

Brewing Service Quality into Cambodia Public Transportation

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ABSTRACT

This has prompted the transportation sector in Cambodia to pay more and more attention in assessing the overall passengers' perceived service quality that has been viewed as a "foundation" of passenger satisfaction. This paper aims to identify components of service quality of Cambodian bus transport service. This research was conducted by descriptive in nature and uses multiple regression to identify the most important factors of passenger satisfaction with the augmented SERVQUAL model and additional two dimensions (culture, and safety and efficiency) which researcher named new model of RACTERS (Reliability, Assurance, Culture, Tangibility, Empathy, Responsiveness, Safety & efficient). Using cross-sectional data with a sample of 698 respondents, the estimation results found that five dimensions (safety and efficient, assurance, empathy, culture and tangibility) have a significant and positive impact on the overall passenger satisfaction, with safety and efficiency dimension being the most important predictor of passenger's satisfaction.

Keywords: Service Quality, Augmented SERVQUAL, RACTERS model, Passenger Satisfaction, Bus Transport Sector, Cambodia

INTRODUCTION

Introduction

Traveling turns into a piece of life for some individuals that resulted from worldwide economic growth and growing disposable particular personal income (Pan, et al.,2012). Enhancing moving capacity of citizen cannot absent of center part of public mass transportation service that can be regard as survival solutions to the traffic congestion problem in this circumstances (Choocharukul,2004), as a popular sector of transportation practice through enjoyable journey (Rahaman,2009), most convenience with low costing (Randheer2011), providing economic of scale (Bhatia and Jain, 2009), and reducing the private cars employing in urban (Haron, et al.,2010). And public transport also contributes stress reduction of personal car drivers resulted from growing of traffic jam. Due to Too and Earl (2009) point that an attractive alternative to the car is concentrate on public transport. Furthermore great public transport rendered, i.e. that provides comfort, convenience and reliability, is the indispensable component to a more economical future, and a tricky dream for some urban areas and community. Then, the quality of services offered out in public transportation services are introspect sensitivity in a presented time of globalization, which is confirmed by Randheer, et al., (2011). So public transportation service contributes mostly to solve the communication demand, the employment problems, saving cost of individual, reducing traffic jam, the threat of global warming alleviation, as well as decreasing air pollution which has a significant effect on the national economy and world. Besides, business of transport cannot focus on profit and its survival. And competitive advantage of transport business through placing more emphasize on service quality and client fulfillment.

Service quality and customer satisfaction in both profit and non-profit organizations are inseparable, which is often compared to be like tongue and teeth (Ung & Chun, 2013). In

globalization's competitive environment, the service quality assessment is the first stage in keeping and retaining existing users and attracting new ones, who tend to have an increased service desire and expectations because of more self-service opportunity required (Somaratna and Peiris, 2011), and service quality was views as more attention (Maymand, et al.,2013) and an important strategic issue and a pervasive strategic force on management's agenda (Abdullah,2006), and has become an important research topic because of its perceived relationship to costs (Crosby, 1984), customer satisfaction (Bolton and Drew,1991; Landrum et al.,2009), customer retention and positive word-of-mouth communications (Reichheld and Sasser, 1990), cost-efficiently with limited revenue sources (Namju, et al.,2005). In addition, firms' market shares, greater return on investment, lower production costs (Mueller and Bedwell, 1993; Phillips et al., 1983; Reichheld and Sasser, 1990), higher profitability (Abdullah,2006; Gundersen et al.,1996) and customer satisfaction (Oliver, 1997; Zakaria, et al.,2009) cannot be absent of service quality.

Moreover, highly satisfied customers are road map to business survival (Munusamy, & Chelliah 2011), repurchase and/or customer's recommendation of firm's products or services to others (Kandampully et al., 2004; Arasli, 2005), survival or existence, profitability, customer retention (Ojo et al., 2010) , loyalty intention (Thuy and Hau, 2010; Thakur and Singh, (2012), and help to spread the positive word-of-mouth recommendations and in effect become walking, talking advertisements for providers whose service has pleased them, thus lowering the cost of attracting new customers. Satisfied customers tend to buy more, to be less price conscious, and to generate the positive word-of-mouth recommendations, thus contributing to profit (Anderson and Mittal, 2000). The growth of organizations really need the factors of service quality and customer satisfaction, and also perceived to be a bridge to acquiring and sustaining competitive advantage, retaining the existing customers and attracting the new ones, creating long term profitability as well as improving living standard of employees (Ung, 2013) and identification of service quality attributes and establishment of their vital and influence on customer behavior is essential for researchers (Mazzulla and Eboli, 2006).

