Vol. 05, No. 1 (2023) 85-96, doi: 10.24874/PES05.01.008

Proceedings on Engineering Sciences

www.pesjournal.net

AN ASSESSMENT OF SERVICE QUALITY IN THE AUTOMOBILE SERVICE INDUSTRY: A STUDY OF A DEVELOPING COUNTRY

Saman Yapa[1]
Rangesh Fernando

Received 05.11.2022.
Accepted 27.01.2023.
UDC – 005.6:[338.46:629.331]

Keywords:

Service Quality, SERVQUAL Model, automobile service industry, Sri Lanka, Factor Analysis

A B S T R A C T

This paper outlines the findings of a research done to see whether the SERVQUAL model, which was developed for a Western industrialized nation, could be applied to the automobile service industry in Sri Lanka, a developing nation in South Asia. Only a few studies on the auto service business are found in literature, despite the fact that many studies have been carried out using the SERVQUAL model. Additionally, many scholars have emphasized the need for the development of industry/culture-specific tools to measure service quality. Both of these needs are met by the current research. According to the investigation, the chosen industry's dimensions of service quality are reliability of work, responsiveness, assurance and tangibles. Except empathy, these dimensions are comparable to the original SERVQUAL model dimensions. The managers of auto service centers in nations that are socially and economically similar to Sri Lanka might utilize the modified questionnaire created in the current study to assess the level of customer service provided by those facilities. Additionally, it was discovered that, with the exception of tangibles, customers were dissatisfied with all dimensions of service quality. Managers of service centers must therefore focus more on enhancing the human components of the service.

1. INTRODUCTION

Service quality (SQ) is one of the most researched topics in the service management area. With the worldwide rapid expansion of the service sector, many researchers have tried to understand the factors affecting the quality of various services. Many researchers have carried out research to test the applicability of SERVQUAL, the acronym for service quality, instrument in different industries since its introduction by Parasuraman et al. in 1985 (Kang & James, 2004). Some authors emphasised the need for developing dimensions of service quality that are specific to a particular country or culture (Imrie, Cadogan, & McNaughton, 2002; Karatepe, Yavas, & Babakus, 2005). According to Malhotra, Ulgado, Agarwal, Shainesh, & Wu (2005), differences in service quality dimensions between developed and developing countries are explained by socio-cultural and economic factors such as affluence, competition, education, infrastructure, and technology.

After reviewing many research articles based on the SERVQUAL model, Ladhari (2008) revealed that this scale has been used to assess the SQ in different sectors

[1] Corresponding author: Saman Yapa
Email: samanyapa@sjp.ac.lk

such as fast food, retail chains, telecommunications, banking, healthcare, library services and information systems and in various countries including, Australia, China, Hong Kong, Netherlands, South Korea, South Africa, USA, and United Kingdom. Surprisingly, even though service quality is a very popular research topic, only very few research are found in the contemporary literature in the area of the vehicle service industry, one of the most commonly available services around the globe. Some of these researches are Bouman & Wiele (1992) in the Netherlands, Katarne, Sharma, & Negi (2010) in India, Saidin, Mohd, & Yusoff (2015) and Berndt & Herbst (2006) in South Africa.

According to the Department of Motor Traffic Sri Lanka, the total number of vehicles registered in Sri Lanka was 8,331,702 and the total number of Motor Cars was 980,380 as at the end of 2021. Between 2010 and 2021, the number of motor cars has increased by 119% from 410,282 to 900,380. Further, in 2015 the registration of new motor cars was 105,628 whereas in 2010 it was only 20,072. This large number of vehicles in use has created a high demand for the service of vehicles. In making use of this opportunity, agents/dealers as well as third-party service providers have set up service centres throughout the country. Not like European countries, Sri Lanka has a hot humid climate. Therefore, most of the vehicles in Sri Lanka are required to be serviced once in 3-4 months. The general rule is to service a vehicle after every 5000 Kilometres or after every three months, whichever comes first.

The local dealer or the agent of a vehicle brand knows the vehicles they import and the technicalities of the vehicles to the best, as many automobile manufacturers demand a high degree of technical standing before a dealership is awarded to a respective party. The dealer/agent of a vehicle expects to receive a substantial return from vehicle service for some time for their large capital investment in service centres. However, despite this technical standing, it was evident that a significant number of automobile users patronized third-party service centres and did not obtain the services offered by the dealership. Therefore, there is a need, academically as well as practically, to carry out research in this area. So this research aims to identify the dimensions of the quality of the automobile service industry in Sri Lanka.

2. LITERATURE REVIEW

Service quality is one of the widely studied topics in the area of service marketing (Kang & James, 2004; Karatepe et al., 2005; Yarimoglu, 2014; Carrillat, Jaramillo, & Mulki, 2007). Karatepe et al. (2005) stated that measuring service quality is more subjective in comparison to measuring product quality. Even though there is no universal agreement on the substance and determinants of quality, its importance to the customer and organizations is irrefutable (Parasuraman, Zeithmal, & Berry, 1985). However, there is no unique definition for service quality or even for service. According to Peters (1999), “If a service is truly fit for purpose, has had a specification set out and followed accurately, if we can do it so consistently, know when something goes wrong, and know how to put it right and also fix the problem so the same error does not keep occurring, then we can probably say that we are managing the service quality (p7).” Fitzsimmons & Fitzsimmons (2005), defined customer satisfaction with a service as the difference between the perceptions of service received and the expectations of service desired. If the perception exceeds the expectation, then service is perceived to be of exceptional quality.

