[LOG 27] MEASURING SERVICES QUALITY OF BUS TRANSPORTATION IN UNIVERSITI UTARA MALAYSIA (UUM)

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ABSTRACT

This study aims to measure service quality of bus transportation in Universiti Utara Malaysia (UUM). Our group decided to choose this topic because bus transportation plays as an important function in terms of transportation in moving students around campus in UUM. To measure service quality in our topic, we will focus on the relationship between service quality of bus transportation and three aspects that we retrieved and developed from SERVQUAL (Service Quality) theory dimension by Parasuraman which are tangible, reliability, and responsiveness. Our population and sample for this study that we will use is amongst undergraduate students in Universiti Utara Malaysia. Our population for this study is about 14000 students and we will take sample about 400 of them. During conducting this study, we use questionnaires as our main instrument for collecting data from the study population. The student population is significant to their responses because they are the customers and have knowledge in the particular services. Data were analyzed by using reliability analysis, correlation analysis, and linear regression analysis for measuring service quality of bus transportation in Universiti Utara Malaysia. Based on the analysis, it was found that all three independent variables are acceptable and significant towards our dependent variable in this study. The survey regarding this study was constrained by the sample size and cross-section due to the time constraints. Last but not least, this research is significant because it will contribute to the actual current level of service quality of bus transportation in Universiti Utara Malaysia. Next, the bus management can improve their service quality level of bus transportation, address problem occurred regarding the services that they have delivered, and also overcome the problem with rapid solutions during a specific time period.

Keywords: *Services quality, bus transportation, tangible, reliability, responsiveness*

INTRODUCTION

Bus is one of the vehicles of transportation on land that allows the movement of people and goods from one place to another place during specific time period. The bus availability in transporting a large number of people and goods in reasonable time have leads to its uses as one of the important transportation in any places especially in the metropolitan and urban cities or town, high institution, and also universities. The lower maintenance cost of bus when compared to other vehicles also leads to its position as one of top public transportation worldwide. In Universiti Utara Malaysia, bus as our

main transportation also are not exceptional. With populations around 14,000 students that are staying in residential colleges that are located around the campus, almost all of them travelling from one place to another place such as from their residential colleges to their classes by using bus transportation. Currently, there are about 36 buses in Universiti Utara Malaysia that operated around campus involving four main routes which are Route A, Route B, Route C, and Route D. Usually, the bus services will start operating every day starts from 7.30AM until 11.30PM. Here, we can see that bus transportation in Universiti Utara Malaysia plays as an important role in the movement of students around campus especially during classes time. But, there are issue occurred regarding to services quality provided by bus amongst students through comments and complaints on social media such as Facebook and many more. This issue are including the late arrival of the buses, lack of number of buses, and so on. To overcome issues regarding our bus transportation, through this study, we will measuring the services quality of bus transportation in Universiti Utara Malaysia. When it comes to services quality, we will use theory that can be suit and match with our study.

We decided to using SERVQUAL theory by Parasuraman which is involving five dimensions towards bus transportation. But in our study, we will only choose three dimension as our independent variables (IV) that can be highly suited into our study. While, services quality will be our dependent variables (DV) for this study. This independent variables are tangible, reliability, and responsiveness aspects will react to services quality which is the dependent variables. We will identify the relationship between services quality of bus transportation in Universiti Utara Malaysia and these particular aspects in order to measuring it. Since the bus transportation in Universiti Utara Malaysia mainly served the students, we decided to choose undergraduate student as our respondents. It will include students from all level of undergraduate program and all four routes around campus, and also both genders will have an equal chance to be selected in this study. Therefore, the finding from the study will be induced among UUM students only. Focus on this study are measuring the service quality of bus transportation in Universiti Utara Malaysia. Based on this, our finding from this study will contribute to the actual current level of service quality that bus transportation in Universiti Utara Malaysia. Though this finding, the bus management can improve their level of service quality towards students of Universiti Utara Malaysia, address problem occurred regarding the services that they have delivered, and also overcome the problem with rapid solutions during a specific time period, especially for our students.