In era of great competitive environment for tourism part, quality service regard as vehicle for communication (Abu Ali,&Howaidee, 2012). Actually, public transport sectors, the main concerning issue for great amount of passengers emphasizes on delivering the service quality (Rahaman 2009; Namju et al.,2005), in which service quality results in convenience for passengers, thus expand of the service competitiveness against private vehicles clients, however the evaluation of the passenger's perceptions on public transport service is vital to demonstrate the attractiveness and of the service in terms of availability and comfort and convenience(traveler's fulfillment) Yaakub, and Napiah(2011). Moreover, preventing the flow of the negative word-of-mouth communication, the complaining, and the switching, public transportation delivery has to be interested in meeting customer satisfaction (Ercsey, 2009). With bus performance satisfaction of passengers, they will return and use the services (Haron, et al., 2010).

Problem identified

Even the public transportation is modernized but the service quality is still lacking and not well implemented. This will lead to negative perceptions and not satisfy the consumer in using the public transports. The issues in service quality of the bus transports in Cambodia become unsatisfied and in the average level, therefore it is not satisfying the consumer needs and expectation. The bus transport business that's available in this country was provided by the private company towards public use. The implementation of the service quality for these bus transports is not really executed well which is being concerned by the Cambodia prime minister (Hun, 2012). Besides, physical facilities in term of cleanliness and comfortableness,

punctuality, frequencies and responsiveness of the driver and conductor of people in general transports was appear to be not fulfilled in the area of public transport service quality (Zakaria, et al., 2010).

Some incident also showed the problems of the service quality in term of safety measurement of the public transports become worse and in the critical case. Therefore the quality in term of service must be concerned extremely because of making sure the peoples or user satisfied and give positive perceptions towards the public transports provided as well as in urban or rural areas. In addition, in term of physical facilities of the public transports are insufficient, this is because the bus transport mostly not provided convenience facilities to the disable person which is used wheelchair to board. The bus transport sector do mostly not provided the ramps to give more disable people more convenience to use that kind of the public transports.

Objective of Study

Service quality is an important aspect in public transportation, there is very less research being done to explore this issue (Friman, et al., 2001). Therefore, this study focused measuring and assessment the level and significance of service quality perception of the augmented SERVQUAL scale given by Parasuraman et al (1988) and additionally including culture, and safety and efficiency dimension. This study is to examine the impact of RACTERS dimensions on passenger satisfaction and the factors that contribute most significantly to passenger satisfaction in the bus transport sector in the Cambodia. Research questions thus need to be formally formulated, and vigorous analysis is required to systematically answer the questions before any sound managerial implications can be provided.

REVIEWED OF RELATED LITERATURE

Service quality happens while firms convey its services to clients, for the most part in a communication between the customer and front-office workers. The component of the execution of workers, an organizational asset are a key to achieve service quality (Parasuraman et al.,1988). Moreover, the nature of service quality is generally a capacity of a few quality variables (properties) and deciding of each one element weight is one of the “corner-stone” of measuring quality, and the analysis of perceived service quality and its parts was additionally given careful consideration for firms (Yatskiv et al., 2010). Due to Smith and Hull, (2011) also indicated that quality service as capacity of the client's point of view, a few –critical elements|| were made, including: proficient, cordial, responsive representatives; convenience and accessibility of service; reliability, safety, and security of service; cleanliness / physical appearance of service; effective and timely recovery when service is disrupted; provision of accurate, accessible, and timely information; and development of a workplace environment that values and respects its employees and their role in the delivery of quality service.

Nowadays, one of the vital competitive weapons in any organizations as well as in all service industries can be presented of service quality in their firms (Berry et al., 2001, Kulkarni and Deshpande, 2012), and it has been increasingly recognized as a critical factor in the success of any business (Parasuraman et al., 1985, 1988); and lead to ensure customers patronizing the business for repeat purchases, customer satisfaction and return and use the services (Haron, et al., 2010), and behavior intention (Sumaedi, et al.,2012) .

