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## Ordinal Regression Analysis of Students' Satisfaction with Academic Support Services Provided by Polytechnics in Ghana

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### ABSTRACT

The Student Satisfaction Survey was necessitated by the notion that students have needs and rights to participate in quality programmes and to receive satisfactory services. The main objective was to assess the satisfaction experienced by students in the various departments they are in contact with at the Polytechnic (Toshimori, et. al. 2011; Lester, 2006; Chau-Kuang and Hughes, 2004).

The outcome variable for student satisfaction with academic support services was measured on an ordered, categorical, and four-point Likert scale- 'very dissatisfied', 'dissatisfied', 'satisfied', and 'very satisfied'. Explanatory variables included two demographic variables: gender and departments, and 42 questionnaire items related to the satisfaction of department involvement, curriculum contents, support services, facilities, and extra-curricular activities at the polytechnic (Sarah and Charlene, 2010; Toshimori, et. al. 2011)

Proportional stratified sampling technique was used to select the sample of 1044 for the survey. In order to study the effects of explanatory variables on all levels of the ordered categorical outcome, an ordinal regression was used to model students' satisfaction derived from the academic support services provided by the polytechnic. The overall impression given by students was that they were highly satisfied with the services of all the departments they came in

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contact with at the Polytechnic. They were also highly satisfied with the quality of teaching and the helpfulness of library staff. However, they expressed low satisfaction about the non-availability of some books on their reading list in the library, lack of reading space in the library, late arrangement for examinations, and late release of examination results.

Recommendations have been made for the attention of departments and the intervention of management so that suitable action plans can be developed to address issues that give cause for respondents' low satisfaction

**Keywords:** sampling techniques, students' satisfaction, ordinal regression, academic support services, ordinal regression

## **INTRODUCTION**

Organizations and institutions owe their existence to the customers they serve, and in an increasingly competitive environment, their survival and growth will depend on their orientation to customer satisfaction. It is for these reasons that most organizations and institutions engage in institutional priorities studies. Studies of institutional priorities are self-examinations that enable institutions to measure their effectiveness in meeting the expectations of their students.

Research findings indicate that Student Satisfaction Survey is one of institutional priorities (McGregor, 2006; Conklin, 2006; Chau-Kuang and Hughes, 2004). The satisfaction surveys provide colleges and universities with real pictures of the key issues perceived by their students. The creation and the delivery of superior customer value is pivotal in customer satisfaction (McGregor, 2006; Conklin, 2006).

### **Statement of the Problem**

The Student Satisfaction Survey was necessitated by the notion that students have needs and rights to participate in quality programs and to receive satisfactory services. A comprehensive survey is needed in relation to all aspects of student life.

### **Purpose of the Study**

The purpose of the survey was to assess student's rating of a number of factors such as the type and quality of the courses offered, in addition to operational and assessment aspects of the Institution.

### **Research Questions**

The survey was to answer the following questions:

1. Are students satisfied with the Teaching, Learning and Assessment services the institutions provide for them?
2. Are students satisfied with the Library Services the institutions provide for them?

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3. How do students rate the attendance of lecturers to lectures?
4. How do students rate the services of lecturers?
5. Do students in the various Departments have the same satisfaction with services that the institution provides for them?
6. Do female and male students have the same satisfaction with the services that the institution provides for them?
7. Which academic support services significantly enhance students' satisfaction?

## **LITERATURE REVIEW**

Most researchers have investigated student satisfaction items related to the occurrence of the educational events such as student retention and attrition (McGregor, 2006; Conklin, 2006; Chau-Kuang and Hughes, 2004). There has been a great deal of research examining the benefits of satisfaction in the college setting. For example, satisfaction has been linked to student performance among college students (Ehrenberg et al., 2009; Lavin and Wadmany, 2006). Toshimori et. al., (2011), argue that satisfaction is highly correlated with achievement motivation among both traditional and non-traditional students.

