



AN EMPIRICAL ANALYSIS OF STUDENTS' SATISFACTION TOWARDS DIFFERENT FACILITIES PROVIDED BY THE JAHANGIRNAGAR UNIVERSITY: A CASE STUDY

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Abstract:

The objective of the paper is to apply the profile analysis to measure the students' satisfaction towards different facilities provided by one of the public universities in Bangladesh, Jahangirnagar University. A total of 200 students were randomly selected from all departments. Structured questionnaire was used to elicit information from the respondents. Data were analyzed by using both univariate and multivariate technique. Sample evidence shows that although students are satisfied but a large number of students are neither dissatisfied nor satisfied regarding the facilities of the university. The satisfaction level on some services is same for male and female group and on some services their profiles differ in a great extent which is clear from the profile analysis. It is believed that the findings of the article will facilitate the university in making better policy and to improve the quality various facilities.

Key words: students' satisfaction, profile analysis, Janahngirnagar University.

Introduction

Jahangirnagar University is one of the most prominent universities in Bangladesh. It is the only complete residential university. The university has a dozen residential halls among which seven for male and five for female students. This university provides different facilities in every sector like education, resident, sports, computing, transport, security and so on

which are conducive to improve themselves. Students come from different geographical areas of Bangladesh into this university. Their satisfaction level regarding different services of university varied from student to student. The students' satisfaction can be defined in various ways, for example, Gregg (1972) defined the term as the degree of satisfaction that students express with the academic/professional aspects of graduate school¹. More recently, Elliot and Healy (2001) have measured satisfaction by students' evaluation of their experiences with education related services². Many authors did research on measuring students' satisfaction using different statistical techniques. Douglas et al (2006) measured student satisfaction at UK

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University (Liverpool Jhon Moores University) and the most important aspects were those associated with teaching and learning, while the least important were those associated with the physical facilities³. Moro-Egido and Judith (2009) examined how part-time or fulltime status affects students' level of satisfaction with their degree programs. The findings indicate that students who hold a part-time job while studying are more likely to express less satisfaction with their college experience⁴.

Silva et al (2012) evaluated the students' satisfaction with service quality of the School of Technology and Management of Braganca(ESTiG) by using Importance-Satisfaction Model, results showed that in general the students are satisfied with the performance of ESTiG⁵. Tessema et al (2012) studied the factors affecting students' satisfaction with major curriculum and the findings of the study supported several prior studies in that each factor examined had a moderate to high positive correlation regarding satisfaction with major curriculum⁶. Mianji (2013) measured students' satisfaction in international universities using the European Regional Education Academy of Armenia and the result suggests that trainers and teachers, training environment, personal behavior, tuition fee and allowance, encouraged activities and promotional programs, and provision of employment for students significantly influence students' satisfaction in international universities⁷. In the context of Bangladesh no one focused on measuring the university students' satisfaction towards various facilities. To improve the quality of education a university must provide better facilities regarding all the issues which are conducive to pupils' career. A university can produce efficient students only by ensuring enhanced facilities towards different academic related services. Because of knowing the satisfaction level of students authors were motivated to conduct the research.

The main objectives of the research paper is to evaluate the satisfaction level of male and female

students using univariate and multivariate techniques (profile analysis) and make a comparative study between male and female group on each facilities. As far as the authors knowledge goes on, this types of study has not been reported in the literature and hence the results reported in this study is new and authentic.

Data collection

The study was conducted based on the primary data which were collected through a structured questionnaire consisting of six main parts (Departmental Facilities Data, learning and teaching, library facilities, computing facilities, freedom and security facilities at campus). Each question was a five point likert scale ranging one to five (1-5), which are 1- very dissatisfied, 2 - dissatisfied, 3- neither dissatisfied nor satisfied, 4- satisfied and 5- very satisfied. Apart from these six sections there was another section which was based on some open ended questions to find the students' opinion about the current facilities as well as what they expect in future for their academic and extra curriculum purpose. A total of 200 students (120 male and 80 female) were interviewed from all departments' students of Jahangirnagar University to know their satisfaction level regarding the facilities of each section given in the questionnaire by using convenience sampling procedure.

