and SaiGon Air. This implies a keener competition on the domestic market for air transport in the coming years.

In modern quality management, customer-oriented philosophy plays a leading role. One of determinants of corporate survival and development is customer satisfaction about quality of goods and services supplied. This quality should be assessed by customers instead of companies. That is why measuring the service quality and its effects on the customer satisfaction is necessary for domestic airlines in general and the Vietnam Airline in particular as the competition gets fiercer. This study aims at: (1) Re-testing SERVPERF and Airlines Industry models; (2) Identifying factors of the service quality that affect the customer satisfaction by conducting an empirical study of cus-

tomers of the Vietnam Airlines; and (3) Comparing the two models.

2. Measuring the quality of aviation service

a. Service performance measure

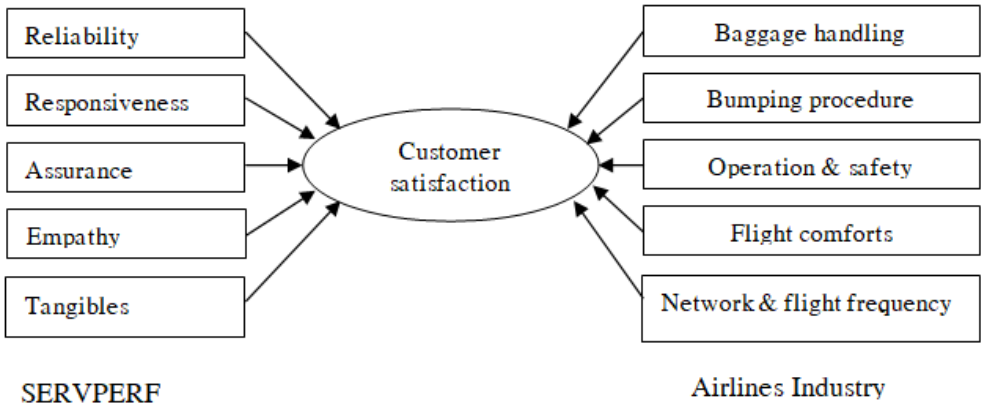
Parasuraman et al. (1985, 1988) are the pioneers in specific and detailed research on the service quality of marketing business. They introduce a five-dimension model and the SERVQUAL scale. After many tests, Parasuraman (1988) concludes that the customer satisfaction could be measured on five basic factors: reliability, responsiveness, assurance, empathy and tangibles. The SERVQUAL scale comprises two parts with 22 constructs in each part and is used for measuring the gap between customer expectations and experience. Many researchers, however, emphasize independent effect of perceptions on service quality assessment (Carman 1990; Bolton & Drew 1991a; Babakus & Boller 1992; Cronin & Taylor, 1992) [2], [3]. Based on results of empirical researches, Cronin and Taylor (1992) conclude that SERVPERF employing solely the performance scale outperforms SERVQUAL [2]. Better quality of SERVPERF in comparison with SERVQUAL has been proven by many later researches. Cunningham et al. (2002) use SERVPERF to measure the quality of aviation service in the U.S. and South Korea proving that the SERVPERF model gains reliability [2]. This study also uses the SERVPERF scale for the Vietnamese market.

b. Airlines industry scale:

As for the aviation industry, the measurement of the service quality is based on customer perceptions as first introduced by Kearney in 1986 [2]. Gourdin and Kloppenborg (1991, 1992) use the dimensional model to measure the quality of aviation service in the U.S. To identify criteria for the service quality, authors conduct a survey of three groups: (1) Customers in the U.S.; (2) Managers of airlines; and (3) Officials in aviation authorities. From results of their survey, the authors work out Airlines Industry scale that comprises five factors (Baggage handling, Comforts, Bumping procedure, Operation and safety, and Network and flight frequency) with 21 observed variables. Many others have used this scale to measure the quality of aviation service and compared it with SERVQUAL as an instrument for measuring the customer satisfaction and repatronizing intention, such as Cunningham & Brand (1989); Lee, Cunningham & Wadsworth (1993); Young, Cunningham & Lee (1994a, 1994b). Results show that the SERVQUAL scale is better than the Airlines Industry scale. Cunningham, Young & Lee (2002) continue to use this scale in combination with SERVPERF to measure the customer satisfaction and repatronizing intention of two groups of customers in the U.S. and South Korea. The results also show that both scales achieve requirement for reliability. The SERVPERF scale, however, produces better explanations in comparison with the Airlines Industry scale.