Other researchers have found an association between satisfaction and college student achievement (Ehrenberg et al., 2009; Lavin and Wadmany, 2006), satisfaction and school infrastructure (Toshimori et. al., 2011), the characteristics of students satisfaction and Library Sciences (Toshimori et. al., 2011). Grade point average (GPA) has been linked to student satisfaction. Student satisfaction has also been examined as a factor contributing to student retention and student attrition. Satisfaction and academic performance have also been viewed as intervening variables that affect student attrition. Apart from the academic benefits outlined above, satisfaction has also been correlated with students' progress in their intellectual and social development. Scholars have argued that satisfaction is a key psychological-affective outcome, which in turn leads to a direct measure of success in college

Ehrenberg et al, (2009) found that although overall satisfaction with doctoral experiences appears to be equivalent/similar across multiple disciplines, student satisfaction within disciplines varied significantly and consistently with respect to specific academic experiences. In the survey of Students' satisfaction with electrical hand pieces in an educational setting, Teich, et. al. (2012) found significant shift from those who were categorically against using electrical hand pieces after graduation towards those were 'not sure' regarding the adoption of electric technology in their practice . They concluded that improving the clinical setting of a control box for electrical hand pieces can influence overall student perception regarding the quality of hand pieces and their operation.

### **Survey Research**

A survey is any activity that collects information in an organized and methodical manner about characteristics of interest from some or all units of a population using well-defined concepts, methods and procedures, and compiles such information into a useful summary form

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(Sarah and Charlene, 2010, Diana and Perri, 2010). Diana, et.al (2011) define survey as a group of research methods commonly used to determine the present status of a given phenomenon. The word survey literally means to look at or to see over or beyond or, in other words, to observe (McManus, 2006).

The word *survey* literally means to look at or to see over or beyond or, in other words, to observe. Observations made during the course of a survey are not limited to those of the physical type. As was just indicated, a key strength of survey research is that, if properly done, it allows one to generalize from a smaller group to a larger group from which the subgroup has been selected. The subgroup is referred to as the sample and the larger group is known as the population; it must be clearly defined, specifically delimited, and carefully chosen. The observations or measurements made during survey research, or any other kind of research, generate data or information. These data are particularly susceptible to bias introduced as a result of the research design and at other stages in the research process Toshimori et. al., (2011).

A key strength of survey research is that, if properly done, it allows one to generalize from a smaller group to a larger group from which the subgroup has been selected Connaway, 2010). The subgroup is referred to as the sample, and techniques for drawing samples will be treated in considerable detail later. The larger group is known as the population; it must be clearly defined, specifically delimited, and carefully chosen. The observations or measurements made during survey research, or any other kind of research, generate data or information. These data are particularly susceptible to bias introduced as a result of the research design and at other stages in the research process (Sarah and Charlene, 2010; Diana Diana et. al, 2011).

### **Population and Sample**

The population for the study was students of Koforidua Polytechnic. Proportional stratified random sampling technique was used to select the subjects for the study. In all, 1044 students were selected at random from four departments to constitute the sample for the study (Table 1).

### **Instruments for Data Collection**

A questionnaire (or form) is a group or sequence of questions designed to obtain information on a subject from a respondent. Questionnaires play a central role in the data collection process since they have a major impact on data quality and influence the image that the statistical agency projects to the public. (Sarah and Charlene, 2010). Questionnaires can either be in paper or computerized format. Questionnaire was designed to include items on feedback on teaching /learning and assessment. This was because teaching/learning is central to the students' experience and the fundamental reason for the establishment of the institution.

