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Critical factors affecting students' satisfaction with higher education in Sri Lanka

Student
satisfaction
with HE

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Abstract

Purpose – The purpose of this study is to explain critical factors affecting student satisfaction levels in selected state universities in Sri Lanka.

Design/methodology/approach – The study has applied an quantitative survey design guided by six hypotheses. A conceptual framework has been developed to address the research questions on the basis of a literature review. The study is based on an undergraduate sample from four state universities, and it presents results of factor analytics and correlational and regression analyses.

Findings – Evidence to support construct validity and reliability of all survey-based scales measuring the key variables has been found. The quality of the academic staff, university facilities, degree program, administrative staff, university location and university image have been correlated significantly with student satisfaction levels measured at 0.45, 0.47, 0.51, 0.31, 0.39 and 0.66, respectively. The statistically significant predictors are: the quality of university facilities, the quality of the degree program and the university image, with the image being the strongest predictor.

Practical implications – The study offers a conceptual framework to guide future research and validated scales for measuring student satisfaction levels in a national higher education system in a developing region that is aspiring toward a knowledge-based economy where tertiary education is free. Five recommendations are provided for policymakers.

Originality/value – Research shows high variabilities in the models used and the findings of studies on factors affecting student satisfaction levels in universities. The study is among the first large-scale studies of student satisfaction levels in the Sri Lankan state university system, where little data exist on why students are dissatisfied and fail to complete their degrees.

Keywords Academic staff, Student satisfaction, Administrative staff, Degree programme, University facilities, University image

Paper type Research paper

Introduction

At the end of three decades of terrorism-related instabilities, Sri Lanka is now rapidly moving toward national development, which includes reconciliation, maintaining rule of law and economic empowerment. Education is a chief way of achieving this target (University Grant Commission, 2013). Leadership and contributions of universities that produce a knowledgeable and skilled workforce lead to successful transition to a knowledge-based economy. According to Sri Lankan policymakers and the public, universities are pivotal in guiding the country toward a knowledge-based economic future (University Grant Commission, 2013).



The Sri Lankan university system comprises four types of institutions: state universities, controlled by University Grants Commission (UGC); higher education institutes, controlled by the Ministry of Higher Education; private non-profit education institutes; and private universities (National Education Commission of Sri Lanka, 2009). Among the four types, higher education in Sri Lanka is dominated by state universities. Currently, there are 15 state universities in the country, and these contribute around 30,000 graduates annually (University Grant Commission, 2013).

The universities offer diversified degree programs at both undergraduate and postgraduate levels under five major disciplines: mathematics, science, management and commerce, arts and technology (University Grant Commission, 2013). According to the UGC Students' Enrolment Report – 2016, 155,550 students qualified for the university entrance in 2015. However, of them, only 29,055 registered for internal degree programs offered by state universities. Statistical evidence suggests that there is fierce competition for university entrance among students in Sri Lanka.

In non-compulsory higher education systems, students are considered the “primary customers” of a university (Douglas *et al.*, 2008). Hence, a critical need for universities to compete is identifying factors that drive students' satisfaction levels with their learning environments (Alvis and Raposo, 2006).

The student satisfaction level relies on educational experiences, services and facilities students encounter during the learning process (Elliott and Shin, 2002; Weerasinghe and Dedunu, 2017; Weerasinghe and Fernando, 2017). The student satisfaction level is a function of the relative level of experiences and perceived performance of educational services provided by higher educational institutions (Mukhtar *et al.*, 2015).

Regional-level university students exhibit lower degrees of satisfaction than metropolitan areas' university students. Wilkins and Balakrishnan (2013). Martirosyan (2015) stated that students' satisfaction levels differ according to the type of university they attend. Sapri *et al.* (2009) also stressed that different cultures and procedures also affect attitude toward education at universities.

This study, based on preliminary discussions with selected heads of departments at a few Sri Lankan universities, found majority of students do not meet 80 per cent of attendance requirement per a semester regularly, thus having an unimpressive attendance record. Further, around 3 per cent of students do not complete degree programs within four-year periods, and some leave universities without obtaining a degree.

