

**Applying Faculty Presumed TQM Model in Affiliated Colleges of  
Punjab: An Explorative Approach**

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## **Applying Faculty Presumed TQM Model in Affiliated Colleges of Punjab: An Explorative Approach**

**1. Introduction:** The term Total Quality Management (TQM) has been applied to business and industry for quite long time. Recently, this has been introduced and being implemented in educational institutions to provide high quality and standards for dissemination of quality education. TQM in education is "a philosophy, supported by a comprehensive toolkit, driven by students and staff, in order to identify, analyze and remove the barriers to learning" (Davies & West-Burnham, 1997). Educational institutions are considered as service providers. Therefore, many quality specialists have advocated the application of TQM in education. The logic is reasonably direct. It is commonly acknowledged that the quality of higher education decides the quality of human resources in a country. **Mishra Sanjay (2006)**, in his book 'Understanding Quality Assurance in Higher education' identifies the following points, which further necessitate quality assurance in educational institutions:

- a. Government is no longer the principal employer.
  - b. Jobs are based on skills and new knowledge.
  - c. High frequency of mobility in job.
  - d. Task based remuneration.
  - e. Knowledge based economy and global job market.
  - f. Highly competitive world demands excellence in performance.
  - g. Continuous up gradation of knowledge and skill enhancement in fast moving world.
- Therefore, it is very important for HEIs to increase productivity and to work for quality assurance. This will result into reduction of different kinds of waste in investment, fall in cost of education and protection of stakeholders' interest.

## **2. Objectives**

- To define the concept of TQM with reference to Higher Education from faculty point of view
- To explore the awareness and acceptability of TQM in HEI of Punjab as a measure to deliver quality education.

- To access the preferences of the faculty and management with regard to determinants of quality measurement and inputs of quality education
- To examine or evaluate the level of implementation of TQM in affiliated colleges of Punjab

### **3. Faculty Presumed TQM Model**

So far the service quality in higher education institutions has been measured from the view point of the students only. Which is mere a postmortem of delivered service. However Quality management is directly concerned with continues quality consciousness at all the stages of providing service. Since the nature of higher education as a service is intangible, it involves lots of efforts and financial resources. So if the quality is desired to be ensured then the term TQM is must be accepted and adopted at each and every level continuously. If students are the service receiver or assumed to be consumer, faculty is the service provider. In order to evaluate the high education service quality from its provider point of view, a new attempt has been made to propose a new instrument titled as **Faculty Presumed TQM Model** focusing all the key areas that faculty highlights and consider to be essential for implementing quality initiatives in higher education institutions. Therefore the definition of TQM in higher education is needed to be redefined as ***TQM in higher education has been defined as the process of accepting and adopting of quality control measures in higher education by the faculty being service providers and students as service receivers.***

#### **3.1 Assumptions of TQM Model in Higher Education**

1. Quality of education can be measured in terms of certain parameters
2. There are certain predetermined inputs which ensure the delivery of the quality education
3. RATER based SERVQUAL model as suggested by Parasuraman in 1977 Model is basic model applicable in HEI for defining service dimensions
4. Total Quality Management is applicable in HEI only if faculty is aware about this term and accept its implementation in higher educational

#### **3.2 Contents of Model**

Since the term TQM is more popular for industries and its standardize products, in higher education its inclusion in adapted form which is now world widely accepted.. Therefore total quality management in HEI is a comprehensive term including

3.2.1 Quality indicators/ determinants

3.2.2 Quality inputs

3.2.3 RATER based adopted SERVQUAL MODEL to measure the level of implementation of quality management

### **3.2.1 Quality Indicators/ Determinants**

Just like the quality check process being followed at last stage of TQM in the factories, four indicators are identified from literature which can be used for determining the quality being delivered in the institution.

