Developed SERVQUAL Model in Measuring Customer Satisfaction for Ferry Service in Langkawi

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Abstract

Developments of tourist attraction in Langkawi are rapid. However, the main transportation in travelling to the island of Langkawi has not been on par with the development of the other sectors. The ferry service has been long in operation with issues to solve long overdue. A mixed-method approach addresses the knowledge gap of focusing on the customer satisfaction of the ferry service. A set of questionnaires based on a developed SERVQUAL theory with an addition of a variable and a focus group discussion with the operators of the ferry service. This is to obtain both sides of a business which are the consumers and the providers. Clear patterns among passengers of the ferry service from a sample that comes from tourists and the locals of the island. The focus group discussion provided us the qualitative data focusing on the safety aspects of the service. We discover that the developed SERVQUAL theory with some of the variables are lacking and needs to be an area of concern to improve and contribute to customer satisfaction of the ferry service. Our mixed-method approach (involving developed SERVQUAL theory and qualitative safety variable) provides a way for further research to be adopted.

Keywords
Service Quality, Ferry Service, Transportation, Customer Satisfaction, Safety, Fares

1. Introduction
Numerous studies have been conducted to relate user satisfactions and perceptions with different quality attributes in the context of a public transport service. It is because, in most cases satisfaction has been considered as an aggregated measurement of these attributes (De Ona et al, 2021, Tyrinopoulous and Antoniou, 2008). As a result, numerous classifications of attributes have been identified depending on the characteristics of service and influence they bring on satisfaction (De Ona et al, 2021, Redman et al, 2013, De Ona and De Ona, 2015). However, there is no universal agreement among studies on which attributes have the most influence on satisfaction (De Ona et al, 2021).

In the context of marine transportation, ferries form a part of the public transport systems of many waterside cities and islands, allowing direct transit between points at a capital cost much lower than bridges or tunnels. It also offers an efficient, sustainable, and competitive means of transportation as compared to other modes due to the extra volume of loads that it can carry. In the ancient and medieval history, ferries were of great importance before the engineers learned to build permanent bridges over large bodies of water or construct tunnels under the sea. As roads improved, and more bridges and tunnels were built, and ferries began to disappear. This is because, the connections for onward journeys onto land, requires several changes of vehicle (Britannica, 2021). Despite of its feature that is always reflect an appealing transit experience, Khazabi (2017) highlights that ferry markets suffer from failures such

as the existence of externalities, natural monopolies, and limited scope and scale economies. In remote areas and communities, for example, the scale of operation may not support the provision of ferry services in an open market setting. Public intervention is therefore required to provide a minimum level of access to such communities and/or to support their socio-economic development. As such, the intervention, at times, becomes a government's legislated obligation. In contrast to the private models of ownership, which focuses on efficiency and profitability; the public models of ownership deliver the ferry services within the provision of public good in providing the access of transportation to the people.

In Malaysia, water transportation is important as it brings people and tourists from mainland to various popular islands in the Peninsular of Malaysia, Sabah, and Sarawak. Their use on some inland rivers and lakes continues and commuter ferries also remained popular in densely populated coastal communities. This is because the peninsular of Malaysia, Sabah and Sarawak are surrounded by sea. Various islands become popular among tourists around the world. In fact, the state of Penang is home to one of the oldest ferry services in Asia and the oldest in the country, which began in 1894. Various types of water transport available are cruise ship, daily commuter ferries, speedboat, passenger ferries, tourist boats and passenger express boats, in which most of the water transportations used is high-capacity ferry. Passenger ships in operation today are subjected to a vast array of national and international regulations and standards covering every aspect of ship construction and operation especially the safety, high service quality, efficiently and satisfy the needs of the users. One of the most popular ferry services in Malaysia connects the mainland to Langkawi Island, which is also known as the Jewel of Kedah, a district, and an archipelago of 99 islands in the Malacca Straits, 30 km off the coast of north-western Malaysia. The island of Langkawi can be reached by sea and air. The Langkawi Jetty Point at the mainland are located at Kuala Perlis, Kuala Kedah and Penang and the departure/arrival point in Langkawi is at Kuah Jetty, Langkawi and Telaga Harbour, Langkawi. The ferry service of Langkawi operates in a consortium consisting of 7 ferry companies where it is a quasi-private model. The services provided are privately owned and operated organization. However, Khazabi (2017) added that services under this model are bound to the regulations by the public sector and they are obligated to the policies that have been set up. The company leads on the matters of scheduling, ticketing, and operation guidelines. Khazabi (2017) also mentioned that companies under this model have limited information available on financial, safety, and service level performance.

