Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.5, No.23, 2014

Students' Satisfaction with Service Quality in Higher Education Institutions: An Empirical Study in University of Gondar

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Abstract
The study was conducted to explore Students' Satisfaction with Service Quality in Higher Education Institutions: An Empirical Study in University of Gondar, Ethiopia. The total number of 478 regular under graduating students was considered the study; but 80.34% were returned found valid for analysis. The chi-square test of association and ordinal logistic regression was used for data analysis. The findings from this study showed that the interaction quality (faculty and staff advising and classes) are positively related to the outcome quality (university experience) and ultimately influence student satisfaction. Based on this work the author identified that the faculty advising comes first in increasing the satisfactions of student regarding University experience and staff advisory com es second and then classes environment, and ultimately courses organization and university experience comes first and second respectively in increasing current levels of students' satisfaction.
Keywords: Ordinal Logistic Regression, Testing Parallel Lines, University Experience, Students Satisfaction

1. INTRODUCTION

Background

In Ethiopia the growing number of higher education institutions and the ever-increasing number of students, forces the institutions to build such an environment which completely satisfies these students' expectations. The students' enrolment is growing many folds, as the benefits of earning a university degree become more evident, especially in the Natural Sciences and Technology sectors. Higher learning institutions are also considering this as a business like service industry where objective is to satisfy students in order to retain and increase profit. Likewise satisfying admitted students is important for the institutions' existence, trying to meet the needs of this ever-increasing number of students as well as the quality they are demanding at this level of education (DeShields et al., 2005).

Student satisfaction is not merely dependent on the teaching assessments, but a deep analysis should be there to find out all the factors that contribute to the student satisfaction. Statistics indicate that more than 40% of all college entrants (applicant) leave higher education without earning a degree, 75% of these students drop out in the first two years of college, and institutions can expect that 56% of a typical entering class cohort will not graduate from that college (Ali Kara and Deshields O.W., 2004). Other statistics sited by Ali Kara and Deshields O.W. (2004) indicate that 26.4 % of the freshmen do not return for the following fall semester and 46.2 % of the students do not graduate from college. Also, higher educational institutions that are heavily populated by commuter students have higher dropout rates while institutions with strong residential dormitory programs have lower dropout rates (Baldridge, Kemerer, and Green, 1982).

Service is an intangible activity that is the main objective of transaction that serves to meet the needs of customers. Service quality is an ability of an organization to meet or exceed customer expectations. Higher education in developing countries has serious quality problems. In today's competitive academic environment where students have many options available to them, factors that enable education institutions to attract students should be seriously studied (Coelho, 2004). Therefore, it is necessary to invest in quality system and tools for improvement. Early studies focused on academic ability as a predictor of satisfaction and typically found that academic performance explained no more than half of the variance. Some studies have investigated student commitment as involving a firm resolve to complete a college degree and strong attachment to a particular University. Other studies concentrated on the social adjustment of students to academic life and their inner confusion of self-worth. To the best of the researcher knowledge, studies that have examined student satisfaction in higher educational institutions from a more customer-oriented perspective are scarce. Therefore, this study focused on the students' satisfaction in University of Gondar by analyzing factors that affect University environment, faculty performance, advisory staff classes and course organization.

The main objective of the study is to analyze the students' satisfaction with University facilities. This satisfaction is related to the experience of student in the institution and this experience is affected and depends upon the faculty, advising staff and the environment of classes. If the students' experience is positive then they are satisfied with the institution. The Student's experience in institute is based on his/her connection with faculty, advising staff, the environment and interactions in the classrooms. These three was made the first part of the model comprising the first three hypotheses. If the students have positive University experience, they are more

satisfied as compared to the students having negative University experiences, the last hypothesis.

