

Dimensions of Service Quality at Private Higher Education Institutions in Sri Lanka

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Abstract

The purpose of this paper is to analyse five RATER (Reliability, Assurance, Tangibles, Empathy and Responsiveness) dimensions, lead to service quality in private Higher Education Institutions (HEIs) in Sri Lanka. In total, 484 undergraduate students participated in a questionnaire survey in 46 private HEIs. Descriptive statistics, factor analysis, regression and correlation statistics were employed to analyse the effect of RATER dimensions towards service quality. Results indicate that the service seeker (students) – service provider (HEIs) relationship, quality of service on RATER dimensions and mindfulness of staff of HEIs have a positive impact on service quality. Findings of this research will help the senior management of HEIs to formulate effective strategies to build in service quality culture to ensure a better quality of service to students of HEIs, thereby, attracting, gaining and retaining more students in the programmes on offer. This paper will help the management of HEIs and service providers to analyse student perception towards private HEIs.

Keywords: RATER dimensions, Service quality, Higher Education

1. Introduction

Quality assurance process (QAP) in Higher Education Institutions (HEIs) is an important aspect and widely practices in Institutions with the participation in students to evaluate internal processes. “Student involvement” and student engagements are the terms used interchangeably where it is discussed on improve service quality standards (Elassy 2013). Service and service quality has to be distinguished from each other for the reason of the former is incorrectly seen as a direct function of the later. Service is defined as what is on offer and service quality is how the service being offered. In the context of Higher Education Institutions (HEIs), education is the service on offer.

Education systems are complex; ie., academic quality, customer care, learning environment, legal aspects and board of study considerations, etc., often interact. Private higher education in Sri Lanka is becoming a considerably large sector, where many service providers come up with different solutions such as Australian degree, American degree or University transfer options to Australia, Malaysia, USA or UK. The positive point to note is that the private education is comparatively affordable in Sri Lanka, no matter what country the degree is offered. Education to all is the state subject under the constitution in Sri Lanka.

Sri Lankan higher education sector is divided in to three categories: public Universities, state owned institutions and private institutions. Undergraduate degree Programs in Sri Lanka at least 46 private institutions and 10 public institutions or programs that recruit students outside of the University Grants Commission (UGC)-mediated admission system, in addition to the 17 public institutions for which admissions are mediated by the UGC. There are 258 different degree programmes consist of four major fields of study – Computer science/ IT, Commerce, Engineering and other, and 54 sub fields of specialisation (Gamage 2012). Education sector in Sri Lanka is large and well established. (Appendix 1)

The contribution from the service sector to the gross domestic product (GDP) has made remarkable progress in the last few years and emerged as the economy’s largest and fastest growing sector (Department of Census and Statistics, 2014). Sri Lanka is positioning itself as the world’s education hub; fast becoming a main choice for private education at affordable tuition fees, but is behind established locations such as Malaysia and India. Many private HEIs now offer variety of undergraduate degree programmes that has special considerations on the foreign students as well. Sri Lankan higher education industry has started growing slowly as the options are given by many foreign Universities.

Service quality has become an important topic in relationship to the profit, cost saving and market share. There are two components of service quality: Technical quality, which explained as what customer receives and functional quality, which explains how customers receives the service (Grönroos 1984). Education and economic development are so closely inter-related and it is impossible to achieve one without the other. Country’s economic development has to be facilitated through the higher education learning and development efforts. Higher education system in Sri Lanka has to concentrate on “development-oriented policy initiatives” to meet the expectations of local as well as global developments and changes (Jayasundara 2014). There is a direct link between service quality and customer satisfaction (Mattsson 1992). Service quality, customer loyalty and customer satisfaction are inter-related concepts (Siddiqi 2011). There is no difference either in private or state sector HEIs when it comes to the perceived service quality by the customers/ beneficiaries of the service as service quality has become integral component in any business practice (Ali, Ali & Radam 2010). This research suggests that service quality is one of

the key determinants in the success of private HEIs primary role in achieving students' satisfaction and ultimate profitability. Thus the main objective is to analyse the effect of service quality dimensions, namely, reliability, assurance, tangibles, empathy and responsiveness, to ensure higher service quality standards of private HEIs in Sri Lanka.

Higher education sector in Sri Lanka has become a highly competitive sector. Private HEIs need to measure financial and non-financial performance to improve service quality as a function and to achieve unique proposition. Excellent service quality helps differentiate one HEI from another, gain competitive advantage and enhance efficiency and effectiveness of the service delivery. There are numerous empirical research have investigated the service quality dimensions for service sector organisations. Service quality dimensions discussed in SERVQUAL model (Parasuraman, Zeithaml & Berry 1988) are still valid after 27 years, in the context of service sector organisation. Five dimensions of service quality, namely, reliability, assurance, tangibles, empathy and responsiveness, are considered as key aspects of service quality in the context of private HEIs in Sri Lanka. There are empirical evidence of service quality on sectors such as hospital (Babakus & Mangold 1992), airline (Huang 2009), hotel (Khattab & Aldehayyat 2011), insurance (Bala, Sandhu & Nagpal 2011), higher education (Cardona & Bravo 2012), (Elassy 2013), police traffic service (Sarrico, Ferreira & Silva 2013), mobile banking service (Sagib & Zapan 2014) and furthermore the service quality dimensions amongst different cultures (Guesalaga & Pitta 2014). Therefore it can be concluded that maintain academic integrity with excellent service standard is essential for HEIs in Sri Lanka.

2. Literature review

There are numerous theories and models published on the context of service quality. Theoretical review on all the published literature on the above subject matter is elaborated with carefully selected models relevant to this research study. Empirical research on service quality on many different business models were reviewed to understand the how service quality dimensions effect the overall service quality of private HEIs.

2.1 Theoretical review

Customers are interested to know how the processes work to deliver better service not merely, what they get as an outcome of the production process. There are two main quality dimensions. It is referred as "technical quality" and "functional quality" (Figure 1). What the consumer receives which is the technical quality and how customer receives the service is the functional quality, which is the "expressive performance of the service". Corporate image also another variable that customer is interested in the service (Grönroos, 1984).