Despite of its significant role in supporting Langkawi Island as a tourist attraction, the ferry services to Langkawi have been a topic of discussion for the inadequate quality standards. Even though it offers reasonable fares, but several complaints and issues have been raised on various aspects such as delay, inadequate facilities, safety, and poor operations that have not been solved in years. Abdullah, Jaafar, Abdul Razak and Marzuki (2017) portrays dissatisfaction among tourists on the facilities provided at the jetty terminals such as toilet cleanliness, vandalism of facilities to the point of non-functionality, poor maintenance, lack of facilities, tourists' safety, and comfortability issues. Previous studies conducted on Langkawi Island concentrates on the strength of the economic sector such as analyzing the impact of the tourism sector (Lazim and Wahab, 2010). Zainuddin, Hamdan, Mohamed, Husin, and Deraman, (2006), who conducted service quality study do not emphasize on the impact of the ferry service to the local community and focus on the impact on the economic sector. From a ferry business model perspective, Tsoi and Loo (2021) developed a business model examines five core elements in a ferry business model, including (i) population demand, (ii) connectivity to public transit and activity nodes, (iii) individual preferences, (iv) management and operational strategies and (v) pier infrastructure in the context of a dense population in Hong Kong. With exception to the few studies mentioned above, studies exploring an ideal business model of a ferry service in serving the tourist and local community is particularly lacking. Therefore, this study intends to measure the customer satisfaction for ferry services in Langkawi Island based on the developed SERVQUAL model. It is hoped that this model would be adopted by other ferry services of similar characteristics. Based on this ongoing study, it is hoped that this study would contribute to the body of knowledge through the model development that is considered lacking in the literature and thus drives the effectiveness of the services and at the same time achieving customer satisfaction.

2. Literature Review
Service quality practices among firms has been a central discussion since 1985. Parasuraman et al (1985) introduced SERVQUAL theory and related theories on service quality. Gronroos (1984) emphasized that for a firm to compete successfully, they must have an understanding consumer perception of the quality and the way service quality is influenced. The difference between Parasuraman et al (1985) and Gronroos (1984) lies in the criteria of service

quality evaluation, in which Parasuraman, Zeithaml and Berry, (1988) highlight 10 dimensions leading to service quality particularly tangibility, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer and access of these dimensions, Parasuraman et al (1988) examine and emphasize five critical dimensions that made up the followings:

1. **Tangibility** is the appearance of a personnel or physical facilities and equipment.
2. **Reliability** is the ability to perform the promised service dependably and accurately.
3. **Responsiveness** is the willingness to help customers and provide prompt service.
4. **Assurance** is the knowledge and courtesy of employees and their ability to inspire trust and confidence.
5. **Empathy** is the attention, caring attributes to provide to the customers individually.

Service quality in public transportation system constitutes of internal and external factors which affect the commuter's perception towards the public transport services (Randheer, Al Mottawa and Vijay, 2011). In the SERVQUAL method, analysis consists of evaluation in the difference between the actual perception of the quality of services and their expectations and ideas concerning the services in all the dimension (Knop, 2019). Until now, SERVQUAL model is still one of the most consolidated and applied methods for measuring auto transit service quality (Ojo, Eboli, Mazzulla, Adom, Opoku-Mensah, 2017). Each of the quality-of-service dimensions is considered by measuring both customer expectations of service quality and the perceived performance level of service quality and evaluating the gap which exists between these two measurements (Morton, Caulfield and Anable. 2016).