Organized activism and protests in and around the universities show Sri Lankan students' displeasure towards the state university system. This, in addition to all facts and figures, delineates a problem with satisfaction levels among undergraduates at state universities in Sri Lanka.

The purpose of this study is to identify critical factors affecting student satisfaction levels in state universities in Sri Lanka. The study is based on four state universities that have a similar period of existence: Ruhuna, Wayamba, Rajarata and Sabaragamuwa.

Literature review

Student satisfaction level has become a major focus of researchers in the competitive learning environment owing to its strong impact on the success of educational institutes and prospective student registration since the past few decades. Plentiful research available provides different conceptualizations and arguments on what the student satisfaction level is and how is it measured by universally accepted models. A review of the literature has addressed the issue and developed a framework to explain the concept clearly.

Elliott and Healy (2001) defined student satisfaction level in educational contexts as a short-term attitude based on students' educational experiences. Satisfaction in education is a positive antecedent of student loyalty to institutions (Navarro *et al.*, 2005) and is an outcome of a successful educational system (Zeithaml, 1988). Thus, student satisfaction levels can be defined as a function of the relative perceived levels of the quality of experiences and higher educational institutions' performance in providing educational services (Mukhtar *et al.*, 2015). Student satisfaction level is a multidimensional construct influenced by different factors. Many studies have identified different correlates with varying factors that influence student satisfaction levels. Appleton-Knapp and Krentler (2006) identified two groups of influences on student satisfaction levels in higher education: personal factors that cover gender, employment, preferred learning style and grade point average (GPA) and institutional factors that include the quality of instructions, the promptness of the instructor's feedback, the clarity of expectation and the teaching style.

Despite the differences in the European education system, student satisfaction levels remained relatively stable. Contact with fellow students, course content, learning equipment, stocking of libraries, teaching quality and teaching/learning materials have the highest levels of influence on student satisfaction levels (Garcl a-Aracil, 2009). In Finland, research and teaching facilities, core university activities, have a greater impact on overall student and staff satisfaction levels than supportive facilities (Karna and Julin, 2015). In the Spanish university system, teaching staff, teaching methods and course administration have a significant effect on student satisfaction levels (Navarro *et al.*, 2005), which is also influenced by the university image (Palacio *et al.*, 2002). This influence of university image is of two types: direct and indirect (Alvis and Raposo, 2006; Weerasinghe and Dedunu, 2017). In the Norwegian university system, the reputation of the institution, attractiveness of the host university city and the quality of facilities strongly influence student satisfaction levels (Hanssen and Solvoll, 2015).

According to Wilkins and Balakrishnan (2013), in the United Arab Emirates, there exists a significant relationship between student satisfaction levels and the quality of lecturers, the availability of resources and the effective use of technology. In Palestinian university system, academic programs make a significant impact on student satisfaction levels (Kanan and Baker, 2006).

Martirosyan (2015) explained student satisfaction levels in the Armenian context, deeming program curricula and faculty services as key determinants of student satisfaction levels. However, the same study highlighted the negative relationship between student satisfaction levels and faculty teaching styles and graduate teaching assistants. In the Malaysian context, teaching and learning were rated as the most important aspects of student satisfaction levels, but the significance of physical facilities in a university on student satisfaction levels was not evident (Douglas *et al.*, 2008). In Sri Lanka, reliability and empathy were the most influential and significant factors for student satisfaction levels. (Pathmini, *et al.*, 2014). In India, cooperation, kindness of administrative staff and responsiveness of educational system aided student satisfaction levels (Malik *et al.*, 2010). In New Zealand, accommodation, socializing and sense of community, safety and culture are the most important attributes of a university location (Andrea and Benjamin, 2013).