In the Vietnamese market, there has been only a few of researches on assessment of service quality and effects of its factors on the customer satisfaction. This study assesses relations between factors of the service quality and customer satisfaction according to the following models.

Figure 1: Theoretical models



3. Methodology

The study employs both qualitative and quantitative methods and is based on the process in-

troduced by Nguyễn Đình Thọ (2007).

a. Questionnaire design:

Employing SERVPERF and Airlines Industry scales suggested by Cunningham (2002), we carried out the qualitative stage by interviewing intensively 10 passengers in order to adjust observed variables used in the scales, thereby working out a questionnaire used for the official quantitative stage of the study. The questionnaire comprises three major parts. The first one includes questions used for selecting and classifying information. The second one comprises questions relating to SERVPERF, Airlines Industry and Satisfaction scales. In this part passengers are asked abut their perceptions of the last time they flied Vietnam Airlines. The five-point Likert scale is used for increasing proportion and quality of responses as suggested by many researchers (Babakus and Mangold, 1992; Krosnick and Fabrigar, 1997) [3]. And questions about demographic aspects are included in the third part. Before conducting the survey officially, we interviewed 20 passengers randomly selected to make sure that all questions and wording are clear and understandable.

b. Sampling and data gathering:

Official sample is picked out using the non-probability sampling method and comprises Vietnamese passengers who have flied the Vietnam Airlines in the past 12 months. They were randomly selected from the departure lounge for domestic flights at the Tân Sơn Nhất Airport because it is likelier to find a lot of patrons of Vietnam Airlines there. SEM is used as the principal method of analyzing the data. Most researchers agree that this method requires a big sample because it relies on theory of large sample size (Raykov & Widaman 1995) [2]. This study applies the rule that requires 15 samples per measured variable (Bentle & Chou, 1987). The first theoretical model (SERVPERF scale) has 28 observed variables compared with 25 in the Airline Industry scale. This means that number of samples gathered is n = 28*15 = 420. After issuing 496 questionnaires and selecting, we have 420 appropriate samples.

4. Data analysis and results

a. Sample description:

SPSS 16.0 and AMOS 5.0 are used for analyzing the data. Of the samples, 63.57% of respondents are male and 36.43% female; and 58.81% under 35 and 41.19% above 35. Regarding their income, 15.24% earn less than VND4 million a month; 36.43% from VND4 to 8 million; 32.86% from VND8 to 15 million and 15.48% more than VND15 million. As for their travel history; 58.3% have flied between HCMC and Hà Nội, and the rest on other routes. Passengers who traveled by air from two to four times occupy 37.14% of respondents; from five to 19 times 31.43% and over 10 times 23.81%. These data allow us to believe that the sample may represent groups of passengers who are familiar enough to the air transport service, and they certainly have their own perceptions and assessment of the aviation service based on the traveling experience.

b. Scale assessment:

The scales are initially evaluated using the Cronbach's alpha and EFA, and then CFA is used for testing unidimensionality, composite reliability, convergent and discriminant validity. The CFA used in SEM analysis has more advantages than other traditional methods do (Bagozzi & Foxall 1996) [1] because it allows testing the theoretical structure of scales as a relationship between an item in question with others without being deviated by errors (Steenkamp & Van Trijp, 1991). Moreover, convergent and discriminant validity could be tested without using too many researches as required by traditional methods (Nguyễn Đình Thọ, 2007) [1].

c. Results:

- SERVPEF:

EFA results show that only four factors are extracted at eigenvalue > 1. The first factor of them is formed by combining the first two variables belonging to Responsiveness with Reliability. This factor reflects the reliability and capacity of the company and can be called Professionalism, or PRO. This factor explains 64.02% of variance extracted and meets Cronbach's alpha requirement. The next two variables belonging to Responsiveness is combined with Assurance to form a new factor that can be called Staff, or STA, because it represents employees' responsiveness and capacity. This factor accounts for 9.24% of the variance extracted. The remaining two factors that stay intact are Empathy (7.21%) and Tangibles (5.6%). In addition, EFA results show that the observed

variable EMP21A (convenient schedule, under Empathy) should be removed because its weight (0.230) is smaller than 0.4 (Prayag, 2007) [3].

