



## INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT AND MANAGEMENT

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## PERCEIVED QUALITY OF SERVICES RENDERED BY UNIVERSITY LIBRARY: A CASE STUDY OF PANJAB UNIVERSITY MAIN LIBRARY, CHANDIGARH, INDIA

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### ABSTRACT

*This study aimed at exploring, analyzing, and measuring the perceived service quality of the Panjab University (PU) main library, as well as to identify the dimensions that determine the customers' evaluation of service quality. Moreover, the relationship between service quality, customer satisfaction and positive word of mouth was examined. A total of 80 (out of 100 sample) main library users responded the SERVQUAL instrument. After frequency, descriptive, Pearson's correlation, factor analysis, and Cronbach's alpha was tested the paired t-test, one-way ANOVA, independent sample t-test, and multivariate regression was employed for hypothesis testing. Its finding revealed the expectation of library users was not met and that the largest gap was found in the empathy. Assurance dimension also had the largest influence on customer satisfaction and overall satisfaction of library customers had a positive effect on their word-of-mouth. Besides, the study revealed almost non-existence of significant mean differences on expectations, perceptions, and rating of the most or least important dimension among the user groups (age, gender, education, and occupation). The study also suggested input from library customers and employees on what constitutes "service excellence" will be useful. The library need to reassess "what customers expect from the library" and provide client specific services. It needs to invest on employee training programs that will provide employees with an understanding of service culture and service excellence-particularly at front line levels. Employee training programs should focus on interpersonal communication and customer care factors in order to be able to meet the customers' need for personalized service (because empathy is all about human interaction). There were some limitations, to mention few, in conducting the survey: the questionnaire was targeting only 100 main library users (80 responded), and customer expectation and perception explored at the same time with no interval. Thus, the study must be considered as explorative rather than conclusive. Finally, future research could be conducted on the library's service quality and customer satisfaction by (1) taking greater sample size and (2) collecting data at reasonable intervals: first about their expectations and later about their perceptions of the same sample respondents.*

### KEYWORDS

Expectations, Library, Perceptions, Quality, SERVQUAL.

### INTRODUCTION

It is an era of accountability for research libraries housed on university campuses confronting funding cutbacks and increased competition to recruit and retain tuition-paying students. Libraries have been starting introducing an entrepreneurial approach to library management to ensure value for money, who ever finances the library. It can be financed by government, students and other patron's fee, or grants. But it has to discharge its responsibilities that the service financed is quality. Nitecki (1996b) said that every unit is valued in proportion to its contribution to the quality success of the campus.

Thompson and Cook (2000) described that the traditional evaluation criteria of the Association for Research Libraries (ARL) emphasized objective descriptions of collection sizes and their special features. Such evaluations include rankings and comparisons to peer institutions based on tangible measures such as budgets and collection size. The ARL annual statistics are designed to meet this traditional evaluation approach (Franklin & Nitecki, 1999). The variables that comprise the ARL Membership Index score are input measures: number of volumes held; number of volumes added; number of current serials; total library expenditures; and number of library staff. By implication, a higher rank on these performance indicators suggests a better quality of library. These input measures do not assess how well user needs are met.

However, recently there has been increasing pressure on libraries to assess the degree to which their services demonstrate criteria of quality as perceived by customers. Herson and McClure (1990) explained that the emphasis on these measures and services provided to library clientele requires librarians not to equate quality merely with collection size. Nitecki (1996b) also noted that a measure of library quality based solely on collections has become obsolete. The impact of the library must be measured in terms of the user's interaction with the library's resources and its services. A critical judge of the impact is the user.

Gronroos (1984) argued that service quality was composed of technical quality and functional quality. Technical quality is an objective assessment of what the customer receives from the service organization, and it concerns the outcome or content delivered through the service (for instance, materials in a collection). Functional quality, on the other hand, is a subjective measure of how the customer perceives the actual service delivered, and takes the measure of the process of service delivery. Gronroos puts a larger emphasis on this quality, contending that functional quality is more important to the perceived service than the technical quality, at least as long as the latter quality dimension is on the satisfactory level.

Thus, researchers have turned to the marketing literature for a measurement model that can be used for library service quality. The Parasuraman, Zeithaml and Berry's SERVQUAL model, which includes 22 items measuring perceptions of tangibles, reliability, responsiveness, assurance and empathy, has been used for this purpose. With in this model, it is only the customer judge the quality of library service. They defined service quality in terms of reducing the gap between customers' expectations for excellent service and their perceptions of actual services delivered.

Nagata et al. (2004) discussed that SERVQUAL has been evolved since 1985 - 1994 from 10 dimensions with 97 questionnaire items to 7 dimensions with 34 questionnaire items and then to its current status of 5 dimensions with 22 questionnaire items. SERVQUAL with five dimensions and its corresponding 22 items captures facets of all ten originally conceptualized dimensions" (Zeithaml, Parasuraman, & Berry, 1990), and could be widely utilized in any industry with only minor modifications (Parasuraman, Berry, & Zeithaml, 1991a). There is a need, therefore, to take the attributes unique to the university library service into consideration in the assessment of its quality.

Definitions of the dimensions are as follows (Zeithaml et al., 1990):

- 1) Tangibles are the appearance of physical facilities, equipment, personnel, and communication materials.
- 2) Reliability is the ability to perform service dependably and accurately.
- 3) Responsiveness is the willingness to help customers and provide prompt service.
- 4) Assurance is the knowledge and courtesy of employees and their ability to convey trust and confidence.
- 5) Empathy is the caring, individualized attention the institution provides its customers.

### SERVQUAL MODEL

Nitecki (1996b) claimed that SERVQUAL is a mechanism to shift the assessment of quality of a library from the traditions of measuring collection size and counting incidents of its uses, to begin investigating how the provision of services relates to the library users' service quality expectations. SERVQUAL has been used in various service industries, including academic, public, and special libraries (Herson, 2002). It is important for libraries to know how well their performance by getting feedback from users because it is the factor for libraries to succeed in service performance.

Only the user can judge quality, but on what criteria he/she judges it, or which aspect he/she values had not been made clear. The SERVQUAL instrument, designed by Parasuraman, Zeithaml and Berry (1985), has been playing a central role in the evaluation of service quality in marketing research and practice. Assessment of service quality has been an active topic of research since the pioneering work of Parasuraman et al. They identified five universally important dimensions of service quality: reliability, assurance, tangibles, empathy, and responsiveness. They developed the SERVQUAL instrument to measure customer assessment of service quality.

The SERVQUAL instrument is a questionnaire that consists of 22 pairs of statements. The first set of these statements measures the library user's expectations by asking each respondent to rate, on a 7-point scale, how essential each item is for an excellent library. The second set of 22 statement measures the respondent's perceptions of level of service given. The differences between the ratings for each statement are averaged to calculate the SERVQUAL score, an indicator of the library service's quality as perceived by its users. In addition, the questionnaire includes a section in which participants were asked to allocate 100 points among descriptions of the five dimensions to indicate how important each is when they evaluate the quality of a library's service. A set of overall and comparative service quality questions and a set of demographic questions are included on most adaptations of the SERVQUAL to library settings.