Customer satisfaction models in industry applied to higher education

Several industry-based models of customer satisfaction surveys applied in higher education include SERVQUAL (Malik *et al.*, 2010; Khan *et al.*, 2011; Pathmini *et al.*, 2014), investment theory (Carter *et al.*, 2014) and happy productive theory (Cotton *et al.*, 2002). Owing to the practical limitation of industry-based satisfaction models, such as SERVQUAL, in the

higher education framework, their application received criticism from scholars such as Buttle (1996), Asubonteng *et al.* (1996), Aldridge and Rowley (1998) and Waugh (2002). Because government universities belong to the non-profit service industry, it is difficult to apply the business-focused service quality model to measure student satisfaction levels. For example, the model focuses more on service providers' quality than on tangibility. In a university environment, student satisfaction level is determined by multiple factors in which the quality of service providers plays a small part. Thus, specific models for higher education, such as Noel-Levitz Student Satisfaction Index, Service Product Bundle Method, HEdPERF and SERVPERF, were developed later; however, all models received criticism, and all have strengths, weaknesses and limitations because of cultural and contextual differences.

Student satisfaction model for Sri Lankan higher education

The Sri Lankan university system is somewhat different because of the prevailing free education policy under which students receive even free tertiary education. To date, no student satisfaction frameworks have been developed in the Sri Lankan context. Therefore, the gap was filled by the "Student Satisfaction Model for Higher Education (SSMHE)" (Figure 1) developed by the author incorporating six variables based on the literature:

- quality of academic staff;
- quality of university facilities;
- quality of degree programs;
- quality of university administration;
- university location; and
- university image.

The quality of academic staff, the quality of the university facilities, the quality of the degree programs and the quality of the university administrative staff were incorporated into the model for this study, as those address the main role and functions of a university. Further, these dimensions were validated by many researchers globally (Elliott and Healy, 2001; Navarro *et al.*, 2005; Douglas *et al.*, 2006; Nasser *et al.*, 2008; Yusoff *et al.*, 2015; Farahmandian *et al.*, 2013; and Wilkins and Balakrishnan, 2013). An exception is Sri Lanka.

University location and image are newly tested variables in the higher education literature that need validation in the Sri Lankan context. Further, the four universities in the present study are located at four separate regions and high levels of disparity can be seen in terms of resource distribution, population density, economic and natural conditions. Hence, the impact of location and image was added to the model for this specific study.

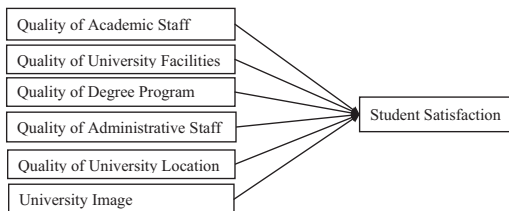


Figure 1.
Student satisfaction
model for higher
education

Definitions of student satisfaction variables and hypotheses for the study

Quality of academic staff and student satisfaction

The quality of the academic staff can be defined for the study as lecturers' broader knowledge about the discipline, the quality of delivery, the effective support for students' learning process and the quality of evaluation. According to [Yusoff *et al.* \(2015\)](#), the quality of academic faculty and their behaviors have significant impacts on student satisfaction levels in the higher education industry. The relationship is further supported by many studies conducted by [Douglas *et al.* \(2006\)](#), [Garcla-Aracil \(2009\)](#), [Wilkins and Balakrishnan \(2013\)](#) and [Karna and Julin \(2015\)](#). However, [Martirosyan \(2015\)](#) found negative insignificant relationships of student satisfaction levels with faculty teaching styles and graduate teaching assistants. Hence:

H1. Quality of university academic staff, as perceived by students, will positively influence student satisfaction levels in Sri Lankan universities.

Quality of university facilities and student satisfaction

Facilities are designed, built and made available for facilitating smooth operations of an organization ([Karna and Julin, 2015](#)). The quality of the university facilities in this study is considered as the availability and adequacy of classroom facilities, library facilities, computer laboratories, social areas, hostel facilities and student cafeterias. According to [Yusoff *et al.* \(2015\)](#), there is a statistically significant relationship between university facilities and student satisfaction levels. The relationship is further supported by [Karna and Julin \(2015\)](#) and [Hanssen and Solvoll \(2015\)](#). However, was [Douglas *et al.* \(2006\)](#) and [Navarro *et al.*, \(2005\)](#) found a statistically insignificant impact of university facilities on student satisfaction level. Hence:

H2. Quality of university facility, as perceived by students, will have a positive influence on student satisfaction levels in Sri Lankan universities.