Data collection is the process of gathering the required information for each selected unit in the survey (Sarah and Charlene, 2010; Sahin and Shelley, 2008). Data from a pilot study was used to determine the reliability or the Cronbach's alpha of the instrument which is the internal consistency or reliability coefficient for an instrument. Cronbach's alpha scores range from zero

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through one, with a coefficient closer to one indicating higher reliability. Reliability coefficients should be at least .70 or higher to be considered reliable

The Student Satisfaction Survey instrument pilot study indicated a Cronbach's alpha of 0.90 and 0.94 for the satisfaction and importance questionnaire respectively. The survey items asked respondents to evaluate specific academic support services in terms of two criteria: "Importance to me"; and "My level of satisfaction". Each item consists of two independent Lickert scales—one for Importance, the other for Satisfaction—from which respondents chose from scales ranging from 1 ("Not important at all" and "Very Dissatisfied") to 5 ("Very important" and "Very satisfied").

## Data Analysis

Data analysis involves summarizing the data and interpreting their meaning in a way that provides clear answers to questions that initiated the survey. Data analysis should relate the survey results to the questions and issues identified by the Statement of Objectives. It is one of the most crucial steps of a survey since the quality of the analysis can substantially affect the usefulness of the whole survey. Editing which is the application of checks to identify missing, invalid or inconsistent entries that point to data records that are potentially in error, was also conducted on the data (Sarah and Charlene, 2010,

Chau-Kuang & Hughes (2004), mentioned different statistical methods which are used to analyze satisfaction data. These methods include descriptive statistics, chi-square, linear regression analysis, multilevel modeling, and ordinal regression techniques. Descriptive statistics, e.g., means, frequencies, and proportions of student responses are often applied to detect the most and the least satisfaction items regarding college programs and services.

Regression methods such as linear, logistic, and ordinal regression are useful tools to analyze the relationship between multiple explanatory variables and student satisfaction results. The regression methods are capable of allowing researchers to identify explanatory variables related to academic programs and services that contribute to the overall college satisfaction.

## Ordinal Regression: Conceptual and Mathematical Model

In ordinal regression modeling, two major link functions, the logit and the cloglog links, are used to build specific models. The logit link is generally suitable for analyzing the ordered categorical data evenly distributed among all categories. The cloglog link may be used to analyze the ordered categorical data when higher categories are more probable.

The fundamental model underlying multiple regression analysis (MRA) posits that a continuous outcome variable is, in theory, a linear combination of a set of predictors and error. Thus, for an outcome variable,  $Y$ , and a set of  $p$  predictor variables,  $X_1, \dots, X_p$ , the model is of the form:  $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p + \varepsilon = \alpha + \sum_{j=1}^p \beta_j X_j + \varepsilon$ , where  $\alpha$  is the  $Y$ -intercept (i.e.,

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the expected value of Y when all X's are set to 0),  $\beta_j$  is a multiple (partial) regression coefficient (i.e., the expected change in Y per unit change in  $X_j$  assuming all other X's are held constant) and  $\varepsilon$  is the error of prediction. If error is omitted, the resulting model represents the expected, or predicted, value of Y is  $E(Y | X_1, \dots, X_p) = Y' = \alpha + \sum_{j=1}^p \beta_j X_j$ .

If the logit link is applied, the ordinal regression model may be written as follows:

$$f\{\gamma_j(X)\} = \log\left\{\frac{\gamma_j(X)}{(1-\gamma_j(X))}\right\} = \log\left\{\left[\frac{P(Y < y_j | X)}{P(Y > y_j | X)}\right]\right\} = a_j + \beta X, \quad j = 1, 2, \dots, k - 1, \text{ and}$$

$\gamma_j(X) = \frac{e^{(a_j + \beta X)}}{1 + e^{(a_j + \beta X)}}$ , where j indexes the cut-off points for all categories (k) of the outcome variable. Using the cloglog link is used, the ordinal regression model may be written as follows:

$$f[\gamma_j(X)] = \log\{-\log\{[1-\gamma_j(X)]\}\} = \log\left\{-\log\left[\frac{P(Y = y_j | X)}{P(Y > y_j | X)}\right]\right\} = a_j + \beta X \text{ and}$$

$\gamma_j(X) = 1 - e^{-e^{(a_j + \beta X)}}$ , where j = 1, 2, ..., k - 1 and j indexes the cut-off points for all categories of the outcome variable.