## LITERATURE REVIEW ON LIBRARY SERVQUAL

From applications in a variety of service settings, Parasuraman et al. identified that reliability consistently ranks as most important to the delivery of service quality and tangibles as least important (Franklin & Nitecki, 1999). The research results from Nitecki's doctoral dissertation shown that among the five dimensions of SERVQUAL, the users rated reliability was most important and tangibles was least important. This finding is parallel to those of Srisa-ard's, Abdallah's as well as Ford's which found that the users reported the high expectation on reliability. On the contrary, the findings from the research project of Seay, Seaman and Cohen was shown that tangibles and reliability were the key concerns of library patrons. In sum, most findings reflected that reliability is the most important quality in evaluating library services that is similar to the result which the Parasuraman et al. proposed (as cited by Nimsomboon & Nagata, 2003).

In their study on "the dimensions that construct the evaluation of service quality in academic libraries", Nagata et al. (2004) found that the ranking of desired expectations in the four universities indicated three items with the highest total mean scores: availability of required information, providing services as promised, and library staff with the knowledge to answer users' questions were ranked within the top ten in all universities, showing no large variations. The items that were ranked differently depending on universities were space that enables quiet study, timely document delivery, assuring users of the accuracy and confidentiality of their personal information/data, willingness to help users, and modern equipment.

White (1998), in service quality survey at the University of Virginia Library, found the following results:

1. For Alderman Library Reference and Information Services, nine items were identified as the high importance/high rating: Assurance (staff who are consistently courteous and staff who have the knowledge to answer my questions); Responsiveness (providing service at the promised time, willingness to help me, readiness to respond to my questions, and offering appropriate services and resources); Reliability (providing the service promised and dependability of staff in handling my service problems); and Tangibles (modern equipment). On the contrary, three items identified as the high importance/low rating: Reliability (maintaining error-free circulation records and equipment that functions well) and Empathy (convenient hours of operation).

2. For Fiske Kimball Fine Arts Library, seven items were identified as the high importance/high rating: Assurance (staff who are consistently courteous); Responsiveness (providing service at the promised time, willingness to help me, readiness to respond to my questions, and offering appropriate services and resources); Reliability (providing services as promised); and Tangibles (modern equipment). On the contrary, five items identified as the high importance/low rating: Reliability (maintaining error-free circulation records, equipment that functions well, and signs and space arrangements that function well); Assurance (staff who have the knowledge to answer my questions); and Empathy (convenient hours of operation).

The findings of Nimsomboon and Nagata (2003) on "the assessment of library service quality at Thammasat University library system" were summarized as follows. On most of the SERVQUAL statements, user expectations for service quality lagged behind user expectations of actual service quality. When looking at the size of the expectation-perception gaps, faculty members appeared to desire improvements in the updating of equipment and in the promptness, sincerity, knowledge-ability, and degree of understanding with which staff assist users. Graduate students had the same concerns, though they were generally more critical of the library in terms of the number of SERVQUAL statements for which mean expectation rating exceeded mean perception ratings. Unlike the faculty, students indicated that their expectations for physical facilities, the visual appearance of library materials, the neatness of employees, operating hours and the personal attention staff give to users were not met. Among 5 dimensions of service quality, the findings suggested that the library users place a premium on the non-tangible aspects of service, particularly reliability and responsiveness.

## OBJECTIVE AND SIGNIFICANCE

This study aimed at assessing and measuring the library service quality perception of users; to examine the relationship between service quality, user satisfaction and positive word of mouth; and some useful recommendations were presented to improve service quality and become more users centric. Besides, the study is significant that it contributes to the existing literature and suggests further study areas.

## RESEARCH HYPOTHESES

H1: There are no significant mean differences between expectations and perceptions of library users regarding the tangibles, reliability, responsiveness, and empathy and assurance dimensions of service quality.

H2: There are no significant mean differences on expectations in terms of the tangibles, reliability, responsiveness, empathy and assurance among user groups (i.e., age, gender, education, and occupation).

H3: There are no significant mean differences on perceptions in terms of the tangibles, reliability, responsiveness, empathy and assurance among user groups (i.e., age, gender, education, and occupation).

H4: There is no positive significant impact of service quality dimensions on over all users' satisfaction.

H5: There is no positive significant impact of library user satisfaction on users' positive word of mouth about the library.

H6: There is no significant mean difference on the rating of importance of the tangibles, reliability, responsiveness, assurance and empathy dimensions of service quality among user groups.

## METHODOLOGY

The aim of this research was to explore the PU main library users' service quality perceptions, expectations and satisfaction. It was an exploratory research employing quantitative analysis. Questionnaires were distributed to samples of 100 (80 responded) respondents who are regular users of the library service selected using non-probability convenience sampling. The SERVQUAL questionnaire as proposed by Parasuraman et al. (1988) was employed to collect data. Data were collected on the first – second week of February 2011. These data have been analyzed using the Pearson's correlation matrix, t-test, ANOVA (f-test) and multiple regressions in order to test the aforementioned hypothesis. A pilot test was conducted with 10 willing respondents who were selected on a convenience basis and who were voluntary to take their precious time to evaluate the questionnaire and forward their constructive comments for further refinement if there was any kind of problem with regards to wording, expressions and clarity of the questions.

The SERVQUAL questionnaire used in this study comprises of five parts: Part A and Part B include expectations (E) and perceptions (P), respectively, of respondents according to five dimensions. These dimensions are tangibles, reliability, responsiveness, assurance and empathy. A seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7) was used to measure the 22 items; and Part C contains two items that measure the dependent variables of the

study as proposed by White (1998); namely degree of overall satisfaction and degree of recommendation of the library to others. Each of these variables was measured by a single item because of their ready interpretability and clear definition. A seven-point Likert scale ranging from (1= very bad) to (7= very good) was used to measure the two variables. Part D contains allocation of 100% among the five dimensions in terms of importance and, finally, Part E contains questions about personal profiles of the respondents including gender, educational level, age, and occupation.

Expectations and perceptions were given for each item. P (perceptions) - E (expectations) was also used to find gap scores because service quality depends on perceived performance in delivery value relative to users' expectations. If  $E > P$ ; the user is dissatisfied and if  $E < P$  the user is satisfied (Kotler & Armstrong, 1999; Parasuraman, 1998; Parasuraman et al., 1991a).

## SCOPE AND LIMITATION

The study was targeting only the patrons on the first - second week of February 2011. The researcher had time and resource constraints which limited the potential sample size and the target group. Besides, data on expectations and perceptions was filled at the same time rather than at different intervals due to the already mentioned time constraint. This research finding provides only a glimpse of the users' library service satisfaction, not used for generalization. Hence, future research could be conducted on the library's service quality and customer satisfaction by (1) taking greater sample size and (2) collecting data at reasonable intervals: first about their expectations and later about their perceptions of the same sample respondents.

## RESEARCH FINDINGS AND DISCUSSIONS

### DEMOGRAPHIC VARIABLES

Out of the total sample size of 100 participants, only 80 respondents responded (i.e., the response rate is 80%); 2 (50 and above), 33 (41-50), 17 (31- 40), and 28 of them were at the age of between 21-30 years; 43 of the respondents were male and 37 of them female; educational background of the respondents was 31 (PhDs) and 49 (post graduates); 6 of the respondents were office workers, 17 professors and 57 of them students.