With literature documents a number of methods used to measure service quality. However, measuring of service quality was pointed out by Gronroos (1984) there are three dimensions involved. (1) technical quality is the nature of what purchaser really gets as a result of his/her cooperation with the service firm and is essential to him/her and to his/her assessment of the

quality of service. (2) functional quality is the way he/she gets the technical outcome. This is essential to him and to his/her perspectives of service he/she has gotten. And (3) image is extremely important to service firms and this can be required to develop mainly by technical and functional quality of service including alternate components, for example, tradition, ideology, word of mouth, pricing and public relations. Furthermore, a well-known research team (Parasuraman, Zeithaml, and Barry, 1985) concentrates on SERVQUAL recognized ten possibly covering segments. These dimensions are reliability, responsiveness, competence, access, courtesy, credibility, security, understanding or knowing the customer, and tangibles. In their later studies, Parasuraman et al. (1988, 1990) reduced the original ten potentially overlapping dimensions to five testable dimensions. The five widely used dimensions include *tangibles* (referring to physical facilities, appearance of personnel and equipment); *reliability* (referring to the ability to perform the promised service dependably and accurately); *responsiveness* (referring to the willingness to help customers and provide prompt service); *assurance* (referring to the knowledge and courtesy of employees and their ability to convey trust and confidence); and *empathy* (referring to the provision of caring, and personalized individual attention given to customers).

In the interim, in concentrated nature's domain, customer satisfaction is key point that is characterized as the general level of achievement of a client's desires, and has doubtlessly been satisfied through measuring as the rate of client desires. It is likewise important to utilize benchmarks that allow examinations to be made. This correlation could be for quality in distinctive time periods or in the meantime among diverse courses or even among distinctive operators are the result from measuring and appraisal of service quality nature of client's perspectives (Morfoulaki, et al., 2007). Customer satisfaction has a positive effect on firms' benefit (Abbasi et al., 2010) and is crucial for holding clients (Clow and Vorhies, 1993; Oliver, 1989). Numerous researchers arrive at a conclusion there are truly linkages between service quality and customer satisfaction (Spreng and Mackoy 1996; Buttle, 1996; Caruana, 2002; Cronin et al., 2000). Precisely, confirmations of study about traveler's fulfillment out in the public transport part was demonstrated via researchers, for example, Budiono, (2009); Ercsey, (2009); Yaakub, and Napiah, (2011); Randheer, (2011).

In public transport industry, the survival of modern society with transport service is imperative for life of individuals in the urban areas (Onokala, 2001) in which cited by (Ali,2010). Individuals, companies and other organizations to lead their exercises at locales chose for these reasons in divided areas in the urban communities was empowered by transport benefits in urban focuses. Transport likewise is an exemplification of the complex connections in the middle of social and political exercises and the level of economic development, in which convey a foundation to knowing and operation of numerous different frameworks at numerous distinctive scales (Buchannan, 1969; Hoyle and Smith, 1992). The most vital matter of both organizers and administrators concentrate on measuring of service quality, furthermore measured by the clients' perceptions and expectation see, and might be enhanced by distinguishing the imperative and perception level called attention to by users in the field of public transportation (Eboli, and Mazzulla, 2008).

The service quality of the public transports contribute to have better and comfortable environment. Many researchers arrive at a conclusion there are linkages between public transport service quality and customer satisfaction (Rahaman, 2009; Haron, et al., 2010; Zakaria, et al., 2010). Cited by Wijaya (2009) then Giannopoulos (1989) stated that customer satisfaction of public transport stresses on every one of those components of the operation in a transport that directly relates to the proper and efficient execution of the daily service requirements in which the mechanical parts of the urban bus and especially the body

structure, the chassis, the suspension, the types of doors and their mechanism, the control systems (brakes and steering), the transportation framework, and different attributes of the vehicle are the components that impact straightforwardly on wellbeing of the operation.

Rendering the study of public transportation industry in twin cities of Hyderabad and Secunderabad, India, Randheer, et al., (2011) incorporated one additional dimensions, culture (including respects the local culture, works for the welfare of society in line with local values, the good image among local population, gives attention to women, children and handicapped), to those of popular SERVQUAL model. Namju, et al., (2005) in South Korea; *Geetika, and Nandan,(2010) in India*; Kitasaka, and Eng. (2003), Thompson, Schofield, (2007) in UK, also researched another on dimension of safety- security and efficiency for public transportation (including comfortable way to travel, bus transport vehicles safe, safety information for bus transport toward passengers, security and safety on bus traveling and luggage, perceived safe travelling alone on the bus service, on time departure of bus transportation, on time arrival at the next stop, queuing time for ticket of passengers, and waiting time for bus of passengers, and improvement of mobility and transportation efficiency, productivity, safety and security for passengers and freight) are also shown to be important attributes that public passengers use to evaluate public transportation service. Moreover, in the study of bus transport industry in Penang, Malaysia (Haron , et al., 2010) indicated dimension of safety and security (feel safe while waiting for the bus, traveling on the bus at night, crossing the road to the bus stop, very helpful bus drivers, bus drivers polite to passengers, bus drivers drive carefully) affects on passengers satisfaction. However, service quality in the public transport industry has also been examined in a number of studies (Choocharukul, 2004; Budiono, 2009; Haron, Sarina and Noor, 2010; Zakaria et al., 2010; Too and Earl,2010; and Yaakub and Napiiah, 2011; Randheer, et al., 2011;).