1. Average Score obtained by the student
2. Placement Ratio
3. Students Feedback
4. Excess of Income over expenditure of the institution

The educational quality engineers can use these parameters for determining the quality of the education being delivered

### **3.2.2 Quality Inputs**

Since the quality management is a comprehensive process so it needs a linkage between series of the activities performed for delivering the product or service. As far as Higher Education Institutions are associated, there are certain inputs considered to be essential inputs in the process of delivering education. Most of the inputs (as mentioned below) are chosen from the literature widely recognised as input factors for Quality Management. These include Quality of lectures, Relevance of Course Contents, Knowledge and experience of academic staff, Qualification of faculty, Availability of learning resources and academic facilities( labs, smart class, updated library etc.), Campus Location and layout, Student support services ( sports, NCC, NSS, Canteen, Gym etc), Placement assurance, Extra Curricular activities/opportunities for students, Fully satisfied faculty with regard to working environment and salary, Teacher student Ratio in a class and Availability of efficient Administrative staff. However all these inputs need commitment by the top level. For ensuring total quality management, all these inputs are to be recognized as synchronized set of basic elements which are necessary to be followed by the faculty if any institution aspires to deliver quality.

**3.2.3 TQM model for Higher Educational Institutions**

The third content of TQM model in higher education is based on perceptions of faculty with regard to certain quality statements defined under RATER model. This model is based upon well known service quality model SERVQUAL developed by Parasuraman et al. (1985 & 1988). However the twenty-two attributes of the original SERVQUAL instrument do not cover all aspects of education service. So an adapted version of the SERVQUAL scale for Higher education services is being proposed here with. Total 37 statements have been developed under five different service dimensions which are to be ranked by the Faculty using 7 point Likert Scale. Thus the mean score can be analysed in order to know the level of implementation of TQM in the institution. These 37 statements have been giving below under particular service dimension.

**Reliability (Ability to Perform the expected service)**

- Your institution has its properly defined vision and mission statements focusing on imparting quality education
- Management duly focus on how to improve the performance of the students
- Management provide financial and other resources needed for implementing quality enhancing policies and practices
- College has its active Quality Assurance Cell
- Management discuss its strategic plans with quality cell and head of departments before implementing them
- Teaching and learning process/resources are upto students' expectations

**Assurance (Possession of Required Skill and Knowledge to perform Quality Service)**

- Faculty members are selected purely on the basis of their qualification, knowledge and experience
- Faculty Development Programs are organised from time to time to upgrade the skills and knowledge of faculty
- Institution encourages and support research and development work
- Courses being provided are skill enhancing and employment generating and cater the needs of industry
- Institution assures the campus placement to the students on or before completion of their course

- Institution has the tie ups and interaction with industries, foreign universities to ensure the market exposure to the student.
- Institution offers various extracurricular students support services including sports, cultural, NCC, NSS etc along with basic course material.
- There is ideal teacher student ratio in a class( 1:40)

## **Tangibility (Physical facilities/infrastructure available to deliver the service)**

- Location of your institution attracts the students
- College campus is beautifully designed to give eco friendly ambience
- Class rooms are sufficient, spacious, properly ventilated, lighted and fully equipped with white/ black/smart boards
- Study material being offered to the students is easy to understand and up to date
- Students are given a detailed course plan in the beginning of the session
- Computer and Science laboratories are upgraded and fully equipped
- Library is consist of all relevant and updated study material arranged scientifically
- Library is consist of all relevant and updated study material arranged scientifically
- College campus has its infrastructure offering additional services like sports ground, Hostel, Health clinic, Auditorium. Common room/ Activity Room and Canteen etc.

