

A significant comparison between the expectation and the satisfaction level of students regarding the services provided by Private Universities of Bangladesh: A profound study on Varendra University.

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Abstract : This study aims to assess the potent dimensions (i.e. University facilities, teacher's skill or administrative support) that influence student's satisfaction compared to their expectation from the Varendra University located in the northern region of Bangladesh. The study also aims to find out the influential service factors that encourage students for the enrollment of the university. Depending on the nature of the study, the authors have used primary data only. Non-probability technique of convenience sampling has been used to collect data through a set of pretested structured questionnaire from the students of different years of Varendra University excluding the students of first year to ensure that the respondents are aware and have used the services. 485 samples were collected from the students of all the department of Varendra University randomly on a proportional basis. Multiple statistical tools have been employed to analyze the data namely reliability test, descriptive statistics, correlation analysis and factor analysis. The findings revealed that students are highly satisfied with teacher's skill (2nd dimension) while mostly dissatisfied with the facilities provided by the university (namely internet facilities, lab facilities, repairing and maintenance facilities in 1st dimension) and administrative supports (namely Student complaints channels in 3rd dimension). However, the study has found a strong positive correlation among all the services provided by the university and student's satisfaction. The factor analysis disclosed teacher's skill as the most influential factor that has the highest explanatory power in terms of student's expectation and satisfaction.

Keyword: Student's expectation, Student's satisfaction, Private University, factor analysis, Varendra University, Bangladesh.

I. INTRODUCTION

In the post-war Bangladesh, The education sector has been fabricated following several changes. Before that, it had strong link with British education system and followed an UK model (Middlehurst and Woodfield, 2004). In 1921 the British establishes the first public university, Dhaka University based on the Oxbridge model. Later 5 additional universities were established within the 1950's and 1960's. Throughout the 70s the tertiary education system had gone through an extensive vary of issues principally political violence resulting in session jams. During 1992 there have been solely eight public universities that were unable to deal with the upper demand of student. (Hopper, 1998). With the enactment of the non-public Universities ACT of 1992, the tertiary education system was allowed to ascertain non-public university. This allowed education to be accessed by additional folks, reduced the money burden on the general public sector, and developed a talented work force base meeting the market desires. According to recent data, the University Grant Commission (UGC), a statutory apex body in the field of higher education in Bangladesh, listed 108 private (as of June 2022) universities among them 103 universities are operating while 5 universities are approved by UGC but yet to start their academic program and 52 public universities operating within the national boundary. (www.ugc.gov.bd) Recent trend in the world suggests that countries are transforming from an industry based society to knowledge based society, consequently higher educational institutions will facilitate to play an indispensable role in making, spreading and applying knowledge for a nation or region to survive within the knowledge-based society. (Umemiya, 2008). However critics argue that private university is a profit maximizing enterprise catering to affluent society and effecting quality education.

The annual report of 2012 published by UGC quoted that university could be a place for creation of knowledge and assimilation of knowledge but the standard of education is deteriorating day by day. The major problems cited by UGC are lack of full time teachers, permanent campus, inadequate laboratory and library facilities, lack of research and development, limited course options, inefficiency in internal governance and most importantly extreme profit making attitude of university promoters (entrepreneur, Chowdhury, Iqbal and Miah, 2010). Although some private universities are able to provide better services majority are still lagging behind. The challenge of attracting potential students and retaining current students remains a challenge.

This study is undertaken among the students of Varendra University who pay the tuition fees in an installment basis. The aim of the study is to find out which area students have highest expectation and whether they are being met or not. Student's feedback will help the authors to suggest the university authority to take necessary actions to attract potential students and retain current students. The instrument allows determining four areas of interface between importance and satisfaction namely "high importance/ low satisfaction" and "low importance /high satisfaction" (Mazumder, 2013). This allows management of the particular institute to focus on their strengths and weakness and also to take actions against those areas where "high importance/low satisfaction" persists.

II. AN OVERVIEW OF VARENDRA UNIVERSITY

After liberation war, the education sector of Bangladesh like other sectors faces enormous problems that specially prevail in the sector of higher education of the country, particularly in the northern region. The number of students seeking admission for higher education has been increased in an amazing rate but the number of universities has not been increased proportionately in that region. Naturally, too many students cannot enroll into their undergraduate programs. Nevertheless, many students have to enroll into the colleges under National University which unfortunately cannot impart quality education for constraints of all kinds. Through there are a number of private universities located in other region of Bangladesh, mostly of them are located in capital city and the cost of those universities are much higher hence unaffordable by the poor people of northern area. This situation inspires Mr. Hafizur Rahman Khan, one of the famous industrialists of Bangladesh and the founder of Varendra University also the founding chairman of Varendra University Trust (VUT) to build a private university in northern region of Bangladesh as a part of his Corporate Social Responsibility (CSR) activities. Varendra University is the first UGC (University Grant Commission) approved private university in the northern region of Bangladesh. The university has been established in 14th March, 2012, got approval from UGC in 20th March, 2012 and has commenced its activities in 24th September, 2012. The mission of the university is to contribute to national development by producing innovative, skilled, and technologically trained manpower along with its vision to emerge as one of the leading and premier centers of higher studies in arts, social science, science, engineering and technology. Currently, the university has seven faculties under which eleven departments are running in the field of science and engineering, business, arts, social science, law and public health. The university has around 140 full time faculty members and above 50 adjunct faculties and current number of students are around 5500. The university's permanent campus is located on 18 Acre of Land at Kharkhari bypass in Paba Upazila adjacent to Rajshahi City Corporation.