Mittleman (2018) stated that more than half of the funding to the ferries came from sales of tickets. Revenue management is a business principle that balances supply and demand to control price and/or inventory availability to maximize revenue and profit growth (Ugurlu, Cosgun and Ekinci, 2012). Maximizing profit from the sales of tickets might increase funding but it will neglect social needs. As reported by a local newspaper article (Bernama, 2018), ferry passengers to Langkawi expressed their dissatisfaction in social media as a result of sudden price hike. From an economic perspective, ferries promote economic development by increasing land values, motivates the tourism sector and attracts spending spree (Mittleman, 2018). A key characteristic of the price optimization issue for the vehicle (ferries) is that each vehicle type uses different amounts of a multi-dimensional capacity (Bayliss, Currie, Bennell& Martinez Sykora, 2019). Common questions related to ticketing of ferry services are the right price/charges, type of tickets and methods on purchasing other than the normal over-the-counter access. Zupanovic (2015) highlights those countries like Croatia which is in Europe are still applying the classical counters where customers need to purchase tickets from the counter booth. Zupanovic (2015) added that it is also one of the reasons for the emergence of waiting queues in Croatian ferry ports.

Ship safety assessment is an approach that has attracted much attention in recent years, since its aim is to reduce unsafe working conditions (Shan Lu & Hsing Tseng, 2012). An investigation using accident data from various sources showed that more than 9000 people had died or been reported missing in the past 25 years due to passenger ferry accidents throughout the world (Shan Lu & Shan Yang, 2011). Many ferry accidents have occurred in coastal waters over the past few years (Shan Lu & Hsing Tseng, 2012). Since ferry companies and passengers are main operators and users, respectively, and ferry accidents can result in serious injuries to passengers or even death (Shan Lu & Hsing Tseng, 2012). Safety is a vital component of ferry services and operators must instill the urgency of the component to each employee. Shan Lu and Shan Yang (2011) defined it as safety climate where perception of safety would affect to an individual if the management also committed to the component of safety. As reported by Channel News Asia (2019) a fire breakout occurred in the ferry's engine room. Serap et al (2017) mentioned that the safety issues of water transportation in Malaysia are becoming serious with under par levels of performance during operation. Combining all the elements and factors above, a conceptual framework has been developed. Figure 1 shows the conceptual framework of this study.
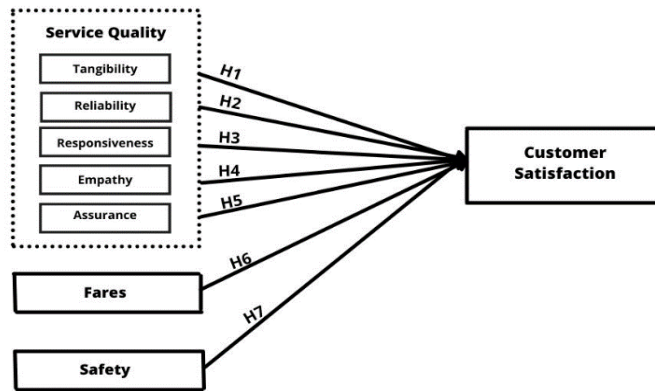
Figure 1: Conceptual Framework

3. Methods

This study adopted both methods of data collection namely quantitative and qualitative methods. The quantitative measured customer satisfaction based on SERVQUAL measures by Parasuraman et al (1988) to determine the service quality of the ferry services. The reliability of the SERVQUAL instrument supports the measurement of service quality in achieving customer satisfaction in this study on the five dimensions in Parasuraman et al (1988) were adopted namely tangibility, service reliability, responsiveness, assurance, and empathy (Awasthi, Chauhan, Omrani and Panahi, 2011). Fares and safety were included because previous and the exploratory studies found the significance in affecting customer satisfaction (refer to Section 2). A reliability test was run in SPSS to confirm the reliability of the questions. A Likert scale of "1 to 7" is used to measure the variables. Ratings from "1" to "3" is considered poor, "4" and "5" is neutral and for excellent are "6" and "7". The7-point scale provides more options that will increase the probability of meeting the objective expectation of people (Joshi, Kale, Chandel and Pal, 2015). Table 1 shows the list of dimensions used for this study as compared to the original SERVQUAL measures.