## **Empathy (Knowing the students and their needs)**

- There is a proper career counseling cell which helps the students to choose right course in the beginning as per their interest
- In case sanctioned seats of any available course remain vacant, students are not misguided or manipulated to fill these classes
- Students are provided with proper transportation facility as per their need
- Students' Induction program is organised at the time they join the institution to their needs in advance
- Class teachers / Mentors are at the easy access of students even in non teaching hours
- Management organize regular internal audits to know their performance as against predefined parameters
- Management compares its performance with other institutions
- Students have access to enquiry office or student information centre

## Responsiveness (Responding to feedback given by student)

- Students have full say against the teachers if they find them to be biased or unjust
- Students feedback is obtained after every semester on each course taught to them
- Feedback given by students is taken seriously and suggestion given are considered positively
- Students' elected cabinet is allowed to work as bridge between students and management
- There is active student Grievance cell is there in the institution
- Parents teachers meet is conducted to know the response of other stakeholders about the institution
- Students/parents have direct access to management to give their feedback.

## 4. Research Methodology

**Source of Data:** Use of primary as well secondary data has been made. With regard to adapted model, previous research studies have been referred and considered whereas for empirical study, primary data has been collected from 548 faculty members of 41 affiliated colleges of 3 state universities in Punjab including Guru Nanak Dev University Amritsar, Punjab Technical University Kapurthala and Punjab University Chandigarh. For collection of data structured questionnaire was distributed and got filled using Google Form link <https://forms.gle/mXzVzdo4fybLVhsf6>. The respondents have been chosen from the place of research using Stratified Convenience Sampling technique. The appropriate statistical techniques have been applied to test following hypothesis

H1. There is no awareness and acceptability of level of TQM faculty of affiliated colleges of Punjab

H 1.1 There is no difference in awareness and acceptability of level of TQM between accredited and non accredited colleges of Punjab

H 1.2 There is no difference awareness and acceptability level of TQM among colleges affiliated to different universities

H2 There is no difference in respondents' ranking for determinants of quality measurement

H 3 There is no difference in respondents' ranking for inputs of quality education

H4 There is no implementation of TQM and its components in affiliated colleges of Punjab.

H4.1 There is no difference in the level of implementation of the TQM and its indicators between accredited and non accredited colleges of Punjab

H 4.2 There is no difference in the level of implementation of the TQM and its indicators among colleges affiliated to different universities.

### **5. Application of Model in Affiliated Colleges : Data Analysis**

The sample includes perception of 548 faculty members from 41 different colleges affiliated to three state universities of Punjab. 140 faculty members are from 14 colleges affiliated to Guru Nanak dev university, Amritsar; 267 members represent 14 colleges affiliated to Punjab Technical University Kapurthala and 141 faculties have been selected from 13 colleges affiliated to Punjab University Chandigarh.

#### **5.1 Awareness level of TQM:**

From Table–1, it is observed that combined mean score of awareness level of TQM is 5.22 which state that most of the faculty is aware about the concept of Total quality management to some extent following the 7 point Likert scale. With respect to accredited and non-accredited colleges mean score is 5.23 and 5.18 with standard deviation of 1.04 and 1.49 respectively. From these observations, it is concluded that awareness level of TQM is slightly higher in the case of accredited colleges than the non-accredited colleges. However As indicated by the results of t-test, there is insignificant difference in awareness level of TQM with respect to accreditation of colleges ( $t^{.05} = 0.181$ ,  $p = .857$ ).

Table-2 shows mean score of awareness level of TQM among colleges which are affiliated to GNDU is 5.26 with the standard deviation (SD) 1.18, mean score of colleges affiliated to PTU is 5.19 with the standard deviation (SD) 0.74 and mean score of colleges affiliated to PU is 5.16 with the standard deviation (SD) 1.25. Thus, colleges affiliated to GNDU have highest level of awareness of TQM among each other. Results of table-2 also reveals insignificant difference in awareness level of TQM among colleges affiliated to GNDU, PTU and PU as F-value found to be .079 with insignificant value ( $p$ ) .924 which is more than assumed level of significance (i.e. .05). After comparing the mean scores of awareness level of TQM and F-



value, it is found that colleges affiliated to GNDU, PTU and PU differ insignificantly from each other on the awareness level of TQM.