The "model of service quality" (Figure 2) has developed obtaining insights from four service sector business ventures. The need of developing "quality in services", which has not been defined and researched well, in comparison to tangible products. In the absence of the tangible evidence of the service, the consumer always evaluate the service quality based on the physical facilities, equipment and personnel involved in offer the respective service. There are 10 key categories, which can be described as "service quality determinants" includes; reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding and tangibles (Parasuraman, Zeithaml & Berry 1985).

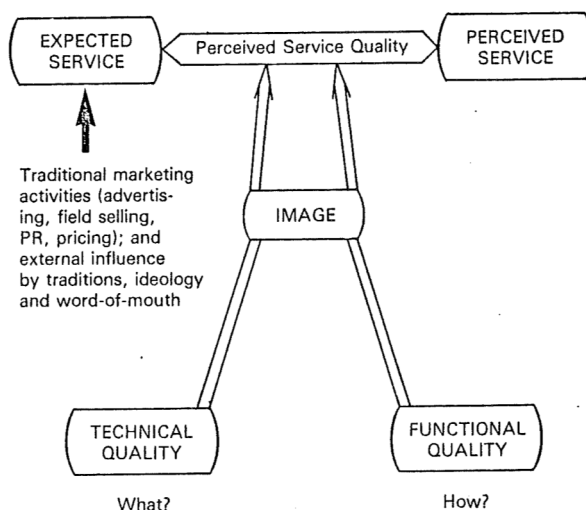


Figure 1: The service quality model

(Source: A Service Quality Model and its Marketing Implications, Christian Grönroos, 1984)

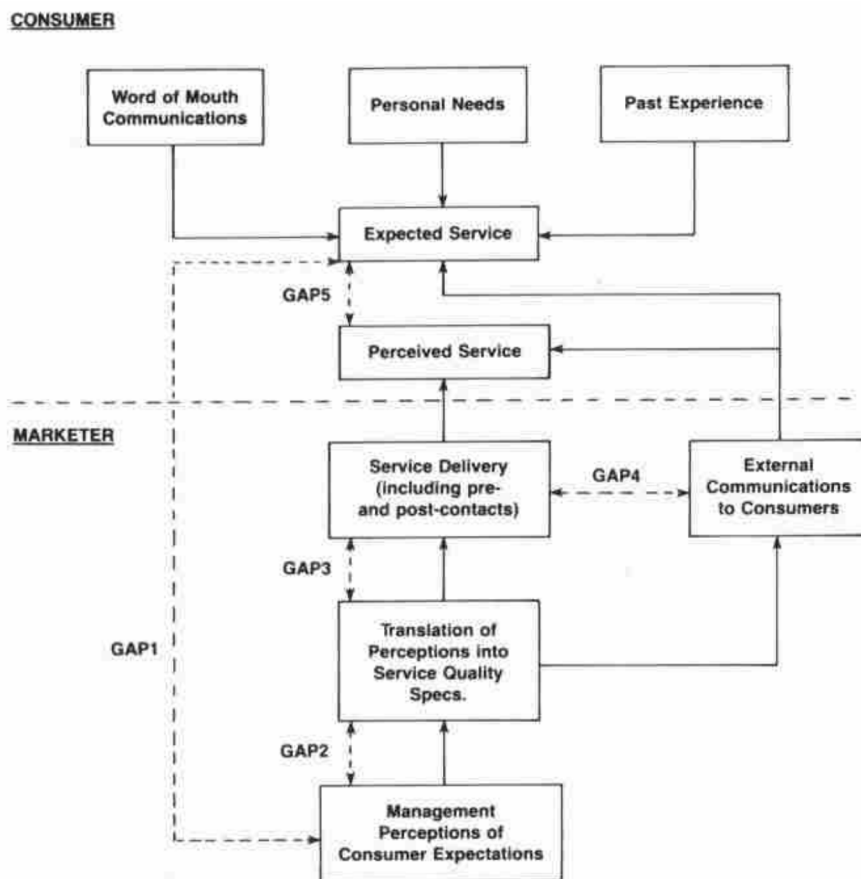


Figure 2: SERVQUAL Gap Model

(Source: A conceptual model of Service Quality, A Parasuraman, Valarie A Zeithaml and Leonard L Berry, Fall 1985)

“Model of service quality between negative disconfirmation and customer satisfaction” (Figure 3) discuss on the important elements of service quality encountered by the customers. This model discuss about the most suitable standards, customer experience and satisfaction. Model suggests that determine customer satisfaction at the higher attitude level is depending on the negative disconfirmation on a pre-conscious value level (Mattsson 1992).

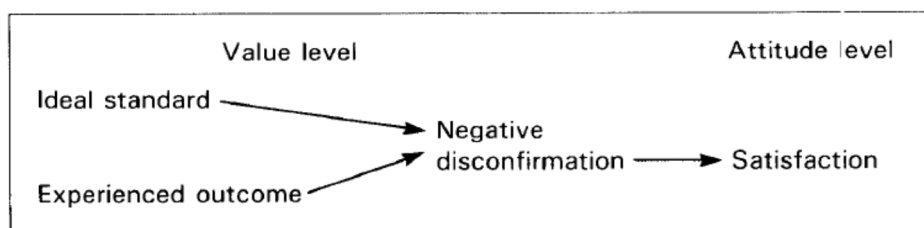


Figure 3: Model of service quality between negative disconfirmation and customer satisfaction

(Source: A Service Quality Model Based on an Ideal Value Standard, Jan Mattsson, 1992)

The P-C-P model of service quality (Figure 4) consists of “three core attributes of Pivotal, Core and Peripheral” to measure the service quality as seen by the customers. This model has been developed to address the service specific dimensions of quality and unattended critical issues of the SERVQUAL model in the assessment of individual services. PCP model has combined single scale to measure the expectations and perceptions gap by providing the consumer to assign individual weightages on service delivery (Philip & Hazlett 1997).