III. STATEMENT OF PROBLEM

Quality of service is the foundation and the main factor affecting student satisfaction. Again, Satisfaction is a psychological state affected by two interrelated factors.

- (i) Expectation of the service before use.
- (ii) Perception of students about the service after the experience.

If their perception matches with expectation, students are satisfied. If not they remain unsatisfied. Therefore, to improve student satisfaction, universities must provide quality service. So it has become inevitable to know whether student's perceptions regarding the service quality provided by their campus are matching with their expectations or not. In this field, a number of research work have been done by several prestigious private universities located in capital city or other division of Bangladesh but not yet been done in those located in northern divisions. This study will help the universities located in the northern division of Bangladesh to know regarding student's expectation and take necessary actions to attract present and potential students.

IV. OBJECTIVE OF THE STUDY

The authors have set the objectives of the paper in three distinct flexions:

1. To find out the gap between the expectation and satisfaction level of students in response to the services provided by Varendra university.
2. To determine the potent dimensions (University facilities, teacher's skill or administrative support) that influence student's expectation and satisfaction.
3. To determine the most influential factors among those three dimensions on which student expectation and satisfaction largely depends on.

V. VARIABLES SETTING

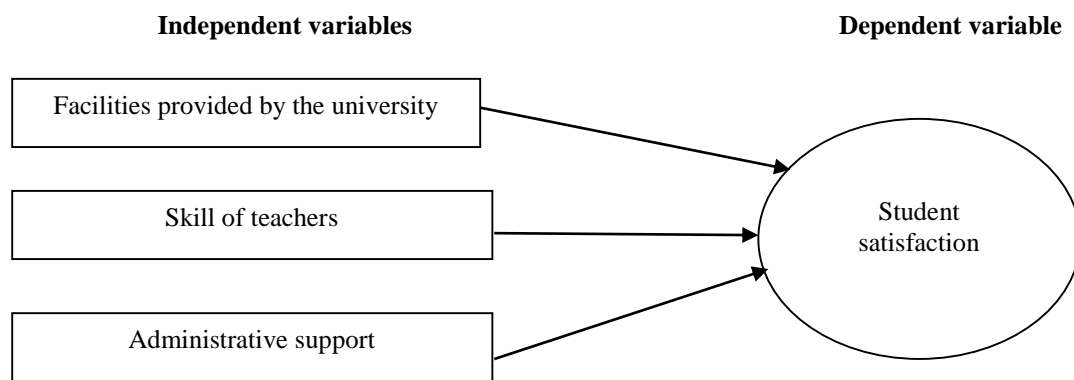
In this study the authors have used the student satisfaction as dependent variable and the three independent variables are included in three distinct dimensions namely the facilities provided by the university; skill of teachers and administrative support.

Table 1: List of dependent and independent variables

Independent Variables	Included items in the particular variable	Question Number in Questionnaire
(Dimension 1) Facilities Provided by the university	The campus is safe and secure for students.	(1)
	Class rooms are fully decorated with modern equipment and technologies.	(2)
	The university has an enriched computer lab.	(3)
	Campus is fully furnished with internet facility.	(4)
	The university arranges several seminars on regular basis.	(5)
	Tuition fees taken by the university are reasonable.	(6)
	University regularly arranges repair and maintenance of facilities.	(7)
	Students get enough waiver facilities.	(8)
	The university conducts various extracurricular activities on regular basis.	(9)
	The university has a resourceful library and active carrier center.	(10)
(Dimension 2) Skill of teachers	Quality of teaching is very good and appropriate.	(11)
	Teachers design their course according to syllabus.	(12)
	Teacher's course materials are clear and interesting.	(13)
	Teachers are knowledgeable in their respective field.	(14)
	Teachers communicate well in the classroom.	(15)
	Teachers evaluate the scripts properly.	(16)
	Teachers are fair and unbiased towards all students.	(17)

(Dimension 3) Administrative Support	Teachers always motivate the students.	(18)
	Teachers are available after class and during office hours.	(19)
	When students have a problem, teachers show a sincere interest in solving it.	(20)
	The university staffs are caring, helpful and student friendly.	(21)
	Staffs are willing to give attention to students individually.	(22)
	Administrative staffs have good knowledge of the system.	(23)
	The service staff has working spirit and ready to guide and answer student's question.	(24)
	Administrative Staffs are sincere to solve student's problem.	(25)
	All students get equal treatment from administrative staffs.	(26)
	Online registration system is prompt and hassle free.	(27)
	Student complaints channels are readily available.	(28)
	The university's information system and website are regularly updated and easy to access.	(29)
	The information related to academic and other activities is given to students fully and promptly.	(30)
Dependent variable: Student satisfaction	The overall service provided by Varendra University is good.	(31)
	I am satisfied with the service quality of Varendra University.	(32)

VI. THEORETICAL FRAMEWORK



VII. LITERATURE REVIEW

Since the liberation war of 1971, Bangladesh is passing through several changes in its education sector.