Quality of degree program and student satisfaction

The quality of the degree programs was defined for the study as a well-established and flexible curriculum that is designed by the university to provide diversified knowledge and skills to students about a specific field. [Athiyaman \(1997\)](#), [Browne *et al.* \(1988\)](#), [Navarro *et al.* \(2005\)](#) and [Farahmandian *et al.* \(2013\)](#) found that there is a statistically significant positive impact of the academic program on student satisfaction levels. Hence:

H3. Quality of degree program will have a positive influence on student satisfaction levels in Sri Lankan universities

Quality of university administrative staff and student satisfaction

The qualities of a university administrative staff included reliability, responsiveness, caring attitude, accuracy, fairness, respect and cooperation with students during the study period at a university. [Malik *et al.* \(2010\)](#) identified that cooperation, kindness and responsiveness of administrative staff play a vital role in determining student satisfaction levels in higher education. Further, [Elliott and Shin \(2002\)](#) identified that students' overall satisfaction levels is significantly affected by the excellence of instruction, the quality of instruction and the clearness and impartial treatment by the non-academic staff. Hence:

H4. Quality of university administration will positively influence student satisfaction levels in Sri Lankan universities

Quality of university location and student satisfaction

The quality of the university location in the study was measured through the availability of accommodation, transport, professional learning, employment opportunity, entertainment and safety facilities around the university. [Andrea and Benjamin \(2013\)](#) found that students' overall satisfaction levels with the location is relatively positive and they are more satisfied with socializing, sense of community, community assets and natural environment of the location of the university. [Hanssen and Solvoll \(2015\)](#) found that the university's host city has a strong influencing power on overall student satisfaction levels. Hence:

H5. A university's location will positively influence student satisfaction levels in Sri Lankan universities.

University image and student satisfaction

University image in this study is defined as a perceived picture of a university that is strongly embedded in undergraduates' mind based on accumulated learning experiences. [Cassel and Eklo \(2001\)](#), found that image always appears as one of greatest influencing variables in determining student satisfaction levels. [Alvis and Raposo \(2006\)](#) indicated that university image has both direct and indirect effects on the student satisfaction level and loyalty. Hence:

H6. University image will have a positive influence on student satisfaction levels in Sri Lankan universities.

Methodology

Research design and conceptual framework

The study has applied quantitative survey design guided by six hypotheses. It developed a conceptual framework to address the research questions based on the literature review ([Figure 1](#)). According to the conceptual framework, the independent variables are the quality of the academic staff, the quality of the university facilities, the quality of the degree program, the quality of the administrative staff, the quality of the university location and the university image, and the dependent variable is student satisfaction level.

Sample

All management undergraduate students, approximately 5,320, at the Universities of Ruhuna, Rajarata, Wayamba and Sabaragamuwa were included in the study. Of the total, 650 students of the population who exceeded the required standard sample size of 357 for over 5,000 population as per [Krejcie and Morgan's \(1970\)](#) table on power analysis were selected. Stratified sampling techniques were applied, as there were identifiable subgroups of second- and third-year students. The study excluded both the first- and final-year students from the population as first years have less experience and all final-year students were outside the universities because of their compulsory industrial training program.

According to the descriptive statistics placed under [Appendix 1](#), majority of respondents were from Wayamba University (29.3 per cent) and the minority belong to the University of Ruhuna (22.2 per cent). Questionnaires were somewhat fairly distributed among the University of Rajarata (25 per cent) and the University of Sabaragamuwa (23.5 per cent).

Participation of men (29.7 per cent) in the sample was significantly lower than that of women (70.3 per cent). Respondents were almost equally split among second-year students (47.0 per cent) and third-year students (53.0 per cent). The majority specialized in accountancy and finance (29.7 per cent) and business management (22.2 per cent) in the selected four universities.