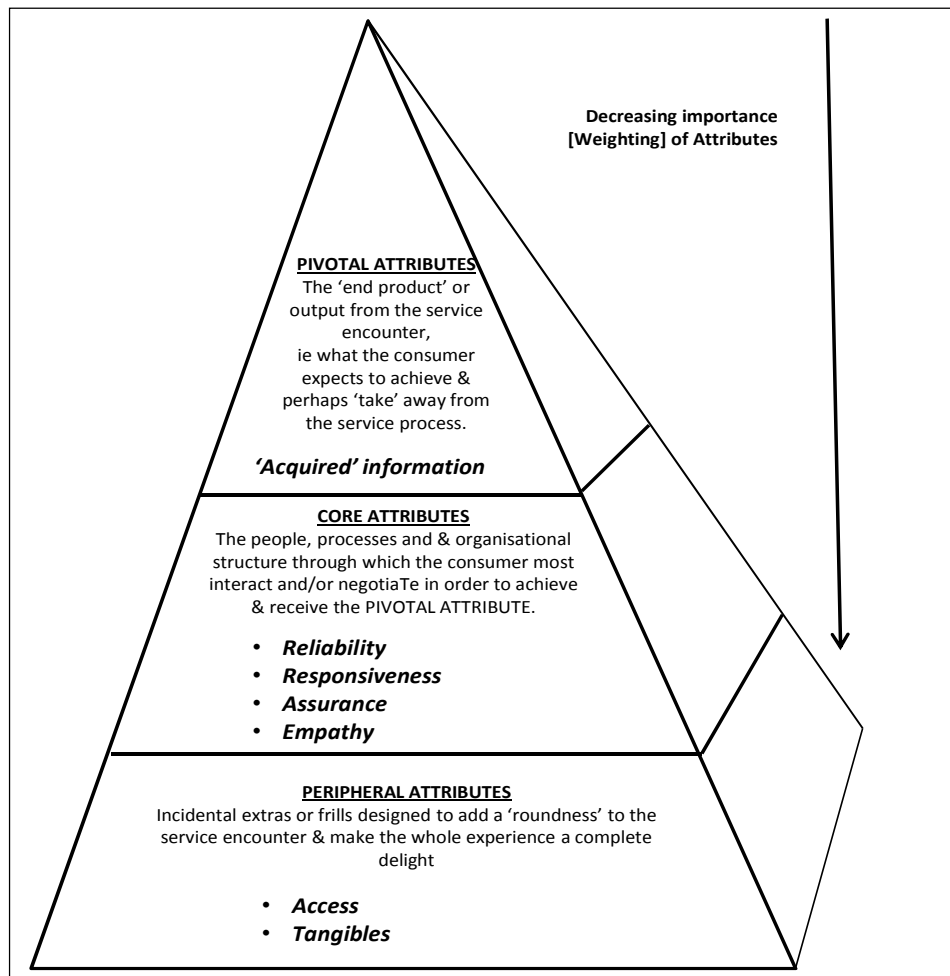


Figure 4: The P-C-P attributes model of service quality

(Source: The measurement of service quality: a new P-C-P attributes model, George Philip and Shirley-Ann Hazlett, 1997)

Quality assurance process (QAP) in HEIs is a very important aspect and widely practiced in Institutions with the participation of students to evaluate internal processes (Figure 5). "Student involvement" and student engagements are the terms used interchangeably where it is discussed on improving service quality standards. There are three main aspects in student involvement in the quality assurance process - opportunity, attendance and engagement (Elassy 2013).

		The rungs of activities	Degrees of Involvement	Categories of activities	
		20- Sharing in writing the self-evaluation report at university level ^a	Engagement	Involving in direct QAP procedures	
		19- Sharing in reviewing the self-evaluation report at university level ^a			
		18- Meeting with external reviewer in the site visit	Attendance		
		17- Having opportunities to share in external QA procedures	Opportunity		
		16- Sharing in writing the self-evaluation report at school level	Engagement		
		15- Sharing in reviewing the self-evaluation report at school level			
		14- Meeting with internal reviewers	Attendance		
		13- Having opportunities to share in internal QA procedures	Opportunity		
		12- Having leading decision-making roles within the committee ^b	Engagement		Involving in QA-related Committees ^{d, f}
		11- Adding to committees' decisions ^c			
		10- Consulting with committee members ^{b, c}			
		9- Giving feedback from committees' meetings to other students			
		8- Investigating what the committee has done about issues raised by students			
		7- Informing the committee meetings about students' opinions ^{b, c}			
		6- Attending committee meetings	Attendance		
		5- Having opportunities to attend committees	Opportunity		
		4- Follow up the feedback from the questionnaires	Engagement ^e	Involving in QA-related Questionnaires ^{d, f}	
		3- Answering questionnaires carefully			
		2- Answering questionnaires apathetically	Attendance ^d		
		1- Having opportunities to answer questionnaires	Opportunity ^d		

Sources: ^a SPARQS (2004b); ^b Arnstein (1969); ^c Widemann and Femers (1993);
^d Cumming (2001); ^e Hart (2008); ^f Little *et al.* (2009, p. 15); ^g QAA (2009f, pp. 15, 17)

Figure 5: Model of student involvement activities in the institutional QAP

Source: A model of student involvement in the quality assurance system at institutional level, Noha Elassy, 2013

2.2 Empirical review

Service is produced and consumed at the same time. Service has been described as intangible, heterogeneous and inseparable (Zhao, Bai & Hui 2002). The intangible nature of the service expects the higher standards in service delivery in comparison to the tangible product that the consumer purchases. Therefore, the expectation of the consumers of the particular transaction is very significant in the provider-consumer relationship.

Customers are the most important and integral component of the value creation process of the service. Service provider is always developing, designing, manufacturing and delivering the service to the customers and then customer will become the co-creator of the process of value creation. The supplier of goods has limited interactions with customers and in contrast in the service context, production and consumption of the service takes place simultaneously with the customer's presence. Therefore, in service environment, providers get an opportunity to interact with customers and value creation takes place then and there. Value creation process is directly linked with marketing activities, where organisation promises customers to meet their expectations as

business logic (Grönroos & Ravald 2011)

Grönroos states that service and product characteristics have remarkable differences as described in Table I.