CFA results show that the model fits market data (Chi-square = 354.96; df = 155; p = 0.000; CMIN/df = 2.29, TLI = 0.947; CFI = 0.957 and RMSEA = 0.055). However, only the scale of Tangibles ensures the unidimensionality while scales of other components lack unidimensionality because of error relations of observed variables. All factor loadings of observed variables are high (the lowest is PRO10 that is equal to .57) and statistically significant (p = 0.0000). Thus, variables used for measuring the components obtain convergent validity. Correlation coefficients between items show that they are smaller than 1 and statistically significant (p = 0.0000) and all critical coefficients (cr) are greater than 2. Thus, items Tangibles, Professionalism, Staff and Empathy obtain discriminant validity. In addition, composite reliability of all scales is high (0.778 is the lowest) and variance extracted from components of SERVPERF scale is greater than 50%.

Table 1: Results of SERVPERF scale assessment

Component	Observed variable	Composite reliability	Variance extracted	Loading mean	Convergent and discriminant validity
Tangibles (TAN)	3	0.778	0.539	0.73	Satisfactory
Professionalism (PRO)	7	0.878	0.510	0.71	
Staff (STA)	6	0.876	0.542	0.73	
Empathy (EMP)	4	0.846	0.597	0.76	

The results show that SERVPERF scales of components obtain convergent and discriminant validity.

- Airlines Industry:

EFA results show that four factors are extracted at eigenvalue > 1.465 with variance extracted equaling 67.75%. The first factor among them (formed by OPE and FRE) comprises six observed variables and represents ability of company to supply services, such as safety, employees' performance, flight frequency, flight schedule, and route network, etc. and it can be called Capacity, or CAP. This factor explains the best part of variance with 39.97%. The second factor (COM) has five observed variables representing in-flight comforts and accounting for 10.75% of changes in variance. The third one (BAG) reflects baggage handling and accounts for 8.88%, and finally 8.14% for the fourth factor (BUM) that represents bumping procedure.

CFA results show that the model fits market data (Chi-square = 216.140, df = 121, p = 0.000; CMIN/df = 1.786, TLI = 0.977; CFI = 0.971 and RMSEA = 0.043). However, all scales for components lack unidimensionality because of correlations between errors of observed variables. All factor loadings of observed variables are high (the lowest is BAG25 that is equal to 0.61) and statistically significant (p = 0.0000). Thus, variables used for measuring the components obtain convergent validity. Correlation coefficients between items show that they are smaller than 1 and statistically significant (p = 0.0000) and all critical coefficients (cr) are greater than 2. Thus, items Baggage, Bumping, Capacity and Comforts obtain discriminant validity.

Table 2: Result of Airlines Industry scale assessment

Component	Observed variable	Composite reliability	Variance extracted	Loading mean	Convergent and discriminant validity
Baggage (BAG)	4	0.890	0.570	0.747	Satisfactory
Bumping (BUM)	3	0.912	0.661	0.812	
Comforts (COM)	5	0.897	0.550	0.739	
Capacity (CAP)	6	0.882	0.478	0.690	

Thus, all Airlines Industry scales of components obtain reliability and validity.

d. Assessment of theoretical model and hypotheses:

SEM is used for assessing the theoretical model and hypotheses. One of strengths of this method is that it allows calculation of measured error. Moreover, it also allows combination of potential items with their measurement and we can examine measurement independently or in combination with the theoretical model at the same time (Nguyễn Đình Thọ, 2007) [1].

- Assessment of the theoretical model (SERVPERF scale):

SEM results show that the model has 214 degrees of freedom with chi-square equaling 446.533 and p = 0.0000 and CMIN/DF = 2.087. However, all other criteria are satisfactory: TLI = 0.953; CFI = 0.960; and RMSEA = 0.051 (Figure 2). Thus, we can say that the model fits market data.