Many kinds of research, in the area of service quality done in the past few decades, have been dedicated to develop service quality measurements particularly based on the SERVQUAL instrument (Ladhari, 2008). Parasuraman, Zeithmal, & Berry (1988) developed the SERVQUAL model to capture gaps between customer expectations and customer perceptions. There were five predictors of service quality; Reliability, Assurance, Tangibles, Empathy and Responsiveness in the proposed model. The authors of the SERVQUAL model introduced a 22-item questionnaire to assess both the customer expectations and the perceptions of service.

Cronin & Taylor (1992), concluded that even though SERVQUAL is inadequate, it's 22 – performance items adequately define service quality. Sureshchandar, Rajendran, & Anantharaman (2002) also expressed a similar view. SERVPERF model (Cronin & Taylor, 1992), an alternative performance-only scale, used the equation Service Quality = Performance whereas the SERVQUAL model used Service Quality = Performance – Expectations. Rodrigues, Barkur, Varambally, & Motlagh (2011) compared SERVQUAL and SEVPERF models empirically by applying both measures for a single engineering college in India. They concluded that the two models differed significantly in their outcomes of service quality measurement. However, the researchers themselves have accepted the fact that the generalization of results was debatable because the study was based on a single institute. Carrillat et al. (2007), by analysing many research studies on service quality, stated that even though many researchers have expressed the view that SERVPERF is a better model than SERVQUAL, still the latter is widely accepted as a measure of SQ. They concluded that both SERVQUAL and SERVPERF instruments are reliable measures of overall service quality (OSQ) and there was no significant difference in their relationship with OSQ after analysing 17 research done within 17 years by using these two models. This analysis revealed that modified SERVQUAL and SERVPERF scales are better than original scales in measuring OSQ. They believed practitioners preferred the SERVQUAL due to its rich diagnostic value. Asubonteng, McCleary, & Swan (1996) argued that practising managers prefer SERVQUAL over the other complex "robust" models due to its simplicity. After

analysing many articles, Yarimoglu (2014) also concluded that even though SERVPERF had become an alternative, SERVQUAL was the most widely used model for assessing service quality. However, according to Imrie et al. (2002), the adoption and global application of SERVQUAL is due to the absence of any credible alternative to it. Therefore, it is clear that there is no consensus among scholars about the best measurement scale for measuring SQ. According to Google scholar, there were 22,133 citations for the SERVPERF introduction article (Cronin and Taylor, 1992) while there were 44,670 citations for the original SERVQUAL article (Parasuraman et al., 1988) as at October 2022. However, emphasis in much of the recent research is on the development of alternative industry-specific measures than on attempts to adapt SERVQUAL (Ladhari, 2008). SERVQUAL is still a hot topic among researchers. There are 15 research articles with SERVQUAL in the title in the EMERALD database between 2015 – 2020. During the same period, this number in the ScienceDirect database was also 15. These researches covered various countries as well as various industries. For example, Ali, Basu, & Ware (2018) in Indian commercial hospitals, Gregory (2019) in higher education in the USA, Kumar, Sujit, & Charles (2018) in banking in UAE, Haverila, Haverila & Arora (2020) in wine tasting rooms in Canada, Raza, Umer, Qureshi, & Dahri (2020) in internet banking in Pakistan and Alam & Mondal (2019) in sanitation service in Bangladesh, Punnatorn, Panitas, Sirawadee, & Thanawath (2020) in third-party logistics providers in the beverages industry in Thailand etc.

Imrie et al. (2002) expressed that the creators of the SERVQUAL model have not paid attention to the role that culture and/or personal values perform in evaluating a service by customers. Therefore, they argued that there is a need to re-examine dimensions of service quality in the context of cultures different from that of North America where the original model was developed. Muhammad Butt & Cyril de Run (2010) also highlighted the importance of developing variations of the SERVQUAL scale that are specific to a particular industry, culture or nation.