Table I: Differences between physical goods / products and services

Goods/ Products	Services
Tangible	Intangible
Homogeneous	Heterogeneous
Production and distribution separated from consumption	Production and distribution, and consumption as simultaneous processes
A thing	An activity or a process
Core value produced in factory	Core value produced in buyer-seller interactions
Customers do not (normally) participate in the production process	Customers participate in production
Can be kept in stock	Cannot be kept in stock
Transfer of ownership	No transfer of ownership

The SERVQUAL scale defines quality as perception-minus-expectation. It consists of 22 items for each of expectation and perception. These items are classified into five categories: reliability; assurance; tangibles; empathy; and responsiveness (Parasuraman, Zeithaml & Berry 1985). The SERVPERF scale, in contrast, is known as a perception-only scale. The items and dimensions are similar to that of the SERVQUAL scale. The only difference in the SERVPERF scale is that it only considers perception.

Organisations set up their objectives on improving business performance through excellent service quality resulting customer satisfaction, customer loyalty and more importantly to be competitive in the market place. Practitioners started applying the concept widely to achieve excellent results with higher profitability (Seth, Deshmukh & Vrat 2005).

The most discussed scales include, SERVQUAL model on expectancy-disconfirmation paradigm (Parasuraman, Zeithaml, & Berry, 1985), RATER model on five key dimensions of service quality derived from SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988) and the SERVPERF model on “relative efficacy on performance-based and perception-minus-expectations measures” concept (Cronin & Taylor 1994).

Different aspects of service quality have been researched on many different industries, organisations and country contexts. Few scholars were interested on antecedents of service quality (Dabholkar *et al* 2000), (Gounaris, Stathakopoulos & Athanassopoulos 2003), (Sultan & Wong 2013).

There are common attributes in service delivery in both within and across industries. The concept is valid for both manufacturing and service sector organisations. Scholars have completed their research work on the application of the service quality models in different industries or sectors.

Hospital services in the United States on functional service quality on health care environment confirms that five service quality dimensions, namely, reliability, assurance, tangibles, empathy and responsiveness, of the SERVQUAL instrument is useful to assess the service quality in the services. Patients of the healthcare service are the customers who experience the quality of service offered and the technical quality of the service is not an indicator but the functional quality that the customers compare with the other health care service providers. Therefore, it is mandatory to offer higher standards of the service quality to be competitive in the fast growing health care sector (Babakus & Mangold 1992).

SERVQUAL five dimensions of service quality is an important instrument to understand the perceived service quality and to take corrective measures to develop businesses to be more competitive. Internal employees and external customers of mainland China department store on Chinese retail industry have provided an indication on how to differentiate the perception from each other (Zhao, Bai & Hui 2002).

Service quality dimensions of reliability, assurance, tangibles, empathy and responsiveness are equally important, salient key elements of any service sector organisation. Service performance as the key attribute has to be above the adequate level to meet the demand of competition in the market place. Tangibles aspect dominates the service quality in beauty salons and fast food service settings, where there is more customer involvement in comparison to banking and insurance sector (Sachdev & Verma 2004).

Dimensions of service quality does not support to Business-to-business (B2B) service providers such as freight and shipping services, management training and recruitment services, corporate banking services and software development. There are methodological problems in applying SERVQUAL instrument for the business model. Industrial services have significant differences in comparison to consumer services. Therefore it is necessary to consider different dimensions of service quality comprise of “potential quality”, “hard quality”, “soft quality” and “output quality”, which are been discussed and tested by the INDSERV model for industrial (B2B) sector (Gounaris 2005).

The traditional five dimensions of service quality, namely, reliability, assurance, tangibles, empathy and responsiveness are not sufficient to measure the service quality on the mobile communication service industry in

China. Convenience is another factor that contributes to service quality to assess the reliability and validity of SERVQUAL model for service sector organisation. SERVQUAL dimensions can be categorised in to three tiers. Most critical dimensions of SERVQUAL are “responsiveness”, “assurance” and “empathy”, which represent the first tier. The second tier consists of “reliability” and “convenience”, where “tangibles” represents the third tier, is considered as not critical dimension of service quality in the service organisation (Lai *et al.* 2007).

The five dimensions of service quality of SERVQUAL model, reliability, assurance, tangibles, empathy and responsiveness, are important measurement scale to evaluate the service quality. “Empathy” is significant dimension for the professional accounting firm’s context. Corporate image, Price and service quality are the key determinants of customer satisfaction (Aga & Safakli 2007).

Service quality has to be maintained to satisfy the passengers of the Airline. Customers have uncertainty of the service due to the nature of the service factors such as heterogeneous, invisible and in-divisible. Therefore, customers expect quality relationships. SERVQUAL quality dimensions are essential attributes to ensure customer satisfaction and enhance business performance (Huang 2009).

Differentiating from the competition of both local and international is the challenge for the organisations. Provide services in effective and efficient manner will help to gain competitive advantage. There is no difference either in private or government agencies when it comes to the perceived service quality by the consumers as service quality has become integral component in any business practice. Organisations have to make efforts to improve facilities, equipment and people skills to ensure excellent service quality for better customer satisfaction (Ali, Ali & Radam 2010).

Service quality, customer loyalty and customer satisfaction are inter-related concepts for the retail banking sector in Bangladesh. SERVQUAL dimensions of service quality have significant positive correlation with customer satisfaction. Employee-customer interactions can be explained by the empathy dimension. Therefore, organisations spend on staff training is compulsory to ensure higher customer satisfaction thereby improve customer loyalty (Siddiqi 2011).

SERVQUAL dimensions of service quality to be customised to evaluate the service quality in life insurance service. Higher competition in the industry lead to offer personalised service to the customers and organisations shall invest on improving knowledge and skills of the employees. Service quality dimensions would differ from industry to industry as well as culture. Service quality strategy to be introduced to “retain potential customers, gain a competitive advantage, increase its market share and profitability, and to ensure sustainability” of the organisation (Bala, Sandhu & Nagpal 2011).