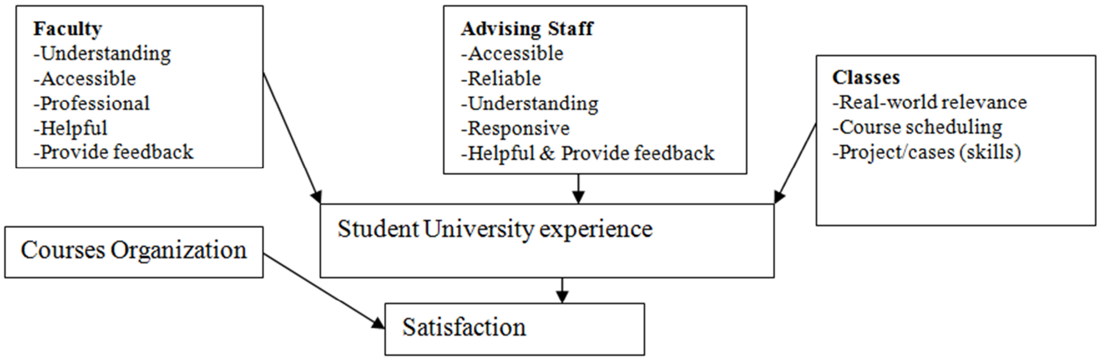

Fig.1.1: The Conceptual hypothesis

The purpose of this study is twofold. First, the role of student satisfaction is investigated in University of Gondar. Based on the changing marketplace for this University, college administrators and researchers need to focus their attentions on student satisfaction strategies to accomplish organizational objectives. Second, using empirical data and a conceptual model, we test several hypothesized relationships. In this part of the study, we focus on the Student Satisfaction by incorporating a comprehensive set of independent variables and self-reported experiential assessments to predict experience, which in return is related to student satisfaction. And it is a way or base for researchers to investigate research in related scenarios.

2. METHODOLOGY

2.1 Study Area

The University of Gondar (UoG), located in the historical town of Gondar about 727km to north from the capital city of Ethiopia, Addis Ababa, was officially established with its current status and autonomy in 2004. In 1954, the university was initially established as a Public Health College and Training Centre (PHC & TC) now known as the College of Medicine and Health Sciences (CMHS). Currently, the University owns 56 undergraduate and 61 postgraduate programs in its regular, extension, distance and summer programs. The sustainability and the success of UoG are highly dependent on the student satisfaction and this satisfaction helps the University to find out their strengths and the areas where they need improvement.

2.2 Data Collection

The data was collected at University of Gondar, Ethiopia during the period second semester registration February 23 and 24, 2012. All students of University of Gondar in year 2004E.C. are the sampling frame (population). From GCMS, Atse-Tewodros and Maraki, campuses of University of Gondar final year undergraduate students were considered in the study (study population). Students other than graduate class were not surveyed as the majority of these students did not have sufficient university experience to answer all of the questions in the questionnaire. Graduate class undergraduate students were selected by stratified (Cochran W.G., 1977) as faculties are heterogeneous and each student from each faculty included in the sample was by simple random sampling techniques.

The data was collected through both closed-ended and open-ended structured questionnaire from a sample size of 478 that determined by assuming the proportion of students half dissatisfied and half satisfied with margin of error (0.041) and 95% confidence coefficient. This is because of no prior information on the approximate values of proportion of satisfaction and the sample size will be at least as large as (and probably larger than) needed (William Mendenhall and Terry Sincich, 2007).

2.3 Data Analysis

Different statistical methods used to analyze satisfaction data results from different focus. To analyze student satisfaction questionnaires, descriptive statistics, chi-square and ordinal logistic regression techniques have been commonly found in the literature. In this study Chi-square was applied to investigate the association between the university experience with staffs advising, faculty advising and class environment and intern current student's satisfaction with university experience.

The equation for computing the Chi-Square value is given as: $\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$, where Oij is observed frequencies and Eij is expected frequencies is competed with the chi-square tabulated value with df (r-1)(c-1) at alpha value of 0.05.

Regression methods, such as logistic and ordinal regression models are useful tools to analyze the relationship between multiple explanatory variables and students satisfaction results (Thomas and Galamos, 2004). These methods also permit researchers to estimate the magnitude of the effect of the explanatory variables on the outcome variable. Therefore, ordinal logistic regression method is superior in studying the relationship between the explanatory and ordinal outcome variables of the study and hence, an ordinal logistic regression was applied on this study.

Model One: Student's University Experience=α0+α1Faculty+α2 Advisory Staff + α3 Classes+ε

Model Two: Student's Satisfaction = β0 + β1 Course Organization + β2Student's University Experience + ε

2.4 Fitting an Ordinal Logit Model

The ordinal logistic regression model is one of many models subsumed under the rubric of generalized linear models for ordinal data. In ordinal logistic regression, the event of interest is observing a particular score or less. All of the odds are of the form:

$\theta_j = \frac{\text{Prob (score} \leq j)}{\text{Prob(score} > j)} = \frac{\text{Prob (score} \leq \text{j)}}{[1 - \text{Prob(score} \leq j)]} = e^{\alpha_j + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k}$, where

$\text{Prob (score} \leq \text{ j)} = \frac{1}{1 + e^{-(\alpha_j + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k)}}$ and j= 1, 2, 3,…J-1.