The objective of the study is as follows:
- To identify the relationships between tangible aspect and the services quality of bus transportation in Universiti Utara Malaysia.
- To identify the relationships between reliability aspect and the services quality of bus transportation in Universiti Utara Malaysia.
- To identify the relationships between responsiveness aspect and the services quality of bus transportation in Universiti Utara Malaysia.

LITERATURE REVIEW

Services quality can be defined as an assessment that focusing the level of how good the services provided in meeting the clients expectations. Customers will be more likely to compare the received services with their expectation services in situations where as

when the level of service quality is poor, the customer will be disappointed. Services quality often used by most of the service business in order to improve their current service, to identify problem occurred, and also to identify their customer satisfaction. When firms attempt to differentiate their entity from their competitors, service quality often recognized as a main key factor to help them in getting through with success. Based on research, service quality known as leading to withholding of existing customers and managed to gain new potential customers as well. It also managed to reduce costs that firm have to board, increasing good image of particular firms, become recommendations firms amongst people, and also increasing profitability of the firm (Berry et al., 1989; Reichheld and Sasser, 1990; Rust and Zahorik, 1993; Cronin et al., 2000; Kang and James, 2004; Yoon and Suh, 2004). In this research, many efforts about service quality has been committed to the development of reliable and applicable instruments for measuring the form. The best and most common measures that have been used towards service quality is "SERVQUAL" theory that originally created by Parasuraman et al. (1985, 1988) and subsequently harmonized by Parasuraman et al. (1991). The SERVQUAL theory representing five dimensions which consist of 22 items, was originally applied in five service settings: retail banking, credit card services, repair and maintenance of electrical appliances, long-distance telephone services, and title brokerage.

Tangibles: The state of physical facilities belonging to a service: its equipment, the employees' appearance and so on.

1. Reliability: The capability to perform a service reliably and accurately.
2. Responsiveness: The will help customers and provide them with a timely service.
3. Assurance: The degree of knowledge and courtesy held by a company's employees, their capacity to inspire trust among customers.
4. Empathy: The ability to give individualized attention to each and every customer.

Recently, the theory has been used widely to measure service quality in varieties of service environments which can be seen through Ladhari (2009) that have publishing review of 20 years of SERVQUAL approaches in particular industry. SERVQUAL theory have been performed in many field and countries. Some of them is shown in the table below:

Table 1
The application of SERVQUAL approaches

Field	Countries
• Education (Tan & Kek, 2004; Ramseook-Munhurrun et al., 2010),	• USA (Kilbourne et al., 2004; Lai, 2006; Landrum et al., 2007)
• Healthcare (Norazah et al., 2011),	• China (Lam, 2002; Zhou et al., 2002)
• Hospitality (Ramsaran-Fowadar, 2007),	• Australia (Baldwin & Sohal, 2003)
	• Cyprus (Arasli et al., 2005)
• E-commerce (Van Iwaarden et al., 2003)	• United Kingdom (Kilbourne et al., 2004; Lai, 2006).
• Banking (Sangeetha & Mahalingam, 2011)	

Even though the SERVQUAL instrument has been widely applied and valued by scholars and industry employees such as managers (Asubonteng et al., 1996; Buttle, 1996; Lam & Woo, 1997), several authors have identified potential difficulties with the conceptual foundation and empirical operationalization of the scale (Carman, 1990;

Cronin & Taylor, 1992; Asubonteng et al., 1996; Buttle, 1996; Lam, 1997; Van Dyke et al., 1997; Arasli et al., 2005; Badri et al., 2005; Jabnoun & Khalifa, 2005; Landrum et al., 2007). As an addition, critics have questioned whether the five generic dimensions of the scale, and its psychometric properties, are generically applicable in all service contexts. Back to the items under five particular dimensions, for each item will be calculated the gap between perceived quality and expected quality in terms of services that customers received. Based on this gap, it allows us to assess the differences between what customers expected to receive and customer perceived in terms of services. Many studies that applied this theory have resulted in negative gaps where expected quality much higher than perceived quality. It is because the shortage in meeting expectations amongst customers and also lower than level of satisfaction of perceived quality. Friman and Felleson (2009) concluded that negative outcome are not uncommon since usually the customers who want to receive particular services will likely to put high expectation on the particular services. It is also can be caused of unstable relation between satisfaction and performance in services that mentioned the relation would not be always linear. The main rules of service quality can be stated that the goal of a company are should be to lower and minimizing the negative gaps between perceived and expected quality.