Methodology

Univariate analysis is a technique which contains only one variable, which may be either discrete or continuous. Tabular and graphical representation of the data can be evaluated by univariate analysis. In tabular presentation, for both categorical and numerical data frequency table can be used. In this study tabulation and some graphical presentation is made to compare the profiles of male and female students regarding the different facilities. The multivariate technique (profile analysis) is used in this study. According to Jhonson R. A. the profile analysis as it pertains to situations in which a battery of p treatments (tests, questions and so forth) are administered to two or more

groups of subjects⁸. It is assumed that tests are scaled similarly or that they are commensurable.

Consider the population means

$$\mu'_1 = (\mu_{11}, \mu_{12}, \dots, \mu_{1p}) \text{ and}$$

$$\mu'_2 = (\mu_{21}, \mu_{22}, \dots, \mu_{2p})$$

be the mean response to p treatments for population 1 and 2 respectively. In profile analysis there are three questions to be asked of the data in the following order:

1. Are the profiles parallel? If the answer to this is yes for two groups, it would imply that one group scored uniformly better than the other on all variables.

Equivalently: Is

$$H_{01}: \mu_{1i} - \mu_{1i-1} = \mu_{2i} - \mu_{2i-1}, i = 2, 3, 4, \dots, p$$

acceptable?

2. If the profiles are parallel, then are they coincident? In other words, did the groups score the same on each variable?

Equivalently: Is

$$H_{02}: \mu_{1i} = \mu_{2i}, i = 1, 2, 3, \dots, p$$

acceptable?

3. If the profiles are coincident, then are the profiles levels? In other words, are the means on all variables equal to the same constant

Equivalently:

$$H_{03}: \mu_{11} = \mu_{12} = \dots = \mu_{1p} = \mu_{21} = \mu_{22} = \dots = \mu_{2p}$$

acceptable?

The null hypothesis of parallel profile can be written as

$$H_{01}: C\mu_1 = C\mu_2$$

Where C is the contrast matrix

$$(C)_{p-1 \times p} = \begin{pmatrix} -1 & 1 & 0 & 0 & \dots & 0 & 0 \\ 0 & -1 & 1 & 0 & \dots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \ddots & \vdots & \vdots \\ 0 & 0 & 0 & 0 & \dots & -1 & 1 \end{pmatrix}$$

For independent samples of sizes n_1 and n_2 from the two populations, the null hypothesis can be tested by constructing the transformed observations

$$C_{X_{1j}}, \quad j = 1, 2, \dots, n_1$$

And

$$C_{X_{2j}}, \quad j = 1, 2, \dots, n_2$$

These have sample mean vectors $C\bar{x}_1$ and $C\bar{x}_2$, respectively and pooled covariance matrix $CS_{pooled}C'$.

We reject the parallel hypothesis at α level of significance if

$$T^2 = (\bar{x}_1 - \bar{x}_2)' \left[\left(\frac{1}{n_1} + \frac{1}{n_2} \right) CS_{pooled} C' \right]^{-1} C(\bar{x}_1 - \bar{x}_2) > C^2$$

Where

$$C^2 = \frac{(n_1 + n_2 - 2)(p - 1)}{n_1 + n_2 - p} F_{p-1, n_1 + n_2 - p}(\alpha)$$

When the profiles are parallel, the first is either

above the second ($\mu_{1i} > \mu_{2i}$, for all i), or vice versa. Under this condition, the profile will be coincident only if the total heights $\mu_{11} + \mu_{12} + \dots + \mu_{1p} = 1'\mu_1$ and

$\mu_{21} + \mu_{22} + \dots + \mu_{2p} = 1'\mu_2$ are equal.

Therefore the null hypothesis of coincident profiles can be written in the equivalent form

$$H_{02} = 1'\mu_1 = 1'\mu_2$$

This test can be done by usual t-statistic based on univariate observations $1'X_{1j}, j = 1, 2, \dots, n_1$,

and $1'X_{2j}, j = 1, 2, \dots, n_2$. The hypothesis of coincident profiles are rejected if

$$T^2 = \left(1'(\bar{x}_1 - \bar{x}_2) / \sqrt{\left(\frac{1}{n_1} + \frac{1}{n_2} \right) 1' S_{pooled} C' 1} \right)^2 > F_{1, n_1 + n_2 - 2}(\alpha)$$