This is because of the last category does not have an odds associated with it since the probability of scoring up to and including the last score is 1.

In ordinal logistic regression analysis, the logit is used to build specific models. The ordinal logistic regression model for logit link is written as (Hosmer and Lemeshow, 1989):

$\log\left(\frac{\theta_j}{1-\theta_j}\right) = \alpha_j + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$

The alpha (α_j) represents a separate intercept or threshold for each cumulative probability where j = 1, 2, 3…, number of categories - 1. The threshold (α_j) and the regression coefficient (β) are unknown parameters to be estimated by means of the maximum likelihood method.

In the terminology of ordinal logistic regression analysis a model that simultaneously uses all link function is: $\alpha_j + \boldsymbol{\beta' X}$, j=1, 2, 3,…J-1.

In which each cumulative link has its own intercept (α_j). Here,

$$X = \begin{bmatrix} x_{11}\, x_{21} \ldots x_{k1} \\ x_{12}\, x_{22} \ldots x_{k2} \\ x_{13}\, x_{23} \ldots x_{k3} \\ \ldots\ \ldots\ . \\ x_{1n}\, x_{2n} \ldots x_{kn} \end{bmatrix}$$ is called the nx(k+J-1) regression matrix and

$$\beta = \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \ldots\ \ldots\ . \\ \beta_k \end{bmatrix}$$ is the kx1 model parameter.

In order to interpret the ordinal regression model, researchers would first look at the signs of the regression coefficients. The positive regression coefficient indicated that there was a positive relationship between the explanatory variable and the ordinal outcome and the negative regression coefficient indicated that there was a negative relationship between the explanatory variable and ordinal outcome.

2.5 Testing Parallel Lines

The ordinal regression analysis employs a link function to describe the effect of the explanatory variables on ordered categorical outcome in such a way that the assumptions of normality and constant variance are not required (McCullagh and Nelder, 1989), whereas, the model assumes that the corresponding regression coefficients in the link function are equal for each cut-off point (Bender and Benner, 2000). Hence, the violation of the model assumption 'parallel lines' has to be verified carefully by the test of parallel lines (SPSS, Inc., 2002).

The Null Hypothesis: the model that assumes the lines are parallel (or slope coefficients) are the same across response categories (or the location parameters are the same across response categories). If the lines or planes are parallel, the observed significance level for the change should be large, since the general model doesn't improve the fit very much and the parallel model is adequate. We do not want to reject the null hypothesis that the lines are parallel. If we do reject the null hypothesis, it is possible that the link function selected is incorrect for the data or that the relationships between the independent variables and logits are not the same for all logits.

2.6 Statistical Software for Data Analysis

The statistical packages that were used for analyzing data collected in this study is SPSS version 20 as these packages are powerful enough to handle the analyses at ease. In addition all hypotheses were tested by considering 5% confidence level.

3.RESULTS AND DISCUSSIONS

3.1Results

In this section results of the analysis and discussions are revealed. The total number of 478 regular under graduating students was considered the study; but 80.34% were returned found valid for analysis. From the chi-square analysis of 'there is no significant relationship between variables' in the two model was tested.

The chi-square crosstab results of Appendix B of Table 1 and Table 2 showed that 11 cells (44.0%) and 12 cells (48.0%) have expected counts less than 5 with minimum expected count of 0.02 for each independent variables in model one and two, respectively. This means that the minimum expected cell frequency of five (5) which will make the chi-square test accurate have violated. Therefore, the five scale categories of the variables need merged in to three scales categories to make the chi-square test have accurate. After emerging the scale of variables the chi-square crosstab results of Appendix B of Table 3 and Table 4 showed that 0 cells (0.0%) have expected counts less than 5 in the two models and the finding of the chi-square test revealed as follows.

From the analysis (table 3.1 below) the results can be read as p (.000< 0.5). Therefore, the null hypothesis (H_0) is rejected at the 0.05 level of significance. Therefore, since 0.000< 0.05, and this means that there is sufficient evidence to conclude that there were significant relationships between faculty advising, staff advising and class environment with university experience and intern university experience with student satisfaction.