In [1] authors argued that educational services differ from service marketing in several ways and most of the private universities have not paid enough attention to satisfy their student's expectation. The authors in their study have disclosed a remarkable dissimilation between the expectation of students in terms of services provided by the private universities and their actual achievement. It has been funded that the dimension that has achieved the highest student's satisfaction is the efficiency and sincerity of lecturers and the facilities provided by the University gets lowest score though this dimension has got highest priority to students according to the level of importance.

The authors of [3] claims that the variable of campus facilities has an important impact on the overall quality of education in these higher learning centers of Bangladesh. The tuition fees in private university have also played a significant role as a vast number of population lives under the poverty line. Only wealthy parents are taken into account for paying the large tuition fees and other expenses of studies for their children.

It has been proclaimed by the authors of [4] that most of the private universities are run by adjunct or hired faculty members from public universities. So the scarcity of resource persons is a common phenomenon in private universities.

They also phases that the students are more satisfied with the management system of private universities compared to public universities as session jam, terrorism etc. are absent in private universities. Of course the authors are worried about the biasness of student's response as they do not want to represent their own university negatively.

The authors of [5] emphasized that all dimensions of instructional quality (such as teacher professionalism, teacher knowledge, and teacher self-esteem and teacher communication skills) have a positive and significant impact on student satisfaction and have the intention to continue higher education. However, quality teaching is the positive effect on student learning and development through the combination of mastery of content, mastery of a wide range of pedagogical skills, and interpersonal skills or communication (Hightower et al., 2011). Bennet et al. (1998) found that with professionalism, educators are able to design their courses to meet the current needs of employers and improve student learning effectiveness, that leads to student satisfaction and also may direct to motive to continue (Ko and Chung, 2015). Furthermore, Peng and Abu-Samah (2006) found that the professionalism of the lecturers has a positive influence on student satisfaction.

In [6] Naser Ibrahim Saif MD argued that service quality standards impact student satisfaction standards. The implementation of quality services prepares students for post-graduation employment. The concept of educational quality can be identified as a set of

conditions that must be available in the educational process in order to meet the needs of the recipients. Educational quality is an integrated systems-based approach designed to meet student needs (Randall, 2002). The quality of the teaching staff depends on the selection of the teaching staff and staff development, as the teachers are responsible for the implementation of quality educational programs and act as academic advisors and guidance to their students. Quality standards in educational institutions emphasize the provision of library services, electronic information resources, teaching centers, computer labs, and qualified personnel to achieve the organization's mission and goals. Students will be satisfied with their academic achievements and their university life and will speak positively about the college as satisfaction is the ultimate goal and the ultimate goal is a reflection of a high level of service quality (Majeed et al., 2008)

Moreover in [7] Usman Aslam, MuqqadasRehman, M. Kashif Imran &Farwa Muqadas (2016) states that the key factors that determine student satisfaction are teacher qualifications, teacher experience, teacher skills and methods, effective knowledge sharing, and a knowledge-intensive culture. Clearly stated Student satisfaction is gaining more and more attention as university management is keen to reassess education standards, policies, qualities, and methods. Therefore, it is very helpful to identify predictors of quality of education and student satisfaction. Universities are always interested in assessing the effectiveness of educational systems and teacher performance through student involvement. Douglas et al. , 2015) found that student satisfaction can be determined by learning, teaching methods, and support services.

VIII. METHODOLOGY OF THE STUDY

The main purpose of this study is to identify the distinctions between expectation level and satisfaction level of students by the service provided by Varendra University. A set of pretested structured questionnaire were used. Data were collected from students of different years of Varendra University excluding the students of first year to ensure that they are aware and have used the services provided by Varendra University. This study adopted a non-probability technique of convenience sampling. Questionnaire was developed using the five point Likert-scale (starting with not important to very important for measuring student's expectation from the university and very dissatisfied to very satisfied to measure student's satisfaction level after having the service) containing 32 items along with 8 other impact factors that have influenced students for enrolling in Varendra University. These items have been developed based on past studies. The collected data was analyzed and synthesized using the following specific methods via SPSS software.

1. **Cronbach's Alpha and Inter-Item Correlation test:** These two methods have been used to measure the reliability and internal consistency of the data scale.
2. **Descriptive statistics:** The authors have used this method to describe the basic characteristics of the participants like gender, study year, Home district, CGPA etc. also to find out the gap between student's expectation level and satisfaction level regarding the services provided by Varendra University.
3. **Correlation Analysis:** Correlation method has been used to reveal the relationship among the dependent and independent variables.
4. **Factor Analysis:** Finally, factor analysis has been driven to detect the most commanding factors that impact on student's expectation and satisfaction level driven by the services provided by their university.

IX. DATA ANALYSIS AND FINDINGS

1. Reliability test

The internal consistency and the reliability for the variables are assessed through the average inter-item correlation (AIC) analysis and Cronbach's alpha test based on the perceived values scale comprising 30 items splitting in three dimensions namely facilities provided by the university, Skill of teachers and administrative Support comprising student's expectation level and satisfaction level.