Perception of service quality in Healthcare sector is measured using both functional and technical service delivery quality. Understand the patient’s perception on service quality, decision on re-using the service and recommending the service is always based on the service experience. Healthcare service marketing efforts will have to focus on the patient’s behaviour. Technical and functional aspects of the service are the key determinants that the provider has to understand to meet the expectations of “quality perception and intentional behaviour” among the users of the service. The quality aspect differs from cultural context (Eleuch 2011).

Performance only measurements scale of service quality, SERVPERF, is the most suitable model to be applied for hotel sector. Five dimensions, namely, reliability, assurance, tangibles, empathy and responsiveness are contributors of service quality that meet the customer expectations. Service quality is an important driver to measure customer satisfaction. Quality improvement strategies of the organisation should be based on the SERVPERF scale to ensure customer satisfaction. Human resource management strategies to be aligned on customer service aspects by developing skills and knowledge on customer satisfaction (Khattab & Aldehayyat 2011).

Effect of quality dimensions on student satisfaction of higher education in Indonesia proves that “students’ satisfaction was positively influenced by commitment of faculty management, the quality of course delivery, and the ease of giving feedback for quality improvement”. 5C TQM model for higher education service discuss on the Commitment of top management, Course delivery, Campus facilities, Courtesy and Customer feedback and improvement. The 5Cs are the predictors for students’ satisfaction of higher education (Ardi, Hidayatno & Zagloel 2012).

Student satisfaction in higher education institutions can be measured with the use of 5Qs model. The model focuses on the perceptions of the students rather than “perceptions-expectations approach”. 5Qs model “includes a component of accomplishments, with questions related to aspects that would enhance student satisfaction, trust and positive recommendation intention”. Five quality dimensions consider in the 5Qs model are, Quality of the object, Quality of the process, Quality of infrastructure, Quality of interaction and communication and Quality of the atmosphere (Cardona & Bravo 2012).

POLQUAL scale, which is the extension of the SERVQUAL scale including the sixth dimension to the traditional scale, has been developed to evaluate the service quality on traffic service of Portuguese police. Reliability, assurance, tangibles, empathy, responsiveness and promptitude are the six dimensions on POLQUAL model. The measurement scale provides guidance to police offers to enhance the service quality towards citizens’

ultimate satisfaction (Sarrico, Ferreira & Silva 2013).

SERVPERF is the most relevant measurement scale for banking and financial services sector in India, which discuss about the customer attitude rather than perception (Adil, Ghaswyneh & Albkour 2013).

Service quality is an important contributing factor for customer satisfaction. Service quality dimension of reliability, assurance, tangibles, empathy and responsiveness positively correlate with customer satisfaction and SERVQUAL instrument is the best measurement scale to evaluate the service quality standards in the banking sector of developing countries (Arora & Saxena 2013).

Service sector contributes to the country's economy where many organisations moved from "goods-dominant logic" to "service-dominant logic". Manufacturing organisations also revisited their marketing strategies to address service quality as an important component in the marketing plan. Cross cultural comparison on service quality dimensions proves that there is a significant variance across different cultures on the service quality dimensions. Reliability and responsiveness has greater effect on the quality dimensions among different countries with diverse cultures (Guesalaga & Pitta 2014).

There is a gap between perceived and expected service quality for the five service quality dimensions of reliability, assurance, tangibles, empathy and responsiveness. There is limited research on evaluating service quality of television channels. Public expectations from a news channel among Pakistan television viewers revealed that perception of the service quality to be addressed in more informative manner to meet the needs of citizens and employees have to contribute in "customer criteria of credibility" (Mursaleen, Ijaz & Kashif 2014).

SERVQUAL model was used to develop "physical-activity-break" (PAB) satisfaction scale with the use of RATER dimensions (reliability, assurance, tangibles, empathy and responsiveness) of the service quality. Adopted SERVQUAL scale for PAB satisfaction scale consists of five factors (5Qs), namely, "quality of the activity, quality of the instructor, service quality, quality of structure and tangible quality" (Santos *et al.* 2015).

Theoretical and empirical reviews indicate that RATER dimensions have a direct impact of service quality. Based on the literature review conceptual framework (Figure 6) was developed to determine the relationships.

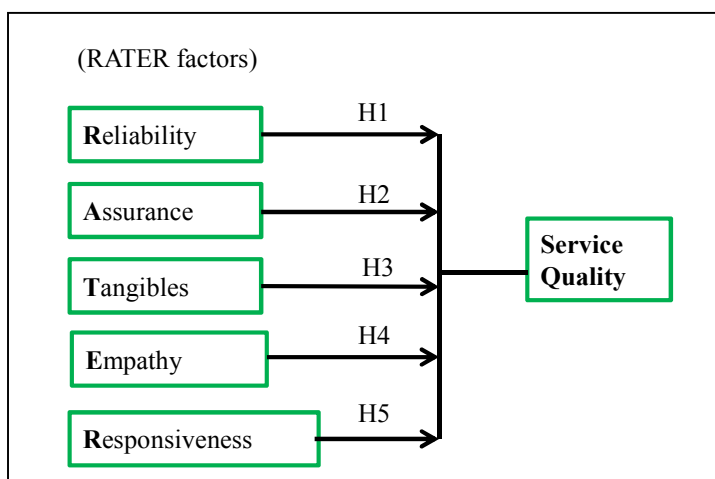


Figure 6: Conceptual framework

3. Methodology

The main concern of the research is to identify the effect of five service quality dimensions, namely, reliability, assurance, tangibles, empathy and responsiveness (RATER), for the effectiveness of service quality. Questionnaire was finalised with the discussions with the both academic and academic senior staff of private HEIs in Sri Lanka. Questionnaire survey was conducted to determine the relationships with RATER dimensions and service quality. Data was obtain on RATER dimensions and perceived service quality amongst the undergraduate degree students of private HEIs in Sri Lanka. Questionnaire was designed in two sections: first, four questions concerning demographic profile of respondents; and second, 25 questions to explore RATER dimensions and perceived service quality towards the service quality on in private HEIs. In total, there were 1000 respondents selected randomly from 46 private HEIs in Sri Lanka. Responses were received from 484 students resulting 48% response rate. Sampling unit was a student in the private HEI. Five point Likert scale was used, where 1 indicates strongly agree, while 5 indicates strongly disagree to the statement given in the items of the questionnaire.