The study indicated insignificant number of respondents rated some of the 22-items below 4 thus resulting in higher customer expectation. There were also high mean scores (i.e., 6.2625 – 6.6250 in a 7-rating scale) and low variance. In this case it would be possible to have low rating of overall satisfaction as well as word of mouth to recommend the library to others unless there is a corresponding high customer perception. However, there was low rating of perception below 4 in a 7-rating scale. This leads to the low mean scores that is lower than 5 for all the five quality dimensions. There were also significant variances as compared to the low variances in the case of expectation. The significant discrepancy between expectation and perception result in the relatively lower overall satisfaction and recommendation to others. The variance among respondents was also relatively high for recommendation than over all satisfaction.

### PRE-ANALYSIS TESTING (Validity and Reliability Testing)

The Pearson correlation indicated significant positive correlation among the five service quality dimensions. A change in either of the dimensions will have a significant change on the others. Besides, over all satisfaction (Q10S) had significant positive correlation with assurance (0.830), tangible (0.794), empathy (0.788), reliability (0.770) and responsiveness (0.673) respectively at  $p < 0.001$ . Overall satisfaction had strong positive correlation with assurance and had relatively low positive correlation with responsiveness. It also had significant positive correlation with customers' recommendation to others (Q1R) (0.841), i.e., the more customers are satisfied, the more they will have positive word of mouth and are inclined to recommend the library to others. Customers' recommendation to others had relatively significant positive correlation with reliability (0.878) and tangible (0.825). It means any positive improvement on reliability and tangibility of the library service will have a more positive word of mouth towards the library (**Annexure I**).

### FACTOR ANALYSIS (Expectation)

Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. However, in this study, the factor analysis is used to make pre analysis testing in order to check for adequacy of sample and validity of the data for further statistical analysis.

Pre-analysis testing for the suitability of the entire sample for factor analysis was computed as recommended by Comrey (1978). The study showed that Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.715 and the Bartlett tests of sphericity was significant at  $p < 0.001$ . As Bedi (2004) stated, KMO larger than 0.6 is appropriate for factor analysis.

As the Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicated, KMO equals to 0.715 which is adequate to conduct statistical analysis; because 0.60 is the cut-off point. The KMO value increases with an increase in sample size (Thompson & Cook, 2000). Besides, the Bartlett's test of Sphericity was significant at  $p < 0.001$ .

### Reliability Measures: Cronbach's alpha [the 22-item customer expectations]

Reliability analysis allows studying the properties of measurement scales and the items that make them up. The Reliability Analysis procedure calculates a number of commonly used measures of scale reliability and also provides information about the relationships between individual items in the scale. Intraclass correlation coefficients can be used to compute interrater reliability estimates. Alpha (Cronbach) is a model of internal consistency, based on the average inter-item correlation.

### RELIABILITY ANALYSIS – SCALE (ALPHA)

Reliability Coefficients

N of Cases = 80.0

N of Items = 22

Alpha = .8831

The above result indicates alpha for the total scale (the 22-item customer expectation) measure is 0.8831. According to Sekaran (2005), the closer the reliability coefficient gets to 1.0, the better. Reliabilities less than 0.60 are considered to be poor, those in the 0.7 range are acceptable and those over 0.8 are good. Thus, the internal consistency reliability of the measures used in this study was good. The alpha reliability coefficient on dimension-by-dimension indicated tangibles and reliability measures were found to be poor; and responsiveness, assurance and empathy are found to be acceptable according to Sekaran's analysis (Tangibles 0.5619; Reliability 0.5884; Responsiveness 0.6929; Assurance 0.7452; and Empathy 0.7440).

### FACTOR ANALYSIS (Perception)

As the Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicated, KMO equals to 0.791 which is almost low though it is adequate to conduct statistical analysis; because 0.60 is the cut-off point. However, the KMO value increases with an increase in sample size (Thompson & Cook, 2000). Besides, the Bartlett's test of Sphericity was significant at  $p < 0.001$ .

### Reliability Measures: Cronbach's alpha [the 22-item customer perceptions]

### RELIABILITY ANALYSIS – SCALE (ALPHA)

Reliability Coefficients

N of Cases = 80

N of Items = 22

Alpha = .9404

This result indicates alpha for the 22-item customer perception measure is 0.9404. With the same logic as Sekaran said it above, the internal consistency/reliability of the measures used for customer perception is considered good. The alpha reliability coefficient on dimension-by-dimension indicated all the dimensions, except tangibles, were found to be good according to Sekaran's analysis (Tangibles 0.4903; Reliability 0.7611; Responsiveness 0.8770; Assurance 0.7421; and Empathy 0.8320).



**HYPOTHESIS TESTING**

The factor analysis and reliability testing are pre-analysis testing requirements:

1. The Kaiser-Meyer-Olkin measure of sampling adequacy is 0.715 (Expectation) and 0.791 (Perception) which is above the cut-off point (0.60) and the Bartlett test of sphericity is significant at  $p < 0.001$ .
  2. The over all reliability testing of expectation (0.8831) and perception (0.9404) is good, i.e., above 0.80 alpha,
  3. The reliability testing of all service quality dimensions of perception items is good (except for tangible, i.e., 0.4903 alpha); and tangibles and reliability measures are poor, and responsiveness, assurance and empathy are found to be acceptable in the case of expectations,
- The above factor analysis and the reliability test proved goodness of the data for further statistical analysis. Thus, the formulated six hypotheses were tested subsequently.

**H1: There are no significant mean differences between expectations and perceptions of library customers regarding the tangibles, reliability, responsiveness, and empathy and assurance dimensions of service quality.**

A paired t-test was used to determine if there is any significant mean difference between expectations and perceptions. On all the five dimensions at the 95% confidence level, there is a significant mean difference between what the customers expect from an excellent library and their perceptions of the services offered at the PU main library. The difference between expectation and perception for each item in each dimension, each dimension, and the total shows there is significant mean difference between expectation and perception ( $t$ -statistic at  $p < 0.001$ ). The PU main library fails to meet service quality expectations.

The mean differences between expectation and perception (E-P) indicated the order of importance of the service quality dimensions as empathy (2.3425), reliability (2.2700), assurance (2.1594), tangibles (1.8281), and responsiveness (1.8031), respectively. Therefore, the hypothesis is rejected for it is not statistically hold up (Annexure II).

**H2: There are no significant mean differences of expectations in terms of the tangibles, reliability, responsiveness, empathy and assurance among customer groups (i.e., age, gender, education, and occupation).**

The one-way ANOVA test indicated:

1. Significant mean difference among the age group of respondents at  $p < 0.05$  for tangibles and responsiveness; however there was no significant mean difference among these group of respondents for reliability, assurance, and empathy because their significance value of the statistic was above  $p < 0.10$  (Annexure III).
2. Significant mean difference among the education group of respondents at  $p < 0.05$  for assurance and at  $p < 0.10$  for empathy; however there was no significant mean difference among these group of respondents for tangibles, reliability, and responsiveness because their significance value of the statistic was above  $p < 0.10$  (Annexure IV).
3. No significant mean difference among the occupation group of respondents for all the five quality dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) because their significance value of the statistic was above  $p < 0.10$  (Annexure V).