Even though some research had been carried out to build and test a model to measure the SQ in the car service industry as far back as the early 1990s (Bouman & Wiele, 1992; Mersha & Adlakha, 1992), not many studies on SQ of the automobile service industry are found in the contemporary literature. Most of the few available research had also been carried out to test or modify the SERVQUAL model. Bouman & Wiele (1992), conducted a study to develop a scale to measure the quality in the Dutch car service industry. They started with the original SERVQUAL questionnaire and used factor analysis to identify the dimensions. They identified three dimensions; tangibles, faith and customer kindness. In a study done in India, Katarne et al. (2010) stated that delay in service, which comes under the reliability dimension of the SERVQUAL model, was the most dissatisfying factor. Saidin et al. (2015), in a literature review done in Malaysia, identified customer service, tangibility and technical quality as the dimensions to be tested. They grouped responsiveness, assurance, empathy and reliability dimensions of SERVQUAL into the customer service dimension. Al-Shammari & SamerKanina (2014), in Saudi Arabia, found that reliability and assurance were the most important dimensions of SQ in the auto service industry followed by tangibility and responsiveness. Empathy was the least important dimension. They also used the SERVQUAL model in their research. In a research study done in India, Ambekar (2013) identified that there was a considerable gap in all dimensions of the SERVQUAL model. Berndt & Herbst (2006) identified dimensions of service quality in the motor vehicle industry in South Africa by using the data collected through the administration of a SERVQUAL based questionnaire. The dimensions they identified through Factor Analysis were customer-focused quality, tangibles, delivery quality, communication quality and customer care quality. According to Shuqin & Gang (2012), fairness, empathy, reliability, and convenience all had a positive impact on satisfaction, while responsiveness had no effect. Izogo & Ogba (2015) conducted a study to test the validity of the SERVQUAL model within a non-western service setting. They wanted to find the association between customer satisfaction and customer loyalty in the automobile repair service sector in Nigeria. By using the factor analysis, they identified that responsiveness, empathy, reliability, tangibles, and commitment as quality dimensions of the selected service sector. Khan & Jadoun (2015) found that there was a significant gap in customer satisfaction among the users of motorcycles in India. They too used SERVQUAL dimensions in their study. Brito et al. (2007) carried out a study in Brazil to identify the service attributes that determine the customers' selection between independent garages and branded dealers who provided car maintenance services. They identified process service delivery, service content and tangibility as dimensions of service quality for both kinds of organizations. Salsabila & Kusumawati (2016) identified 7 distinct factors of service quality in the context of automotive service centres in Indonesia; service design, customer relationship, trust, attentiveness, sincerity, customer priority, and convenience. In a research based on the SERVPERF model done by using auto-repair service customers in Greece, Andronikidis, Bellou & Vasiliadis (2008) found that holistic customer consideration, infrastructure and personalised support were the service quality dimensions. This review of the literature reveals that it is hard to find a definite set of dimensions for SQ for the auto service industry. Hence, more country-specific research on service quality in the automobile service industry are required.

3. METHODOLOGY

The deduction approach of research demands the construction of a conceptual and theoretical model before testing it by using data collected through empirical observation (Gill & Johnson, 2010). Since the objective of the present research was to identify the dimensions of quality of the automotive service sector in Sri Lanka, the deductive approach was adopted in this research.

3.1. Questionnaire

Saunders, Lewis, & Thornhill (2016), identified administration of questionnaires, examination of secondary sources, observation, and semi-structured or unstructured interviews as methods that can be used for data collection. According to them, a questionnaire can be used to collect data for descriptive or explanatory research.

The SERVQUAL scale can be used as a good starting point for developing a scale for measuring automobile service quality (Izogo & Ogba, 2015). It is generally accepted that the scale items need to be modified by adding, deleting or rewording them to suit the industry under study (Carrillat et al., 2007). Since almost all the researchers mentioned earlier in the literature review section had used the SERVQUAL model in their research, the authors of the present research also used the same measurement scale.

The present study used a 20-item questionnaire developed based on the original SERVQUAL instrument and the previous studies done on the automobile vehicle service/repair to collect data on the SQ. There were four sections in the questionnaire; details about the vehicle, customer expectations, customer perceptions and the profile of the respondents. The same set of questions, with modifications to suit expectation and perception, were used to measure the customer expectations and the customer perceptions. For example, a question used to measure expectation was “The service station should have modern-looking equipment". The corresponding question used under perception was "The service station had modern-looking equipment." A Likert-type scale ranging from strongly disagree (1) to strongly agree (5) was used to measure both expectation and perception. The service quality of each element was measured by calculating the gap between the perception and the expectation of that particular element. Factor analysis was used to identify the dimensions of automobile service in Sri Lanka. Later, Wilcoxon signed-rank test, a non-parametric test, was used to measure the satisfaction of each of the identified dimensions.

The questionnaire was checked by few academics who were familiar with the SERVQUAL model and few changes were suggested. According to Gill & Johnson (2010), whatever the method used to administer a questionnaire, it is important to begin fieldwork by carrying out a pilot survey. Therefore, a pilot survey was conducted by giving the questionnaire to 10 customers of auto service stations and their views on the clarity of the questions were taken before the questionnaire was finalized.

Both electronic (email and Google Forms) and paper-based questionnaires were used for data collection. The online questionnaire allowed to collect data from a sample over a short period. It was very effective as respondents were able to properly concentrate and spend time filling the questionnaire with accurate details.

This study focuses on Sri Lanka’s automobile service industry. Typically, an automobile service includes the replacement of engine oil and filter, washing of the undercarriage, body wash and vacuum cleaning of the interior. The vehicle service market in Sri Lanka consists of both the automobile dealerships and the third-party organizations that run vehicle servicing as their main business. The population for this study included customers of both automobile dealer workshops and third-party service centres in Sri Lanka. Researchers may select a sample based upon his/her judgement about the population of interest, with the objectives of the research in mind, when a sampling frame is unavailable. A non-probability sample may not be fully representative as a probability sample but through some characteristics assumed to be prevalent among sample members, it provides at least some interesting understanding of the wider population (Gill & Johnson, 2010). Researchers in the field of management and business may have to use non-probability sampling, depending on the research questions(s), objectives and choice of research strategy (Saunders et al., 2016). If an experienced researcher selects a sample based on his or her judgement about some applicable characteristics of the members of the sample, then it is called purposive sampling. According to Lee & Lings (2008), purposive sampling is exactly what it sounds like, sampling with a purpose. The objective here is to select cases or individuals who are pertinent to the research questions.