Table 1: Comparisons of SERVQUAL Questionnaire

Original SERVQUAL Questionnaire (Parasuraman et al (1988)	Developed SERVQUAL Questionnaire in this study
1. **Tangibility** is the appearance of a personnel or physical facilities and equipment. 2. **Reliability** is the ability to perform the promised service dependably and accurately. 3. **Responsiveness** is the willingness to help customers and provide prompt service. 4. **Assurance** is the knowledge and courtesy of employees and their ability to inspire trust and confidence. 5. **Empathy** is the attention, caring attributes to provide to the customers individually	1. **Tangibility** refers to the appearance of a personnel or physical facilities and equipment. 2. **Reliability** is the ability to perform the promised service dependably and accurately. This context focuses on the punctuality of the trips. 3. **Responsiveness** is the willingness to help customers and provide prompt service. 4. **Assurance** is the knowledge and courtesy of employees and their ability to inspire trust and confidence. Safety aspect is the focus from the perspective of respondents. 5. **Empathy** is the attention, caring attributes to provide to the customers individually.

	6. **Fares** is included to assess the satisfaction of passengers on the price of the ferry service.

The questionnaires were prepared in native language, Malay and the data were collected using personal administered method. However, the questions were asked and explained in English to the English-speaking respondents such as the tourists. A total of 110 questionnaires were collected comprising of the locals and tourists. Table 2 describes the list of the questions in the questionnaire:

Table 2: Example of Questions in Questionnaire

Authors	Variables	Questions
Ojo, Mireku, Dauda and Nutsogbodo, (2014)	Tangibility	1. Staff attire is neat. 2. Terminal has adequate seating. 3. Spacious seats for passengers in the vehicle.
Awasthi, Chauhan, Omrani and Panahi (2011)	Reliability	1. Arrival time is based on schedule. 2. Departure time is based on schedule. 3. Frequency of trips during peak/nonpeak season.
Mikhaylov, Gumenuk, Mikhaylova (2015)	Responsiveness	1. Driver/conductor independently solve emerging issues, and not try shift the responsibility to third parties. 2. Driver/conductor is responsive and ready to prompt the desired stop.
Mercangoz, Paksoy and Karagülle (2012)	Assurance	1. Feeling safe during trip of journey. 2. Employee behaviours give confidence to the customers.
Lazim and Wahab (2010)	Empathy	1. Helpful attitudes and courtesy of check-in personnel. 2. Attention by employees to the passengers.

The respondents were selected based on random sampling where each sample has an equal chance to be selected. It is based on a non-probability sampling chooses random respondents from a large scale.

Qualitative data was also collected from the ferry operators in the form of focus group discussion. The ferry operators comprise of all 7 ferry operators' companies that formed as consortium (refer Section 1). Focus group discussion is a qualitative method that possesses elements of both these techniques while maintaining its own peculiarity and uniqueness as a distinctive research method (Colucci, 2007). The objective of the focus group discussion is to gather data from the perspective of the operators. Participants gave a brief history of the consortium and how it was formed as well as the scheduling of the ferry service and movement including matters related to operation cost, maintenances, scheduling, frequency level, workforce and taxes imposed on them. Data collected from this method will be used to discuss the dimension of Safety from the ferry operators' perspectives (refer section 4.4). Private and confidential data were given in percentages and approximate values. The focus group discussion was run concurrently with the survey.

4. Results

4.1 Demographic Variables

This section explains the demographic information of the respondents. A total of 110 responses received by this study. Generally, age varies among the respondent, in which 70.6% were from the age of 26 to 35 years old, whereas 14.7% came from 6 to 50 years old. A total of 2.8% were young adults and 1.2% were represented by respondents aged 51 years and above. Majority of the respondents (53.2%) were employed in the public or private sector as well as self-employed in the second largest respondents represented by students with 26.6% and only 20.2% were unemployed. In terms of the number of visits, most respondents (45%) visited Langkawi less than 3 times in 6 months. These are largely contributed from the high number of tourists Langkawi. 18.3% of passengers uses the service daily which shows that some uses the ferry service as the mode of transportation. The findings are demonstrated in Table 3:

Table 3: Demographic Profile of Respondents

	Item	Frequency	Percentage (%)
Age	17 – 25	14	12.8
	26 – 35	77	70.6
	36 – 50	16	14.7
	51 and above	2	1.8
Occupation	Student	29	26.6
	Employee	58	53.2
	Unemployed	22	20.2
Visits	Daily	20	18.3
	Once a week	3	2.8
	Twice a month	5	4.6
	1-2 times in 3 months	5	4.6
	Less than 3 in 6 months	49	45.0
	Others	27	24.8
Localities	Locals	63	57.3
	Tourists	47	42.7