Table 3.1: Chi-square test of association

Variables	Chi-square value	df	Sig. (2-sided)
Staffs advising by University experience	118.526	4	0.000
Faculty advising by University experience	185.837	4	0.000
Class environment by University experience	82.350	4	0.000
University experience by current student's satisfaction	97.892	4	0.000
Course Organization by current student's satisfaction			

3.2 Ordinal Logistic Regression Analysis

The major decisions involved in constructing the ordinal regression models were deciding what explanatory variables to include in the model equation that would be the best fit to the data set. Because the ordinal logistic regression models are used under a strong assumption of parallel lines, any departures from this assumption might result in the incorrect analysis and conclusion (McCullagh, 1980). Therefore, ordinal logistic regression models that satisfying the parallel lines' assumption and having larger model fitting statistic were chosen.

The test of parallel lines was designed to make judgment concerning the model adequacy. The null hypothesis stated that the corresponding regression coefficients were equal across all levels of the outcome variable. The alternative hypothesis stated that the corresponding regression coefficients were different across all levels of the outcome variable. The chi-square test result from table 3.2 ($\chi^2 = 8.232$ with df 6, and p = 0.222) and ($\chi^2 = 6.262$ with df 4, and p = 0.180) indicated that there was no significant difference for the corresponding regression coefficients across the response categories for model one and model two, respectively.

Table 3.2: Summary of model fitting statistic, goodness-of-fit and test of parallel lines for model one.

Models	Model Fitting				
	Cox and Snell	Nagelkerke	McFadden	Goodness-of-Fit	Test of Parallel Lines
Model 1	0.417	0.477	0.261	49.131 (0.209)*	8.232 (0.222)*
Model 2	0.373	0.463	0.285	62.879 (0.020)*	6.262 (0.180)*

*is p-value for goodness-of-fit and test of parallel lines

3.2.1 Results of Ordinal Logistic Regression

The results of ordinal logistic regression analysis for model one and model two were given in Appendix B of Table 5 and Table 6 respectively. The table showed that the coefficients, their standard errors, the Wald test, associated p-values (Sig.), the odds and the 95% confidence interval of the coefficients. And the subsequent interpretations and discussion in the section below revealed to the table.

To give interpretation about the coefficients of the predictor variable, compare p-value with 0.05-level of significance and if the p-value is less than 0.05, then at least one predictor is significantly associated with the response. Therefore, the table is revealed that the p-values for all respective variables were less than 0.05 in both models. Thus, there were enough statistical evidence to conclude that the relationship between University experience with study predicators in model one and Students' satisfaction with study predictors in model two were significant.

3.2.2 Interpretation of the Odds Model One

Model One

Controlling for the other explanatory variables, dissatisfaction and neutrality of staff advising have 73.4% and 47.1% lower odds than satisfaction of staff advising, respectively, giving a response that indicates higher levels (good) of University Experience. The dissatisfaction and neutrality of class environment have 68.9% and 54.5% lower odds than satisfaction of class environment, respectively, giving response that indicates higher levels (good) of University experience of students and Gondar University when other predictors keep constant. Finally, the dissatisfaction and neutrality of faculty advising have 94.2% and 83.7% lower odds than satisfaction of faculty advising, respectively, giving response that indicates higher levels (good) of University experience of students and Gondar University when other predictors keep constant.

Model Two

The poorness and neutrality of University Experience at Gondar University have 88% and 69.4% lower odds than goodness of University Experience, respectively, giving response that indicates higher levels (satisfied) of current level of students' satisfaction when other predictors keep constant. And controlling for the other explanatory variables, the dissatisfaction and neutrality of courses organization at Gondar University have 98.7% and 84.6% lower odds than satisfaction of courses organization at Gondar University, respectively, giving response that indicates higher levels (satisfied) of current level of students' satisfaction.

The study revealed that faculty advising, classes and staff advising had a significant relationship with University experience. They imply that the interaction quality (faculty and staff advising and classes) are positively related to the outcome quality (university experience) and ultimately influence student satisfaction. At the end, author argued that faculty advising, advising staff, and classes were the most important variables that influenced students' university experience, and ultimately satisfaction.

4. Conclusions and Recommendations

4.1Conclusions

In the study it was hypothesized that faculty and staff advising performance, and classes would influence students' University experience and in turn University experience and courses organization would influence their current level of students' satisfaction.