In a more recent study by Zakaria, et al., (2010) to determine the dimensions of service quality in Malaysia, they find that dimension of tangibility carries the heaviest weight in explaining customer satisfaction, followed by reliability and responsiveness. For India's public transportation sector, Randheer, et al., (2011) finds that culture, assurance, reliability, empathy, tangibility dimensions are found to be the significant predictors of overall customer satisfaction.

RESEARCH METHODOLOGY

Data Collection and Instrument

Researcher used to extend SERVQUAL. The questionnaire includes the five widely-used dimensions (tangibility, reliability, responsiveness, assurance, and empathy) and two additional dimensions of service quality (culture, and safety and efficiency) in which the factor of culture following Randheer, et al., (2011) and safety and efficiency dimension adopted from Thompson, Schofield (2007); Geetika and Nandan (2010); and Namju, et al., (2005).

Relevant information about passenger perceptions, and socio-demographics are obtained by means of a survey conducted to collect a data for the analysis. A purposive non-probability sampling method was used by researchers. A survey questionnaire is designed and distributed randomly to target respondents, who have been using bus transportation service in Cambodia. In order to receive the most accurate responses possible, the questionnaires were English language and also translated into Khmer, the official language of Cambodia.

The questionnaire is classified into three major parts. The first part of the questionnaire contains respondents' perceived performance. In the second part captures the information related to overall passenger satisfaction. Respondents were asked to respond to each item on

the widely used five-point Likert-type scale in which is linked to Randheer, et al., (2011). The third part of the questionnaire is used to get the information on the demographic information of the respondents.

Roscoe (1975) suggests a series of general rules in determining the acceptable sample size for research, and proposes that for any research intending to conduct a multiple regression analysis, a sample size should be 10 times as large as that of the number of variables. In order to produce the best estimates possible, the collection of a reasonably large data set has to be made from the population. To this end, 720 questionnaires were distributed to passengers. The rate of the responses was about 97%. Following cleaning process of the data, a sample of 698 respondents is considered usable for the analysis.

Analytical Techniques

All data collected are fed into statistical packages, in particular the Statistical Package for the Social Sciences (SPSS 20.) and/or STATA 12.1 for analysis. The statistical analysis of data includes descriptive statistics (frequency, percentage and chart), and multiple regression analysis and other necessary testing to obtain the best possible results. To avoid reporting misleading results from the estimation of the regression model, several diagnostic tests are needed. Reliability check is to be carried out in order to assess the degree to which data collection method will yield consistent findings; similar observations would be made or similar conclusions reached by other researchers. In order to test the reliability of the instrument used, the reliability coefficient Cronbach's alpha is used. It is generally agreed that Cronbach's Alpha should exceed 0.70 to be reliable (Hair et al., 2010). These tests include multicollinearity checks, heteroskedasticity test and model specification test, known as Ramsey (1969)'s RESET test. Before presenting econometric results, we carry out several tests, such as those heteroskedasticity in which the Breusch and Pagan (1979) test for heteroskedasticity (Verbeek, 2004; Wooldridge, 2006). The multicollinearity check is made through values of variance inflation factor (VIF), which has been shown to be equal to $1/(1-R_i^2)$, where R_i^2 is obtained from the multiple correlation coefficient of an explanatory variable X_i regressed on the remaining explanatory variables. In order to obtain stable estimated slope parameters, VIF should be lower than five (Studenmund, 2006).

Proposed Model

Passenger satisfaction and service quality is a key point to breed to the success of any organizations. In light of discussion on the review of related literature, following among others Parasuraman, et al., (1991); and Randheer, et al., (2011); and Namju, et al., (2005); *Geetika, and Nandan,(2010)*; the relationship between service quality and passenger satisfaction can be modeled.