Table 2: Result of Inter-item Correlation (AIC)

Dimensions (As per student's Expectation level)	No. of items	Inter-item Correlation	Dimensions (As per student's Satisfaction level)	No. of items	Inter-item Correlation
Facilities provided by the University	10	0.330	Facilities provided by University	10	0.383
Skill of teachers	10	0.613	Skill of teachers	10	0.563
Administrative Support	10	0.531	Administrative Support	10	0.463

The minimum acceptance criterion for inter-item correlation is 0.15 to 0.20. From "table 2" we can see that the value of inter-item correlation of both dimensions comprising facilities provided by the universities; Skill of teachers and administrative support are greater than 0.20 indicating there exists a significant correlation among the variables hence the variables are reliable for further uses.

Table 3: Result of Cronbach's Alpha test

Dimensions (As per student's Expectation level)	No. of items	Cronbach's Alpha	Dimensions (As per student's Satisfaction level)	No. of items	Cronbach's Alpha
Facilities provided by the University	10	0.826	Facilities provided by University	10	0.860
Skill of teachers	10	0.939	Skill of teachers	10	0.926
Administrative Support	10	0.918	Administrative Support	10	0.895

We can see from the "table 3" that the value of Cronbach's Alpha of all the variables of the three dimensions are greater than 0.70 (The acceptance criterion is ≥ 0.70 , the value ranges between 0 and 1 and the value close to 1 indicates higher reliability). It indicates that the internal consistency among the variables is excellent. So the variables are reliable and we can use those in our research purpose undoubtedly.

2. Descriptive Analysis

In this research paper, the sample size is 485. The participants have been gone through 32 questions along with some others impact factors that influenced them much for the enrollment in Varendra University. The demographic statistics of the participants are given in “table 4” below:

Table 4: Frequency distribution of demographic information

Department Name	No. of Students	Percent
Business Administration	63	13.0
CSE	93	19.2
EEE	18	3.7
English	83	17.1
Pharmacy	34	7.0
Law & HR	44	9.1
Political Science	66	13.6
Sociology	33	6.8
Economics	30	6.2
JCRMS	19	3.9
Public Health	2	.4
Gender	No. of students	Percent
Male	261	53.8
Female	224	46.2
Study year	No. of students	Percent
2nd Year	10	2.1
3rd Year	268	55.3
4th Year	166	34.2
MBA/LLM/MA/MSS/Masters	41	8.5
Home District	No. of students	Percent
Located in Rajshahi Division	433	89.3
Located in Rangpur Division	31	6.4
Located in Dhaka Division	7	1.4
Located in Khulna Division	14	2.9
CGPA (Out of 4)	No. of students	Percent
2.00-2.99	32	6.6
3.00-3.49	157	32.4
3.50-4.00	263	54.2
Missing (Participants having no response)	33	6.8
Student's willingness to recommend university to others	No. of students	Percent
Yes	325	67.00
No	36	7.5
Neutral	119	24.5
Missing (Participants having no response)	5	1

In the study, the authors have not included any students from first year since they may have little or no experience regarding the services provided by their university. It can be noticed from table: 4 that 89.3 percent of the total participants are from Rajshahi division whereas only 6.40 percent from Rangpur division and 1.40 and 2.90 percent from Dhaka and Khulna division respectively. There are no participants from the other four division of Bangladesh namely Sylhet, Chattogram, Mymensingh and Barishal division. Varendra University has the opportunity to attract more students by crossing the border of Rajshahi division. It will bring pleasure to the university that 54.20 percent of the total respondents have their CGPA equal or above 3.50 and only 6.6 percent's CGPA is below 3.00 in the scale of 4. Moreover, 67% of the total respondents have expressed their positive willingness to recommend university to others and only 7.5% of the respondents have shown their negative attitude regarding this issue though 24.5% hold their neutral position. This is definitely a good sign that evidences better service quality of Varendra University.

Table 5: Overall mean and standard deviation of student's expectation and satisfaction level

Variables	Expectation level			Satisfaction level		
	No. of valid item	Mean	S.D	No. of valid item	Mean	S.D
Facilities provided by university (FPU)						
The campus is safe and secure for students	485	4.60	.744	482	4.03	1.023
Class rooms are fully decorated with modern equipment and technologies	485	4.46	.796	476	3.55	1.124
The university has an enriched computer lab	483	4.37	.877	477	3.33	1.176