Grigoroudis and Siskos (2002) cited by Grigoroudis E. et al. (2010), proposed the MUSA model which is based on the principles of multicriteria analysis, using ordinal regression techniques. MUSA assesses global and partial satisfaction functions  $Y^*$  and  $X_i^*$  respectively, given customers' judgments Y and  $X_i$ . The method follows the principles of ordinal regression analysis under constraints using linear programming techniques. The ordinal regression analysis equation has the following form:

$$\begin{cases} Y^* = \sum_{i=1}^n b_i X_i^* \\ \sum_{i=1}^n b_i = 1 \end{cases}$$

where the value functions  $Y^*$  and  $X_i^*$  are normalized in the interval [0, 100], and  $b_i$  is the weight of the i-th criterion. The normalization constraints can be written as follows:

$$\begin{cases} y^* = 0, y^{*a} = 100 \\ x_i^* = 0, x_i^{*a_i} = 100, \text{ for } i = 1, 2, \dots, n \end{cases}$$

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Furthermore, because of the ordinal nature of  $Y$  and  $X_i$  the following preference conditions are assumed:

$$\begin{cases} y^{*m} \leq y^{*(m+1)} \Leftrightarrow y^m \leq y^{m+1}, \text{ for } m = 1, 2, \dots, a - 1 \\ x_i^{*k} = x_i^{*(k+1)} \Leftrightarrow x_i^k \leq x_i^{k+1}, \text{ for } k = 1, 2, \dots, a_i - 1 \end{cases}$$

where  $\leq$  means “less preferred or indifferent to”. Introducing a double-error variable, the ordinal regression equation becomes as follows:  $\tilde{Y}^* = \sum_{i=1}^n b_i X_i^* - \sigma^+ + \sigma^-$ , where  $\tilde{Y}^*$  is the estimation of the global value function  $Y^*$ , and  $\sigma^+$  and  $\sigma^-$  are the overestimation and the underestimation error, respectively. The transformation equation can be written as follows

$$\begin{cases} z_m = y^{*(m+1)} - y^{*m}, \text{ for } m = 1, 2, \dots, a - 1 \\ w_{ik} = b_i x_i^{*(k+1)} - b_i x_i^{*k}, \text{ for } k = 1, 2, \dots, a_i - 1, \text{ and } i = 1, 2, \dots, n \end{cases}$$

Based on the aforementioned definitions and assumptions, the basic estimation model can be

written in a linear program formulation as it follows:  $(\min) F = \sum_{j=1}^M \sigma_j^+ + \sigma_j^-$  under the constraints  $\sum_{i=1}^n \sum_{k=1}^{t_{ij}-1} w_{ik} - \sum_{m=1}^{t_j-1} z_m - \sigma_j^+ + \sigma_j^- = 0, \text{ for } j = 1, 2, \dots, M; \sum_{i=1}^n \sum_{k=1}^{t_{ij}-1} w_{ik} = 100, \sum_{m=1}^{t_j-i} z_m = 100,$   
 $z_m \geq 0, w_{ik} \geq 0, \forall m, i, k, \sigma^+ \geq 0, \sigma^- \geq 0, \text{ for } j = 1, 2, 3, \dots, M,$  where  $M$  is the number of customers.

## Results of the Survey

### Research Question 1: Are students satisfied with the Teaching, Learning and Assessment services the institutions provide for them?

Students’ responses to items relating to their satisfaction with Teaching, Learning and Assessment services are reported in Table 2.

The mean high satisfaction score for ten items is 54.8%, the mean mid-range score is 19.6% and the mean high dissatisfaction score is 25.6 %. “Quality of teaching” produced the highest satisfaction score of 83.7%, closely followed by “Extent to which the programme develops knowledge and skill” scoring 71%, and the “overall quality of the programme” scoring 68%. “Time end of semester examination results are released” produced the highest dissatisfaction score of 92.1%, followed “Time examination timetable is released” scoring 54.2%, and Learning resources scoring 30.4%.