For this research, dimension that we used for our SERVQUAL theory are similar to research by Arasli (2005). Through his research, he managed to identify customer service quality in the Greek Cypriot banking industry. The SERVQUAL scale proved to be of a three-dimensional structure in this study which are tangible, reliability, and responsiveness-empathy. Results revealed that the expectations of bank customers were not met where the largest gap was obtained in the responsiveness-empathy dimension. Reliability items had the highest effect on customer satisfaction, which in turn had a statistically significant impact on the positive word of mouth. This is what we will do with our research. we measure the service quality of the bus transportation in Universiti Utara Malaysia to identify our current level and combat any issue occurred regarding the services. Thus, the gaps that created by the services can be minimized and lower. Services quality can not be divorced from the transportation industry. It is because the industry itself are mainly providing services to transporting passengers and freight or goods between two places during specific time that also known from point on origin to point of destination. Recently, there are many research that focused on services quality. It is because they want to identify their current level of services, so that they can improve their services. At the same time, it allows them to identify issues that may occurred and then combat it with effective solution that have been practiced by the particular company.

Yuen and Thai (2015) in their research focused on services quality and customer satisfaction in liner shipping. The researchers aims to identify the dimensions of service quality (SQ) in liner shipping and examine their effects on customer satisfaction in Singapore. Through their study, they found that services quality in liner shipping can be represented by four dimension. Reliability as the highest dimension to impact on customer satisfaction, and followed by speed and responsiveness, and the lowest dimension to giving impact is value of service. It also found that in liner shipping, service differentiation managed to deliver greater level of customer satisfaction than practicing cost leadership in their companies. Thai (2008) also have studied on service quality in maritime transport where she tried to further the knowledge on service quality in maritime transport, where new conceptual model will be proposed and tested. As a

result, it proved that there are six dimension under services quality in maritime transport. These six dimension are including resources, outcomes, process, management, image, and social responsibility (ROPMIS), with each dimension measured by a number of explaining factors making up a total of 24 factors. It also found that outcome, process, and management factors received high impacts on customer satisafaction. Move to another market in transportation industry, Min Zhang (2013) through their research aims to evaluate the services quality of car rental industry in China. The researchers use SERVQUAL model to identify the dimension that deliver highest contribution to the service quality in the particular industry. Finding from their study found that empathy as the dimension that deliver the highest contribution and also has strong impact towards the customer satisfaction and loyalty. To align with some transportation services, there are researchers that come up with model to measuring the services quality.