Campus is fully furnished with internet facility	483	4.15	1.183	474	2.68	1.303
The university arranges several seminars on regular basis	481	4.33	.850	477	3.66	1.111
Tuition fees taken by the university are reasonable	482	4.40	.876	471	3.71	1.129
University regularly arranges repair and maintenance of facilities	483	4.40	.924	477	3.46	1.211
Students get enough waiver facilities	484	4.54	.773	479	3.88	1.155
The university conducts various extracurricular activities on regular basis	482	4.40	.850	480	3.59	1.145
The university has a resourceful library and active carrier center	485	4.51	.820	476	3.60	1.223
Perfect mean value	4.42			3.55		
Skills of Teacher (ST)						
Quality of teaching is very good and appropriate	485	4.74	.615	485	4.07	.899
Teachers design their course according to syllabus	483	4.62	.726	484	4.17	.845
Teachers course materials are clear and interesting	481	4.65	.685	482	4.00	.952
Teachers are knowledgeable in their respective field	481	4.69	.633	481	4.21	.863
Teachers communicate well in the classroom	482	4.67	.697	479	4.20	.853
Teachers evaluate the scripts properly	481	4.59	.744	481	4.05	.916
Teachers are fair and unbiased towards all students	480	4.61	.728	480	3.97	1.057
Teachers always motivate the students	480	4.67	.723	481	4.23	.929
Teachers are available after class and during office hours	483	4.60	.711	480	4.27	.880
When students have a problem, teachers show a sincere interest in solving it.	484	4.65	.743	483	4.23	.945
Perfect mean value	4.65			4.14		
Administrative support (AS)						
The university staffs are caring, helpful and student friendly	484	4.56	.724	484	4.02	1.014
Staffs are willing to give attention to students individually	483	4.41	.788	479	3.73	1.014
Administrative staffs have good knowledge of the system	484	4.49	.724	480	3.86	.996
The service staff has working spirit and ready to guide and answer student’s question.	485	4.43	.812	482	3.85	1.001
Administrative Staffs are sincere to solve student’s problem	481	4.48	.788	480	3.77	1.043
All students get equal treatment from administrative staffs	481	4.46	.838	480	3.69	1.117
Online registration system is prompt and hassle free.	474	4.49	.800	479	3.90	.969
Student complaints channels are readily available	474	4.39	.878	475	3.44	1.192
The university’s information system and website are regularly updated and easy to access.	480	4.57	.728	480	3.90	1.119
The information related to academic and other activities is given to students fully and promptly.	481	4.48	.777	480	3.79	1.100
Perfect mean value	4.48			3.80		

From the "table 5" it can be concluded that all the services included in three dimensions are equally important to the students and their expectation level is quite high. However, by examining the mean value depending on the satisfaction level of students, it is interpreted that students are highly satisfied with second dimension (Skill of teachers) in the following fields:

- Teachers are available after class and during office hours
- Teachers show their sincere interest in solving student's problem
- Teachers are knowledgeable in their respective field
- Teachers always motivate the students etc.

However, students are mostly dissatisfied with the first (facilities provided by the university) and the second (administrative support) dimensions in the following particular areas.

- Internet facilities
- Lab facilities
- Repairing and maintenance facilities and

➤ Student complaints channels

Moreover, by analyzing the perfect mean values of all the variables included in three dimensions, there exists a noticeable difference between student's expectation and their actual perception after having the services from the university (Except skill of teachers included in second dimension). So the university authority may focus to reduce the deviation between student's expectation and satisfaction level regarding the services provided by the university.

3. Correlation Analysis

Hypothesis setting

For analysis purpose the authors have proposed the following three statistical hypotheses where H_0 = null hypothesis and H_1 = alternative hypothesis

Hypothesis 1:

H_0 : There is no relationship between the facilities provided by the university and the student satisfaction.

H_1 : There is a significant relationship between the facilities provided by the university and the student satisfaction.

Hypothesis 2:

H_0 : There is no relationship between the skill of the teachers and the student satisfaction.

H_1 : There is a significant relationship between the skill of the teachers and the student satisfaction.

Hypothesis 3:

H_0 : There is no relationship between the administrative support and the student satisfaction.

H_1 : There is a strong relationship between the administrative support and the student satisfaction.

3.1 Normality test

Table 6: Normality test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
FPU	.048	483	.010	.987	483	<.001
ST	.112	483	<.001	.933	483	<.001
AS	.056	483	.001	.975	483	<.001
SS	.176	483	<.001	.911	483	<.001

a. Lilliefors Significance Correction

In "table 6" the significance value of all the variables are less than 0.05. So we can conclude that the data are not normally distributed. Hence we will go through non-parametric Spearman's correlation test.

Table 7: Spearman's correlation test

Spearman's rho correlation		Facilities Provided by the university (FPU)	Skill of teachers (ST)	Administrative support (AS)
Student Satisfaction (SS)	Correlation Coefficient	.551**	.508**	.592**
	Sig. (2-tailed)	<.001	<.001	<.001
	N	483	483	483
Facilities provided by the university (FPU)	Correlation Coefficient	1.000	.626**	.646**
	Sig. (2-tailed)	.	<.001	<.001
	N	485	485	485
Skill of Teachers (ST)	Correlation Coefficient	.626**	1.000	.696**
	Sig. (2-tailed)	<.001	.	<.001
	N	485	485	485
Administrative Support	Correlation Coefficient	.646**	.696**	1.000
	Sig. (2-tailed)	<.001	<.001	.
	N	485	485	485

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

Spearman's rank order correlation was used to explore the relationship between the dependent variable student's satisfaction (SS) and three independent variables namely facilities provided by the university (FPU), skill of teachers (ST) and administrative support (AS). Before running the correlation test, visual inspection of the scatter plot of student's satisfaction scores against services provided by the university confirmed that the relationship between these variables was non-linear and monotonic.