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All items relating to Teaching, Learning and Assessment services were highly rated for importance. The high importance score of 96.7% for “Time end of semester examination results are released” is the highest followed by “Time examination timetable is released” with score of 95.6%. Another indication of the importance attributed to Teaching, Learning and Assessment is that an average of 98.6% of respondents answered each question in this Section (Table 2).

The mean high satisfaction score is 45%, the mean mid-range score is 30.9% and the mean high dissatisfaction score is 24.1% for all the seven items. “Helpfulness of library staff” produced the highest satisfaction score of 75.2% followed by “library opening hours” scoring 70.4%. “Availability of books on the students reading list” produced the highest dissatisfaction score of 43.1% for the respondents registering their dissatisfaction. “Provision of study space” has a dissatisfaction score 31.2% followed by “availability of journals” and “availability of photocopying machines” scoring 28.2% and 28.1% respectively. The items relating to “Availability of books on students’ reading list” and “Helpfulness of library staff” were highly rated for importance with score of 95.9% and 94.8% respectively (Table 3B).

### **Research Question 2: Are students satisfied with the Library Services the institutions provide for them?**

Students’ responses to items relating to their satisfaction with Library Services are reported in Table 3A.

### **Research Question 3: How do students rate the attendance of lecturers to lectures?**

Over 80% of students ranked lecturers/instructors’ punctuality to lectures as “excellent” or “very good” and only 7% rated it as only “fair” or “poor”. Similarly, over 90% of students ranked lecturers/instructors’ regularity to lectures as “excellent” or “very good”; and only 4% of the respondent rated it as only “fair” or “poor”. This is shown in the Table 4.

### **Research Question 4: How do students rate the services of lecturers?**

Nearly 40 percent of students ranked instructors’ sensitivity to their needs as students as “excellent” or “very good”; about 20 percent rated it as only “fair” or “poor”. More than half of the students rated instructors’ availability outside of class as “excellent” or “very good” and 14 percent as only “fair” or “poor”. About one-third of students thought instructors’ feedback on their work was “excellent” or “very good” and only 28 percent rated it as “fair” or “poor”.(Table 5)

### **Research Question 5: Do students in the various departments have the same satisfaction with services that the institutions provide for them?**

In order to answer this question, the following hypotheses were formulated

$H_0$  : There is no significant difference in the satisfaction with services that the institutions provide for students in the various Departments.

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$H_A$  : There is significant difference in the satisfaction with services that the institutions provide for students in the various Departments.

A chi-square analysis was performed to test these hypotheses. The results are shown in Table 6. The chi-square test results for the three variables: the time examination timetable is released ( $\chi^2=45.3$ ,  $p=.135$ ), the facilities in the examination hall ( $\chi^2=28.3$ ,  $p=0.123$ ) and the time end of semester examination results are released ( $\chi^2=34.1$ ,  $p=.237$ ) did not produce any significant differences among the corresponding response of the students in the various departments. The null hypothesis is therefore accepted. It is therefore concluded that students in all Departments have equal satisfaction that the institutions render to them.

### **Research Question 6: Do female and male students have the same satisfaction with the services that the institutions provide for them?**

In order to answer this question, the following hypotheses were formulated

$H_0$  : There is no significant difference in the satisfaction with the services that the institutions render between male and female students.

$H_A$  : There is no significant difference in the satisfaction with the services that the institutions render between male and female students.

A t -test analysis was performed to test these hypotheses. The results are shown in Table7. The t test results for the three variables: satisfaction with the time examination timetable is released ( $t = 65.3$   $p=0.28$ ), satisfaction with the facilities in the examination hall ( $t = 58.3$ ,  $p=0.24$ ) and satisfaction with the time end of semester examination results are released ( $t = 44.1$ ,  $p=0.17$ ) did not produce any significant differences among the corresponding response of the students in the various departments. The null hypothesis is therefore accepted. It is therefore concluded that male and female students have the same satisfaction with the services that the institutions render to them.