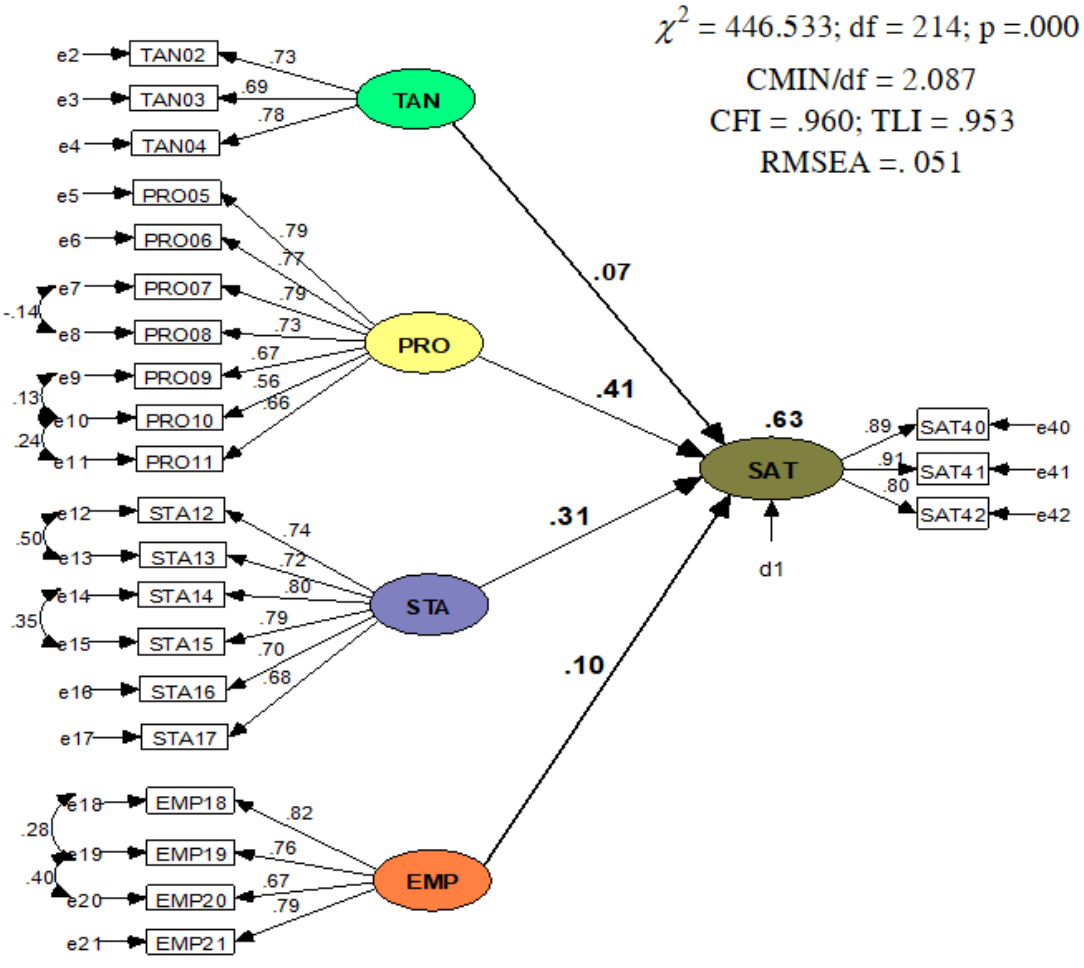
Table 3: Assessment of relations

Relations			R	se	Cr	p
SAT	<---	PRO	0.412	0.072	5.739	0.000
SAT	<---	STA	0.312	0.077	4.054	0.000
SAT	<---	EMP	0.100	0.076	1.314	0.189
SAT	<---	TAN	0.070	0.053	1.327	0.184

Results of assessment show that only two components – Professionalism and Staff – produce effects on the customer satisfaction with an explained variance of 63%. Of these components, Professionalism has the greatest effect with regression coefficient r equaling to 0.412, followed by Staff with r = 0.312. Effects of Tangibles and Empathy are not statistically significant (p > 0.05).

- Assessment of the theoretical model (Airlines Industry scale):

Figure 2: Results of SEM-based assessment of the theoretical model (SERVPERF scale)



SEM analysis shows that the model comprises 168 degrees of freedom with chi-square equaling to 255.378 and p = 0.0000. However, other indicators of goodness of fit are satisfactory (CMIN/df = 1.520, TLI = 0.979; CFI = 0.983; and RMSEA = 0.035) (see Figure 3). And we can say that the model fits market data.