The result ($r_s(483) = .551, .508, .592$ respectively, $p < .01$ two tailed) shows that the correlation coefficients of each independent variable towards dependent variables are much greater than the significant value which is 0.01. So we can reject the null hypothesis. It suggests that there exist a strong relationship among all the facilities provided by the university, skill of teachers, administrative support and the student's satisfaction. There also exists an inter-relationship among all the independent variables separately. So this is a good sign of the test.

4. Factor Analysis

4.1 KMO and Bartlett's test

It is essential to run KMO and Bartlett's test to check whether factor analysis is appropriate here or not. The minimum recommended value of KMO test is 0.60 [Kaiser, 1970]

Table 8: KMO and Bartlett's Test

		Expectation level	Satisfaction level
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.946	.950
Bartlett's Test of Sphericity	Approx. Chi-Square	7447.775	6385.926
	df	435	435
	Sig.	.000	.000

In table: 8, it can be noticed that the value of KMO test for both the student's expectation and satisfaction level are 0.946 and 0.950 respectively which are greater than 0.60 [Kaiser, 1970]. Again, the Bartlett's test of Sphericity [Bartlett, 1954] is also statistically significant in both the cases. So factor analysis can be meaningful here.

Table 9: Standardized factor loading from the exploratory factor analysis (As per expectation level)

Dimension	Items (As per student's Expectation level)	Factors			
		1	2	3	4
(1) Facilities Provided by the university	The campus is safe and secure for students		.372		
	The university has an enriched computer lab		.578		
	Campus is fully furnished with internet facility		.511		
	The university arranges several seminars on regular basis		.521		
	University regularly arranges repair and maintenance of facilities		.583		
	Students get enough waiver facilities		.652		
	The university conducts various extracurricular activities on regular basis		.590		
	The university has a resourceful library and active carrier center		.660		
(2) Skill of Teachers	Quality of teaching is very good and appropriate	.763			
	Teachers design their course according to syllabus	.776			
	Teachers course materials are clear and interesting	.795			
	Teachers are knowledgeable in their respective field	.947			
	Teachers communicate well in the classroom	.864			
	Teachers evaluate the scripts properly	.703			
	Teachers are fair and unbiased towards all students	.503			
	Teachers always motivate the students	.725			
	Teachers are available after class and during office hours	.660			
	When students have a problem, teachers show a sincere interest in solving it	.600			
Admin Support	The university staffs are caring, helpful and student friendly			.418	
	Staffs are willing to give attention to students individually				
	Administrative staffs have good knowledge of the system			.729	
	The service staff has working spirit and ready to guide and answer student's question			.732 .639	
Admin Support	Online registration system is prompt and hassle free				.548
	Student complaints channels are readily available				.525
	The university's information system and website are regularly updated and easy to access				.702
	The information related to academic and other activities is given to students fully and promptly				.615
Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization. ^a a. Rotation converged in 6 iterations.					

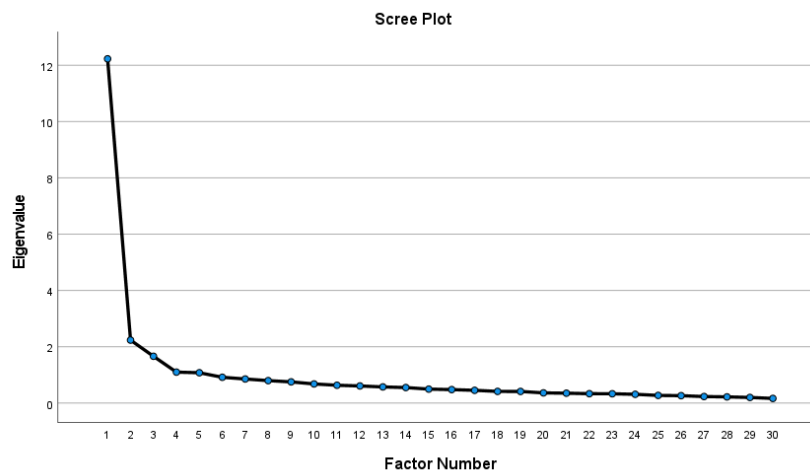


Figure 1: Scree Plot (Generated in EFA, 30 items depending on student's expectation)

The inherent structure of student's expectation and satisfaction level of various services provided by Varendra University has been initially extracted through Principal Axis Factoring (PAF) with Promax rotation method. The result (depending on student's expectation) of the initial analysis revealed five factors with Eigenvalues over 1, explaining 40.77%, 7.46%, 5.54%, 3.67% and 3.60% of the variance respectively. However the scree plot suggests a clear break after the 4th factor (Figure: 1) suggesting a potential four factor solution to evaluate which factors mostly explain student's expectation level. Following the best practice of item retention outlined at the outset, 26 items out of 30, were finally loaded in four latent factors (table: 9) that have Eigenvalues above 1 explaining 60.07% of the variance in a combine effort. In the first dimension (Facilities provided by the university) eight items were loaded on factor 1 out of ten items, in second dimension (Skill of Teachers) ten items were loaded well on factor 2 out of ten items, and in third dimension (Administrative Support) four items were loaded on factor 3 and four items are loaded on factor 4 out of ten items. Almost all the values of the variables included in four factors are above 0.50 except item one in dimension 1 (0.372) and item 1 in dimension 3 (.418). So this is a good sign of the analysis.