This study is of particular interest since, to the best of knowledge, no research was undertaken with respect to the determining factors influencing passenger satisfaction in bus transportation service in Cambodia. This model consists of a dependent variable, passenger satisfaction, and seven explanatory variables (RACTERS): responsiveness, assurance, culture, tangibility, empathy, reliability, and safety & efficiency.

$$OPS = \beta + \beta_1 \text{reliability} + \beta_2 \text{assurance} + \beta_3 \text{culture} + \beta_4 \text{tangibles} + \beta_5 \text{empathy} + \beta_6 \text{responsiveness} + \beta_7 \text{safety and efficiency} + \varepsilon$$

where OPS denotes overall passenger satisfaction, and ε is error term, which is assumed to be normally distributed.

EMPIRICAL DATA ANALYSIS AND DISCOVERY

Basic Analysis

The purpose of this study was to assess passengers' satisfaction of service quality in passenger's perception, and will present the results of survey questionnaires and commence with an analysis of the quantitative research.

In table 1 below shows that classified the collected data into married status groups, it is found the majority of bus transportation services users is single, accounting for married 71 percent. It is also found that, of the 698 respondents, more than 52% are female. With respect to frequency of travel by bus transportation, more than 49 % of passengers are rarely travel by bus transportation. The respondents' reasons for traveling by bus transport included those with tourism (almost 82%), followed by visit family (almost 74%) and works (almost 64%). The data set also reveals that more than 51% of the respondents are students, followed by employed full-time (more than 17%), own business(10%), employed part-time (more than 8%), and other (more than 6%). Moreover, with respect to passengers' income, the majority of the respondents seem to have income under \$100 (46%), followed by 100\$ to 200\$ (more than 29%), and 201\$ to 300\$ (more than 12%). Due to respondents' nationality is Cambodian (more than 98%), and Chiness (almost 1%). With respect to the brand name of bus transport companies, Mekong Express (more than 17%), followed by Capital (14.18%), Hochin(7.16%), Paramount (more than 7.16%), Red Dragon (7.02%), Virak BunThaing (7.02%), Sok sokha (6.88%), and Soriya (6.73).

Table 1: Characteristic of the Respondents

Categories	Frequency	Percentage	Cumulate
<i>Gender</i>			
<i>Male</i>	333	47.71	47.71
<i>Female</i>	365	52.29	100.00
<i>Marital Status</i>			
<i>Single</i>	497	71.20	71.20
<i>Married</i>	193	27.65	98.85
<i>Divorce</i>	3	0.43	99.28
<i>Other</i>	5	0.72	100.00
<i>How often do you travel by bus transport service?</i>			
<i>Rarely</i>	342	49.14	49.14
<i>Occasionally</i>	247	35.49	84.63
<i>Frequently</i>	78	11.21	95.83
<i>Very frequently</i>	29	4.17	100.00
<i>Reason to travel by Bus</i>			
<i>Work</i>	132	63.77	100.00
<i>Study</i>	45	34.35	100.00
<i>Own Business</i>	77	46.39	100.00
<i>Tourism</i>	237	81.72	100.00
<i>Seminar</i>	39	33.33	100.00
<i>Visit family</i>	188	73.73	100.00
<i>Other</i>	76	54.51	100.00
<i>Employment Status</i>			
<i>Student</i>	358	51.29	51.29
<i>Employ full-time</i>	122	17.48	68.77
<i>Employ part-time</i>	60	8.60	77.36
<i>Own business</i>	70	10.03	87.39
<i>Housewife</i>	25	3.58	90.97
<i>Retire</i>	1	0.14	91.12
<i>Civil servant</i>	18	2.58	93.70
<i>Other</i>	44	6.30	100.00
<i>Income per month</i>			
<i>Under \$100</i>	322	46.13	46.13
<i>100\$ - 200\$</i>	205	29.37	75.50
<i>201\$ - \$300</i>	88	12.61	88.11
<i>301\$ - \$400</i>	42	6.02	94.13
<i>401\$ - \$500</i>	19	2.72	96.85
<i>501\$ - \$600</i>	8	1.15	97.99
<i>\$601 - \$700</i>	4	0.57	98.57
<i>701\$ - \$800</i>	4	0.57	99.14
<i>801\$ - \$900</i>	5	0.72	99.86
<i>Over \$900</i>	1	0.14	100.00
<i>Nationality</i>			
<i>Cambodian</i>	687	98.42	98.42
<i>Chinese</i>	6	0.86	99.28
<i>Korean</i>	1	0.14	99.43
<i>American</i>	1	0.14	99.57
<i>Vietnamese</i>	2	0.29	99.86