Figure 3: Results of SEM-based assessment of the theoretical model (Airline Industry scale)

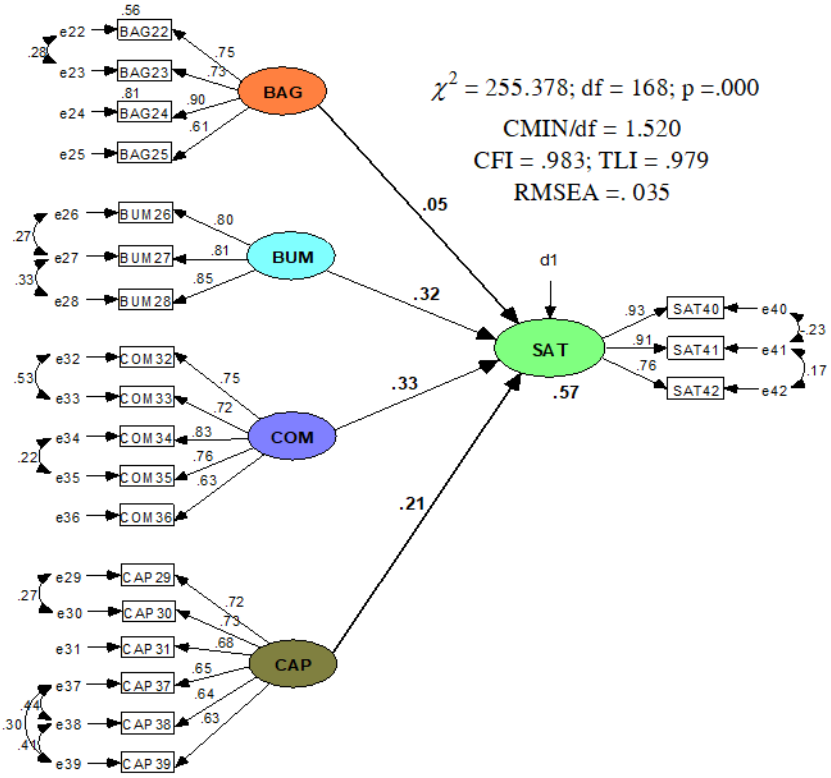


Table 4: Assessment of relations

Relations			R	se	Cr	p
SAT	<---	COM	0.329	0.066	5.015	0.000
SAT	<---	BUM	0.316	0.057	5.543	0.000
SAT	<---	CAP	0.215	0.074	2.896	0.004
SAT	<---	BAG	0.054	0.056	0.963	0.335

Results of assessment of causal relationships are presented in Table 4. Component In-flight Comforts (r = 0.329) has the greatest effect on the customer satisfaction, followed by Bumping procedure (r = 0.316) and Capacity (r = 0.215). Effect of Baggage on the customer satisfaction is not statistically significant (p = 0.335 > 0.05)

e. Comparison of the two models

Indicators used for assessing the goodness of fit of the two models lead to similar results and both of them fit the set of data.

However, explanatory power of components related to service quality in the SERVPERF is higher than the ones in the Airlines Industry model (63% compared with 57%).

5. Conclusion and some suggestions

- Results of scale assessment show that both models have their own reliability. Their components, however, are modified and, therefore different from the ones presented in previous studies, such as Cunningham et al. (2002) [2] and Prayag (2007) [3]. These changes may come from differences in culture of samples (Prayag, 2007) [3]. Namely, in the SERVPERF, customers think quick responsiveness of the company means reliability, and this reflects in combination of two responsiveness variables and the reliability component to form a new factor that represents Professionalism (PRO) in customer service. Customers also think that responsiveness of employees belongs to empathy, which leads to a new factor that reflects customers' perception of the staff. And as a result, there are only four factors left in the scale.

In the Airlines Industry model, customers think safety, employees' service, flight frequency, flight schedule and route network belong to the same factor that reflects the corporate capacity, therefore, this scale comprises only four factors.