### **Research Question 7: Which academic support services significantly enhanced students' satisfaction?**

The regression model was used to analyse student satisfaction questionnaire to identify the support services which significantly enhanced students' satisfaction. Data in Table 8 was obtained using the regression model with the cloglog link. Results of the analysis show that satisfaction of students with the overall polytechnic experience was significantly enhanced by five academic support services. These support services are lecturers/instructors' sensitivity ( $p =0.02$ ), instructors' availability ( $p = 0.012$ ), instructors' feedback ( $p = 0.03$ ), support and advice received ( $p = 0.01$ ) and helpfulness of the library staff ( $p = 0.013$ ).

## **Findings and Discussion**

In general, there was positive feedback from respondents in relation to the quality of teaching in the Polytechnics with high levels of satisfaction expressed for all areas of the

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research. More specifically, the availability of teaching staff, their punctuality, regularity and reliability and the level of enthusiasm displayed are rated high by the student respondents. General comments offered by respondents concentrated largely on the quality of lecturers with an equal number of respondents recording both positive and negative comments in this regard. This suggests that not all lectures played the role of creating the pleasant environment to facilitate student satisfaction. Student Satisfaction is a central and very effective element in a process of continuous quality improvement. Staff must be convinced that Student Satisfaction is part of the continuous quality improvement process and not a vehicle for recrimination.

The survey also focused on library facilities and services provided in the Polytechnics. It is a credit to the library staff that their helpfulness is rated so highly in such a vital and frequently used learning resource. This is all the more noteworthy given some of the difficulties encountered by respondents. However, respondents expressed a high degree of dissatisfaction with regard to the availability of recommended course material, more specifically; that there were insufficient copies of such course books. The non-availability of books on the reading list needs to be investigated because it has a high importance score which indicates that it is one of the most important issues in library services. Again, the respondents were dissatisfied with the number of copies of core books, suggesting that this issue needs to be addressed with every effort being made to provide additional copies for students.

The main issue among students was that, some of the libraries are not very big, in particular, that there were not enough library seats available to satisfy student demand at peak times throughout the academic year. This might have accounted for the low number of respondents who visited the library daily. Students also highlighted the issue of the library opening hours and expressed some dissatisfaction with the existing arrangements. This suggests that the library opening times are an area for future consideration. The research findings also indicated that explanatory variables such as staff sensitivity, availability feedback to students and student-staff relations were significantly associated with the satisfaction of the overall polytechnic experience. This finding suggests that Lecturers/Instructors played a major role in creating a pleasant environment to facilitate student satisfaction.

## **Conclusion**

The majority of student respondents seemed to be satisfied with the polytechnic programmes and services regardless of gender and department. The research findings also indicated that explanatory variables such as staff sensitivity, availability feedback to students and student-staff relations were significantly associated with the satisfaction of the overall polytechnic experience. This finding suggests that Lecturers/Instructors played a major role in creating a pleasant environment to facilitate student satisfaction. However, they expressed low satisfaction about the non-availability of books on their reading list in the library, lack of reading space in the library, late arrangement for examinations, and late release of examination results.

## **Recommendation**

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The following recommendations have been made for the attention of departments and the intervention of management.

1. Suitable action plans are to be developed to address issues that give cause for respondents' low satisfaction. Areas that are important to students but where students are dissatisfied, are priority areas for management intervention
2. There is the need to conduct a comprehensive survey to cover all aspects of the polytechnic. For example health, counselling, sports, administration among others. This could be done every year or two so that comparison (trend analysis) over the years can be made.