The results of the study supports the hypotheses predicted and indicate that there is a positive relationship of faculty and staff advisory and the classes with the student's University experience and altimetry there is a positive relationship of course organization and university experience with current level of students' satisfaction.

The following table shows that the comparison of the hypotheses and the results of the study.

Table 4.1: Comparison of research hypothesis versus the overall of results of the study.

Factors	Relationship with **University Experience**			Relationship with **Students' Satisfaction**		
	Hypothesis	Results	Comment	Hypothesis	Results	Comment
Faculty advising	Positive	Positive	correct			
Staff Advising	Positive	Positive	correct			
Classes	Positive	Positive	correct			
Courses organization				Positive	Positive	correct
University Experience				Positive	Positive	correct

Using the ordinal logistic regression, the study identified the significant explanatory variables with their control to enhance student satisfactions regarding University experience, and ultimately current levels of students' satisfaction. The study revealed that the faculty advising comes first in increasing the student's University experience and staff advisory comes second and then classes and ultimately courses organization and university experience comes first and second respectively in increasing current levels of students' satisfaction.

4.2 Recommendations

Based upon the major findings of the study, the author would like to recommend the following major points.

- ✓ It is better to create opportunities for advisory-student interaction beyond regular office hours to increase student's satisfaction with university experience.

- ✓ University administrative takes a measurement on develop and implement a comprehensive plan for refurbishing and re-equipping classrooms to make conducive class environment which in turn fulfill the students' needs.
- ✓ It is recommended that researchers should work more on this area by considering two or more universities with service quality regardless of student or staffs.

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ACKNOWLEDGEMENT

First of all my heart full and limitless gratitude goes to the almighty of God who guided me for all success I achieved in my whole life. Next I would like to thanks to all data collectors and respondents who participated in this study. Last but not least I would like to express my deepest gratitude to all my friends for their unlimited help and professional guidance in one or another way.

Appendix B: SPSS Output Tables

Table 1: Chi-square Crosstab for Model One

			University Experience					Total
			Very Poor	Poor	Fair	Good	Very Good	
Facility Advising	Highly Dissatisfied	Count	1	1	0	0	0	2
		Expected Count	.0	.3	.8	.6	.2	2.0
		% of Total	0.3%	0.3%	0.0%	0.0%	0.0%	0.5%
	Dissatisfied	Count	2	28	18	4	0	52
		Expected Count	.4	8.7	22.1	16.7	4.2	52.0
		% of Total	0.5%	7.3%	4.7%	1.0%	0.0%	13.5%
	Neutral	Count	0	29	93	18	1	141
		Expected Count	1.1	23.5	59.9	45.2	11.4	141.0
		% of Total	0.0%	7.6%	24.2%	4.7%	0.3%	36.7%
	satisfied	Count	0	5	44	84	7	140
		Expected Count	1.1	23.3	59.4	44.8	11.3	140.0
		% of Total	0.0%	1.3%	11.5%	21.9%	1.8%	36.5%
	Highly Satisfied	Count	0	1	8	17	23	49
		Expected Count	.4	8.2	20.8	15.7	4.0	49.0
		% of Total	0.0%	0.3%	2.1%	4.4%	6.0%	12.8%
Staff Advising	Highly Dissatisfied	Count	0	2	0	0	0	2
		Expected Count	.0	.3	.8	.6	.2	2.0
		% of Total	0.0%	0.5%	0.0%	0.0%	0.0%	0.5%
	Dissatisfied	Count	2	22	20	3	0	47
		Expected Count	.4	7.9	19.9	15.1	3.8	47.0
		% of Total	0.5%	5.7%	5.2%	0.8%	0.0%	12.3%
	Neutral	Count	1	30	82	29	1	143
		Expected Count	1.1	23.9	60.5	45.9	11.6	143.0
		% of Total	0.3%	7.8%	21.4%	7.6%	0.3%	37.3%
	satisfied	Count	0	8	54	70	13	145
		Expected Count	1.1	24.2	61.3	46.6	11.7	145.0
		% of Total	0.0%	2.1%	14.1%	18.3%	3.4%	37.9%
	Highly Satisfied	Count	0	2	6	21	17	46
		Expected Count	.4	7.7	19.5	14.8	3.7	46.0
		% of Total	0.0%	0.5%	1.6%	5.5%	4.4%	12.0%
Class	Highly Dissatisfied	Count	0	1	0	0	0	1
		Expected Count	.0	.2	.4	.3	.1	1.0
		% of Total	0.0%	0.3%	0.0%	0.0%	0.0%	0.3%
	Dissatisfied	Count	2	18	25	3	0	48
		Expected Count	.4	8.0	20.4	15.4	3.9	48.0
		% of Total	0.5%	4.7%	6.5%	0.8%	0.0%	12.5%
	Neutral	Count	1	33	88	42	4	168
		Expected Count	1.3	28.0	71.3	53.8	13.6	168.0
		% of Total	0.3%	8.6%	22.9%	10.9%	1.0%	43.8%
	satisfied	Count	0	11	48	63	10	132
		Expected Count	1.0	22.0	56.0	42.3	10.7	132.0
		% of Total	0.0%	2.9%	12.5%	16.4%	2.6%	34.4%
	Highly Satisfied	Count	0	1	2	15	17	35
		Expected Count	.3	5.8	14.9	11.2	2.8	35.0
		% of Total	0.0%	0.3%	0.5%	3.9%	4.4%	9.1%