The Levene's test indicated not equal variance is assumed for tangible because the significance value of the statistic was below  $p < 0.05$ ; and equal variance is assumed for reliability, responsiveness, assurance, and empathy since the significance value of the statistic was above  $p < 0.05$ . Therefore, the t-test for equality of means showed significant mean difference only in tangibles at  $p < 0.05$ ; and no significant mean difference in reliability, responsiveness, assurance and empathy among the gender respondent groups because the significance value of the statistic was above  $p < 0.05$  (Annexure VI).

In summary, the statistical measures (ANOVA and t-test) by and large revealed the non existence of significant mean differences of expectations in terms of the tangibles, reliability, responsiveness, empathy and assurance among the customer groups (i.e., age, gender, education, and occupation). Therefore, the hypothesis is accepted for it is statistically substantiated.

**H3: There are no significant mean differences of perceptions in terms of the tangibles, reliability, responsiveness, empathy and assurance among customer groups (i.e., age, gender, education, and occupation).**

The one-way ANOVA test indicated:

1. No significant mean difference among the age group of respondents for all the five quality dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) because their significance value of the statistic was above  $p < 0.10$  (Annexure VII).
2. No significant mean difference among the education group of respondents for all the five quality dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) because their significance value of the statistic was above  $p < 0.10$  (Annexure VIII).
3. Significant mean difference among the occupation group of respondents in empathy at  $p < 0.05$  and assurance at  $p < 0.10$ . However, there was no significant mean difference in tangible, reliability, and responsiveness among these groups of respondents because their significance value was above  $p < 0.10$  (Annexure IX).

The Levene's test indicated not equal variance is assumed for reliability because the significance value of the statistic was below  $p < 0.05$ ; and equal variance is assumed for tangible, responsiveness, assurance, and empathy for the value of the statistic was above  $p < 0.05$ . The t-test for equality of means portrayed no significant mean difference in all the five dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) among the gender respondent groups because the significance value of the statistic was above  $p < 0.05$  (Annexure X).

In general, the statistical measures (ANOVA and t-test) confirmed almost the non existence of significant mean differences of perceptions in terms of the tangibles, reliability, responsiveness, and empathy and assurance among the customer groups (i.e., age, gender, education, and occupation). Therefore, the hypothesis is accepted for it is statistically validated.

**H4: There is no positive significant impact of service quality dimensions on overall customers' satisfaction. (Perception)**

$$S = \alpha + \beta_1 (T) + \beta_2 (RI) + \beta_3 (Rs) + \beta_4 (A) + \beta_5 (E) + e_t$$

Where S = overall satisfaction;  $\alpha$  = Constant;  $\beta_i$  = Coefficient of the dimensions of quality; T = Tangible; RI = Reliability; Rs = Responsiveness; A= Assurance; E = Empathy;  $e_t$  = Error term

**STEP WISE LINEAR REGRESSION ANALYSIS (Multicollinearity Testing)**

**TABLE 1: VARIABLES ENTERED/REMOVED**

Model	Variables Entered	Variables Removed	Method
1	TOTPERAS	.	Stepwise (Criteria: Probability-of-F-to-enter $\leq$ .050, Probability-of-F-to-remove $\geq$ .100).
2	TOTPERTA	.	Stepwise (Criteria: Probability-of-F-to-enter $\leq$ .050, Probability-of-F-to-remove $\geq$ .100).
3	TOTPERRS	.	Stepwise (Criteria: Probability-of-F-to-enter $\leq$ .050, Probability-of-F-to-remove $\geq$ .100).
4	TOTPEREM	.	Stepwise (Criteria: Probability-of-F-to-enter $\leq$ .050, Probability-of-F-to-remove $\geq$ .100).

a. Dependent Variable: Q10S

**TABLE 2: MODEL SUMMARY (e)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.830(a)	.689	.685	.480
2	.863(b)	.744	.737	.438
3	.874(c)	.763	.754	.424
4	.883(d)	.779	.767	.412

- a. Predictors: (Constant), TOTPERAS
- b. Predictors: (Constant), TOTPERAS, TOTPERTA
- c. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS
- d. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS, TOTPEREM
- e. Dependent Variable: Q1OS

The R (0.883) in the final model 4 above (Table 2) is the correlation of the four independent variables identified as predictors, i.e., assurance, tangible, responsiveness, and empathy with the dependent variable Q1OS (i.e., the overall satisfaction), after the step wise linear regression analysis. Besides, the R<sup>2</sup> (0.779), which is the explained variance, is actually the square of the multiple R (0.883)<sup>2</sup>. It means nearly 78% of the variance (R<sup>2</sup>) in the overall satisfaction has been significantly explained by these four independent quality dimensions, i.e., only about 22% variances are explained by other factors that have not been considered in this study.

TABLE 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.722	1	39.722	172.462	.000(a)
	Residual	17.965	78	.230		
	Total	57.688	79			
2	Regression	42.917	2	21.459	111.868	.000(b)
	Residual	14.770	77	.192		
	Total	57.688	79			
3	Regression	44.029	3	14.676	81.666	.000(c)
	Residual	13.658	76	.180		
	Total	57.688	79			
4	Regression	44.945	4	11.236	66.132	.000(d)
	Residual	12.743	75	.170		
	Total	57.688	79			

- a. Predictors: (Constant), TOTPERAS
- b. Predictors: (Constant), TOTPERAS, TOTPERTA
- c. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS
- d. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS, TOTPEREM
- e. Dependent Variable: Q1OS

The ANOVA table above shows the F value of 66.132 is significant at p < 0.001 level. This significant F value signifies the R<sup>2</sup> (0.779) is a significant positive impact of the four service quality dimensions that are identified as predictors (assurance, tangible, responsiveness, and empathy) on the over all customers' satisfaction; they represent nearly 78% of the variance. Thus, H<sub>3</sub> is rejected.

The coefficients in Table 4 below helps see which among the four independent variables identified as predictors influences most the variance in the over all satisfaction (i.e., the most important). From the standardized coefficient beta, the highest number in the beta is 0.584 for assurance, which is the significant predictor at p < 0.001. Besides, the small tolerances show that 69% - 78% of the variance in a given predictor can be explained by the other predictors. Their tolerance value is significantly higher and their VIF value is lower than the cut-off point, VIF < 10. Therefore, the coefficients (a) table below shows no evidence of a multicollinearity problem.