### **5.2 Acceptance level of TQM:**

From Table –1, it is observed that mean score of acceptance level of TQM in colleges is 3.91 on 7 point Likert scale for negative statements which is interpreted as the faculty is accepting the applicability of TQM in higher education institution to some extent. Further with respect to accredited and non-accredited colleges is 3.89 and 3.98 and standard deviation of accredited and non-accredited colleges is 1.16 and 1.05 respectively. From these observations, it is concluded that acceptance level of TQM is slightly higher in the case of accredited colleges than the non-accredited colleges. However As indicated by the results of t-test, there is insignificant difference in acceptance level of TQM with respect to accreditation of colleges ( $t^{.05} = -0.317$ ,  $p = .752$ ).

Table-2 shows mean score on 7 points Likert scale for negative statements of acceptance level of TQM among colleges which are affiliated to GNDU is 3.99 with the standard deviation (SD) 1.25, mean score of colleges affiliated to PTU is 3.80 with the standard deviation (SD) 1.01 and mean score of colleges affiliated to PU is 3.84 with the standard deviation (SD) 1.02. Thus, colleges affiliated to GNDU have highest level of acceptance of TQM among each other. Results of table-2 also reveals insignificant difference in awareness level of TQM among colleges affiliated to GNDU, PTU and PU as F- value found to be .293 with insignificant value ( $p$ ) .747 which is more than assumed level of significance (i.e. .05). After comparing the mean scores of acceptance level of TQM and F-value, it is found that colleges affiliated to GNDU, PTU and PU differ insignificantly from each other on the acceptance level of TQM.

Therefore, the hypothesis **H1 that states “there is no awareness and acceptability of level of TQM in affiliated colleges ; hypothesis H1.1 stating that There is no difference in awareness and acceptability of level of TQM between accredited and non-accredited colleges of Punjab and H1.2 that states “there is no difference in awareness and acceptability of level of TQM among colleges affiliated to different universities of Punjab”** stands accepted

### 5.3 Quality Determinants and inputs

Ranking analysis (Table No-3) revealed that the most important factor ranked by the faculty as quality determinant is **placement ratio** followed by **Students' feedback**. **Average marks scored by the student** was placed at rank 3 where as Excess of Income over expenditure of the institution is considered to least important to be identified as quality determinant. The significance of respondents' ranking for determinants of quality measurement was tested with the help of Friedman Test and results are presented in Table 4. There was a statistically significant difference in ranking of various determinants of quality measurement  $\chi^2(3) = 103.673, p = 0.000$ .

Therefore, **hypothesis H2 that states that “there is no difference in respondents' ranking for determinants of quality measurement” has been rejected.**

The analysis of Table No 5 suggested quality inputs as ranked by the faculty. The qualification of the faculty was presumed as the most important quality input for delivering the quality education, followed by relevance of course content, quality of lecture, knowledge and experience of academic staff respectively. The faculty assumed quality of administrative staff, satisfaction level of faculty with regard to salary and environment at work place to be least important component as input for delivering quality education. The significance of respondents' ranking for inputs of quality education was tested with the help of Friedman Test and results are presented in Table 6. There was a statistically significant difference in ranking for inputs of quality education  $\chi^2(11) = 446.430, p = 0.000$ . **Therefore, hypothesis that states that “there is no difference in respondents' ranking for inputs of quality education” has been rejected.**

### 5.4 Implementation level of TQM in the colleges

Analyzing the mean score (Table 7) measured on 7 points Likert scale, it can be interpreted that according to the faculty members, TQM Model, defined on the basis of RATER under modified SEVQUAL method, is implemented in affiliated colleges to some extent. Out of all five basis, assurance (Possession of Required Skill and Knowledge to perform Quality Service) is the one where TQM is being applied to the highest level followed by reliability and empathy. Whereas tangibility and responsiveness have greater standard deviation value which shows that TQM is not implemented in these dimensions as effectively as in others.