Mahatma (2015) in their research are trying to test a model of service quality of public land transport services known as "P-TRANSQUAL" with four dimension. It is including comfort, tangible, personnel, and reliability. Based on this model, they are focusing on paratransit services in Indonesia. Result of this research found that this model proved to have great validity, reliability,and stability for measuring service quality of paratransit services in Indonesia. Barabino (2015) in his research try to measuring services quality of urban bus transport with using modified SERVQUAL approach that align with the EN 13816, a European standard on service quality in public transport. Here, the research have lower number of items investigated (15 instead of 22) and the inclusion of just four out of the five dimensions (with the exclusion of empathy). Results of that study found that tangible has the biggest influence and followed closely by responsiveness and assurance. Reliability has the lowest or minor influence on the service quality. It also illustrate a high degree of importance placed on attributes such as on-board security, bus reliability, cleanliness and frequency, with these latter three characterized by the widest negative gaps between perceptions and expectations. Gilbert and Wong (2003) that have been demonstrated the absolute relevance of the dimension "assurance" for post-September 11 air passengers departing from Hong Kong airport. While Devi Prasad and Raja Shekhar (2010) have modified SERVQUAL theory and managed to propose and then tested the RAILQUAL theory to evaluate the perceived quality among railway passengers by means of 8, rather than 5, dimensions (with comfort, security and convenience added to the original dimensions). In urban transport, Two and Earl (2010) has highlighted the lower perceived quality of bus riders in comparison to train passengers living in Varsity Lakes (Australia), whereas Wang et al. (2010) analyzed the gap between perceived and expected quality among urban transport stakeholders commuting within the Taipei's metropolitan area. Based on the literature review, a research framework is being proposed as follows:
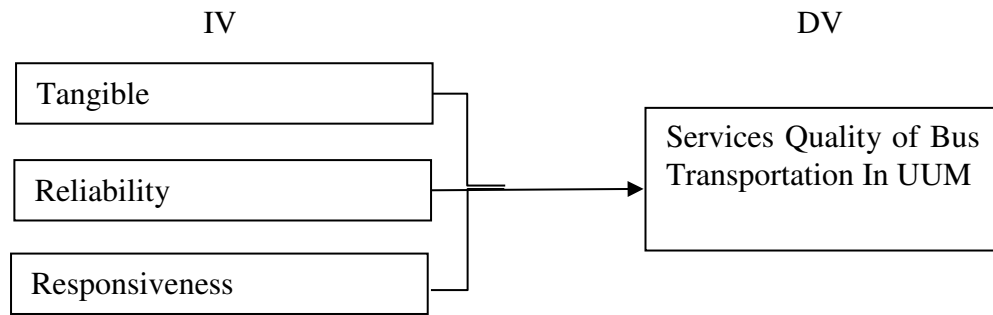
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        IV                                    DV
   ┌──────────────────┐
   │ Tangible         │────┐         ┌──────────────────────┐
   └──────────────────┘    │         │ Services Quality of Bus │
   ┌──────────────────┐    │────────▶│ Transportation In UUM   │
   │ Reliability      │────┤         │                         │
   └──────────────────┘    │         └──────────────────────┘
   ┌──────────────────┐    │
   │ Responsiveness   │────┘
   └──────────────────┘
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Figure 1

Research framework showing the relationship between the independent variables and the dependent variable

The hypothesis of the study are as follows:

H1: There are significant relationships between tangible aspect and the services quality of bus transportation in Universiti Utara Malaysia.

H2: There are significant relationships between reliability aspect and the services quality of bus transportation in Universiti Utara Malaysia.

H3: There are significant relationships between responsiveness aspect and the services quality of bus transportation in Universiti Utara Malaysia.

METHODOLOGY

In this research, both of hypothesis study and descriptive are implemented. Hypothesis study conducted by using the sampling method and questionnaire is distributed for data collection. This research descriptive design facilitates our group to identify the student's satisfaction level on each aspect of quality services which enabling us to describe the characteristics of certain groups and estimating the relative amount of people in a population which is UUM students whom behave in a certain way. This research setting is a non-contrived because the weak are proceeding normally and conducted with cross-sectional designs as the data collection is only done among UUM students. The finding of this study is evaluated using the quantitative data. The questionnaire is designed to collect data regarding some aspects investigated which are related to the mentioned IV and DV in this study. The questionnaire was distributed to UUM students of certain traits as to avoid a biased study, and also demands feedback about the students' response towards service quality of bus in UUM. The questionnaire is chosen because it seems to be as an effective and economical method for data collection, especially when it involves a large sample group. Therefore, in this study, we chose to distribute closed questionnaires to 400 UUM students. The data is then analyzed using the SPSS Data Editor which will be gathered into group data, so we can know the differences among the various levels.

As the study is focusing on the service quality of bus in UUM and involving the whole population in the campus, the most suitable sampling design to be used in this study is probability sampling. It is because all the students, which is the population for this study have potential and possibilities to be chosen. Under this probability sampling, we use stratified sampling to survey the data because we divided the population to their gender, age, college, and routes. This study involving the use of both primary and secondary data. The primary data are the data which obtained by my group through this study. It

includes the questionnaire that we have distributed to the chosen individuals in our sample of the study. Meanwhile, the secondary data is taken and gathered from the sources that are already existing such as journal, books, magazines, and the Internet. It includes the variable that we used to proceed this research. The data will be collected through a survey which will be conducted around campus in Universiti Utara Malaysia. Since the study is using a stratified sampling technique, we divided the sample to their gender which is male and female and invite them to answer the survey. We have used three types of analysis during conducting this study, which is Reliability Analysis, Descriptive Analysis, and Correlation Analysis.