<i>English</i>	1	0.14	100.00
<i>Bus brand name</i>			
<i>Mekong</i>	120	17.19	17.19
<i>Capitol</i>	99	14.18	31.38
<i>Hochiming</i>	50	7.16	38.54
<i>Red Dragon</i>	49	7.02	45.56
<i>VirakBunthaing</i>	49	7.02	52.58
<i>Paramount</i>	50	7.16	59.74
<i>Sok sokha</i>	48	6.88	66.62
<i>Soriya</i>	47	6.73	73.35
<i>Punleur Angkor</i>	47	6.73	80.09
<i>Rith Mony</i>	92	13.18	93.27
<i>GST</i>	47	6.73	100.00

Reliability Check

Table 2 reports the results of reliability checks for both dependent and explanatory variables in bus transport companies. Cronbach's alpha values for all variables are high, exceeding the 0.7 cutoff recommended by Hair et al (2010). As can be also seen from table 2, Cronbach's alpha estimated for the reliability scale was 0.801; assurance scale was 0.738; the culture scale was 0.757; tangibles scale was 0.784; the empathy scale was 0.750; responsiveness scale was 0.714; and safe and *efficient* was 0.812 and overall passenger satisfaction scale was 0.748 respectively. As the Cronbach's alpha in this study was higher than 0.7, the constructs were therefore deemed to have an adequate reliability (Hair et al., 2010). Based on estimated reliability coefficients, it is apparent that the RACTERS scale is good reliable instrument.

Table2 : Reliability checks for individual variables

RACTERS Dimensions	Case	Reliability Statistics	
	No. of Obs.	Cronbach's Alpha	No. of Items
Reliability	698	0.801	8
Assurance	698	0.738	4
Culture	698	0.757	4
Tangibility	698	0.784	10
Empathy	698	0.750	6
Responsiveness	698	0.714	6
Safety and <i>efficiency</i>	698	0.812	9
Overall passenger satisfaction	698	0.748	4

RACTERS Model and Empirical Data Analysis

Based on the review of the related literature and previous empirical studies, the relationship between service quality and passenger satisfaction can be explicitly modeled as follows:

$$OPS = a_0 + \beta_1 Reliability + \beta_2 Assurance + \beta_3 Culture + \beta_4 Tangible + \beta_5 Empathy + \beta_6 Responsiveness + \beta_7 Safety\ and\ efficiency + \varepsilon$$

Where OPS denotes Overall Passenger Satisfaction, and ε is error term, which is assumed to be normally distributed

The cross-sectional data used for the analysis is from a survey of 720 passengers. Yet, following cleaning process, a sample of 698 is considered to be usable for the analysis. The data set contains detailed information on the explanatory variables-- reliability, assurance, culture,

tangibles, empathy, responsiveness, and safety and efficiency--which are included in the model presented above. And before presenting econometric results, the researcher reports several tests such as those for multicollinearity, based on variance inflation factor (VIF), heteroskedasticity and Ramsey (1969)'s regression specification error (RESET) for functional form misspecification.

Table 3: Multicollinearity Check

Predictor Variable	Collinearity Statistics	
	Tolerance	VIF
Reliability	.447	2.236
Assurance	.424	2.359
Culture	.463	2.160
Tangibility	.443	2.258
Empathy	.347	2.885
Responsiveness	.412	2.425
Safety and efficient	.360	2.780

Table 4: Estimation results with usual standard errors

Variable	Coefficients	Std. Error	T statistics	Sig.
Constant	.257	.101	2.543	.011
Reliability	.016	.036	.438	.661
Assurance	.171	.037	4.595	.000
Culture	.091	.033	2.807	.005
Tangibility	.087	.037	2.386	.017
Empathy	.109	.046	2.400	.017
Responsiveness	.002	.042	.058	.953
Safety and efficient	.446	.046	9.640	.000

Table 5: Estimation results with Robust standard errors

Variable	Coefficients	Std. Error	T statistics	Sig.
Constant	.257	.105	2.45	0.015
Reliability	.016	.042	0.38	0.705
Assurance	.171	.039	4.40	0.000
Culture	.091	.032	2.81	0.005
Tangibility	.087	.036	2.46	0.014
Empathy	.109	.050	2.20	0.028
Responsiveness	.002	.044	0.06	0.955
Safety and efficiency	.446	.051	8.75	0.000