TABLE 4: COEFFICIENTS (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.680	.291		2.334	.022		
	TOTPERAS	.210	.016	.830	13.132	.000	1.000	1.000
2	(Constant)	.263	.285		.924	.358		
	TOTPERAS	.136	.023	.537	5.835	.000	.393	2.547
	TOTPERTA	.098	.024	.376	4.081	.000	.393	2.547
3	(Constant)	.228	.276		.827	.411		
	TOTPERAS	.176	.028	.694	6.358	.000	.261	3.825
	TOTPERTA	.123	.025	.469	4.851	.000	.334	2.996
	TOTPERRS	-.061	.025	-.274	-2.487	.015	.256	3.907
4	(Constant)	.329	.272		1.212	.229		
	TOTPERAS	.148	.029	.584	5.020	.000	.218	4.591
	TOTPERTA	.099	.027	.378	3.710	.000	.284	3.518
	TOTPERRS	-.061	.024	-.274	-2.554	.013	.256	3.907
	TOTPEREM	.040	.017	.228	2.321	.023	.306	3.264

- a. Dependent Variable: Q1OS

TABLE 5: COLLINEARITY DIAGNOSTICS

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	TOTPERAS	TOTPERTA	TOTPERRS	TOTPEREM
1	1	1.983	1.000	.01	.01			
	2	.017	10.759	.99	.99			
2	1	2.973	1.000	.00	.00	.00		
	2	.020	12.227	.99	.13	.09		
	3	.007	20.160	.00	.87	.91		
3	1	3.962	1.000	.00	.00	.00	.00	
	2	.024	12.727	.87	.02	.01	.09	
	3	.008	22.329	.08	.08	.98	.25	
4	1	.006	25.490	.05	.89	.01	.66	
	2	.029	13.083	.72	.00	.00	.02	.12
	3	.013	19.188	.08	.02	.00	.37	.57
	4	.008	25.608	.06	.19	.91	.02	.06
5	1	.005	30.688	.14	.79	.09	.59	.24
	2							

a. Dependent Variable: Q1OS

The model 4 in the collinearity diagnostics above (Table 5) confirms no significant evidence of multicollinearity problem among the four quality dimensions (assurance, tangible, responsiveness, and empathy) that are identified as the predictors of overall satisfaction since the condition index of all these dimensions is lower or equal to the 30 cut-off point and at least two variance proportions are lower than 0.50 (Arasli, Mehtap-Smadi, & Katircioglu, 2005).

Therefore, the step wise linear regression analysis proves service quality dimensions have significant impact on the overall customer satisfaction. The coefficient of determination, (i.e.,  $R^2$ ) indicates 78% of the variance in the overall satisfaction has been significantly explained by these four (assurance, tangible, responsiveness, and empathy) independent quality dimensions at  $p < 0.001$ . Therefore, the hypothesis is rejected for it is not statistically substantiated.

**H5: There is no a positive significant impact of overall customer satisfaction on customers' positive word of mouth about the library.**

$$PWM = \alpha + \beta_1(S) + e_t$$

Where PWM = Positive Word of Mouth

S = overall satisfaction

$\alpha$  = Constant

$\beta_1$  = Coefficient of the overall satisfaction

$e_t$  = Error term

TABLE 6: CORRELATIONS

		Q1OS	Q1R
Q1OS	Pearson Correlation	1	.841(**)
	Sig. (2-tailed)	.	.000
	N	80	80
Q1R	Pearson Correlation	.841(**)	1
	Sig. (2-tailed)	.000	.
	N	80	80

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

The correlation Table above spells the presence of positive significant impact of overall customer satisfaction (Q1OS) on customers' positive word of mouth (Q1R) about the PU main library. There is strong positive correlation between the two variables at  $p < 0.01$ , i.e., the coefficient of determination ( $R^2$ ) equals to nearly 0.71% (i.e.,  $0.841^2$ ). So, the hypothesis is rejected because it is not statistically proved.

**H6: There is no significant mean difference on the rating of importance of the tangibles, reliability, responsiveness, assurance and empathy dimensions of service quality among customer groups.**

The one-way ANOVA test indicated:

1. Significant mean difference among the rating of age group of respondents at  $p < 0.05$ , except for tangibles (R1) and empathy (R5) (Annexure XI).
2. No significant mean difference among the rating of education group of respondents, except for empathy (R5) at  $p < 0.10$  (Annexure XII).
3. No significant mean difference among the rating of occupation group of respondents, except for empathy (R5) at  $p < 0.05$  (Annexure XIII).

The Levene's test indicated equal variance is assumed for tangible (R1), reliability (R2), assurance (R4) and empathy (R5) dimensions because their significance value of the statistic was above  $p < 0.05$ ; and not equal variance is assumed for reliability (R2) because its significance value was below  $p < 0.001$ . Therefore, the t-test for equality of means showed no significant mean difference in all the five dimensions (Annexure XIV).

In general, the statistical measures (ANOVA and t-test) confirmed just about the non-existence of significant mean differences on the rating of importance of the tangibles, reliability, responsiveness, assurance and empathy among the customer groups (i.e., age, gender, education, and occupation). Therefore, the hypothesis is accepted for it is statistically substantiated.

Moreover, 93.8% of the respondents' ranked reliability as the most important dimension and 67.5% of respondents ranked tangible as the least important. Reliability was also rated first and tangible fifth based on the rating of importance out of 100%.

## CONCLUSION AND MANAGERIAL IMPLICATIONS

This study explored the quality expectation and perception of Panjab University (PU) main library customers, their overall satisfaction level, their tendency to recommend the bank to others and the differences in relative importance they attach to the various quality dimensions using the Parasuraman et al.'s SERVQUAL survey questions (i.e., the 22-items) with 7-scale adopted to the library service. Frequency and descriptive statistics was used to feel the data; validity and reliability tests were conducted using the Pearson's correlation matrix, factor analysis and Cronbach's alpha; paired t-test, independent t-test, and ANOVA were employed to test whether significant mean differences exist among the respondent groups (age, education, occupation, and gender); multiple regression analysis was applied to measure the impact of the five quality dimensions on the overall satisfaction; and Pearson's correlation was used to test the impact of the overall satisfaction on positive word of mouth about the bank

Gaps scores were calculated by subtracting perception scores from expectation scores. Highest positive gap means lower customer perception. Like most researches done on the library service such as White (1998) and Nagata (2003), this research finding indicated there is significant mean difference (gap) between customer expectation and perception. Their expectations were higher than their perceptions in all the five service quality dimensions. This may be a common tendency of human kind to wish for more than what we have. The difference ranges from 1.8031 to 2.3425. The largest discrepancies related to the empathy (2.3425), reliability (2.2700) and assurance (2.1594). The lowest score was for tangible (1.8281) and responsiveness (1.8031).

Defining the gap between what the customers expect in library service quality and the service quality they perceive have received was intended to assist the PU main library to uncover problem areas and prioritize in taking corrective measures. The discrepancy for individual items between their expectation and perception range from 1.09 to 3.00.

Out of the twelve relatively highest gaps (i.e.,  $\geq 2.00$ ) two of them are related to tangible ("has modern-looking equipments" and "physical facilities should be comfortable"); three of them are related to reliability ("when personnel promise to do something by a certain time, they should do so", "should have an appropriate collection of information resources for its customers", and "items such as books, copiers, and computers should be kept in good repair"); one of them is related to responsiveness ("returned materials should be promptly reshelfed for the use of other customers"); two of them are related to assurance ("personnel should be consistently courteous to customers" and "the behavior of personnel should instill customer confidence in services"); and four of them are related to empathy ("personnel should give customers personal attention", "insure that all customers have access to information resources", "personnel should have the customers' best interest at heart", and "personnel should understand the customer's specific information needs").