Table 10: Standardized factor loading from the exploratory factor analysis (As per satisfaction level)

Dimension	Items (As per student's satisfaction level)	Factors			
		1	2	3	4
(1) Facilities Provided by the university	Class rooms are fully decorated with modern equipment and technologies		.510		
	The university has an enriched computer lab		.654		
	The university arranges several seminars on regular basis		.659		
	Tuition fees taken by the university are reasonable		.550		
	University regularly arranges repair and maintenance of facilities		.637		
	Students get enough waiver facilities		.548		
	The university conducts various extracurricular activities on regular basis		.649		
	The university has a resourceful library and active carrier center		.518		
(2) Skill of Teachers	Quality of teaching is very good and appropriate	.767			
	Teachers design their course according to syllabus	.722			
	Teachers course materials are clear and interesting	.737			
	Teachers are knowledgeable in their respective field	.782			
	Teachers communicate well in the classroom	.827			
	Teachers evaluate the scripts properly	.638			
	Teachers are fair and unbiased towards all students	.673			
	Teachers always motivate the students	.811			
	Teachers are available after class and during office hours	.633			
	When students have a problem, teachers show a sincere interest in solving it	.688			
(3) Admin Support	The university staffs are caring, helpful and student friendly				.649
	Staffs are willing to give attention to students individually				.801
	Administrative staffs have good knowledge of the system				.406
(3) Admin Support	All students get equal treatment from administrative staffs			.386	
	Online registration system is prompt and hassle free			.559	
	Student complaints channels are readily available			.462	
	The university's information system and website are regularly updated and easy to access			.666	
	The information related to academic and other activities is given to students fully and promptly			.804	

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.^a
a. Rotation converged in 6 iterations.

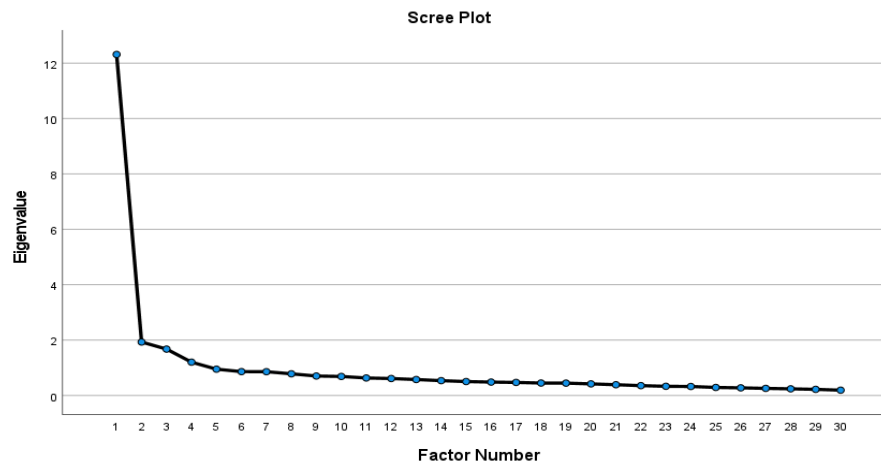


Figure: 2 Scree Plot (Generated in EFA, 30 items depending on student's satisfaction)

Depending on student's satisfaction level, the initial analysis suggests four factors with Eigenvalues over 1, explaining 41.05%, 6.44%, 5.59% and 4.02% of the variance respectively. Here the scree plot again suggests a clear break after the 4th factor (Figure: 2) suggesting a potential four factor solution to evaluate which factors mostly explain student's satisfaction level. After final analysis, once again 26 items out of 30, were finally loaded in four corresponding factors (table: 10) that have Eigenvalues above 1 explaining 58.99% of the variance in a combined effort.

In the first dimension (Facilities provided by the university) eight items were loaded on factor 2 out of ten items, in second dimension (Skill of Teachers), once again ten items were nicely loaded on factor 1 out of ten items, and in third dimension (Administrative Support) three items were exactly loaded on factor 4 and five items are loaded on factor 3 out of ten items. Among the variables included in four factors only three variables in 3rd dimension (Administrative Support) have the values which are below 0.50.

Considering both the expectation and the satisfaction level of students, the most influential dimension is second one which is the skills of teachers.

Table 11: Student's suggested area for further improvement of the university

Participant's recommendations for further improvement of the university			Participants demanding area for improving university facilities		
Recommended areas	No. of participants	Percent	Improvement areas	No. of participants	Percent
Improve job facilities	10	2.1	Provide Canteen and common room	40	16.19
Improve university facilities	247	50.9	Improve Lab facilities	33	13.36
Improve teaching quality	13	2.7	Shift to Permanent campus	46	18.62
Improve administrative support	19	3.9	Improve Internet facilities	28	11.34
No Recommendation	160	33	Improve transportation facilities	34	13.77
Improve other facilities	36	7.4	Reduce tuition fee	4	1.62
Total	485	100	Others	62	25.1
			Total	247	100