4. DATA ANALYSIS

4.1. The sample description

One hundred and sixty questionnaires were distributed among motorists regularly using the service centres and 115 (a response rate of 72%) of them returned the questionnaires. Among these respondents, 34% were frequently visiting the authorised agents and 66% were visiting the third-party service centres. Table 1 describes the characteristics of the sample. All of these characteristics are generally in line with that of car ownership in Sri Lanka.

Table 1. Description of the sample

Place	Percentage
Authorised agents	34%
Third-party service centre	66%
Brand	
Toyota	28%
Nissan	16%
Honda	15%
Suzuki	10%
Mitsubishi	7%
Rest (BMW, Land Rover, Hyundai etc.)	24%
Age of the vehicle	
Registered within the last 3 years	39%
Registered within 3 – 6 years	30%
Registered within 6 – 9 years	17%
Registered within 9 – 12 years	9%
Older than 12 years	5%
Original Condition	
Brand New	49%
Reconditioned/Unregistered	40%
From the previous owner	12%
Mileage	
< 100,000 Kms	77%
> 100,000 Kms	23%

4.2. Factor Analysis

The principal component factor analysis with Varimax rotation was used because the research aimed to identify the dimensions of service quality in the automobile service industry. According to Asubonteng et al. (1996), factor analysis is a tool that can be used to determine which questions measure which dimensions as well as to determine which questions do not belong to a dimension. An examination of 30 industry-specific measures of service quality extracted from two databases: "Science direct" and "ABI inform," by Ladhari (2008) showed that all of them have used either exploratory factor analysis or confirmatory factor analysis for developing service quality scales for different industries. Hence, factor Analysis was adopted for the present research as well.

Since the present research was based on the SERVQUAL model, the gap between the perception and the expectation scores of each element was used in the factor analysis. To carry out a factor analysis, there must be variables correlating fairly well, but not perfectly (Field, 2005). According to Hair, Black, Babin & Anderson (2010), if a visual examination reveals no significant number of correlations greater than 0.30, factor analysis is most likely ineffective. A review of the correlation matrix of the data set of the present research revealed that there are many correlations above 0.3. This is confirmed by the determinant of 0.0000336 which is larger than the required value of 0.00001 (Field, 2005). Highly significant Bartlett's test ($p < 0.001$) also confirms the appropriateness of the data set for factor analysis. A sample of at least 100 elements is required to conduct factor analysis. The appropriate ratio of variables to be analysed to the sample size is at least 10 cases for each variable (Field, 2005; Hair et al., 2010). 0.884 value of Kaiser-Meyer-Olkin (KMO), which is in the great category according to Field (2005), also confirms the sample size adequacy for factor analysis. Analysis of the data set showed that eigenvalues over Kaiser's criterion of 1 support extraction of four factors explaining 60.577 per cent of the variance in the model. However, when the loading factors were analysed it was found that statement 9 of the questionnaire "The organization maintaining complete and accurate records" does not adequately load into any of the extracted factors. According to Asubonteng et al. (1996), questions that are not clearly related to a dimension are removed. Therefore, again factor analysis was done without statement 9. The results allowed to extract of four factors explaining 61.475 per cent variance of the model. Table 2 shows the Rotated Component Matrix which emerged from the factor analysis of the service quality gap.

Considering the above factor loading and carefully considering the variables in each factor, the following four dimensions were identified and labelled as shown in Table 3. Further, their reliability was also measured using Conbrach's Alpha. According to Tavakol & Dennick (2011), there are various reports suggesting acceptable Alpha values ranging from 0.70 to 0.95. Since all the Alpha values for the extracted dimensions of the present study are more than 0.7, it can be safely concluded that all the dimensions are reliable in assessing the service quality in the auto service industry.

Table 2. Results of the factor analysis

	Component			
	1	**2**	**3**	**4**
Statement7: The ability to get things right the first time (e.g. minimum repeat jobs or finding errors).	.768			
Statement8: Consistently carries out quality services.	.715			
Statement5: Ability to complete services on predefined timelines.	.711		.410	
Statement14: Feel safe in your dealings with the organization.	.641			
Statement6: The organization demonstrates a sincere interest to solve problems.	.634			
Statement10: Personnel in the organization give prompt service. (Delivery on time /before time)	.612		.406	
Statement13: The behaviour of personnel in the organization instils confidence in the customer.	.531			
Statement15: Personnel in the organization are consistently courteous to the customers.		.656		
Statement4: Materials associated with the service (such as brochures, etc.) are visually appealing and informative.		.624		
Statement17: The organization has operating hours convenient to all its customers.		.599		
Statement11: Personnel in the organization are always willing to help the customers.		.590		
Statement12: Personnel in the organization are never too busy to respond to customer requests.		.573		
Statement18: The organization has personnel who provide personalized attention.		.476		
Statement20: The personnel of the organization understand specific customer needs			.799	
Statement19: The organization has the best interests of the customers at heart.			.765	
Statement16: Personnel in the organization have the knowledge to answer questions of customers.			.608	
Statement3: Personnel/ staff being neat in appearance.				.853
Statement2: Having visually appealing physical facilities/ furniture.				.780
Statement1: Consisting of modern-looking equipment.				.754
Eigenvalues	7.525	1.837	1.226	1.092
Per cent of the total variation	21.750	14.398	13.382	11.945
Cumulative Percent of the total variation	21.750	36.149	49.531	61.475