As can be seen in table –8, it is stated that mean score of level of implementation for the TQM with respect to accredited and non-accredited colleges is 5.85 and 5.561 and standard deviation of accredited and non-accredited colleges is 0.75 and 1.05 respectively. From these observations, it is concluded that accredited colleges have slightly higher for implementation of the TQM than the non-accredited colleges. The results of t-test indicates that there is insignificant difference in implementation for the TQM with respect to accreditation of colleges ( $t_{.05} = 1.206$ ,  $p = 0.230$ ). colleges affiliated to PU have highest level of implementation of the TQM. It is concluded from the results of table-9 that there is significant difference in level of implementation of the TQM among colleges affiliated to GNDU, PTU and PU as F-value found to be 3.134 with significant value ( $p$ ) 0.048 which is less than assumed level of significance (i.e. .05).

From Table –8, it is observed reliability level for implementation of the TQM is slightly higher in the case of accredited colleges than the non-accredited colleges. As indicated by the results of t-test, there is significant difference in implementation level of reliability with respect to accreditation of colleges ( $t_{.05} = 2.521$ ,  $p = 0.013$ ). it is stated that mean score of assurance level for implementation of the TQM with respect to accredited and non-accredited colleges is 5.81 and 5.80 and standard deviation of accredited and non-accredited colleges is 0.817 and 1.08 respectively. From these observations, it is concluded that assurance level for implementation of the TQM is almost same in the case of accredited colleges and non-accredited colleges. As indicated by the results of t-test, there is insignificant difference in assurance level of implementation of the TQM with respect to accreditation of colleges ( $t_{.05} = 0.030$ ,  $p = 0.976$ ). As can be seen in table –8, it is stated that mean score of tangibility level of implementation of the TQM with respect to accredited and non-accredited colleges is 5.77 and 5.58 and standard deviation of accredited and non-accredited colleges is 1.01 and 1.34 respectively. From these observations, it is concluded that accredited colleges have slightly higher level of implementation of the TQM than the non-accredited colleges. The results of t-test indicates that there is insignificant difference in tangibility level of implementation of the TQM with respect to accreditation of colleges ( $t_{.05} = 0.735$ ,  $p = 0.464$ ). Further, it is observed that mean score of level of empathy for implementation of the TQM with respect to accredited and non-accredited colleges is 5.79 and 5.58 and standard deviation of accredited and non-accredited colleges is 0.89 and 1.26 respectively. From these observations, it is

concluded that level of empathy for implementation of the TQM is slightly high in the case of accredited colleges than the non-accredited colleges. As indicated by the results of t-test, there is insignificant difference in level of empathy for implementation of TQM with respect to accreditation of colleges ( $t_{05} = 0.871$ ,  $p = 0.386$ ). As can be seen in table –8, it is stated that mean score of level of responsiveness for implementation of the TQM with respect to accredited and non-accredited colleges is 5.94 and 5.74 and standard deviation of accredited and non-accredited colleges is 0.97 and 1.34 respectively. From these observations, it is concluded that accredited colleges have slightly higher level of responsiveness for implementation of the TQM than the non-accredited colleges. The results of t-test indicates that there is insignificant difference in level of responsiveness for implementation of the TQM with respect to accreditation of colleges ( $t_{05} = 0.791$ ,  $p = 0.431$ ).