4.2 Reliability Test

The data were analyzed using SPSS 23 version. Specific coding was assigned to each item and variables followed by data cleaning. Reliability was estimated through a reliability test and therefore obtained Cronbach 's α. Table 4 presents the value of Cronbach 's α, mean and standard deviations. For the independent variables, Tangibility yields the highest value of Cronbach's alpha where it is .881, while lowest can be seen in Empathy with .712. However, every independent variable shows an acceptable range of internal consistency where none yields a value lower than 0.7. The value means that the set of questions are related as a group without showing redundancy.

Table 4: Reliability Test of Variables

Variables	Cronbach 's α	Mean	Standard Deviation
Tangibility	.881	5.245	5.437
Reliability	.765	4.258	5.511
Responsiveness	.733	4.364	5.219
Empathy	.712	4.872	5.854
Assurance	.827	5.159	4.762
Fares	.796	4.358	5.621

4.3 Regression Analysis

Regression analysis is used to measure the percentage of dependent variables can be proven by the independent variable (Sundram et al. 2016). In this study, six (6) indicators, namely Tangibility, Reliability, Responsiveness, Assurance, Empathy and Fares were measured to determine the contribution of each indicator to customer satisfaction of the ferry service.

According to Pallant (2010), if the significant value is less than .05, the variable has significant unique contribution to the prediction of the dependent variable. The result for Tangibility is .001, which is below the .05 (5%) significant level, shows that Tangibility is significant which proves that it is positively affect with customer satisfaction of the ferry service. Reliability, with the value of .007 (0.7%) also proves that Reliability has a positive effect with customer satisfaction of ferry service. This is followed by Assurance and Fares; both producing the same value of .001 (0.1%) which are also having a positive effect with the dependent variable. However, there are two variables that shows a negative effect with customer satisfaction of the ferry service. These are Responsiveness (17.2%) and Empathy (97.1%), both proving that these variables are not significant.

The model fit (R^2) indicates the percentage of the variance in the dependent variable that is explained by the independent variables' variation (Sundram et al, 2016). The model fit of 0.677 implies that all the independent variables explained 67.7% of variance in the dependent variable which indicated that the independent variables used in this study contributed more than half to customer satisfaction.

Unstandardized Beta Coefficient is the value of regression equation function for predicting the dependent variable from the independent variables (Sundram et al,2016). Each one-unit increase in Tangibility, dependent variable will increase by .283 units while other independent variables remain constant. One-unit increase in Reliability, 0.298 units of the dependent variable will increase. One-unit increase in Assurance, 0.359 units of the dependent variable will increase. Fares, having the value of 0.361 units, increases when one unit increase of fares. However, two independent variables which are Responsiveness and Empathy showing negative value. Each increase of dependent variable according to each independent variables, happens when other independent variables remain constant, respectively.

Lastly, the standardized beta coefficients use a standard unit that is the same for all variables in the equation. Sundram et al (2016) demonstrate that the values under standardized coefficients are expressed as standard deviation. As Tangibility increases by one standard deviation, dependent variable increases by 0.253 of a standard deviation. One standard deviation of Reliability increases, the dependent variable increases by 0.257 of a standard deviation. Assurance, with the value of 0.297, the dependent variable increases of a standard deviation when one standard deviation increases. As Fares increases by one standard deviation, dependent variable increases by 0.315 of a standard deviation. Responsiveness and Empathy, having produced negative value (-0.140 and -0.003) which can be concluded as two of the weakest variables. Fares, producing the value of 0.315, is the strongest variable among all the independent variables.

There is a significant relationship between these six variables of Tangibility, Reliability, Fares and Assurance with customer satisfaction hence proved that H1, H2, H5 and H6 were accepted while H3 and H4 were rejected. This mean that Tangibility, Reliability, Assurance and Fares are variables that affects customer satisfaction on the ferry service. Empathy and Assurance shows a negative effect which indicate that these two variables do not affect customer satisfaction. Passengers do not look into the elements of the variable when using the ferry service.