Instrumentation. The researcher administered the structured questionnaire having 70 items for data collection. The questions of the questionnaire were organized into three sections. Section A consisted of personal data of the respondent. Section B tapped the six independent variables which were filtered down from the literature. Section C consisted of five-point Likert scale questions to measure students' overall satisfaction levels. The Likert scale for items ranged from 1 to 5, where 1 = "strongly disagree" and 5 = "strongly agree".

Face validity and content validity of questionnaire were examined in the stage of item generation from the extensive review of the literature and by adopting changes and suggestions from various experts.

Data collection

Data were collected in November–December 2016, with questionnaires distributed to students in classrooms by the researcher. A total of 650 questionnaires were administered, and 532 completed questionnaires were processed for the analysis.

Data analysis

Data were analyzed using SPSS statistical software. Validity and reliability tests were conducted to ensure face, content and construct validity and reliability of variable measures. Descriptive statistics and inferential tests were deployed to test the hypotheses, and a stepwise regression analysis was conducted to identify the most influential factors that explained student satisfaction levels in the Sri Lankan university context.

Data were analyzed in two stages. In the first stage, item reliability and validity of internal structure of dimensions were tested based on salient items. Cronbach's alpha coefficients of all the scales were above 0.70, which is satisfactory internal consistency (Nannally, 1978).

The Bartlett test of sphericity was significant at the 0.001 level. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy showed adequate fit (above 0.5), indicating the suitability of factor analysis. A principal component analysis was performed. Components' extracted values of items were greater than 0.7, and the average variance extracted (AVE) from each construct was greater than 0.5. The results confirmed the validity and reliability at the item level.

Several assumptions were examined before regressions were performed. To examine multicollinearity issues, the study estimated variance inflation factors (VIF) which, for the study, ranged from 1.233 to 1.534. The values were well below the critical value of 10, a value that indicates the possibility of a multicollinearity problem (Hair, 1998). Durbin–Watson statistic as per the test was 1.862 and was very close to 2, indicating the absence of a heteroscedasticity problem in the data set.

Results

The internal scale structure was validated and ensured at the dimension level. According to the factor analysis results presented in Table I, the extracted eigenvalues of dimensions were greater than the threshold (0.7) on all except a few dimensions. The excluded items were flexible curricula, professional education (0.576), entertainment facilities (0.220) and safety (0.608). Accordingly, the AVE (per cent) by the dimension (Table I) were all greater

QAE 26,1	Variables	Dimensions	Component eigenvalues value (λ)	λ^2	AVE		
122	Quality of academic staff	Broader knowledge	0.784	0.61466	0.666		
		Quality of delivery	0.858	0.73616			
		Effective support	0.843	0.71065			
		Evaluation method	0.777	0.60373			
	Quality of university facility	Lecture rooms	0.835	0.69723	0.599		
		Library facilities	0.74	0.5476			
		Computer center	0.832	0.69222			
		Social area	0.757	0.57305			
		Hostel facilities	0.745	0.55503			
		Student's cafeterias	0.731	0.53436			
		Reputation	0.775	0.60063		0.669	
	Quality of degree program	Flexible curricular	0.505	Removed			
		Diversified knowledge	0.805	0.64803			
		Diversified skills	0.871	0.75864			
	Quality of administrative staff	Reliability	0.804	0.64642	0.688		
		Responsiveness	0.835	0.69723			
		Caring	0.856	0.73274			
		Accuracy	0.814	0.6626			
		Helpfulness	0.848	0.7191			
		Fairness	0.793	0.62885			
		Respect	0.846	0.71572			
		Corporation	0.842	0.70896			
		University location	Accommodation	0.769		0.59136	0.616
			Transport	0.792		0.62726	
	Employability		0.794	0.63044			
	Professional education		0.576	Removed			
	Entertainment facility		0.220	Removed			
	Safety		0.608	Removed			
	University image	Perceived picture	0.898	0.8064	0.802		
		Word of mouth	0.894	0.79924			
	Student satisfaction	Educational experience	0.904	0.81722	0.840		
		Graduate studies	0.928	0.86118			
		Recommendation	0.918	0.84272			

Table I.
Internal structure of
scale and variance
explained

Notes: Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization

than 0.5, indicating that well over 50 per cent variance was explained by latent factors (principal components). These statistics supported the theorized, internal scale structure and overall construct validity of the variable measures used in subsequent analyses.