Table 2: Chi-square Crosstab for Model Two

			Students' satisfaction					Total
			Highly Dissatisfied	Dissatisfied	Neutral	satisfied	Highly Satisfied	
University Experience	Very Poor	Count	1	0	2	0	0	3
		Expected Count	.0	.2	.9	1.5	.5	3.0
		% of Total	0.3%	0.0%	0.5%	0.0%	0.0%	0.8%
	Poor	Count	1	15	27	21	0	64
		Expected Count	.3	3.8	18.5	31.7	9.7	64.0
		% of Total	0.3%	3.9%	7.0%	5.5%	0.0%	16.7%
	Fair	Count	0	8	63	80	12	163
		Expected Count	.8	9.8	47.1	80.7	24.6	163.0
		% of Total	0.0%	2.1%	16.4%	20.8%	3.1%	42.4%
	Good	Count	0	0	19	81	23	123
		Expected Count	.6	7.4	35.6	60.9	18.6	123.0
		% of Total	0.0%	0.0%	4.9%	21.1%	6.0%	32.0%
	Very Good	Count	0	0	0	8	23	31
		Expected Count	.2	1.9	9.0	15.3	4.7	31.0
		% of Total	0.0%	0.0%	0.0%	2.1%	6.0%	8.1%
Courses Organization	Highly Dissatisfied	Count	0	0	1	0	0	1
		Expected Count	.0	.1	.3	.5	.2	1.0
		% of Total	0.0%	0.0%	0.3%	0.0%	0.0%	0.3%
	Dissatisfied	Count	1	12	6	1	0	20
		Expected Count	.1	1.2	5.8	9.9	3.0	20.0
		% of Total	0.3%	3.1%	1.6%	0.3%	0.0%	5.2%
	Neutral	Count	1	7	60	28	2	98
		Expected Count	.5	5.9	28.3	48.5	14.8	98.0
		% of Total	0.3%	1.8%	15.6%	7.3%	0.5%	25.5%
	satisfied	Count	0	4	41	119	19	183
		Expected Count	1.0	11.0	52.9	90.5	27.6	183.0
		% of Total	0.0%	1.0%	10.7%	31.0%	4.9%	47.7%
	Highly Satisfied	Count	0	0	3	42	37	82
		Expected Count	.4	4.9	23.7	40.6	12.4	82.0
		% of Total	0.0%	0.0%	0.8%	10.9%	9.6%	21.4%

Table 3: Chi-square Crosstab for Model One after merging the categories

			University Experience			Total
			poor	neutral	Good	
Staff Advising	dissatisfied	Count	26	20	3	49
		Expected Count	8.5	20.8	19.7	49.0
		% of Total	6.8%	5.2%	0.8%	12.8%
	neutral	Count	31	82	30	143
		Expected Count	25.0	60.7	57.3	143.0
		% of Total	8.1%	21.4%	7.8%	37.2%
	satisfied	Count	10	61	121	192
		Expected Count	33.5	81.5	77.0	192.0
		% of Total	2.6%	15.9%	31.5%	50.0%
Faculty Advising	dissatisfied	Count	32	18	4	54
		Expected Count	9.4	22.9	21.7	54.0
		% of Total	8.3%	4.7%	1.0%	14.1%
	neutral	Count	29	93	19	141
		Expected Count	24.6	59.9	56.5	141.0
		% of Total	7.6%	24.2%	4.9%	36.7%
	satisfied	Count	6	52	131	189
		Expected Count	33.0	80.2	75.8	189.0
		% of Total	1.6%	13.5%	34.1%	49.2%
Class	dissatisfied	Count	21	25	3	49
		Expected Count	8.5	20.8	19.7	49.0
		% of Total	5.5%	6.5%	0.8%	12.8%
	neutral	Count	34	88	46	168
		Expected Count	29.3	71.3	67.4	168.0
		% of Total	8.9%	22.9%	12.0%	43.8%
	satisfied	Count	12	50	105	167
		Expected Count	29.1	70.9	67.0	167.0
		% of Total	3.1%	13.0%	27.3%	43.5%