The next step is to see whether all variables have the same mean, so that the common profile is level. When the first two hypotheses are tenable,

the common mean vector μ is estimated, using all $n_1 + n_2$ observations, by

$$\bar{x} = \left(\frac{n_1}{n_1 + n_2} \right) (\bar{x}_1) + \left(\frac{n_2}{n_1 + n_2} \right) (\bar{x}_2)$$

. If the common profile is level, then

$\mu_1 = \mu_2 = \dots = \mu_p$ and the null hypothesis of $H_{03} = C\mu = 0$

. We reject the hypothesis of level profile if $T^2 = (n_1 + n_2)\bar{x}'C'[CSC']^{-1}C\bar{x} > C^2$, S is the sample covariance based on all $n_1 + n_2$ observations and $C^2 =$

$$[(n_1 + n_2 - 1)(p - 1)/(n_1 + n_2 - p + 1)] \times F_{p-1, n_1+n_2-p+1}(\alpha)$$

Data analysis

After successfully completing the survey, data were analyzed using univariate and multivariate technique. To complete the analysis SPSS-16, Microsoft Excel-2007 and Gauss-Light 8.0 software were used. Following Tables describe the perception level of the students regarding the various facilities of Jahangirnagr University. The sample consists of 200 students in which 60% are male and 40% are female.

Descriptive statistics about the satisfaction level towards various facilities are given below:

Table 1: Students' satisfactions level regarding the facilities of seminar library.

		Sex of the respondent		Total	Percentage (%)
Satisfaction level about seminar library		Male	Female		
	5	8	3	10	5
4	31	13	44	22	
3	31	22	53	26.5	
2	48	40	88	44	
1	3	2	5	2.5	
Total		120	80	200	100

Maximum students (44%) are satisfied about their seminar library facilities. A good number of students (more than 25%) are not interested about the facilities seminar library provided.

Table 2: Students' satisfactions level regarding the professionalism of teachers.

		Sex of the respondent		Total	Percentage (%)
Satisfaction level about		Male	Female		
	5	8	3	10	5
4	31	13	44	22	
3	31	22	53	26.5	
2	48	40	88	44	
1	3	2	5	2.5	
Total		120	80	200	100

level profile can be written as

Professionalism of teachers.	5	6	3	9	23.5
	4	37	10	47	25.5
	3	31	20	51	38.5
	2	39	38	77	8
	1	7	9	16	4.5
Total		120	80	200	100

The perception about the professionalism of teachers is not so high. Most of the students express their dissatisfaction towards this matter.

Table 3: Students' satisfactions level regarding the quality of teachers.

		Sex of the respondent		Total	Percentage (%)
Satisfaction level about the quality of teachers		Male	Female		
	5	2	0	2	1
4	19	8	27	13.5	
3	43	27	70	35	
2	52	42	94	47	
1	4	3	7	3.5	
Total		120	80	200	100

Major portion of students (47%) have their satisfaction towards the quality of teachers although a larger number of students (35%) are neither dissatisfied nor satisfied. So it can be concluded that students are not aware about the quality of teachers.

Table 4: Students' satisfactions level regarding the fairness of teachers.

		Sex of the respondent		Total	Percentage (%)
Satisfaction level about the fairness of teachers		Male	Female		
	5	8	5	13	6.5
4	37	12	49	24.5	
3	31	17	48	24	
2	36	38	74	37	
1	8	8	16	8	
Total		120	80	200	100

More than 35% of the students are satisfied about the fairness on evaluating the answer scripts although around one fourth of the students are dissatisfied.

Table 5: Students' satisfactions level regarding the availability of books from library.

Satisfaction level about the availability of books		Sex of the respondent		Total	Percentage (%)
		Male	Female		
	5	15	5	20	10
	4	38	31	69	34.5
	3	33	19	52	26
	2	33	22	55	27.5
	1	1	3	4	2
Total		120	80	200	100

Although the book collection of Jahangirnagar University is rich but this study shows that around 35% of students are not satisfied about the availability of books.

Table 6: Students' satisfactions level regarding the availability of computers in the campus.