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**Tables**

**Table 1: Sample for the Survey**

DEPARTMENT	SEX		Total
	Male	Female	
Statistics	48	12	<b>60</b>
Accountancy	210	150	<b>360</b>
Purchasing	180	120	<b>300</b>
Marketing	192	132	<b>324</b>
Total	630	414	<b>1044</b>

**Table 2: Students' Satisfaction with Teaching, Learning and Assessment**

Item	Satisfied-Very Satisfied(%)	Mid-Range (%)	Dissatisfied-Very Dissatisfied (%)
Quality of teaching	83.7(874)	9.1(95)	7.2(75)
Assessment arrangements	53.1(554)	34.0(355)	12.9(135)
Extent to which the programme develops knowledge and skills	71.0(742)	23.7(247)	5.3(55)
General course organisation and management.	50.1(523)	31.0(324)	18.9(197)
Support and advice received	57.4(599)	30.8(322)	11.8(123)
Learning resources	50.3(525)	19.3(201)	30.4(317)

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Time examination timetable is released.	43.7(456)	2.1(22)	54.2(566)
Facilities in the examination hall.	65.2(681)	18.2(190)	16.6(173)
Time end of semester examination results are released.	5.9(61)	2.0(21)	92.1(962)
Overall quality of the programme	68.0(710)	25.9(270)	6.1(64)

**Table 3A: Students' Satisfaction with Library Services**

Item	Satisfied - Very Satisfied(%)	Mid-Range(%)	Dissatisfied - Very Dissatisfied(%)
Library opening hours	70.4(735)	17.8(186)	11.8(123)
Helpfulness of the library staff	75.2(785)	19.1(199)	5.7(60)
Availability of books on your reading list	28.7(302)	28.0(292)	43.1(450)
Availability of journals in your subject area	35.9(375)	35.9(375)	28.2(294)
Provision of study space	19.2(200)	49.6(528)	31.2(3260)
Training in using library resources	43.3(452)	36.2(378)	20.5(214)
Availability of photocopying machines	42.3(442)	29.6(309)	28.1(293)

**Table 3B: Importance of Library Services to Students**

Item	Important- Very Important(%)	Mid-Range(%)	Important - Not Important at all(%)
Library opening hours	87.5	6.8	5.7
Helpfulness of the library staff	94.8	1.8	3.4
Availability of books on your reading list	95.9	2.2	1.9
Availability of journals in your subject area	49.6	31.2	19.2

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Provision of study space	43.3	36.2	20.5
Training in using library resources	49.6	19.2	31.2
Availability of photocopying machines	42.3	29.6	28.1

**Table 4: Lecturers/Instructors' Punctuality/Regularity to Lectures**

Item	Excellent	Very good	Good	Fair	Poor
Punctuality	8.7	71.4	13.6	6.1	1.2
Regularity	10.3	81.4	4.0	2.9	1.4

**Table 5: Lecturers/Instructors' Sensitivity, Availability and Feedback**

Item	Excellent	Very good	Good	Fair	Poor
Sensitivity	8.0	31.4	40.8	16.8	2.9
Availability	15.0	38.1	32.9	11.9	2.0
Feedback	8.5	25.2	38.3	21.3	6.6

**Table 6: Comparison of Satisfaction with Services among Students in the Various Departments**

STATEMENT	Accountancy		Marketing		Purchasing		Statistics	
	Sat	Dissat	Sat	Dissat	Sat	Dissat	Sat	Dissat
Release of examination timetable( $\chi^2=45.3$ p=.135)	40.1	59.9	41.4	58.6	46.7	53.3	49.7	50.3

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Facilities in the examination hall ( $\chi^2=28.3$ , p=0.123)	58.3	41.7	88.4	21.6	82.2	17.8	73.3	26.7
Release of end of Sem exam results ( $\chi^2=34.1$ , p=.237)	10.0	90.0	5.2	94.8	0.0	100.0	6.7	93.3

**Table 7: Comparison of Satisfaction with Services of Male and Female Students in the Various Departments**

STATEMENT	Male		Female		p- value
	Sat	Dissat	Sat	Dissat	
Satisfaction with the time examination timetable is released	45.8	54.2	43.6	56.4	0.28
Satisfaction with facilities in the examination hall	72.9	27.1	61.5	38.5	0.24
Satisfaction with the time end of semester examination results are released	8.3	91.7	0.0	100.0	0.17



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