Table 5: Regression Analysis of Variables

Variables	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	t	Sig.	R^2
(Constant)	-.553	.365		-1.515	.133	.677

Tangibility	.283	.085	.253	3.304	.001	∞
Reliability	.298	.109	.257	1.609	.007	∞
Responsiveness	-.170	.124	-.140	1.931	.172	∞
Empathy	-.004	.111	-.003	2.938	.971	∞
Assurance	-.359	.110	-.297	.168	.001	∞
Fares	.361	.106	.315	6.073	.001	∞

4.4 Qualitative Data Analysis

The results from the qualitative data analysis were derived from the focus group discussion. From the results, safety plays an important part in the operation of the ferry services. Three elements of safety were measured namely insurance, competency of staff and training. All five respondents agreed on each of these elements. In terms of insurance that is vital for a ferry service, four out of the five respondents highlight ferry operators need to invest certain amount of money for insurance. However, the emphasis of the insurance coverage seemed different among the respondents. Respondent A stress insurance on the capital cost of business while Respondent B and C highlight insurance to cover passenger liability. Respondent D and Respondent E emphasized on the importance to be insured on seaworthiness. The quotations in Table 6 reflect the variable.

Table 6: Quotations related to Insurance

Respondents	Quotations
Respondent A	*"Insurance is included in the capital costs of running the business where it is an obligation and meet the terms of the marine department"*
Respondent B	*"Having a liability insurance should cover the medical treatment for injured passengers and protect the business in any cases that passengers opt to sue the ferry operator"*
Respondent C	*"The business should also provide a passenger liability insurance so that the passengers are covered as soon as they purchase a ticket"*
Respondent D	*"In any cases of major damages to the vessel, ferry operator must prove that the vessel is in seaworthy state when they claim the insurance"*
Respondent E	*"The insurances should prove the seaworthiness of the vessels before the operator began operating the ferry service"*

In terms of staff competency, the responses varied among the respondents. Respondent A emphasize the importance of sea time to determine staff competency. Sea time represents the amount of time a seafarer has been on duty on a vessel. On the other hand, Respondent B, and C focuses on the experience of the captains and crews of the ferry service as the indicator of staff competency. Respondent E consider staff readiness and knowledge of staff at terminals in various situations as staff competency while Respondent D claimed that the expertise of the engineering department in the maintenance of the vessels as staff competency indicators. Table 7 shows the list of staff competency indicators according to each respondent.

Table 7: Respondents' quotations on Competency of Staff

Respondents	Quotations
Respondent A	*"Each seafarer or crew of the ferry service should have a specific sea time that reflects the period of time they have been on duty on a vessel."*
Respondent B	*"Every running vessel that goes on voyage has a captain who is responsible for the safety of the passengers and crew.*
Respondent C	*"Crews of the ferry service must complete the training provided and has certain requirements of sea time "*

| Respondent D | *"Staff in the terminals should have been educated on the service and guidelines in order to prepare themselves to handle any technical errors such as delay, ticketing and facilities especially during peak season "* |
| Respondent E | *"Our engineering team will always be on alert in case of any technical problems occur where it will lead to other problems especially during peak season."* |

Lastly, the element of training in safety variable is more on the same wavelength. The quotations given by the respondents gives an insight on the guidelines and procedures in the training of a seafarer. Respondent A mentioned that training of staffs is a must by having the qualified certificates before doing the actual work. Respondent B mentioned on future staffs and crews to complete their training before as a requirement to secure vacancy in the business. A seafarer's experience is the amount sea time they have completed, and Respondent C explains about it as on-the-job training. Respondent D focuses on the training institutions that provides courses for sea farer in achieving more qualifications and training. Lastly, respondent E continues about the engineering team where they need to pass the examination for authorization of vessels. Table 8 shows the quotations in justifying training under the variable of safety.