Notes: Extraction Method: Varimax with Kaiser Normalization

Table 3: Dimensions, average differences, standard deviations and their reliability

Number	Statements	Dimension	Average difference	Standard Deviation	Reliability (Alpha)
1	7, 8, 5, 14, 6, 10, 13	Reliability of Work	-1.98261	6.18570	.841
2	15, 4, 17, 11, 12, 18	Responsiveness	-1.82609	5.75107	.744
3	20, 19, 16	Assurance	-0.95652	2.97767	.789
4	3, 2, 1	Tangibles	0.27826	3.05949	.780

The average and the standard deviation of overall difference -4.48696 and 14.64154 respectively. Once the dimensions are identified, a mean comparison was carried out to test whether there is a significant gap between customer expectation and perception in each of the dimension. According to Field (2005), if the same participants are exposed to two experimental conditions, dependent means t-test or paired sample t-test should be used. However, to carry out paired sample t-test, it is necessary to test the normality of the differences in scores. Among many tests available for testing normality, Shapiro–Wilk is the most powerful test for all types of distribution and sample sizes (Razali & Wah, 2011; Yap & Sim, 2011). Table 4 shows the results of the normality tests.

Table 4. Results of tests of normality

Dimension	Kolmogorov-Smirnov		Shapiro-Wilk	
	Statistic	**Sig.**	**Statistic**	**Sig.**
Reliability of work	.125	.000	.945	.000
Responsive	.096	.011	.969	.009
Assurance	.174	.000	.936	.000
Tangible	.154	.000	.938	.000
Overall	.133	.000	.922	.000

Since all the p-values in both tests are less than 0.05, it can be concluded that the normality assumption is violated. When data are not normally distributed, Wilcoxon signed-rank test, a non-parametric test can be used to compare the means (Field, 2005). A number of researchers who have used the SERVQUAL model to

identify industry-specific service quality dimensions also have used Wilcoxon signed ranks test when their data set were non-normal (Altuntas & Kansu, 2020; Punnatorn et al., 2020; Shoeb & Ahmed, 2021; Tóth & Surman, 2019). Table 5 shows the results of the Wilcoxon signed ranks test of each item.

Table 5. Gap Analysis

Dimension	z-value	Sig. (2-tailed) (Wilcoxon- Signed Ranks Test)	Interpretation
Reliability of Work	-3.695[a]	0.000 (< 0.05)	There is a gap
Responsiveness	-3.488[a]	0.000 (< 0.05)	There is a gap
Assurance	-3.767[a]	0.000 (< 0.05)	There is a gap
Tangibles	-0.465[b]	0.642 (> 0.05)	There is no gap
Overall	-3.918[a]	0.000 (< 0.05)	There is a gap

[a] Based on negative ranks.
[b] Based on positive ranks.

From the analysis, it was clear that the customers are overall dissatisfied with the service provided by the auto service centres. Further, they are dissatisfied with the reliability of work, responsiveness, and assurance dimensions of the service quality. However, the analysis revealed that customers are satisfied or at least not dissatisfied with the tangibles dimension.

5. DISCUSSION AND SUMMARY

The present study was carried out to explore the possibility of using the SERVQUAL model in the automobile service sector in Sri Lanka. Although the original SERVQUAL model had five dimensions, only four dimensions were discovered in the context of the Sri Lankan auto service industry. Analysis of many researches on SQ revealed that the number of dimensions varies between two and ten (Ladhari, 2008). Furthermore, he concluded that the five original SERVQUAL dimensions were, for the most part, kept in the scales scrutinized in his review. There is some similarity between the findings of the present research and the dimensions originally proposed by Parasuraman et al. (1988). This similarity may be because appliance repair and maintenance was one of the sectors selected in the original research as well.

Comparison between the dimensions of the present research and the dimensions revealed in research done in other countries in the same industry showed similarities as well as contradictions. For example, the dimensions found in Nigeria were empathy, tangibles, responsiveness, reliability and commitment (Izogo & Ogba, 2015), in Greece, by using the SERVPERF model, they were holistic customer consideration, infrastructure and personalised support (Andronikidis et al., 2008), and in the Dutch car service industry dimensions were customer kindness, tangibles, and faith (Bouman & Wiele, 1992). According to Izogo & Ogba (2015), the difference in outcome may be due to the cultural discrepancies between the business contexts. Ladhari (2008) also concluded that the number of dimensions varied according to the service context and the country. The present research also confirmed the fact that even within the auto service industry, a universally accepted set of dimensions for service quality cannot be identified. However, it is worth noting that almost in all the research done in the auto-related service industry, tangibles were identified, even though with different items, as one of the dimensions of service quality. This backed up Andronikidis & Bellou's (2010) claim that the tangibles factor displayed relative cross-sector consistency.