- No. of observe = 687
- R-squared = 0.580
- Adjusted R squared = 0.575
- F-value = 135.966; P-value= 0.000
- Ramsey RESET statistic 0.56 (P-value = 0.641)
- Brusch-Pagan Test Statistic, 11.243 (P-value = 0.113)
- Special White Test Statistic, 51.59 (P-value = 0.035)

$$\begin{aligned}
 \text{OPS} = & .257 + .016 \text{ Reliability} + .171 \text{ Assurance} + .097 \text{ Culture} + .087 \text{ Tangible} + .109 \text{ Empathy} \\
 & (.101) \quad (.036) \quad (.037) \quad (.033) \quad (.037) \quad (.046) \\
 & \{.105\} \quad \{.042\} \quad \{.039\} \quad \{.032\} \quad \{.036\} \quad \{.050\} \\
 & + .002 \text{ Responsiveness} + .446 \text{ Safety \& efficiency} \\
 & \quad (.042) \quad (.046) \\
 & \quad \{.044\} \quad \{.051\}
 \end{aligned}$$

Table 3 presents the estimation results, along with test statistic. As can be seen from this table, VIF values for all independent variables was much less than 5, implying that multicollinearity issues are of no concerns.

For the reason of comparison, tables 4 and 5 present the estimation results with usual standard error and with heteroskedasticity-corrected standard error. Overall passenger satisfaction is regressed on seven service quality dimensions—tangibility, reliability, assurance, culture, empathy, responsiveness, safety and efficiency. It is found that the special case of White test statistic of 51.59 with p-value = 0.035 is highly significant at less than the 1%, pointing to a clear evidence of heteroskedasticity presence in the data set. And Bruch pagan test statistic of 11.243 with p-value of 0.113, respectively, are statistically insignificant at any conventional significance level, suggesting no heteroskedasticity in the data set. Moreover, the Ramsey RESET test statistic of 0.56 with p-value of 0.64 are statistically insignificant at any conventional significance level, suggesting model fit in the data set.

Based on table 5 with Robust standard error above, the seven dimensions explain 58 percent of the variation of the overall passenger satisfaction, which is statistically significant at less 1% significance level (F-value = 135.96 with P-value < 0.00). To identify which dimensions of service quality contribute most significantly to the overall passenger satisfaction, a regression is use z-scores are run to obtain standardized coefficients or beta coefficients. Therefore, explanatory variables with higher standardized coefficients contribute more significantly to the dependent variable.

The estimation results of bus transport companies in Cambodia suggest that the regression model is statistically significant and that the seven service quality dimensions exert a positive effect on the overall passenger satisfaction, except reliability, and responsiveness dimension which lacks statistical significance (table 5). The highest estimated standardized coefficient on safety and efficiency dimension of 0.446 implies that the dimension makes the greatest contribution to the bus passenger satisfaction, followed by the service quality dimensions of assurance (0.117), empathy (0.106), culture (0.091) and tangibility (0.087). These findings indicate that safety and *efficiency* has been the most important predictor of overall passenger satisfaction in the manner of bus transport companies in Cambodia.

Coefficient of safety and *efficiency* dimension is highly statistically significant at the 1% significance level, indicating that safety and *efficiency* has indeed positively affected upon overall bus passengers' satisfaction. It means that a unit change in the response rate of bus companies in Cambodia for safety and *efficiency* item, *ceteris paribus*, leads to an estimated change in their overall satisfaction of about 0.446. And followed by the service quality dimensions of assurance, empathy, and culture, respectively, implies that, holding other factors fixed, a unit change in the response rate of bus service operation in Cambodia for assurance, empathy and culture dimension, respectively, leads to a positive change in their overall satisfaction of about 0.117; 0.106 and 0.091, respectively,. And also followed by dimension of tangibility (0.087), is also highly significant at less than 5%. Therefore, dimension of bus service company safety and efficiency, assurance, empathy, culture, and tangibility really makes the greatest contribution to bus service satisfaction

CONCLUSION AND IMPLICATIONS

The empirical study began with detailed descriptions of service quality dimensions of RACTERS model and addressed the research questions with respect to service quality dimensions that may influence bus passenger satisfaction in Cambodia. It also seeks to identify the dimensions that contribute most significantly to overall passenger satisfaction. The

purposes of the study are to identify the relationship between RACTERS dimension attributes and the overall satisfaction of passengers who has been using bus service. Cross-sectional data were used and survey questionnaires were distributed randomly to 720 respondents; but after rounds of verification only 689 are usable.

Using multiple regression analysis, the results indicate that five dimensions (safety and efficiency, assurance, empathy, culture and tangibility) show significant, positive sign on the overall satisfaction, with safety and efficiency dimension also contributed most on the bus passenger satisfaction. The findings of the study indicate that the five dimensions of SERVQUAL cannot be replicated fully to the bus transport sector. Another dimension, safety and efficiency, and culture, may be equally important. The results present a number of managerial implications and recommendations for bus transport company management, while contributing to the improvements of service quality, with application to bus transportation sector in Cambodia.