Table 8: Respondents quotations on Training

Respondents	Quotations
Respondent A	*"Every person in the crew must meet the requirements of the Marine Department by having the Certificate of Competency."*
Respondent B	*"Applicants for vacancy in any departments of the ferry service must pass the exams and training to secure placement."*
Respondent C	*" Crews will receive their sea document after calculating their sea time. This is important as sea time documents are proved of work experience which also is considered on-the-job training."*
Respondent D	*"Crews are also suggested to attend training and courses in any of the listed training institutions certified by the Marine Department."*
Respondent E	*"Recruitment for engineering team must be to those who pass the oral examination of the Marine Department in order to have the authorization of vessel to operate."*

5. Conclusion

This study focuses on the relationship between service quality, fares, and safety with customer satisfaction of ferry service in Langkawi. The findings from this study shows that the independent variables of service quality, fares and safety has a positive impact towards customer satisfaction. Looking into the results, the indicators of "service quality" which are Tangibility, Reliability, Responsiveness, Assurance and Empathy have mix output towards customer satisfaction of ferry service in Langkawi. From the results, fares of the ferry service have a positive relationship with customer satisfaction of the ferry service in Langkawi (refer to Section 4.3 in page 8). The price of the ticket for the ferry service is controlled where government intervention plays a part in implementing the optimum price that helps passengers and the operators to run the business efficiently. This study can help the industry in developing a business model that is more feasible for higher customer satisfaction.

Any public transportation must emphasize on the safety aspects in which ever mode. In the context of this study, the relationship between safety and customer satisfaction of the ferry service in Langkawi is one of the important components towards the establishment of a good model for ferry services throughout the country. The elements of this variable included insurances, competency of staff and training. Insurances are important to determine whether a vessel is considered seaworthy to operate. Staffs and crews of the ferry service must be qualified in handling the operations and navigating journeys safely. The crew of the ferry needs to complete training and pass their examinations. The method of data collection of focus group discussion can be referred for further studies. Water transport operators can refer in improving the aspects of safety. The knowledge gap can be seen between this study from Lazim and Wahab (2010) that highlights Langkawi's impact towards the tourism sector without seeing the details of the island's transportation. Most of studies that determines customer satisfaction focuses on tourist as can be seen in Zainuddin et al (2006) which does not consider of locals of the island in the demography. This study emphasizes the needs of the locals as the ferry service is one of the main transportations for the locals to travel within and out of the island.

As a summary of the findings obtained from this study, the conclusion is Tangibility, Assurance, Fares and Reliability is performing at the right level of service quality. Safety is an important part that contributes to customer satisfaction of the ferry service. This can be said with the elements of insurance, competency of staff and training within the Safety variable brings a significant to the study. However, the findings also if there are areas that does not contribute to the customer satisfaction. This can be seen where Responsiveness and Empathy producing non-significant results which are areas that needs improvement. Operation of the ferry service that involves willingness to help and prompt service represent Responsiveness while empathy is showing care and attention towards the customers. An empirical framework has been developed in Figure 2:
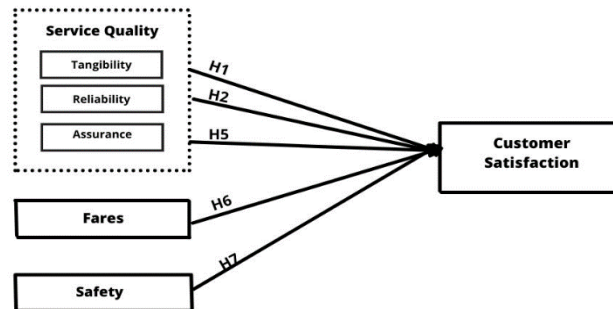

Figure 2: Empirical Framework

Overall, this study provides further awareness in developing improvements for water transportation and service quality. Responsiveness and Empathy are non-significant to customer satisfaction because they are limited choices of ferry service provided for travelling in and out of the island. Locals view the ferry service as a necessity for affordable and cheap transportation. Tourists have the options of different mode of transportation as travelling to the island are considered as vacations where travelling in and out are a one-time matter. Ferry operators can develop ticketing schemes such as concession tickets varying from consumer profile, peak season or non-peak season and promotions. This is to attract customers to improve the amount of ridership. Advertisements in the facilities and vessels can increase the revenue of the operators to increase profitability of the business. These additions can improve the travelling experience and customer satisfaction on the ferry service in Langkawi.

Acknowledgements

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