- Results of SEM analysis show that to customers of the Vietnam Airlines, components PRO and STA in the SERVPERF model and COM, BUM and CAP in the Airlines Industry, affect considerably the customer satisfaction while EMP, TAN and BAG do not. PRO is considered the most influential in the customer satisfaction. This is similar to results of customer surveys carried out in Europe and the U.S. by Sultan and Simpson (2000) [5]; and surveys in the U.S. and South

Table 5: Comparison of assessing indicators used for the two models

Indicator	SERVPERF	Airlines Industry
Component	4	4
Observed variable	20	18
Chi-square	446.533	255.378
Degree of freedom	214	168
p	0.000	0.000
CMIN/df	2.087	1.520
TLI	0.953	0.979
CFI	0.960	0.983
RMSEA	0.051	0.035
Components affecting the customer satisfaction	- Professionalism	- Comforts
	- Staff	- Bumping
		- Capacity
R^2	**0.63**	**0.57**

Korea by Cunningham (2002) [3]. Effects of the other components in this study, however, are different from findings of previous researches (Sultan & Simpson, 2000; Cunningham, 2002; Prayag, 2007) [2],[3],[5]. This fact proves that differences in elements of the service quality and their order of importance to the customer satisfaction depend on social settings of the survey. Differences between researches can be explained by differences in lifestyle and background of Vietnamese and foreign customers. Sultan and Simpson (2002) share this argument in their empirical research that demonstrates considerable differences in expectation and perception of the service quality based on nationalities of groups of customers [5].

- Results of the study also affirm that the SERVPERF model explains the customer satisfaction better than the Airlines Industry model does, which is similar to what Cunningham et al. (2002) found. To achieve a fuller assessment of aviation service, we had better combine the two models.

- The component Professionalism (related to corporate effort to ensure scheduled flights, keep promises, and handle customers' complaints or incidents, etc.) has the greatest effect on the customer satisfaction. This is what the Vietnam Airlines should pay full attention to. To ensure scheduled service, the Vietnam Airlines should review and analyze its process of supplying services employing the managerial statistics, thereby overcoming errors and improving the service quality continuously. Human resource is also an important factor to the service-supplying process and customer satisfaction. That is why all employees must be trained and developed in order to ensure necessary knowledge, skills and abilities needed for their jobs. In addition, more duties and rights could be delegated to employees to enhance their sense of participation and responsibility (Bowen & Lawler, 1992) [3].

- With a long tradition, the Vietnam Airlines must invest more time and energy in a strategy for improving components of service quality beside the pricing strategy. The service quality is also as important as the pricing strategy to improvement in the corporate competitiveness. Moreover, a high service quality ensures the customer satisfaction, which leads to their repurchase habits and word of mouth, and their becoming an important marketing channel.

Solving quality-related problems shouldn't be

considered as an effort to deal with immediate concerns, but as a strategic orientation in the belief that the service quality may ensure a sustainable competitiveness in a long run [3]. Marketing campaigns by the Vietnam Airlines should be concentrated on development of branding strategy in combination with the quality one. In addition, the Vietnam Airlines must build a customer-oriented mechanism that supports business strategy and human resource. Service culture should be developed in the company with a view to linking and orienting all employees towards common values and beliefs. An organization with shared culture and vision can hardly achieve their goals. This is not available in the market and requires joint efforts to build it (Chan, 2000a) [3]. Success in service management only takes place when managers grasp customers' expectations and share information about these expectations among employees. Benchmarking becomes important as a source needed for realizing the gap between customers' expectation and corporate performance perceived by customers. Internal marketing in necessary field inside the company should be studied because conflicting and ambiguous roles of employees can lead to a barrier that affects the business performance (Hartline & Ferrell, 1996) [3], and employees' job satisfaction also produce great effects on the effort to supply better service and satisfy customers' needs.

In short, the study achieves its three goals but it has its own limitations. Customers are asked about their latest flight but their opinions may be affected by other ones in the past. To ensure exact information, the interview should be conducted right after their flights. Samples are not well distributed among target population with the result that its generality is not high enough. Sampling must be done more carefully and reasonably. The study also fails to examine effects of other factors, such as customers' perception of risk, price, sales promotion campaigns, and programs for patrons, etc., or differences in their perceptions of components of the service quality and customer satisfaction. Estimating such factors and analyzing differences between groups of customers are necessary for future researches■

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