Participant's recommendations for further improvement of the university

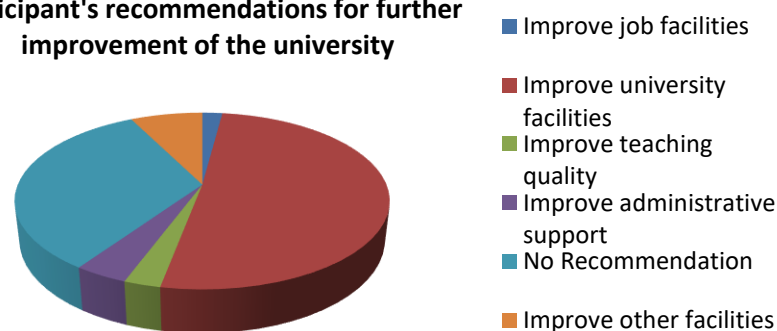


Figure 3: Participant's recommendation for further improvement of the university

From table: 11 and fig. 3, it can be concluded that among 485 participants, above 50 percent student's recommendation was to improve university facilities indicating that the respondents are quite dissatisfied with the university facilities that need to be improved.

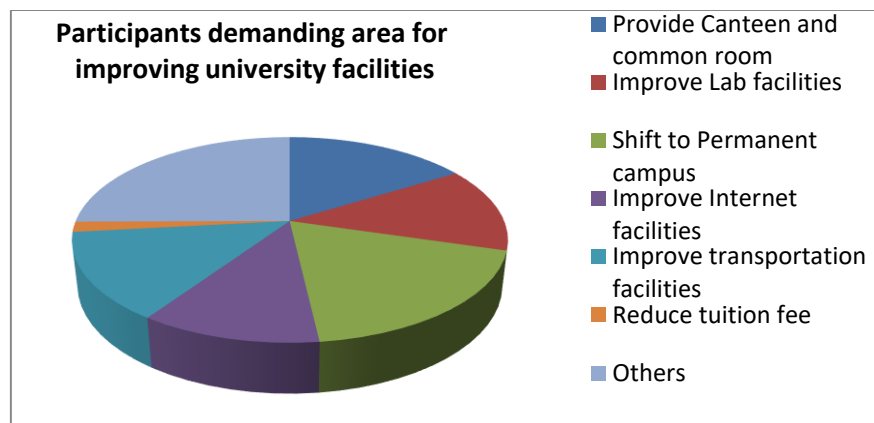


Figure 4: Participant's demanding area for improving university facilities

The most demanding areas among university facilities (fig. 4) are about shifting to permanent campus, internet facilities, transportation facilities, canteen and common room and lab facilities. So the university authority needs to concentrate to those issues. However, the respondents are quite happy with the tuition fees taken by the university.

X. FUTURE RESEARCH SCOPE ON THIS FIELD

A noticeable former studies have been reported alike the current study that improving the tangible facilities along with advancing academic and administrative staff's efficiency can result in progressive level of student's satisfaction regarding the services provided by the private universities (Hasnain, A.A. and Jisun, T.F., 2020; Hossain, M. and Rahman, M., 2013; Le, T.M.H., Nguyen, V.K.L., Nguyen, T.S., Le, T.H.O. and Duong, T.N.M., 2021.). The main constraint of this study is small sample size. Again the study was conducted at local level and restricted to Varendra University only where other universities were kept beyond consideration. Moreover, the study had considered three dimensions only (University facilities, Skill of teachers and Administrative support) where some others important dimensions (such as Job related facilities, student-teacher research facilities, scholarship facilities etc.) has been totally ignored that may play an important role in student's satisfaction. Therefore, the result of the study cannot be generalized. So the authors suggest a more comprehensive study on this area considering a larger number of samples as well as more scattered dimensions for further research in this field. It is also suggested to include all the private universities of Bangladesh for developing a more comprehensive service model for private universities that can be generalized thereby.

XI. CONCLUSION

Bangladesh is trying to welcome the 4th industrial revolution and to transform itself from the developing country into middle income country by the end of year 2021 and into developed country by the year 2041. As Bangladesh is an overpopulated country, there is no alternative to metamorphosing its huge population into innovative, skilled, and technologically trained manpower. To achieve the required competency, the number of students seeking admission for higher education has been increased in an amazing rate but the number of public universities has not been increased proportionately in Bangladesh. Through there are a number of private universities, most of them are located in capital city and the cost of those universities are much higher hence unaffordable by the poor people of northern area. Again the service quality of all those universities is not identical. Most of the private universities of Bangladesh lack proper policies and suffer from several shortages.

Varendra University from the very beginning day of establishment, is trying to provide quality education and to maintain all the criteria rendered by UGC to ensure better service to its students. The university has already been achieved some of its goals. Despite the continuous effort of Varendra University, the overall service quality has not been upgraded that much as the students expect. This study will help the university to reveal the questionable areas of services and take required amendment to make students satisfy in a better way. The Universities can adopt some strategies based on the finding of this study. Varendra University should enhance its tangible facilities most importantly lab facilities, internet facilities, libraries and computer labs etc. also should keep the campus secure and safe for students. Moreover, the University should prepare a crucial plan for its academic and administrative staffs through providing them with necessary training so that they can serve students properly. Lecturers should update and change their curriculum more often according to global acceptability also involve themselves more in research activities. Administrative staffs should upgrade their professional skill and knowledge along with ensuring better services to the students as per their requirements.

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