Two out of four items for tangible, three out of five for reliability, one out of four for responsiveness, two out of four for assurance, and four out of five for empathy falls in these twelve largest gaps. Thus, these results spelled out customer perception was relatively, significantly affected by empathy dimension.

The one-way ANOVA and independent t-test revealed just about the non-existence of significant mean differences of expectations as well as perceptions in terms of the tangibles, reliability, responsiveness, empathy, and assurance among customer groups (i.e., age, gender, education, and occupation). Such homogeneous expectation and perception among user group is rare unless the library has been regularly educating its users to have this kind of commonness. Usually differences originate from the very characteristics of services.

Service, ceteris paribus, is characterized by intangibility, heterogeneity, and inseparability. These attributes often lead to heterogeneous expectation as well as perception among user groups. Two users of the same library can have different service expectation because their expectation depends partly on their personal experience and exposure. Likewise, they can have different service perception of the same service at the same time and same place due to partly their different expectation. It is this heterogeneity that makes service delivery and management challenging. However, this rare occurrence (i.e., homogeneity of user groups)



should be checked on regular basis and it is to the advantage of the library if it can strive to create this type of homogeneity through posters, library events, workshops, etc. Homogeneity of service minimizes the burden to manage it.

Pearson's correlation showed there is significant positive correlation between the five service quality dimensions and over all customer satisfaction at  $p < 0.01$  level (2-tailed). It is also revealed that assurance (0.830) is the best predictor of quality followed by tangible (0.794), empathy (0.788), reliability (0.770), and responsiveness (0.673) respectively. Overall satisfaction has strong positive correlation with assurance and has relatively low positive correlation with responsiveness. It also has significant positive correlation with customers' recommendation to others (Q1R) (0.841), i.e., the more customers are satisfied, the more they will have positive word of mouth and are inclined to recommend the library to others.

The step-wise linear regression analysis has also identified four service quality dimensions as significant drivers of overall customer satisfaction. According to their standardized coefficient ( $\beta$ ), assurance (0.584) is identified as the first followed by tangible (0.378), responsiveness (-0.274) and empathy (0.228) at  $p < 0.001$  and  $p < 0.05$ , respectively. This coefficient indicates responsiveness has negative correlation. However, it is unusual. The Pearson's correlation matrix reveals responsiveness has significant positive correlation with the remaining quality dimensions and overall satisfaction. It is thus inconsistency.

In addition, Pearson's correlation disclosed the five quality dimensions as well as overall satisfaction have significant positive impact on the positive-word-of-mouth (PWM) that is propensity to recommend at  $p < 0.001$  level (2-tailed). Reliability (0.878) has strong positive correlation with PWM followed by overall satisfaction (0.841), tangible (0.825), assurance (0.805), empathy (0.726), and responsiveness (0.708) respectively. Any significant change in these five quality dimensions will profit overall customer satisfaction and positive word of mouth because they have strong correlation coefficient (comparatively reliability, tangible and assurance).

Overall respondents' rating of importance out of 100% showed reliability is ranked first and tangible as the fifth (i.e., last) as well as there is no significant mean difference among respondent groups (age, education, occupation, and gender) as depicted by the one-way ANOVA and independent t-test. Moreover, the respondents' choice of "most important" and "least important" dimension portrays reliability is chosen as the most important and tangible as the least important. Therefore, this finding is consistent with the earliest research undertaken by White (1998) that the reliability is ranked first and tangible is fourth.

Zeithaml et al. (1993) suggested that poor performance by service firms is primarily due to not knowing what their customers expect from them. This exploratory study portrays there is significant mean difference/gap between expectation and perception that implies respondents' perception falls below their expectation, i.e., they are less satisfied. This leads to say PU main library is less customer oriented.

India is on the eve to wage fierce competition from international universities that are expected to come in to the country in the near future owing to the General Agreement on Trade in Services (GATS). This agreement inevitably liberalizes the education sector and attracts foreign higher institutions. Besides, the government will be compelled to strictly follow an entrepreneurial approach in funding the domestic tertiary institutions, based on users' satisfaction. This is the present-day practice in Australian higher institutions. Updated, well equipped and staffed library service is one of the major prerequisites for an excellent university. Therefore, it is advisable for the PU's main library to regularly scrutinize it to check whether or not up to its users' expectation and global standard.

PU's main library needs to redefine its image to one that emphasizes service quality by introducing standards for service excellence. This can lend a hand to refurbish its appearance and portray a more modern-day image and meet the expectations of its customers as well as stay vigilant on counterparts move. This study has already identified above twelve significant mean score gaps between user expectation and perception. Among others, customers are looking for prompt reshelving; good repair of books, copiers and computers; error-free information; courteous; and understand customer's specific needs. However, nonstop assessment is compulsory to place the library services at the forefront.

Due to an interactive nature of employee-user relationship, including input from employees as well as users on what constitutes "service excellence" will be helpful. The library also needs to reassess "what customers expect" and provide user specific services. It needs to invest on employee training programs that will provide employees with an understanding of service culture and service excellence-particularly at front line levels. Employee training programs should focus on interpersonal communication and customer care factors in order to be able to meet the customers' need for personalized service.

Employees interacting with customers in a customer centric manner able to provide their service with empathy will be able to promptly recover service failures and also ensure the service delivered is consistent with the service promised. This will help to build profitable customer relationship which in turn results in high customer satisfaction, extend the zone of customer tolerance for service failures, increase recommendations about the library to others.

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ANNEXURES

ANNEXURE I: PEARSON CORRELATION MATRIX (for perception)

		Tangibility	Reliability	Responsive.	Assurance	Empathy	Q1OS	Q1R
Tangibility	Pearson Correlation	1	.827(**)	.785(**)	.779(**)	.776(**)	.794(**)	.825(**)
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	80	80	80	80	80	80	80
Reliability	Pearson Correlation	.827(**)	1	.741(**)	.813(**)	.678(**)	.770(**)	.878(**)
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000
	N	80	80	80	80	80	80	80
Responsiveness	Pearson Correlation	.785(**)	.741(**)	1	.836(**)	.717(**)	.673(**)	.708(**)
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	80	80	80	80	80	80	80
Assurance	Pearson Correlation	.779(**)	.813(**)	.836(**)	1	.794(**)	.830(**)	.805(**)
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
	N	80	80	80	80	80	80	80
Empathy	Pearson Correlation	.776(**)	.678(**)	.717(**)	.794(**)	1	.788(**)	.726(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	80	80	80	80	80	80	80
Q1OS	Pearson Correlation	.794(**)	.770(**)	.673(**)	.830(**)	.788(**)	1	.841(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000
	N	80	80	80	80	80	80	80
Q1R	Pearson Correlation	.825(**)	.878(**)	.708(**)	.805(**)	.726(**)	.841(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	80	80	80	80	80	80	80

\*\* Correlation is significant at the 0.001 level (2-tailed).