**Therefore, the hypothesis that states “there is no difference in the level of implementation of the TQM and its indicators between accredited and non accredited colleges of Punjab” stands rejected for the reliability level for implementation of the TQM and stands accepted for all other indicators.**

Table-9 shows that, colleges affiliated to PTU have highest level of reliability for implementation of the TQM among each other. Results of table-9 also reveals insignificant difference in level of reliability for implementation of the TQM among colleges affiliated to GNDU, PTU and PU as F- value found to be 1.092 with significant value ( $p$ ) .339 which is more than assumed level of significance (i.e. .05). The mean score of level of assurance for implementation of the TQM of colleges reveals that colleges affiliated to PU have highest level of assurance for implementation of the TQM among each other. Although analysis shows that there is insignificant difference in level of assurance for implementation of the TQM among colleges affiliated to GNDU, PTU and PU as F- value found to be 2.968 with significant value ( $p$ ) .056. The mean score of level of tangibility for implementation of the TQM of colleges which are affiliated to GNDU is 5.61 with the standard deviation (SD) 1.13, mean score of colleges affiliated to PTU is 5.78 with the standard deviation (SD) 1.13 and mean score of colleges affiliated to PU is 6.23 with the standard deviation (SD) 0.50. Thus, colleges affiliated to PU have highest level of tangibility for implementation of the TQM. however there is insignificant difference in level of tangibility for implementation of the TQM among colleges affiliated to GNDU, PTU and PU as F- value found to be 2.293 with

significant value ( $p$ ) 0.106 which is more than assumed level of significance (i.e. .05). After comparing the mean scores of level of empathy for implementation of the TQM and F-value, it is found that colleges affiliated to GNDU, PTU and PU differ insignificantly from each other on the level of empathy for implementation of the TQM. The mean score of colleges affiliated to PU for implementation of responsiveness is 6.09 with the standard deviation (SD) 0.56. Thus, colleges affiliated to PTU have highest level of responsiveness for implementation of the TQM. There is significant difference in level of responsiveness for implementation of the TQM among colleges affiliated to GNDU, PTU and PU as F- value found to be 3.476 with significant value ( $p$ ) 0.035 which is less than assumed level of significance (i.e. .05). After comparing the mean scores of level of responsiveness for implementation of the TQM and F-value, it is found that colleges affiliated to GNDU, PTU and PU differ significantly from each other on the level of responsiveness for implementation of the TQM. **Therefore, the hypothesis that states “there is no difference in the level of implementation of the TQM and its indicators among colleges affiliated to different universities” has been rejected for level of responsiveness, level of implementation of the TQM and has been accepted for level of reliability, the level of assurance, level of tangibility, level of empathy for implementation of the TQM.**

**Conclusion:** Therefore above paper tests the use and applicability of TQM model developed from faculty point of view when applied in affiliated colleges of three state universities of Punjab. It was found that the awareness and acceptability of TQM is still in infancy stage specifically in non accredited colleges. Similarly the results vary from university to university too which reveals the need of efforts at university level to make the faculty of its affiliated colleges aware about TQM in colleges. Even when implementation level of TQM was empirically tested the faculty presumed it being implemented only upto some extend. Therefore recognising the quality inputs and quality determents as ranked by the faculty to be important, this model is recommended for every higher education institution to ensure the quality management.

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## Supplementary Matter

### Tables

#### Table 1:

#### Awareness and Acceptability of level of TQM with respect to accreditation of colleges

|            | Accreditation | N   | Mean | Std. Deviation | t-test | Sig.  |
|------------|---------------|-----|------|----------------|--------|-------|
| Awareness  | Yes           | 378 | 5.23 | 1.04           | 0.181  | .857  |
|            | No            | 170 | 5.18 | 1.49           |        |       |
|            | Total         | 548 | 5.22 | 1.13           |        |       |
| Acceptance | Yes           | 378 | 3.89 | 1.16           | -0.317 | 0.752 |
|            | No            | 170 | 3.98 | 1.05           |        |       |
|            | Total         | 548 | 3.91 | 1.13           |        |       |