DATA ANALYSIS AND FINDINGS

Reliability analysis

Table 2
Cronbach's alpha scores for variables

Variables	No. of Items	Cronbach's Alpha
Tangible	7	0.792
Reliability	7	0.821
Responsiveness	8	0.814

Cronbach's alpha is a reliability coefficient that indicates how well the items measuring a concept hang together as a set. The closer the Cronbach's alpha to 1, the higher the internal consistency of reliability. Conversely, the closer the Cronbach's alpha to 0, the lower the internal consistency reliability. Table 2 shows that the variables which are tangible, reliability, and responsiveness indicates a value of 0.792, 0.821, and 0.814 respectively. This is showing that the values are closer to 1 which is acceptable and reliable for this study.

Correlation analysis

Table 3
Correlation

Variable	Tangible	Reliability	Responsiveness
Tangible		.690**	.602**
Reliability	.690**		.704**
Responsiveness	.602**	.704**	
Service Quality	.588**	.572**	.545**

**. Correlation is significant at the 0.01 level (2-tailed). Listwise N=400

Table 3 shows the result of correlation analysis between service quality of bus transportation in Universiti Utara Malaysia and tangible, reliability, and responsiveness. Value of correlation analysis between 0.30 to 1 shows positive relationships. Based on this study, service quality has a significant correlation to tangible (0.588), reliability (0.572), and responsiveness (0.545) that are showing all the independent variables have a positive relationship to the dependent variable. There is also a significant correlation between reliability and tangible (0.690), responsiveness and tangible (0.602), and responsiveness and reliability (0.704) that can be concluded as the variables have a positive relationship to each other.

Linear regression analysis

Table 4
Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistic				
					R Square Change	F change	df1	df2	Sig, F change
1	.647	.419	.415	.635	.419	95.248	3	396	.000

Table 5
ANOVA

Model		Sum of square	dF	Mean square	F	Sig.
1	Regression	115.279	3	38.426	95.248	.000[b]
	Residual	159.761	396	.403		
	Total	275.040	399			

Table 6
Coefficients

Model	Unstandardized Coefficients		Standards Coefficients	t	Sig.
	B	Std.Error	Beta		
1 (Constant)	.286	.204		1.397	.163
Tangible	.437	.073	.324	5.966	.000
Reliability	.260	.078	.203	3.319	.001
Responsiveness	.265	.071	.207	3.736	.000

a) Dependents Variable= Service Quality

A simple linear regression was calculated to predict services quality based on tangible, reliability, and responsiveness. R^2 value of.419 shows 41.9% variation in service quality is explained by tangible, reliability, and responsiveness. It decreases only to 41.5% as adjusted R-value= ƒ 0.415. A significant regression equation was found (F(3, 396) = 95.248, p < .000), with an R^2 of .419. Three independent variables which are tangible, reliability, and responsiveness were significantly predicted service quality with β of 0.324 (32.4%), 0.203 (20.3%), and 0.207 (20.7%) respectively. It is shown that tangible have the most influence towards service quality with 32% compared to reliability with 20% and responsiveness with 21%.

DISCUSSION OF FINDING

This research paper is to evaluate the relationship between the independent variables which are tangible, reliability, and responsiveness aspect with the dependent variable which is service quality of bus transportation in Universiti Utara Malaysia. The evaluation of this study based on the response given by 400 students of Universiti Utara Malaysia. According to the analysis that we have conducted, this three independent variables are acceptable and significant to our study.

From the data finding, we analyze the data towards the hypothesis in this particular research. Basically there are three hypothesis in this research. The first hypothesis, *H1: There are significant relationship between tangible aspect and the services quality of bus transportation in UUM.* According to the data analysis, the p-value for tangible aspect is (0.000), which is lower than α value 0.05. From here we can conclude that there is significant relationship between tangible aspect and services quality of bus transportation in UUM Therefore, H1 is accepted.