Like almost all other research done on service quality, the present research also revealed that customers are mostly dissatisfied with the service delivered by the auto service providers. Therefore, the service providers have to do much to increase the quality of service. However, the customers are generally satisfied with the tangibles dimension. A few years back Toyota started their own service stations in Sri Lanka. The other major manufacturers like Nissan and Honda dealers also have their own service stations and few other companies have also started high-end third-party service stations in and around the commercial capital of Sri Lanka. This severe competition could be the reason for improvements in the physical appearance as well as human appearance such as uniform of the service stations in Sri Lanka in the last few years and hence the satisfaction of customers in that aspect.

However, the present research did not identify empathy as an item of the scale measuring the service quality in the selected industry. Parasuraman et al. (1988) defined empathy as Caring, individualized attention the firm provides its customers. In the context of motor dealerships, Berndt (2006) defined empathy as the interactions and the nature of the interactions between organizations and customers. The non-inclusion of the empathy dimension in the quality of automobile service may be due to the routine nature of the service. Generally, service is limited to changing oil and filters, washing and vacuum cleaning. Therefore, there is hardly any need for providing individual attention to the needs of the customers. Further, there is no contact between the service providers and the owner/driver of the vehicle after the handing over of the vehicle to the service station. Imrie et al. (2002) carried out a qualitative study in Taiwan, a non-North American alternative, to identify service quality dimensions in a global context. Similar to the present study they also identified that empathy was not a dimension of service quality in Taiwan. Their

explanation for this result was that the definition of empathy by Parasuraman et al. in 1988 did not truly capture the essence of the concept in the context of the culture of Taiwan. That statement may be equally valid for the present research as well because culturally Sri Lanka is also similar to Taiwan.

According to Malhotra et al. (2005), augmented services, reliability and responsiveness, respecting personal privacy, competent service employees, communication focusing on higher -order needs and technology, are the most important dimensions of service quality for developed countries. But for developing countries the important dimensions are core aspects of service, "merely good" service, respecting social norms, competent organization, communication targeting lower-order needs, personal contact and high touch. But the dimensions identified in Sri Lanka, a developing country, do not differ much from the original SERVQUAL dimensions which were identified in a developed country. The reason for this resemblance could be that, although Sri Lanka is a developing country, the population chosen for the study, car owners, is affluent and belongs to the upper-middle class. If the selected service industry was something that an average citizen would obtain the service of, there may have been some difference in the dimensions.

6. MANAGERIAL IMPLICATIONS AND FURTHER RESEARCH

The findings of the present research are useful for managers of the auto service industry in providing a better service to the customers. Work to be done on time (reliability), attention to customers' queries (responsiveness), professional behaviour of employees (assurance) and visually appealing place (tangibles) are the areas that the customers are looking at in the case of the automobile service sector. The modified questionnaire that emerged from this research can be used by the managers of the vehicle service sector to measure customer satisfaction and to continually monitor the change of customer satisfaction over time. This could help the managers to identify the areas that should be improved. The findings of this study will be useful for big car manufacturers like Toyota, which has already started its own dealership in Sri Lanka, Nissan and Honda to know the dimensions of service quality in a developing country. They may be able to use the findings of this research in establishing dealerships in countries economically, culturally and socially similar to Sri Lanka, to provide a better service to the customers.
According to Sureshchadar et al. (2002), the majority of the SERVQUAL model's items are related to human interaction/intervention in service delivery, while the remainder is about tangibles. In the present research it was revealed that even though the customers were generally satisfied with the tangibles, that satisfaction was outnumbered by the dissatisfaction with other dimensions that were more related to the human aspects. Therefore, managers of service stations should pay more attention to human aspects, such as recruitment of workers with good knowledge and training the existing employees to improve their professionalism.

One of the study's limitations was the use of a sample of 115 respondents drawn from customers of service centres in Colombo, the commercial capital of Sri Lanka. Therefore, these identified dimensions may not be generalized to the whole country. According to Muhammad Butt & Cyril de Run (2010), SERVQUAL measures the functional quality but not technical quality. According to them even though the customers are not qualified to judge the technical quality, they can judge the functional quality. Therefore, in this research also the measurement of service quality was limited to functional quality than technical quality. Further, the collection of data was limited to cars. However, the preference of service dimensions of other categories of vehicles such as vans, heavy vehicles and motorcycles may be different. Since the dimensions have now been identified, this modified questionnaire can be used by other researchers to find whether there is a difference in customer satisfaction between different service centres managed by third parties and authorised service centres managed by dealers/agents of car manufacturers. The present research was based on the SERVQUAL model. Another extension of the present research may be the use of other models such as SERVPERF and comparing results and testing the strength of each model in measuring the service quality.

Even though there were few limitations, the findings of the present study revealed the dimensions of the auto service industry do not differ much from the original dimensions of the SERVQUAL model which was constructed in a developing country. Probably customers who live in different cultures but have the same economic status may perceive the services in the same way.

References

Alam, Md. S., & Mondal, M. (2019). Assessment of sanitation service quality in urban slums of Khulna city based on SERVQUAL and AHP model: A case study of railway slum, Khulna, Bangladesh. *Journal of Urban Management*, *8*(1), 20–27. https://doi.org/10.1016/j.jum.2018.08.002

Ali, S. S., Basu, A., & Ware, N. (2018). Quality measurement of Indian commercial hospitals – using a SERVQUAL framework. *Benchmarking: An International Journal*, *25*(3), 815–837. https://doi.org/10.1108/BIJ-05-2016-0060

Al-Shammari, M., & SamerKanina, A. (2014), Perceived Customer Service Quality in a Saudi Automotive Company. *International Journal of Managerial Studies and Research, 2*(10), 173-182.