Satisfaction level about the availability of computers		Sex of the respondent		Total	Percentage (%)
		Male	Female		
	5	12	4	16	8
	4	50	30	80	40
	3	14	12	26	13
	2	39	26	65	32.5
	1	5	8	13	6.5
Total		120	80	200	100

Students' Satisfaction level towards availability of computer do not fluctuate too much, 40% of students are dissatisfied whereas more than 30% students are satisfied.

Table 7: Students satisfactions level regarding the security issue at campus.

Satisfaction level about the		Sex of the respondent		Total	Percentage (%)
		Male	Female		
	5	9	6	15	7.5
	4	63	22	49	42.5

security at campus	3	20	20	40	20
	2	23	29	74	26
	1	5	3	16	4
Total		120	80	200	100

Security services provided by the University are not satisfactory to students; from the sample evidence it is seen more than 40% students are dissatisfied about the security facilities.

Table 8: Is subject satisfactory to get a job?

Responses		Sex of the respondent		Total	Percentage (%)
		Male	Female		
	Yes	76	68	144	72
	No	44	12	56	28
Total		120	80	200	100

Sample evidence shows that more than 70% students are satisfied about the subject they are studying since they think subjects are satisfactory to get a job.

Profile Analysis of Satisfaction Data for Male and Female students:

In this section of multivariate technique we have examined all three hypothesis of profile analysis; test for parallel profile, test for coincident profile and test for level profile for male and female groups. Among 200 students 120 were male and 80 were female. Male students are considered as the first population and female group as second population.

For this analysis

$$n_1 = \text{no. of male interviewed students} = 120,$$

$$n_2 = \text{no. of female interviewed students} = 80.$$

P is the number of questions. All the tests have conducted at 5% level of significance.

Table-9: The results of profile analysis of Departmental facilities Data (Here $P = 2$).

	Value	of	Critical
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		Test Statistic	Value
Hypothesis	H_{01}	2.296	3.888
	H_{02}	3.64	3.888
	H_{03}	45.45	3.920

The hypothesis of parallel and coincident profile cannot be rejected but hypothesis of level profile is rejected since the value of test statistic is greater than critical value.

Table-10: The results of profile analysis of Learning and Teaching Data (Here $P = 6$)

		Value of Test Statistic	Critical Value
Hypothesis	H_{01}	5.141	11.35
	H_{02}	12.89	3.888
	H_{03}	23.215	11.864

The hypothesis of parallel profiles cannot be rejected but the coincident profile and level profile is rejected since the value of test statistic is greater than critical value.

Table-11: The results of profile analysis of Computing Data (Here $P = 4$)

		Value of Test Statistic	Critical Value
Hypothesis	H_{01}	2.060	8.031
	H_{02}	1.905	3.88
	H_{03}	72.75	8.183

The hypothesis of parallel and coincident profile cannot be rejected but hypothesis of level profile is rejected since the value of test statistic is greater than critical value.

Table-12: The results of profile analysis of Security Facilities Data (Here $P = 2$)

		Value of Test Statistic	Critical Value
Hypothesis	H_{01}	1.703	3.888
	H_{02}	1.70	3.888
	H_{03}	0.0084	3.920

All the hypothesis of students' profile towards security facilities cannot be rejected since all statistic value is lower than the corresponding critical value.

Table-13: The results of profile analysis of Library facilities Data (Here $P = 2$)

		Value of Test Statistic	Critical Value
Hypothesis	H_{01}	0.991	3.888
	H_{02}	0.98	3.888
	H_{03}	35.75	3.920

First two hypothesis of parallel and coincident profile towards the library facilities cannot be rejected whereas hypothesis for level profile is rejected since statistic value is greater than the critical value.

Graphical representation of profile analysis for male and female students:

Graphical representation is the easiest way to get a concise idea about the nature of the data set and comparison can be made easily between two or more phenomenon with the help of graph. Following graphs make a comparative study of profiles for male and female students regarding the various facilities provided by the university.

Figure 1: Profiles for satisfaction level with departmental facilities.

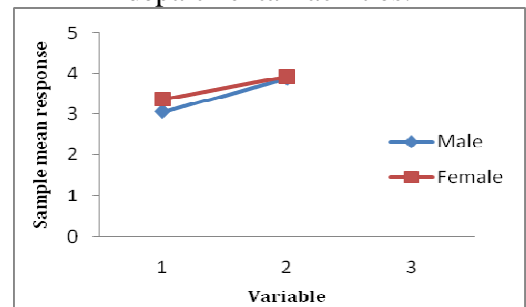


Figure 2: Profiles for satisfaction level with learning and teaching data.