Table II provides rotated factor loadings that resulted from a factor analysis followed by a varimax rotation of seven constructs that compose the questionnaire. Having removed weak items refined results present a validated factor structure, where the 33 items located onto seven factors were theorized with loadings greater than or equal to 0.50. The Cronbach's alpha estimates were greater than the standard criteria 0.7, indicating good internal consistency among the variables.

Descriptive statistics

According to Appendix 2, the mean value of the quality of the academic staff (3.78), the quality of the degree program (3.4), the university image (3.7) and the student satisfaction levels (3.6) was satisfactory. The mean value of the quality of the administrative staff was

Variables	Dimensions	Component						
		1	2	3	4	5	6	7
Quality of academic staff	Broader knowledge			0.680				
	Quality of delivery			0.798				
	Effective support			0.784				
	Evaluation method			0.636				
Quality of university facility	Lecture rooms		0.767					
	Library facilities		0.599					
	Computer center		0.729					
	Social area		0.658					
	Hostel facilities		0.701					
	Student's cafeterias		0.634					
Quality of degree program	Reputation				0.623			
	Diversified knowledge				0.814			
	Diversified skills				0.763			
Quality of administrative staff	Reliability	0.722						
	Responsiveness	0.760						
	Caring	0.813						
	Accuracy	0.768						
	Helpfulness	0.813						
	Fairness	0.751						
	Respect	0.806						
	Corporation	0.809						
University location	Accommodation					0.716		
	Transport					0.825		
	Employability					0.578		
University image	Perceived picture				0.836			
	Word of mouth				0.845			
Student satisfaction	Educational Experience						0.846	
	Graduate studies						0.728	
	Recommendation						0.896	

Notes: Extraction Method: principal component analysis; rotation method: varimax with Kaiser normalization; a. Rotation converged in seven iterations

Table II.
Rotated factor
pattern with factor
loading

about 3.00, delineating respondents' neutral view toward this factor. However, the respondents were dissatisfied with the mean quality of the university facilities (mean 2.8) and university location (mean 2.7) factors at the four universities.

Results of hypotheses tests

Correlation results (Table III) of the quality of academic staff, university facilities, degree program, administrative staff, university location and university image with student satisfaction levels were 0.4498, 0.4666, 0.5125, 0.3144, 0.3936 and 0.6646, respectively. All correlation coefficients were statistically significant at the 0.05 per cent error level.

To identify the best predictor of student satisfaction levels and augment the explanatory power of the model by adding variables one by one, a stepwise regression analysis was performed, with student satisfaction level as the dependent variable. The stepwise regression analysis results are shown in Table IV.

The *F*-test indicated a good model fit, and the regression standardized residuals of the model were symmetrical and normally distributed. Hence, the statistical properties are generally good and indicate that the estimation results were credible. The explanatory

Table III.

Correlation analysis

Variables	Student satisfaction	Academic staff	University facility	Degree program	Administrative Staff	University location
Student satisfaction	1.000					
Academic staff	0.4498**	1.000				
University facility	0.4666**	0.5470**	1.000			
Degree program	0.5125**	0.5774**	0.6252**	1.000		
Administrative staff	0.3144**	0.4692**	0.5668**	0.4643**	1.000	
University location	0.3936**	0.4437**	0.5407**	0.5093**	0.4125**	1.000
University image	0.6646**	0.4074**	0.3062**	0.4323**	0.2160**	0.3108**

Note: **Correlation is significant at the 0.01 level (two-tailed)

power of the model (R^2) was 0.53, suggesting that the model explained 53 per cent of the variance in the measure of student satisfaction levels. The signs of the estimated coefficients were positive and supported the prior assumptions regarding the influences of the explanatory variables as given in the conceptual framework on student satisfaction levels (Figure 1). The ANOVA was statistically significant at less than the 0.001 level. Hence, the model was strong enough to predict the linear relationships between independent variables and the student satisfaction levels.