Altuntas, S., & Kansu, S. (2019). An innovative and integrated approach based on SERVQUAL, QFD and FMEA for service quality improvement: A case study. *Kybernetes*, *49*(10), 2419–2453. https://doi.org/10.1108/K-04-2019-0269

Ambekar, S. S. (2013), Service Quality Gap Analysis of Automobile Service Centers. *Indian Journal of Research in Management, Business and Social Sciences, 1*(1), 38 – 41. https://doi.org/10.13140/2.1.1023.0407

Andronikidis, A., & Bellou, V. (2010). Verifying alternative measures of the service-quality construct: Consistencies and contradictions. *Journal of Marketing Management*, *26*(5–6), 570–587. https://doi.org/10.1080/02672570903498850

Andronikidis, A., Bellou, V., & Vasiliadis, C. (2008). Perceived service quality and patronage behaviour in the auto-repair industry. *International Journal of Services, Economics and Management*, *1*(2), 196. https://doi.org/10.1504/IJSEM.2008.019626

Asubonteng, P., McCleary, K. J., & Swan, J. E. (1996). SERVQUAL revisited: A critical review of service quality. *Journal of Services Marketing*, *10*(6), 62–81. https://doi.org/10.1108/08876049610148602

Berndt, A., & Herbst, F. (2006). Service Quality in the motor vehicle industry in South Africa: an exploratory study. *Southern African Business Review, 10*(2), 97 – 110. https://doi.org/10.5897/AJMM.9000050

Bouman, M., & van der Wiele, T. (1992). Measuring service quality in the car service industry: Building and testing an instrument. *International Journal of Service Industry Management*, *3*(4), 4–16. https://doi.org/10.1108/09564239210019441

Carrillat, F. A., Jaramillo, F., & Mulki, J. P. (2007). The validity of the SERVQUAL and SERVPERF scales: A meta-analytic view of 17 years of research across five continents. *International Journal of Service Industry Management*, *18*(5), 472–490. https://doi.org/10.1108/09564230710826250

Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing*, *56*(3), 55–68. https://doi.org/10.1177/002224299205600304

Field, A. P. (2005). *Discovering statistics using SPSS: (and sex, drugs and rock 'n' roll)*. London: Sage Publications.

Fitzsimmons, J. A., & Fitzsimons, M. J. (2005). *Service management*. New Delhi: Tata McGraw-Hill.

Gill, J., & Johnson, P. (2010). *Research methods for managers*. London: Sage Publications.

Gregory, J. L. (2019). Applying SERVQUAL: Using service quality perceptions to improve student satisfaction and program image. *Journal of Applied Research in Higher Education*, *11*(4), 788–799. https://doi.org/10.1108/JARHE-12-2018-0268

Hair Jr., J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010), *Multivariate Data Analysis*. New Jersey: Pearson Education.

Haverila, M., Haverila, K., & Arora, M. (2019). Comparing the service experience of satisfied and non-satisfied customers in the context of wine tasting rooms using the SERVQUAL model. *International Journal of Wine Business Research*, *32*(2), 301–324. https://doi.org/10.1108/IJWBR-12-2018-0070

Imrie, B. C., Cadogan, J. W., & McNaughton, R. (2002). The service quality construct on a global stage. *Managing Service Quality: An International Journal*, *12*(1), 10–18. https://doi.org/10.1108/09604520210415353

Izogo, E. E., & Ogba, I.-E. (2015). Service quality, customer satisfaction and loyalty in automobile repair services sector. *International Journal of Quality & Reliability Management*, *32*(3), 250–269. https://doi.org/10.1108/IJQRM-05-2013-0075

Kang, G., & James, J. (2004). Service quality dimensions: An examination of Grönroos's service quality model. *Managing Service Quality: An International Journal*, *14*(4), 266–277. https://doi.org/10.1108/09604520410546806

Karatepe, O. M., Yavas, U., & Babakus, E. (2005). Measuring service quality of banks: Scale development and validation. *Journal of Retailing and Consumer Services*, *12*(5), 373–383. https://doi.org/10.1016/j.jretconser.2005.01.001

Katarne, R., Sharma, S., & Negi, J. (2010), Measurement of service quality of an automobile service centre. *Proceedings of the 2010 International Conference on Industrial Engineering and Operations Management*, 286 – 291.

Khan, M. T., & Jadoun, R. S. (2015). Evaluation of service quality in two wheeler automobile industries using SERVQUAL model, *International Journal of Innovative Research in Science, Engineering and Technology*, *4*(5), 3451 – 3462. https://doi.org/10.15680/IJIRSET.2015.0405082

Kumar, M., Sujit, K. S., & Charles, V. (2018). Deriving managerial implications through SERVQUAL gap elasticity in UAE banking. *International Journal of Quality & Reliability Management*, *35*(4), 940–964. https://doi.org/10.1108/IJQRM-10-2016-0176

Ladhari, R. (2008). Alternative measures of service quality: A review. *Managing Service Quality: An International Journal*, *18*(1), 65 – 86. https://doi.org/10.1108/0960452081084 2849

Lee, N., & Lings, I. (2008). *Doing Business Research*, New Delhi: Sage Publications.