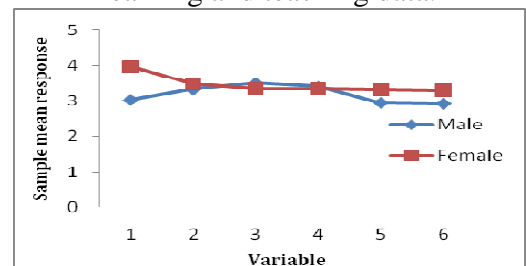


Figure 3: Profiles for satisfaction level with computing data.

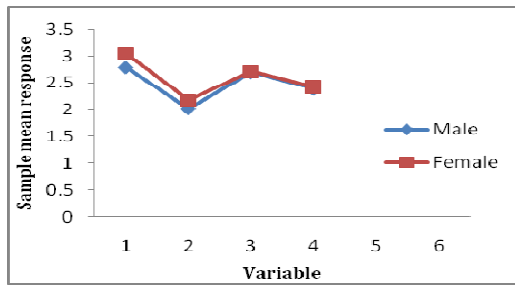


Figure 4: Profiles for satisfaction level with security facilities data.

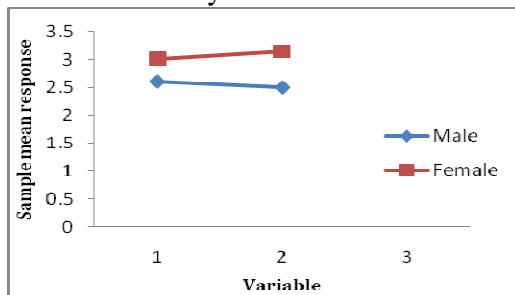
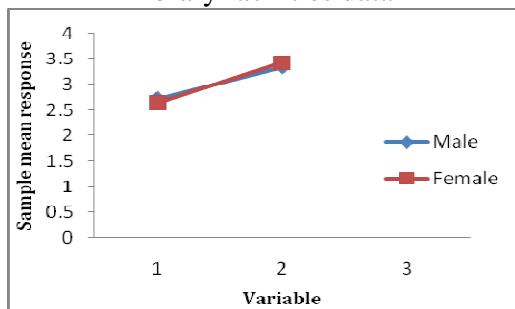


Figure 5: Profiles for satisfaction level with library facilities data



Results and discussion:

The findings of the research is almost coincides with the Abbasi M. N. (2011) study where they studied the student satisfaction of Bahauddin Zakariya university, Pakistant. Their findings reflects student dissatisfaction with many core services and facilities like teaching, administrative support, library, labs, accommodation, medical and sports⁹. On the basis of univariate analysis it is observed that a huge number of students are neither dissatisfied nor satisfied (26.5% for seminar library, 38.5% for professionalism of teachers, 35% for quality of teachers, 24% for fairness of teachers, 26% for availability of books in the library, 13% for availability of computers and 20% for security of campus) towards all services provided by the

university. And the level of neither dissatisfied nor satisfied for male and female group students do not vary in a great extent. The overall satisfaction level towards the facilities is higher for female students than the male students' satisfaction level except the availability of computer, regarding this facilities satisfaction level is same for both group. So this study can be extended to identify the factors for such scenario. From the profile analysis for departmental facilities data profiles for male and female students are parallel and coincident but not level, for learning and teaching data profiles are parallel but not coincident and level, for computing data profiles are parallel and coincident but not level, for security facilities data profiles for profiles are parallel, coincident and level and finally for library facilities data profiles are parallel and coincident but not level. The important finding of this study is although students satisfied with the quality of teachers but are dissatisfied with the professionalism. All the findings of profile analysis are expected to similar with the graphs describing profiles for male and female students' satisfaction towards the facilities. There were some open ended question; students' made some suggestions to improve the quality of different services. Students are worried about the security facilities, demand more efficient books in the library, teachers who are old aged should be updated with the present teaching method, sports facilities for female students should be like as male students.

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