According to Table IV, regression coefficients of the university image, the quality of university facilities and the quality of the degree program were 0.647, 0.270 and 0.230, respectively, and their respective statistical significance levels were less than 0.05. Accordingly, the study confirmed $H2$, $H3$ and $H6$. As a result, the study concluded that there were statistically significant influences of the aforementioned three variables on student satisfaction levels at state universities in Sri Lanka. Consequently, a unit change in the university image, the quality of university facilities and the quality of the degree program will lead to changes in student satisfaction levels at state universities by 0.647, 0.270 and 0.230 units, respectively.

However, the variables of the quality of the academic staff, the quality of the administrative staff and the quality of the university location were excluded from the model with statistically insignificant explanatory powers on the student satisfaction levels. The study therefore rejected $H1$, $H4$ and $H5$. Finally, the university image factor was identified as the strongest predictor.

Discussion

The regression results indicated a statistically insignificant influence of the quality of the academic staff, the quality of the administrative staff and the quality of the university location, on the student satisfaction levels. This finding aligned with that of a few previous studies. Martirosyan (2015) identified an insignificant relationship between faculty teaching styles, graduate teaching assistants and student satisfaction levels. The high explanatory power of the university image may have decreased the influence of the quality of the academic staff on the student satisfaction levels at the state universities in Sri Lanka. However, elsewhere, Weerasinghe and Dedumu (2017) found an indirect impact of the quality of the academic staff on the student satisfaction levels through the university image in Sri Lankan contexts. Indirect influences were not investigated in this study.

As per the regression result, there is a statistically significant influence of university facilities on the student satisfaction levels in comparison with other modeled variables. This relationship was further confirmed by Carey *et al.* (2002), Yusoff *et al.* (2015) and

R Square: 53% Adjusted R^2 : 52.8%

Model	Unstandardized coefficients		Standardized coefficients		t	Significance	Durbin-Watson 1.862	
	B	Standard error	Beta				Tolerance	VIF
3								
(Constant)	-0.410	0.177			-2.314	0.021		
University Image	0.647	0.040	0.536		16.176	0.000	0.811	1.233
Quality of university facility	0.270	0.049	0.208		5.447	0.000	0.607	1.646
Quality of degree program	0.230	0.062	0.151		3.730	0.000	0.545	1.835
<i>Excluded variables</i>								
3								
Quality of academic staff	0.53				1.347	0.179	0.583	1.715
Quality of administrative staff	0.16				0.436	0.663	0.659	1.518
Quality of university location	0.58				1.568	0.118	0.652	1.534

Table IV.
Stepwise regression
analysis

Hanssen and Solvoll (2015). Accordingly, the study concludes that facilities, such as lecture rooms, library facilities, computer labs, social areas, hostel facilities and student cafeterias, work as major determinants of student satisfaction levels at state universities in Sri Lanka.

Further, the regression results confirmed a significant influence of the quality of the degree program on the student satisfaction levels in state universities in Sri Lanka. The finding aligned with the findings of many previous studies, such as Farahmandian *et al.*, (2013); Athiyaman (1997); Browne *et al.*, (1988); Abdullah (2006). Athiyaman (1997) claimed that an optimistic association among overall levels of student-perceived quality and academic curricula, as well as course quality and other curriculum-related issues, connected with the overall student satisfaction levels (Browne *et al.*, 1988).

The rejection of *H4* suggests an insignificant impact, relative to other model variables, of the quality of university administrators on the student satisfaction levels in the Sri Lankan context. The findings of Pathmini *et al.* (2014) also indicated that Sri Lankan students at newly established universities were not much happy about empathy level exhibited and the reliability of an administrative staff. In the university system, students rarely connect with the administrators, and they perceive administrators to be part of a negative, unhelpful bureaucracy (Aigbavboa and Thwala, 2013). Hence, the student satisfaction level is not considerably influenced by university administrators. The impact of the quality of the location on student satisfaction level was also statistically insignificant at the 0.05 per cent level. When comparing the results of previous research studies, some constancies in the findings were revealed. The findings of the study were similar to the results of Andrea and Benjamin's (2013) study.