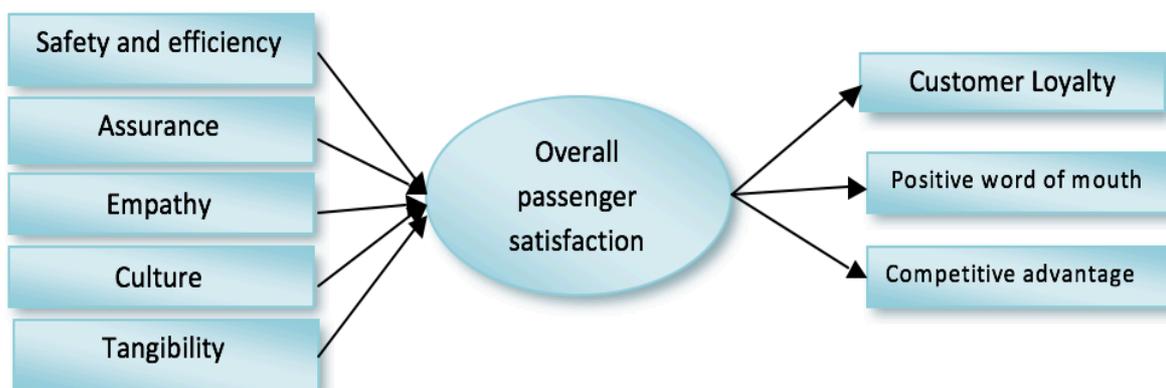
With cross-sectional data, the special attention should be paid to the most important trigger of bus transport satisfaction, management of bus transport companies should also place an emphasis significant predictors such as safety and *efficiency* in which bus transport sectors in Cambodia is a comfortable way to travel, safety in bus transport vehicles, safety information for bus transport toward passengers, safety and efficient on bus traveling and luggage, perceived safe traveling alone on the bus service, on time departure of bus transportation, on time arrival at the next stop, queuing time for ticket of passengers, and waiting time for bus of passengers

Meanwhile, assurance and empathy dimension of service quality are also a vital factor to contribute their passenger satisfaction and also identify long-life of bus transportation companies. For the behavior of employees, drivers driving in a bus company instills confidence in passengers, giving feel safe in bus company's transactions with customers, employees in the bus company area consistently courteous with clients, having the knowledge to answer customers' questions, giving attention to women, children and handicapped, operating hours convenient to all its customers, and employees in the bus company should give your personal attention to passengers, keep customers in your best interest at heart, understand your specific needs and always friendly service personnel to all customers.

And the other hand, bus transport companies in Cambodia has been facing more challenges in both same companies and substitute service sector (like taxi, minibus and airline...) in a change environment of globalization, customer's fear on public transport accident that require bus companies to be interested in law enforcement of road transportation. So a bus company should respect the local culture, works for the welfare of society, build the good image among the local population, and especially, the bus driver should obey driving law

Moreover, bus transportation companies cannot ignore the dimension of tangibility that is also an important factor to contribute the bus customers' satisfactions even though these factors less influence on passenger satisfaction. Bus transport should has modern looking transport, visually appealing physical facilities, clean and hygienic inside environment of bus (toilets, seats...), neat appearing employees, comfort shelter, well function of bus AC, TV, Karaoke, availability of trash bin on board, availability of media of suggestion and complaint in bus, availability of the comfort seats in the bus, and convenient bus stops locations. The results present a number of managerial implications and recommendations for bus transport sector management, while contributing to the improvements of the RACTERS model, with application bus transport industry in Cambodia (Figure 1).

Figure 1: Effects of service quality dimensions on passenger satisfaction, loyalty, positive word-of-mouth recommendations, and competitive advantage of public transport sector



However, this research has few limitations. First, the researcher used purposive method of non-probability sampling of data collection thus the sample may not be truly representative of the population. Secondly, the study emphasizes only on bus transport service in Cambodia. The results of the study, therefore, may be applied with bus transport companies only. Third, writing and paraphrase in English are still constraint for researcher that cannot lead to be better than Khmer writing. The future research may be conducted in other public transportation sector (such as taxi, minibus...) and should expand dimension that apply in the transportation sector. Future research may be conducted through qualitative methods such as focus group and in-depth interviews and/or observations or both methods of qualitative and quantitative and should expands this research in other ASEAN countries in related to service quality of the public transport sector.

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