Malhotra, N. K., Ulgado, F. M., Agarwal, J., Shainesh, G., & Wu, L. (2005). Dimensions of service quality in developed and developing economies: Multi-country cross-cultural comparisons. *International Marketing Review*, *22*(3), 256–278. https://doi.org/10.1108/02651330510602204

Mathong, P., Sureeyatanapas, P., Arunyanart, S., & Niyamosoth, T. (2020). The assessment of service quality for third-party logistics providers in the beverage industry. *Cogent Engineering*, *7*(1), 1785214. https://doi.org/10.1080/23311916.2020.1785214

Mersha, T., & Adlakha, V. (1992). Attributes of service quality: The consumers′ perspective. *International Journal of Service Industry Management*, *3*(3), 34–45. https://doi.org/10.1108/09564239210015157

Muhammad Butt, M., & Cyril de Run, E. (2010). Private healthcare quality: Applying a SERVQUAL model. *International Journal of Health Care Quality Assurance*, *23*(7), 658–673. https://doi.org/10.1108/09526861011071580

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*(4), 41–50. https://doi.org/10.1177/002224298504900403

Parasuraman, A., Zeithmal, A. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item scale for measuring consumer perceptions of service quality, *Journal of Retailing*, *64*(2), 12–40. https://doi.org/10.1037/t09264-000

Pereira Zamith Brito, E., Luís Beneduzzi Aguilar, R., & Artur L. Brito, L. (2007). Customer choice of a car maintenance service provider: A model to identify the service attributes that determine choice. *International Journal of Operations & Production Management*, *27*(5), 464–481. https://doi.org/10.1108/01443570710742366

Peters, V. J. (1999). Total service quality management. *Managing Service Quality: An International Journal*, *9*(1), 6–12. https://doi.org/10.1108/09604529910248759

Raza, S. A., Umer, A., Qureshi, M. A., & Dahri, A. S. (2020). Internet banking service quality, e-customer satisfaction and loyalty: The modified e-SERVQUAL model. *The TQM Journal*, *32*(6), 1443–1466. https://doi.org/10.1108/TQM-02-2020-0019

Razali, N. M., & Wah, Y. B. (2011), Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests, *Journal of Statistical Modeling and Analytics*, *2*(1), 21-33.

Rodrigues, L. L. R., Barkur, G., Varambally, K. V. M., & Golrooy Motlagh, F. (2011). Comparison of SERVQUAL and SERVPERF metrics: An empirical study. *The TQM Journal*, *23*(6), 629–643. https://doi.org/10.1108/17542731111175248

Saidin, Z. H., Mohd, S. S., & Yusoff, R. Z. (2015). Automotive after-sales service quality and Relationship quality in Malaysian national car makers, *International Academic Research Journal of Business and Technology*, *1*(2), 71-78.

Salsabila, R., & Kusumawati, N. (2016). Assessing customer satisfaction of automotive service centre using SERVQUAL: A case study of Daihatsu service centre Bandung, *Indonesia, Australian Academy of Business and Economics Review*, *2*(1), 86 – 105.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students*, Essex: Pearson Education Limited

Shoeb Md., Z. H., & Ahmed, S.M. Z. (2021). How far are the public university libraries in Bangladesh meeting students' expectations? – An analysis of service quality through LibQUAL+ core items. *Performance Measurement and Metrics*, *22*(1), 49-69. https://doi.org/10.1108/14678040910949666

Shuqin, W., & Gang, L. (2012). An empirical study of after-sales service relationship in china's auto industry. *Proceedings of the 1st International Conference on Mechanical Engineering and Material Science*. 1st International Conference on Mechanical Engineering and Material Science), China. https://doi.org/10.2991/mems.2012.123

Sureshchandar, G. S., Rajendran, C., & Anantharaman, R. N. (2002). Determinants of customer-perceived service quality: A confirmatory factor analysis approach. *Journal of Services Marketing*, *16*(1), 9–34. https://doi.org/10.1108/08876040210419398

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, *2*, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Tóth, Z. E., & Surman, V. (2019). Listening to the voice of students, developing a service quality measuring and evaluating framework for a special course. *International Journal of Quality and Service Sciences*, *11*(4), 455–472. https://doi.org/10.1108/IJQSS-02-2019-0025

Yap, B. W., & Sim, C. H. (2011). Comparisons of various types of normality tests. *Journal of Statistical Computation and Simulation*, *81*(12), 2141–2155. https://doi.org/10.1080/ 00949655.2010.520163

Yarimoglu, E. K. (2014). A Review on dimensions of service quality models. *Journal of Marketing Management*, *2*(2), 79-93.

Saman Yapa
University of Sri Jayewardenepura
Nugegoda
Sri Lanka
samanyapa@sjp.ac.lk
ORCID 0000-0003-2088-6032

Rangesh Fernando
Imperial Institute of Higher Education,
Colombo,
Sri Lanka
rangeshfernando@gmail.com
ORCID 0000-0001-8308-8789