**Table 2:**

**Descriptive statistics and One way ANOVA for the difference in awareness and acceptability level of TQM among colleges affiliated to universities**

|            | University | N   | Mean | Std. Deviation | F    | P    |
|------------|------------|-----|------|----------------|------|------|
| Awareness  | GNDU       | 140 | 5.26 | 1.18           | .079 | .924 |
|            | PTU        | 267 | 5.19 | .74            |      |      |
|            | PU         | 141 | 5.16 | 1.25           |      |      |
|            | Total      | 548 | 5.22 | 1.13           |      |      |
| Acceptance | GNDU       | 140 | 3.99 | 1.25           | .293 | .747 |
|            | PTU        | 267 | 3.80 | 1.01           |      |      |
|            | PU         | 141 | 3.84 | 1.02           |      |      |
|            | Total      | 548 | 3.91 | 1.13           |      |      |

**Table 3:**  
**Ranking Score for Quality Determinants**

| <b>Rank</b> | <b>Quality Determinant</b>                           | <b>Ranking Score</b> | <b>%</b>   |
|-------------|------------------------------------------------------|----------------------|------------|
| <b>1</b>    | Placement Ratio                                      | <b>1538</b>          | <b>100</b> |
| <b>2</b>    | Students Feedback                                    | <b>1307</b>          | <b>85</b>  |
| <b>3</b>    | Average Score obtained by the student                | <b>1261</b>          | <b>82</b>  |
| <b>4</b>    | Excess of Income over expenditure of the institution | <b>1077</b>          | <b>70</b>  |

**Table 4:**  
**Results of Friedman Test measuring respondents' ranking for determinants of quality measurement**

| <b>Variable</b>                     | <b>Chi-Square</b> | <b>Df</b> | <b>Sig.</b> |
|-------------------------------------|-------------------|-----------|-------------|
| Determinants of quality measurement | 103.673           | 3         | .000        |



**Table 5:**

| <b>Rank</b> | <b>Input Variables</b>                                                                               | <b>Ranking Score</b> | <b>%</b>  |
|-------------|------------------------------------------------------------------------------------------------------|----------------------|-----------|
| <b>1</b>    | Qualification Of Faculty                                                                             | <b>2783</b>          | <b>86</b> |
| <b>2</b>    | Relevance Of Course Contents                                                                         | <b>2394</b>          | <b>80</b> |
| <b>3</b>    | Quality Of Lectures                                                                                  | <b>2227</b>          | <b>75</b> |
| <b>4</b>    | Knowledge And Experience Of Academic Staff                                                           | <b>2087</b>          | <b>71</b> |
| <b>5</b>    | Availability Of Learning Resources And Academic Facilities (Labs, Smart Class, Updated Library Etc.) | <b>1975</b>          | <b>62</b> |
| <b>6</b>    | Placement Assurance                                                                                  | <b>1726</b>          | <b>60</b> |
| <b>7</b>    | Campus Location And Layout                                                                           | <b>1670</b>          | <b>55</b> |
| <b>8</b>    | Extra Curricular Activities/Opportunities For Students                                               | <b>1531</b>          | <b>52</b> |
| <b>9</b>    | Student Support Services ( Sports, NCC, NSS, Canteen, Gym Etc)                                       | <b>1475</b>          | <b>48</b> |
| <b>10</b>   | Fully Satisfied Faculty With Regard To Working Environment And Salary                                | <b>1336</b>          | <b>43</b> |
| <b>11</b>   | Teacher Student Ratio In A Class                                                                     | <b>1197</b>          | <b>41</b> |
| <b>12</b>   | Availability Of Efficient Administrative Staff                                                       | <b>1141</b>          |           |

**Table 6:**

**Results of Friedman Test measuring respondents' ranking for inputs of quality education**

| <b>Variable</b>                    | <b>Chi-Square</b> | <b>Df</b> | <b>Sig.</b> |
|------------------------------------|-------------------|-----------|-------------|
| <b>Inputs of quality education</b> | 446.430           | 11        | .000        |

**Table 7**

**Implementation of TQM in affiliated colleges as presumed by Faculty**

| Components                | Mean score | Standard deviation |
|---------------------------|------------|--------------------|
| Reliability               | 5.85       | .98                |
| Assurance                 | 5.81       | .87                |
| Tangibility               | 5.73       | 1.07               |
| Empathy                   | 5.75       | .97                |
| Responsiveness            | 5.90       | 1.05               |
| <b>Total</b> <b>N=548</b> | 5.81       | .81                |