Next is second hypothesis, *H2: There are significant relationship between reliability aspect and the services quality of bus transportation in UUM.* According to the data analysis, the p-value for reliability aspect is (0.001), which is lower than α value 0.05. From here we can conclude that there is significant relationship between reliability aspect and services quality of bus transportation in UUM Therefore, H2 is accepted.

Last hypothesis is, *H3: There are significant relationship between responsiveness aspect and the services quality of bus transportation in UUM.* According to the data analysis, the p-value for responsiveness aspect is (0.0010), which is lower than α value 0.05. From here we can conclude that there is significant relationship between responsiveness aspect and services quality of bus transportation in UUM Therefore, H3 is accepted. When we calculate the Beta value, it shows that *tangible has the highest value of 32.4% and followed by responsiveness by a value of 20.7% and last is reliability with 20.4%.* From this Beta value, we can identify that tangible is the highest influence that affects the responds amongst students of Universiti Utara Malaysia towards the service quality of bus transportation. Students will be more likely and prefer to focus on the tangible aspect when measuring service quality of bus transportation. Tangible are included such as bus condition, bus stop, number of buses, driver of the buses, and so on. In correlation analysis, tangible also have a positive relationship with two other variable with reliability (. 690) and responsiveness (. 602). Low level of tangible will affects the reliability and responsiveness level to be dropped as well and opposite will happens if tangible level rose up. Next is responsiveness as the second aspect that influenced the response amongst students in Universiti Utara Malaysia. Students whom became our respondents also focusing on the responsiveness of bus management in delivering their bus services in Universiti Utara Malaysia. Responsiveness of bus management, especially in publishing the latest schedule or any changes related to some circumstances that can't be avoided will influence the students in measuring the service quality. Last aspects that will influence the students is reliability. Reliability is same as important as responsiveness because by higher level of responsiveness, the level of reliability also will be increased. It is shown in the correlation analysis as value between responsiveness and reliability with (. 704) that indicated these two variables have a positive relationship to each other. As an example, fast and quick responses by the bus management towards particular students that having problems with their services will result to high level of reliability of bus services that will be admitted by the students.

CONCLUSION

In this research, our main contribution as researchers is we managed to measured the current level of service quality of bus transportation in Universiti Utara Malaysia. From the analysis, it can be concluded that students are satisfied with the service quality of

bus transpotation in campus. We also managed to identify the dimension that will give impact and influence the student response towards service quality which is tangible aspect. From here, we will develop this dimension as way of recommendation to bus management for them to improve their current level. At same time, we also identify problem occurred regarding services that provided by bus transportation that bus management can highlight and solve it with alternative actions. For this study, there are a few recommendations that can be suggested for few parties. The first parties will be the bus management that provided the bus transportation in Universiti Utara Malaysia. Since analysis showed that tangible has highest influences, bus management are recommended to keep improving and updating their services from time to time. As the number of buses is quite enough, the bus management may improve the bus condition by creating such comfort condition for the students to move around campus. Bus management also must be more alert with selecting employees such as drivers that have a high level of driving skills and friendly with customers, so that they can help to delivering the services better. Next parties are the future researchers that wish to conduct similar research with much better results. The recommendations are included expansion of the scope of the study that are not included undergraduate students, but also including postgraduates and PHD students in Universiti Utara Malaysia. Besides larger number can be gained as respondents for our study, we will get more accurate results. Online survey also are recommended for the researchers as it will ease the study to be conduct, especially when respondents answering the survey without have much effort. As conclusion, objectives of this research which are to identify the relationship between tangible, reliability, and responsiveness towards service quality of bus transportation in Universiti Utara Malaysia have been achieved and all the hypothesis have been accepted. Based on the analysis, it was found that tangible has the highest influence on student responses in measuring service quality and followed by responsiveness and reliability. Last but not least, it is concluded that tangible, reliability, and responsiveness are significant and acceptable to measuring service quality of bus transportation in Universiti Utara Malaysia and it have a positive relationship amongst these variables

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