4. Scale development

Scale was developed with referencing the published literature on RATER dimensions and service quality. Variables were taken from previous studies (Parasuraman, Zeithaml & Berry, 1988; Virgiyanti, Abu Bakar &

Tufail, 2010; Bakti & Sumaedi, 2013); Cao & Li, 2014). The questionnaire was pre-tested with 40 students in five HEIs to ensure that the sequence, format and number of questions were appropriate for the study. Reliability measure indicates the stability and consistency of the instrument and Cronbach's alpha is used as the index to measure. The Cronbach's alpha value is higher, which is closer to 1 (above 0.7), is considered as there is higher internal consistency reliability (Sekaran & Bougie 2009). Reliability will ensure the consistency of the findings, whereas, validity is concerned about whether the findings are in line with "what they are appear to be about" (Saunders, Lewis & Thornhill 2009). Reliability test results of the items in the scale indicated that the scale used was reliable (Table II). Inter-item correlation among the items was between 0.3 – 0.9, which is considered as acceptable (Sekaran & Bougie 2009).

Table II: Reliability test results

Variable	Item code	Items in the questionnaire	Cronbach's alpha
Reliability	RLB1	• Institution provides services at the time it promises	0.888
	RLB2	• I receive the answers to queries as I was expected	
	RLB3	• I receive error free reports	
Assurance	ASR1	• There are sufficient staff to help students with the inquiries	0.821
	ASR2	• Staff understand the policies and processes of the institution	
	ASR3	• Financial transactions are recorded in appropriate manner by staff	
	ASR4	• Staff offers courteous service at all times	
Tangibles	TNG1	• Institution has state of the art classroom facilities	0.875
	TNG2	• Academic and Non-academic personnel look neat as per institution's dress code	
	TNG3	• There is good student waiting area with all necessary facilities (eg. proper seating, WI-FI, etc.)	
Empathy	EMP1	• Institution has convenient operating/ working hours	0.872
	EMP2	• Institution always guarantees best services at all times	
	EMP3	• Institution understands the needs and wants of its student customers	
Responsiveness	RES1	• Institution is telling the students exactly when semester registrations takes place	0.900
	RES2	• Institution is responsible to release results on time	
	RES3	• Institution is responsible to inform payment deadlines	
	RES4	• I Receive individual attention from the institution	
	RES5	• Non-academic staff is always interested to offer prompt services for my satisfaction	
	RES6	• Academic personnel are never too busy to respond to requests that students make	
Service quality	SQ1	• Staff can be trusted	0.868
	SQ2	• Staff understands customer/ students' needs	
	SQ3	• Courtesy of staff is there for students	
	SQ4	• Receive good service when you first time enter the office/ department for administration support	
	SQ5	• Receive quick answers to any query	
	SQ6	• Guide to appropriate department/ office for any requested service	

5. Data analysis and Results

SPSS software was used to analyse data. Factor and regression analyses were performed to obtain statistical analysis. Initial questionnaire had 27 items and two items were dropped after the reliability test due to low inter-item correlation measured by Cronbach's alpha, which measures internal consistency. Cronbach's alpha should be above 0.7 (Sekaran & Bougie 2009), in this study all the variable Cronbach's alpha was satisfying the requirement after dropping two items. Thus, final questionnaire had 25 items.

Demographic data were collected to understand the respondents' status. Summary of the demographic data distribution of respondents is in Table III. Majority of the respondents in the sample are 23 years and below, mostly from Management discipline and, have been enrolled and studying in the private HEI in from 12 to 35 months. There are equal numbers of male and female students participated in the survey.

Table III: Demographic profile of respondents

		Frequency	Percentage
Gender	Male	247	51.0
	Female	237	49.0
Age	15 to 17 years	124	25.6
	18 to 20 years	189	39.0
	21 to 23 years	151	31.2
	24 years and above	20	4.1
Study discipline	Management	170	35.1
	IT/ Computer Science	134	27.7
	Engineering	124	25.6
	Marketing	23	4.8
	Science	10	2.1
	Other	23	4.8
Duration with HEI	Less than 12 months	96	19.8
	12 to 23 months	153	31.6
	24 to 35 months	183	37.8
	More than 35 months	52	10.7

Descriptive statistics and correlation between the computed means values for the variables in the conceptual framework are provided in Table IV. Inter-items correlations of each variable were tested and all the items correlate adequately in the variable. Mean values for each variable was computed and those were more than 3 and towards 5, explains the disagreement in all areas tested. The results indicate that the students were unsatisfied on the service quality in all the dimensions of service quality. All the pair-wise correlations are less than 0.9, indicating that there is no major problem of multicollinearity.

Table IV: Descriptive statistics and inter-item correlations for factor analyses of all constructs

	Descriptive statistics		Inter-item Correlation				
	Mean	Std. Deviation	MRLB	MASR	MTNG	MEMP	MRES
MRLB	3.940	.044	1.000				
MASR	3.976	.918	.366	1.000			
MTNG	3.980	.048	.346	.303	1.000		
MEMP	3.868	.071	.399	.308	.342	1.000	
MRES	3.877	.087	.313	.359	.441	.322	1.000
MSQ	3.986	.112	.515	.520	.560	.510	.684

The exploratory factor analysis was performed to reduce the dimension in the latent variables that have been conceptualised and operationalized in this survey. In a good construct, the highest correlation for each item with at least one other item in the construct must be between 0.3 and 0.9. Too high value indicates the lack of discriminant validity, while too smaller value indicates lack of convergent validity (Hair et al. 2011).