**Table 8:**

**Mean, S.D. & 't-value' of level of implementation of the TQM and its indicators with respect to accreditation of colleges**

|                    | Accreditation | N   | Mean | Std. Deviation | t-test | Sig.  |
|--------------------|---------------|-----|------|----------------|--------|-------|
| <b>Reliability</b> | Yes           | 378 | 5.96 | .85            | 2.521  | 0.013 |
|                    | No            | 170 | 5.36 | 1.33           |        |       |
| <b>Assurance</b>   | Yes           | 378 | 5.81 | .817           | 0.030  | 0.976 |
|                    | No            | 170 | 5.80 | 1.08           |        |       |
| <b>Tangibility</b> | Yes           | 378 | 5.77 | 1.01           | 0.735  | 0.464 |
|                    | No            | 170 | 5.58 | 1.34           |        |       |
| <b>Empathy</b>     | Yes           | 378 | 5.79 | .89            | 0.871  | 0.386 |
|                    | No            | 170 | 5.58 | 1.26           |        |       |

|                       |     |     |      |      |       |       |
|-----------------------|-----|-----|------|------|-------|-------|
| <b>Responsiveness</b> | Yes | 378 | 5.94 | .97  | 0.791 | 0.431 |
|                       | No  | 170 | 5.74 | 1.34 |       |       |
| <b>TQM</b>            | Yes | 378 | 5.85 | .75  | 1.206 | 0.230 |
|                       | No  | 170 | 5.61 | 1.05 |       |       |

**Table 9:**

**Descriptive statistics and One way ANOVA for the difference in the level of implementation of the TQM and its indicators among colleges affiliated to universities**

|             | University | N   | Mean | Std. Deviation | F     | P    |
|-------------|------------|-----|------|----------------|-------|------|
| Reliability | GNDU       | 140 | 5.75 | 1.04           | 1.092 | .339 |
|             | PTU        | 267 | 6.07 | 1.08           |       |      |
|             | PU         | 141 | 6.02 | .42            |       |      |
|             | Total      | 548 | 5.85 | .98            |       |      |
| Assurance   | GNDU       | 140 | 5.66 | .92            | 2.968 | .056 |
|             | PTU        | 267 | 6.03 | .88            |       |      |
|             | PU         | 141 | 6.16 | .33            |       |      |
|             | Total      | 548 | 5.81 | .87            |       |      |
| Tangibility | GNDU       | 140 | 5.61 | 1.13           | 2.293 | .106 |
|             | PTU        | 267 | 5.78 | 1.13           |       |      |
|             | PU         | 141 | 6.23 | .50            |       |      |
|             | Total      | 548 | 5.73 | 1.07           |       |      |

|                |       |     |      |      |       |      |
|----------------|-------|-----|------|------|-------|------|
| Empathy        | GNDU  | 140 | 5.60 | 1.05 | 2.439 | .092 |
|                | PTU   | 267 | 6.01 | .97  |       |      |
|                | PU    | 141 | 6.06 | .21  |       |      |
|                | Total | 548 | 5.75 | .97  |       |      |
| Responsiveness | GNDU  | 140 | 5.72 | 1.16 | 3.476 | .035 |
|                | PTU   | 267 | 6.39 | .73  |       |      |
|                | PU    | 141 | 6.09 | .56  |       |      |
|                | Total | 548 | 5.90 | 1.05 |       |      |
| TQM            | GNDU  | 140 | 5.67 | .87  | 3.134 | .048 |
|                | PTU   | 267 | 6.06 | .79  |       |      |
|                | PU    | 141 | 6.11 | .29  |       |      |
|                | Total | 548 | 5.81 | .81  |       |      |