The influence of the university image on the student satisfaction levels was statistically significant at the 0.05 level and it was the strongest predictor in the study. In the context of higher education, this relationship is supported by Cassel and Eklo (2001), Palacio *et al.* (2002), Alvis and Raposo (2006) and Ali *et al.* (2016).

Practical and management implications of the study

The study developed an "SSMHE" (Student Satisfaction Model for Higher Education) instrument and model to explain the student satisfaction levels at state universities in Sri Lanka. This tool can be widely used by researchers in Sri Lanka to examine and explain the satisfaction levels of students in higher education. It may also be used elsewhere in the world with further validation in new and different contexts.

This is the first model which covers key university functions and key university-related factors which are widely valued by students in the university selection processes. Especially, the model may serve the needs of the University Grants Commission (UGC) at Sri Lanka, the controlling body of universities, to ascertain reasons why some universities are sought out competitively by students while others fade out with little student interest. The study could also benefit universities in providing ways and means to improve the satisfaction levels of students, adding value for students in the learning processes. Further, the model can be used to compare the satisfaction levels and the priorities of Sri Lankan students with counterparts in similar countries and elsewhere.

In light of the analysis, there was an insignificant impact of the quality of the academic and administrative staff on the student satisfaction levels. Both the academics and administrators often connect with students in the learning process; however, the impact they have on student satisfaction levels in the Sri Lankan contexts was found to be insignificant. If the situation continues, it may engender a poor or sluggish relationship between students and the faculty in future. Further, findings highlighted the significant influences of the quality of the university facilities, the quality of the degree programs and the university image on the levels of student

satisfaction. University leaders could choose to enhance the student satisfaction levels by improving the aforesaid aspects of education brought out by this study.

Policy recommendations

Based on the study, the author recommends that the university management restructure the services being provided to the undergraduates to match these with valued areas. The academic staff should reexamine their teaching and evaluation processes again to examine reasons for the insignificant effects of their effort on the student satisfaction levels.

Universities could also take necessary actions to improve the student satisfaction levels by investing in providing facilities such as lecture rooms, library, computer labs, social areas, hostel facilities, student cafeterias. The library facilities could be improved by purchasing necessary books, improving reading facilities and e-learning facilities. The number of computer labs and internet access points could be increased with a proper technical assistance. Universities must have adequate social areas, cafeterias, hostel facilities for the undergraduates to increase their satisfaction levels. In this process, the university could attempt to either hire external boarding places as hostels or maintain chargeable hostels with the support of private entities.

The study supports the added recommendation that universities develop their degree programs by incorporating additional optional subjects to widen the avenues for specializations and revise existing curricular every five years continuously based on market requirements to increase employability and program reputation. Finally, this study recommends universities to improve its' image by developing well-reputed nationally known academic programs and also recruiting excellent academics with industry exposure.

Future research areas

It is hoped that a longitudinal study will provide a basis for more informed interpretations in future studies, and hence, future studies can see how students rate their satisfaction longitudinally from the point of entry to exit.

Significance of the study. This is the first study that investigates the critical factors affecting student satisfaction levels of selected state universities. In addition, the study uncovers new insights for interested parties to explain the student satisfaction level using the SSMHE model.

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Further reading

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Appendix 1

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Table AI.
Sample profile

Category	Frequency	(%)
<i>Gender</i>		
Male	158	29.7
Female	374	70.3
<i>Academic year</i>		
Second year	250	47
Third year	282	53
<i>University</i>		
Rajarata University	133	25
Wayamba University	158	29.3
Ruhuna University	118	22.2
Sabaragamuwa University	125	23.5

Appendix 2

Table AII.
Descriptive statistics
of key variable
measures

Variables	<i>N</i>	Mean values	SD
Quality of academic staff	532	3.78	0.605
Quality of university facilities	532	2.8	0.761
Quality of degree program	532	3.40	0.693
Quality of administrative staff	532	3.02	0.878
Quality of university location	532	2.7	0.935
University image	532	3.7	0.899
Student satisfaction	532	3.6	0.966

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