In factor analysis, the Kaiser-Meyer-Olkin (KMO) value measures the performance of variance in the variables that might be caused by an underlying factor. Statistically, it tests whether the partial correlations among variables are small. As rule of thumb, a KMO value is,

- less than 0.5 is considered poor
- between 0.5 and 0.6 is considered mediocre
- between 0.6 and 0.7 is considered acceptable
- between 0.7 and 0.8 is considered good
- more than 0.8 is considered excellent.

The smallest factor loading must be above 0.5 (Hair et al, 2010). In a good factor model the average variance extracted must be at least 50%. (Hair et al. 2011).

Principle axis factoring method was performed in the factor analysis. Factor loading for the items in each variable was more than 0.5 and there were no items dropped from the analysis. Single factor was extracted from each variable and factor loading explains that how much a factor explains the variable. High factor loading value, which is in the range of 0.7, indicates that the factor strongly influences the variable. In Table V, Reliability, Assurance, Tangibles and Responsiveness variables need attention and Empathy and Service quality needs further attention to improve service quality of private HEIs. KMO values for each variable between 0.6 and 0.8, which are in the acceptable range.

Table V: Factor analyses

Variable	Mean	Minimum Factor loading	KMO	Variance explained
Reliability	3.940	0.692	0.692	51.55%
Assurance	3.976	0.626	0.805	57.12%
Tangibles	3.980	0.692	0.703	59.33%
Empathy	3.868	0.591	0.671	57.64%
Responsiveness	3.877	0.672	0.886	49.31%
Service quality	3.986	0.468	0.855	42.08%

Regression analysis was performed to obtain deeper understanding about the relationship between service quality dimensions in private HEIs in Sri Lanka. Proposed RATER dimensions were considered as independent variables (RLB, ASR, TNG, EMP, RES) and Service quality (SQ) was considered as independent variable.

The results from multiple linear regression analysis (Table VI) of mean value of service quality (MSQ) upon mean values of RATER dimensions (MRLB, MASR, MTNG, MEMP and MRES). Mean values of all five MRLB, MASR, MTNG, MEMP and MRES are statistically significant predictors (Table VII) of MSQ ($p < 0.05$). The higher are the values of MRLB, MASR, MTNG, MEMP and MRES, the higher is the value on MSQ. The highest VIF value is 1.40, which is less than 5. Hence, there is no problem of multicollinearity.

Table VI: Multiple linear regression analysis of MSQ upon MRLB, MASR, MTNG, MEMP and MRES

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics
	B	Std. Error	Beta			Lower Bound	Upper Bound	
	(Constant)	-.870	.144				-6.036	
MRLB	.249	.029	.234	8.568	.000	.192	.307	1.190
MASR	.241	.034	.198	7.097	.000	.174	.307	1.244
MTNG	.221	.031	.209	7.185	.000	.161	.282	1.341
MEMP	.190	.029	.183	6.493	.000	.132	.247	1.261
MRES	.495	.038	.388	13.079	.000	.421	.570	1.404

Dependent Variable: MSQ

The mathematical representation for the model can be presented as follows:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Where, b_0 is constant, it the dependant variable a value when all independent variables are zero; b_0 is also called an intercept because it determines where the regression line meets the Y axis; b_1, b_2, b_3, b_4 and b_5 are coefficients that represent the estimated change in dependent variable's mean value for each unit change in independent variable values.

Regression equation for the effect of service quality dimensions on Service quality based on Table VI, is presented as Equation 1 below.

$$MSQ = -0.870 + 0.249 (MRLB) + 0.241 (MEMP) + 0.221 (MTNG) + 0.190 (MASR) + 0.495 (MRES)$$

Responsiveness (MRES) dimension has the highest influence on service quality followed by Reliability, Empathy, Tangibles and Assurance. The R square value was 0.700 (Table VII), which means about 70% of the variation in MSQ is explained by MRLB, MASR, MTNG, MEMP and MRES.

Table VII: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.836 ^a	.700	.696	.61275

^a. Predictors: (Constant), MRES, MRLB, MEMP, MASR, MTNG

Table VIII: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	417.879	5	83.576	222.593	.000 ^a
	Residual	179.472	478	.375		
	Total	597.351	483			

^a. Significant at 0.05 level; ^b. Dependent Variable: MSQ

Correlation analysis was performed to find the association between RATER dimensions of service quality (Table IX). Highest significant positive correlation was between Responsiveness and Service quality. High positive correlations were observed among Reliability, Assurance, Tangibles, Empathy with Service quality. There was no negative correlation between variables.

Table IX: Correlation analysis

		MRLB	MASR	MTNG	MEMP	MRES	MSQ
MRLB	Pearson Correlation	1					
	Sig. (2-tailed)						
MASR	Pearson Correlation	.266**	1				
	Sig. (2-tailed)	.000					
MTNG	Pearson Correlation	.246**	.303**	1			
	Sig. (2-tailed)	.000	.000				
MEMP	Pearson Correlation	.299**	.308**	.342**	1		
	Sig. (2-tailed)	.000	.000	.000			
MRES	Pearson Correlation	.313**	.359**	.441**	.322**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
MSQ	Pearson Correlation	.515**	.520**	.560**	.510**	.684**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed).

6. Conclusions

Education sector is one of the service sectors that having a great demand in present day context and it has been considered as a business, which practices all the theories and concepts related to any other business. The concept of quality has become the essential feature that all stakeholders are looking forward to experience and compare. There is a higher tendency that everyone in the education sector is concern about the quality service to be competitive in the market and therefore service quality concept been practiced in the education sector (Khan et al., 2011). Model of five dimensions of service quality was developed to analyse service quality in private HEIs in Sri Lanka by performing regression analysis. The results indicated that RATER dimensions of service quality: reliability, assurance, tangibles, empathy and responsiveness, are contributing to service quality. The findings confirm that HEIs are failed to provide these in the higher education sector in Sri Lanka. Therefore, the findings offer a foundation for future research opportunities in service quality research. However, this research was limited to private HEIs offering undergraduate degree programmes for improving the service quality standards, hence, may not be generalised to the education sector in Sri Lanka. The sample size selected may not be sufficient to represent the student population in the country, so, in future, the research can be conducted with larger sample to facilitate a strong examination of dimensions of service quality. Future research can also be focused on to measure the relationships with each dimensions relative importance. Extension of this research can be included the staff of private HEIs to obtain service providers perspective towards service quality. Furthermore, application of the model to other service sector organisations is also an extension to this research. Effect of service quality on customer satisfaction is also another aspect that could be facilitated through an extensive study for private HEIs.