Table 4: Chi-square Crosstab for Model Two after merging the categories

			Students' Satisfaction			Total
			dissatisfied	neutral	satisfied	
University Experience	poor	Count	17	29	21	67
		Expected Count	4.4	19.4	43.3	67.0
		% of Total	4.4%	7.6%	5.5%	17.4%
	neutral	Count	8	63	92	163
		Expected Count	10.6	47.1	105.3	163.0
		% of Total	2.1%	16.4%	24.0%	42.4%
	Good	Count	0	19	135	154
		Expected Count	10.0	44.5	99.5	154.0
		% of Total	0.0%	4.9%	35.2%	40.1%
Courses Organization	dissatisfied	Count	13	7	1	21
		Expected Count	1.4	6.1	13.6	21.0
		% of Total	3.4%	1.8%	0.3%	5.5%
	neutral	Count	8	60	30	98
		Expected Count	6.4	28.3	63.3	98.0
		% of Total	2.1%	15.6%	7.8%	25.5%
	satisfied	Count	4	44	217	265
		Expected Count	17.3	76.6	171.1	265.0
		% of Total	1.0%	11.5%	56.5%	69.0%

Table 5: Parameter Estimates for Model One

		Estimate	Std. Error	Wald	df	Sig.	Odds	95% Confidence Interval	
								Lower Bound	Upper Bound
Threshold	[University Experience = Poor]	-4.346	.317	188.027	1	.000		-4.967	-3.725
	[University Experience = Neutral]	-1.259	.198	40.592	1	.000		-1.646	-.872
Location	[Staff Advising= Dissatisfied]	-1.324	.419	9.993	1	.002	0.266069	-2.146	-.503
	[Staff Advising = Neutral]	-.637	.278	5.269	1	.022	0.528877	-1.181	-.093
	[Staff Advising =Satisfied]	0[a]	.	.	0	.		.	.
	[Class= Dissatisfied]	-1.167	.379	9.467	1	.002	0.311299	-1.911	-.424
	[Class= Neutral]	-.788	.247	10.198	1	.001	0.454753	-1.271	-.304
	[Class=satisfied]	0[a]	.	.	0	.		.	.
	[Faculty Advising= Dissatisfied]	-2.845	.445	40.871	1	.000	0.058134	-3.717	-1.973
	[Faculty Advising = Neutral]	-1.814	.300	36.646	1	.000	0.163001	-2.401	-1.227
	[Faculty Advising =satisfied]	0[a]	.	.	0	.		.	.
	Link function: Logit.								
	a. This parameter is set to zero because it is redundant.								

Table 6: Parameter Estimates for Model Two

		Estimate	Std. Error	Wald	df	Sig.	Odds	95% Confidence Interval	
								Lower Bound	Upper Bound
Threshold	[Students' Satisfaction = Dissatisfied]	-5.521	.421	171.742	1	.000		-6.347	-4.695
	[Students' Satisfaction = Neutral]	-2.316	.267	75.417	1	.000		-2.838	-1.793
Location	[University Experience=Poor]	-2.122	.381	31.014	1	.000	0.119792	-2.869	-1.375
	[University Experience = Neutral]	-1.183	.317	13.914	1	.000	0.306358	-1.805	-.561
	[University Experience =Good]	0[a]	.	.	0	.		.	.
	[Courses Organization=Dissatisfied]	-4.324	.571	57.354	1	.000	0.013247	-5.443	-3.205
	[Courses Organization = Neutral]	-1.874	.278	45.455	1	.000	0.153508	-2.419	-1.330
	[Courses Organization =Satisfied]	0[a]	.	.	0	.		.	.
	Link function: Logit.								
	a. This parameter is set to zero because it is redundant.								

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