ANNEXURE II: EXPECTATION - PERCEPTION

	Variables and Items (Factors)	Grand Mean Score & Gap			Paired sample test at 95%	
		(E)	(P)	E - P	t-statistic	Sig. (2-tailed)
<b>I</b>	<b>Tangibles</b>	<b>6.2625</b>	<b>4.4344</b>	<b>1.8281</b>	<b>17.119</b>	<b>0.000*</b>
Q1	Library should have modern-looking equipment.	6.48	4.30	2.18	14.332	0.000*
Q2	The physical facilities should be comfortable.	6.73	4.01	2.72	19.335	0.000*
Q3	Personnel should be neat-appearing	5.76	4.43	1.33	6.596	0.000*
Q4	Library materials such as handouts and statements should be easy to understand.	6.09	5.00	1.09	3.904	0.000*
<b>II</b>	<b>Reliability</b>	<b>6.6200</b>	<b>4.3500</b>	<b>2.2700</b>	<b>20.506</b>	<b>0.000*</b>
Q5	When personnel promise to do something by a certain date, they should do so.	6.58	4.38	2.20	18.993	0.000*
Q6	Library should have an appropriate collection of information resources for its customers.	6.84	4.40	2.44	18.502	0.000*
Q7	Personnel should provide error-free information.	6.49	4.56	1.93	10.779	0.000*
Q8	Items such as books, copiers and computers should be kept in good repair.	6.83	3.83	3.00	17.394	0.000*
Q9	Library should always have sufficient personnel to assist customers	6.38	4.59	1.79	8.963	0.000*
<b>III</b>	<b>Responsiveness</b>	<b>6.3125</b>	<b>4.5094</b>	<b>1.8031</b>	<b>17.517</b>	<b>0.000*</b>
Q10	Returned materials should be promptly reshelved for the use of other customers.	6.71	4.24	2.47	24.228	0.000*
Q11	Personnel should provide prompt assistance to customers.	6.16	4.64	1.52	8.661	0.000*
Q12	Personnel should promptly credit customer records when materials are returned.	6.38	4.44	1.94	15.664	0.000*
Q13	Personnel should not appear aloof or too busy to assist customers.	6.00	4.72	1.28	7.685	0.000*
<b>IV</b>	<b>Assurance</b>	<b>6.6250</b>	<b>4.4656</b>	<b>2.1594</b>	<b>24.706</b>	<b>0.000*</b>
Q14	Personnel should have the skills and knowledge to provide information services.	6.50	4.96	1.54	11.163	0.000*
Q15	Customers should feel safe in using the facilities and information resources.	6.76	4.90	1.86	16.402	0.000*
Q16	Personnel should be consistently courteous to customers.	6.40	3.98	2.42	18.765	0.000*
Q17	The behavior of personnel should instill customer confidence in services.	6.84	4.03	2.81	21.110	0.000*
<b>V</b>	<b>Empathy</b>	<b>6.4775</b>	<b>4.1350</b>	<b>2.3425</b>	<b>23.632</b>	<b>0.000*</b>
Q18	Personnel should give customers personal attention.	6.64	3.88	2.76	19.225	0.000*
Q19	Library should have operating hours convenient to all their customers.	6.23	4.97	1.26	7.228	0.000*
Q20	Library should insure that all customers have access to information resources.	6.43	4.00	2.43	16.682	0.000*
Q21	Personnel should have the customer's best interest at heart.	6.35	3.76	2.59	22.801	0.000*
Q22	Personnel should understand the customer's specific information need.	6.75	4.06	2.69	19.408	0.000*
*	Total	6.4676	4.3665	2.1011	25.191	0.000*

E= Expectation; P= Perception; \* Significant mean difference at p < 0.001 (2-tailed)

**ANNEXURE III: ONE-WAY ANOVA [age]**

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	6.624	3	2.208	4.631	.005*
	Within Groups	36.238	76	.477		
	Total	42.862	79			
Reliability	Between Groups	.332	3	.111	.782	.508
	Within Groups	10.756	76	.142		
	Total	11.088	79			
Responsiveness	Between Groups	5.432	3	1.811	4.936	.003*
	Within Groups	27.880	76	.367		
	Total	33.313	79			
Assurance	Between Groups	.598	3	.199	1.110	.350
	Within Groups	13.652	76	.180		
	Total	14.250	79			
Empathy	Between Groups	1.165	3	.388	1.577	.202
	Within Groups	18.715	76	.246		
	Total	19.880	79			

\* Significant at P < 0.05

**ANNEXURE IV: ONE-WAY ANOVA [Education]**

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.007	1	.007	.013	.911
	Within Groups	42.856	78	.549		
	Total	42.863	79			
Reliability	Between Groups	.138	1	.138	.985	.324
	Within Groups	10.950	78	.140		
	Total	11.088	79			
Responsiveness	Between Groups	.173	1	.173	.407	.525
	Within Groups	33.139	78	.425		
	Total	33.313	79			
Assurance	Between Groups	.896	1	.896	5.234	.025*
	Within Groups	13.354	78	.171		
	Total	14.250	79			
Empathy	Between Groups	.842	1	.842	3.448	.067**
	Within Groups	19.038	78	.244		
	Total	19.880	79			

\* Significant at P < 0.05 and \*\*P < 0.10

**ANNEXURE V: ONE-WAY ANOVA [Occupation]**

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.723	2	.362	.661	.519
	Within Groups	42.139	77	.547		
	Total	42.863	79			
Reliability	Between Groups	.156	2	.078	.549	.580
	Within Groups	10.932	77	.142		
	Total	11.088	79			
Responsiveness	Between Groups	.481	2	.241	.564	.571
	Within Groups	32.831	77	.426		
	Total	33.313	79			
Assurance	Between Groups	.089	2	.045	.242	.785
	Within Groups	14.161	77	.184		
	Total	14.250	79			
Empathy	Between Groups	.085	2	.043	.166	.847
	Within Groups	19.794	77	.257		
	Total	19.879	79			

**ANNEXURE VI: INDEPENDENT SAMPLES TEST [Gender, t-test]**

Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Tangibility	Equal variances assumed	7.484	.008	2.029	78	.046	.3287	.16201	.00619	.65125
	Equal variances not assumed			2.092	73.076	.040 *	.3287	.15715	.01553	.64192
Reliability	Equal variances assumed	2.496	.118	-.321	78	.749	-.0272	.08449	-.19536	-.14105
	Equal variances not assumed			-.318	72.000	.751	-.0272	.08538	-.19736	-.14305
Responsive	Equal variances assumed	.049	.826	1.015	78	.313	.1477	.14559	-.14213	.43755
	Equal variances not assumed			1.004	72.029	.319	.1477	.14711	-.14556	.44097
Assurance	Equal variances assumed	2.621	.110	.592	78	.556	.0566	.09563	-.13382	.24695
	Equal variances not assumed			.580	66.925	.564	.0566	.09754	-.13813	.25126
Empathy	Equal variances assumed	.097	.757	.504	78	.616	.0569	.11302	-.16806	.28195
	Equal variances not assumed			.501	73.931	.618	.0569	.11374	-.16968	.28357