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Appendix 1 - Higher Education Institutions in Sri Lanka

No	Status	Awards/ enrolled	HEI Name
1	Private	Degrees awarded	Academy of Design (AOD)
2	Private	Degrees awarded	AIMS College of Business & IT
3	Private	Degrees awarded	American College of Higher Education (ACHE)
4	Private	Degrees awarded	American National College (ANC Education)
5	Private	Degrees awarded	Aquinas College of Higher Studies
6	Private	Degrees awarded	Asia Pacific Institute of Information Technology (APIIT)
7	Private	Students Enrolled	Asian Aviation Centre
8	Private	Degrees awarded	Auston Institute
9	Private	Degrees awarded	Australian College of Business & Technology (ACBT)
10	Private	Degrees awarded	Brandix College of Clothing Technology (BCCT)
11	Private	Students Enrolled	British College of Legal Studies (BCLS)
12	Private	Students Enrolled	British School of Commerce
13	Private	Degrees awarded	Business Management School (BMS)
14	Private	Students Enrolled	CFPS Academy of Legal Studies (CFPS)
15	Private	Students Enrolled	CINEC Maritime Campus
16	Private	Students Enrolled	City School of Architecture
17	Private	Students Enrolled	College of Chemical Sciences (CCS)
18	Private	Students Enrolled	Colombo Institute of Research and Psychology (CIRP)
19	Private	Students Enrolled	Colombo School of Construction Technology (CSCT)
20	Private	Students Enrolled	Cosmopolitan College of Business & Technology (CCBT)
21	Private	Degrees awarded	ESOFT Computer Studies
22	Private	Degrees awarded	Gateway Graduate School
23	Private	Students Enrolled	Graduate Institute of Science & Management (GISM)
24	Private	Students Enrolled	Horizon Campus
25	Private	Degrees awarded	IDM Computer Studies
26	Private	Degrees awarded	Imperial Institute of Higher Education (IIHE)
27	Private	Degrees awarded	Informatics Institute of Technology (IIT)
28	Private	Degrees awarded	International College of Business & Technology (ICBT)
29	Private	Students Enrolled	International Institute of Health Sciences (IIHS)
30	Private	Students Enrolled	Lanka Institute of Fashion Technology (LIFT)
31	Private	Students Enrolled	London Business School (LBS)
32	Private	Degrees awarded	Londontec International
33	Private	Degrees awarded	Matrix Institute of Information Technology
34	Private	Degrees awarded	Mercury Institute of Management
35	Private	Students Enrolled	Northshore College of Business & Technology
36	Private	Degrees awarded	OpenArc School of Business and Technology Ltd
37	Private	Degrees awarded	Oxford College of Business
38	Private	Degrees awarded	Pioneer Institute of Business and Technology (PIBT)
39	Private	Degrees awarded	Regent International Institute for Higher Studies (RIIHS)
40	Private	Degrees awarded	Royal Institute of Colombo (RI)
41	Private	Degrees awarded	Singapore Informatics
42	Private	Students Enrolled	South Asian Institute of Technology and Medicine (SAITM)
43	Private	Degrees awarded	Spectrum Institute of Science and Technology
44	Private	Degrees awarded	Sri Lanka Institute of Information Technology (SLIIT)
45	Private	Students Enrolled	University of Ballarat Sri Lanka Study Centre
46	Private	Students Enrolled	Western College for Management & Technology (WCMT)

No	Status	Awards/ enrolled	HEI Name
1	Public Non-UGC	Degrees awarded	General Sir John Kotelawala Defence University (KDU)
2	Public Non-UGC	Students Enrolled	Institute for Agro-Technology and Rural Sciences
3	Public Non-UGC	Degrees awarded	Institute of Human Resource Advancement
4	Public Non-UGC	Degrees awarded	Institute of Surveying and Mapping
5	Public Non-UGC	Degrees awarded	National Institute of Business Management (NIBM)
6	Public Non-UGC	Degrees awarded	National Institute of Education
7	Public Non-UGC	Degrees awarded	Ocean University of Sri Lanka
8	Public Non-UGC	Degrees awarded	The National Institute of Social Development (NISD)
9	Public Non-UGC	Degrees awarded	The Open University of Sri Lanka
10	Public Non-UGC	Degrees awarded	University of Vocational Technology
1	Public-UGC	Degrees awarded	Eastern University, Sri Lanka
2	Public-UGC	Degrees awarded	Gampaha Wickramarachchi Ayurveda Institute
3	Public-UGC	Degrees awarded	Institute of Indigenous Medicine
4	Public-UGC	Degrees awarded	Rajarata University of Sri Lanka
5	Public-UGC	Degrees awarded	Sabaragamuwa University of Sri Lanka
6	Public-UGC	Degrees awarded	South Eastern University of Sri Lanka
7	Public-UGC	Students Enrolled	Swamy Vipulananda Institute of Aesthetic Studies
8	Public-UGC	Degrees awarded	University of Colombo
9	Public-UGC	Degrees awarded	University of Jaffna
10	Public-UGC	Degrees awarded	University of Kelaniya
11	Public-UGC	Degrees awarded	University of Moratuwa
12	Public-UGC	Degrees awarded	University of Peradeniya
13	Public-UGC	Degrees awarded	University of Ruhuna
14	Public-UGC	Degrees awarded	University of Sri Jayewardenepura
15	Public-UGC	Degrees awarded	University of the Visual & Performing Arts
16	Public-UGC	Degrees awarded	Uva Wellassa University
17	Public-UGC	Degrees awarded	Wayamba University of Sri Lanka

Source: LIRNEasia HEI survey (2012), <http://www.sl2college.org/hei-survey/> accessed on 16 August 2015.