\* Significance at p < 0.05

**ANNEXURE VII: ONE-WAY ANOVA [Age]**

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.552	3	.184	.268	.848
	Within Groups	52.166	76	.686		
	Total	52.718	79			
Reliability	Between Groups	1.165	3	.388	.383	.766
	Within Groups	77.035	76	1.014		
	Total	78.200	79			
Responsiveness	Between Groups	.563	3	.188	.200	.896
	Within Groups	71.492	76	.941		
	Total	72.055	79			
Assurance	Between Groups	.535	3	.178	.244	.865
	Within Groups	55.558	76	.731		
	Total	56.093	79			
Empathy	Between Groups	.441	3	.147	.147	.931
	Within Groups	75.861	76	.998		
	Total	76.302	79			

**ANNEXURE VIII: ONE-WAY ANOVA [Education]**

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.967	1	.967	1.457	.231
	Within Groups	51.751	78	.663		
	Total	52.718	79			
Reliability	Between Groups	.161	1	.161	.161	.689
	Within Groups	78.039	78	1.000		
	Total	78.200	79			
Responsiveness	Between Groups	2.197	1	2.197	2.454	.121
	Within Groups	69.858	78	.896		
	Total	72.055	79			
Assurance	Between Groups	1.098	1	1.098	1.557	.216
	Within Groups	54.995	78	.705		
	Total	56.093	79			
Empathy	Between Groups	.849	1	.849	.878	.352
	Within Groups	75.453	78	.967		
	Total	76.302	79			

**ANNEXURE IX: ONE-WAY ANOVA [Occupation]**

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.200	2	.100	.146	.864
	Within Groups	52.518	77	.682		
	Total	52.718	79			
Reliability	Between Groups	.348	2	.174	.172	.842
	Within Groups	77.852	77	1.011		
	Total	78.200	79			
Responsiveness	Between Groups	2.674	2	1.337	1.484	.233
	Within Groups	69.381	77	.901		
	Total	72.055	79			
Assurance	Between Groups	3.296	2	1.648	2.403	.097**
	Within Groups	52.797	77	.686		
	Total	56.093	79			
Empathy	Between Groups	8.374	2	4.187	4.746	.011*
	Within Groups	67.928	77	.882		
	Total	76.302	79			

\* Significant at p < 0.05 and \*\* at p < 0.10

**ANNEXURE X: INDEPENDENT SAMPLES TEST (Gender, t-test)**

	Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Tangibility	Equal variances assumed	.661	.419	-.429	78	.669	-.0790	.18413	-.44562	.28754
	Equal variances not assumed			-.422	68.177	.675	-.0790	.18740	-.45298	.29490
Reliability	Equal variances assumed	4.530	.036	-1.255	78	.213	-.2791	.22229	-.72162	.16348
	Equal variances not assumed			-1.231	66.889	.223	-.2791	.22674	-.73166	.17352
Responsive.	Equal variances assumed	.081	.777	-1.563	78	.122	-.3317	.21223	-.75422	.09080
	Equal variances not assumed			-1.565	76.610	.122	-.3317	.21194	-.75377	.09035
Assurance	Equal variances assumed	.106	.745	-.992	78	.324	-.1875	.18897	-.56367	.18875
	Equal variances not assumed			-.987	74.264	.327	-.1875	.19001	-.56605	.19113
Empathy	Equal variances assumed	.428	.515	-.957	78	.342	-.2109	.22049	-.64991	.22803
	Equal variances not assumed			-.942	69.665	.349	-.2109	.22382	-.65737	.23549

**ANNEXURE XI: ONE-WAY ANOVA (Age)**

		Sum of Squares	df	Mean Square	F	Sig.
R1	Between Groups	56.779	3	18.926	.793	.501
	Within Groups	1813.221	76	23.858		
	Total	1870.000	79			
R2	Between Groups	1260.717	3	420.239	5.129	.003*
	Within Groups	6226.471	76	81.927		
	Total	7487.187	79			
R3	Between Groups	405.746	3	135.249	4.642	.005*
	Within Groups	2214.254	76	29.135		
	Total	2620.000	79			
R4	Between Groups	185.908	3	61.969	4.157	.009*
	Within Groups	1132.842	76	14.906		
	Total	1318.750	79			
R5	Between Groups	170.260	3	56.753	1.882	.140
	Within Groups	2291.928	76	30.157		
	Total	2462.188	79			

\* Significant at P < 0.05

**ANNEXURE XII: ONE-WAY ANOVA (Education)**

		Sum of Squares	df	Mean Square	F	Sig.
R1	Between Groups	6.373	1	6.373	.267	.607
	Within Groups	1863.627	78	23.893		
	Total	1870.000	79			
R2	Between Groups	34.752	1	34.752	.364	.548
	Within Groups	7452.436	78	95.544		
	Total	7487.188	79			
R3	Between Groups	80.105	1	80.105	2.460	.121
	Within Groups	2539.895	78	32.563		
	Total	2620.000	79			
R4	Between Groups	2.489	1	2.489	.148	.702
	Within Groups	1316.261	78	16.875		
	Total	1318.750	79			
R5	Between Groups	115.413	1	115.413	3.836	.054*
	Within Groups	2346.774	78	30.087		
	Total	2462.188	79			

\* Significant at P < 0.10

**ANNEXURE XIII: ONE-WAY ANOVA (Occupation)**

		Sum of Squares	df	Mean Square	F	Sig.
R1	Between Groups	16.453	2	8.226	.342	.712
	Within Groups	1853.547	77	24.072		
	Total	1870.000	79			
R2	Between Groups	401.068	2	200.534	2.179	.120
	Within Groups	7086.120	77	92.028		
	Total	7487.187	79			
R3	Between Groups	6.687	2	3.344	.099	.906
	Within Groups	2613.313	77	33.939		
	Total	2620.000	79			
R4	Between Groups	12.868	2	6.434	.379	.686
	Within Groups	1305.882	77	16.960		
	Total	1318.750	79			
R5	Between Groups	279.228	2	139.614	4.925	.010*
	Within Groups	2182.959	77	28.350		
	Total	2462.187	79			

\* Significant at p < 0.05

**ANNEXURE XIV: INDEPENDENT SAMPLES TEST (Gender, t-test)**

	Levene's Test for Equality of Variances			t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
R1	Equal variances assumed	.072	.790	-.782	78	.437	-.85	1.094	-3.032	1.323
	Equal variances not assumed			-.779	75.346	.438	-.85	1.097	-3.039	1.330
R2	Equal variances assumed	.198	.658	.082	78	.935	.18	2.197	-4.194	4.553
	Equal variances not assumed			.081	72.043	.936	.18	2.220	-4.246	4.604
R3	Equal variances assumed	16.863	.000	1.092	78	.278	1.41	1.290	-1.160	3.976
	Equal variances not assumed			1.142	63.928	.258	1.41	1.233	-1.055	3.871
R4	Equal variances assumed	1.467	.229	-.307	78	.760	-.28	.921	-2.117	1.552
	Equal variances not assumed			-.303	70.628	.763	-.28	.934	-2.145	1.579
R5	Equal variances assumed	1.795	.184	-.357	78	.722	-.45	1.259	-2.956	2.057
	Equal variances not assumed			-.347	62.120	.730	-.45	1.294	-3.036	2.137

\* Significant at p < 0.001



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