Chapter 7
Findings, Tenability of Hypotheses, Conclusion and Suggestions
CHAPTER 7
FINDINGS, TENABILITY OF HYPOTHESES, CONCLUSION AND SUGGESTIONS

The main objectives of the study were to examine the application of Total Quality Management in central university libraries of India. To measures the perception of users as they relate to quality of information products and services. On the basis of data analyses and interpretation, certain findings and conclusions were drawn and recommendations were made for providing quality bases services in the libraries. The major findings which emerged during the study have been summarized under following headings:

7.1 FINDINGS

Major Findings from the Part 1

Part one deals with the brief profile of libraries and collected factual data and quantitative statistics of libraries, such as size of collections, status of library automations, facilities and services, staff and budget, etc. The major findings are given below:

7.1.1 Library collection is a sum of total library materials. It makes up the holdings of a library. It is found from the table 6.1.4 that all seven central university libraries have good collections of all kinds of documents in the form of books and non-book materials but comparatively the MA Library of AMU has large collection than others libraries. The analyses reveals that the total collection of MA Library of AMU consisting of books, periodicals, CD-ROMs, theses and manuscripts etc. is (11,46,281), followed by BHU (10.46,046), followed by VBU (8 lakh), where as NEHU has only 4 lakh total collections, which is the lowest.

7.1.2 It is found the Table 6.1.7 reveals that AMU, JMI, NEHU, and VBU libraries are using LibSys software for the automation. BHU and DU are using NewGenlib, and Trodon and JNU is using VTLS software for the automation. The analyses show that most of the library is fully automated with world class library softwares.

7.1.3 Table 6.1.8 depicts that BHU and AMU libraries provide special services like Blind Support Services. Central library of JNU provide Newspaper-Clipping
service for the researcher and VBU library also provides special service to the users, i.e., e-resources.

7.1.4 Table 6.1.5 indicates that Central Library of JNU has highest annual budget, i.e., (6 Crore) followed by BHU (4.5 Crore), followed by AMU (2.552 Crore), followed by DU and JMI has one crore respectively, whereas VBU has lowest annual budget, i.e., (72.71 Lakh).

7.2 **Major Findings from the Part 2**

Part 2 measures the status of TQM applications in the Central University Libraries of India. The investigator analyses the responses collected from the seven central university librarians and tabulated them. The major findings are given as under:

7.2.1 It can be observed from the table 6.2.1 that majority of central university libraries are under the process of the applying of TQM, i.e., 85.71%, whereas BHU library is still planning to apply TQM principle and practices.

7.2.2 It can be found that majority of the libraries are trying to use ISO 9000 model for quality process but it is clear that none of the central university libraries are certified with ISO.

7.2.3 87.71% of the central university libraries are planning to get the certification from ISO.

7.2.4 Cent percent of the libraries were reported of using statistical tools for the quality control.

7.2.5 It can be derived from the table 6.2.6 that none of the libraries have appointed any additional staff for TQM.

7.2.6 The table 6.2.7 reveals that 28% of the central university libraries appointed quality consultant for total quality management.

7.2.7 It can be inferred the table 6.2.8 that all central university libraries have conducted several programs like seminars and workshops related to the quality management for improving quality services in their libraries.

7.2.8 The table 6.2.9 shows that all respondents posses experience of quality management projects.

7.2.9 Table 6.2.10 reveals that all libraries staffs are fully aware of the quality management process and practices.
7.3. Major Findings from the Part 3

This section deals with the description of five elements of TQM, i.e., Leadership, Policy and Strategies, Staff Management, Resource, and process. To measure the responses collected from the librarian/deputy librarian of seven central university libraries in India. The major findings of the part 3 are as follows:

7.3.1. Leadership

Table 6.3.8 reveals the results of 'Leadership' quality aspect comprising five attributes. It shows that the mean score of VBU is highest, i.e., (4.80), whereas AMU and NEHU scored, i.e., (3.40), which is the lowest. The overall average mean score of seven central university libraries for 'Leadership' element is (4.085) which clearly depicts that four universities, i.e., BHU (4.40), JMI (4.60), JNU (4.20) and VBU (4.80), scored higher than the overall average mean. The score of AMU and NEHU are very low which reflects that libraries do not show their consciousness about the leadership quality.

7.3.2. Policy and Strategies

It can be observed from the table 6.3.8 that the perception of librarians with regard to element TQM, i.e., 'Policy and Strategies'. BHU and JMI got the highest mean score, i.e., (4.80), whereas NEHU and AMU scored (3.60) which is the lowest. The overall average mean of seven central university libraries for 'Policy and Strategies' dimension is (4.114), which clearly shows that only three universities, i.e., BHU and JMI (4.80), VBU (4.20) scored higher than the overall average mean. The result shows that BHU and JMI focus more attention towards 'Policy and Strategies'. The mean score of AMU and NEHU are very low, which reflects that libraries do not show consciousness about the Policy and Strategies..

7.3.3. Staff Management

It can be concluded that the results of 'Staff Management' quality aspect measuring the perception of librarians in table 6.3.8. It shows that the mean score of BHU and NEHU got the highest, i.e., (4.40), whereas AMU and JNU got (3.80), i.e., lowest mean score. The overall average mean of seven central university libraries for 'Staff Management' dimension is (4.085), which clearly depicts that four universities, i.e., VHU (4.00), JMI (4.00), JNU (3.80) and AMU (3.80) scored lower than the overall average mean. The result shows that NEHU and BHU focus more attention towards Staff Management in libraries.
7.3.4. Resources

The perception of respective librarians of central university libraries about the TQM element of Resources, BHU is found to be the best, i.e., (4.80), amongst all, whereas, VBU scored (3.30), is lowest mean score. The overall average mean of seven central university libraries with regards ‘Resources’ element is (4.271), which clearly depicts that only two universities, i.e., JNU (3.60) and VBU (3.30) scored lower then the overall average mean. The result shows that BHU focus more attention towards management of ‘Resources’. The score of VBU is very low, which reflects that library do not show their consciousness about the Resources management.

7.3.5. Process

Table 6.3.8 depicts the results of overall mean score of elements ‘Process’. The finding shows that AMU, BHU and DU libraries got the highest, i.e., (4.20), whereas NEHU and VBU scored (3.60), which is the lowest. The overall average mean of seven central university library with regard the Process of library management is (3.942), which clearly shows the three universities, i.e., JNU (3.80), NEHU and VBU (3.60) scored lower then the overall average mean. The result shows that AMU, BHU and DU focuses more attention towards Process element. The score of VBU are very low which reflects that libraries do not show their consciousness about the ‘Resources’.

7.4 Major Findings from the Part 4

Part four deals with the user’s perception about the service quality of seven central university libraries of India. The dimension wise findings are as follows:

7.4.1 MA Library of AMU

Table 6.4.7 indicates that ‘Assurance’ got the highest mean score, i.e., (3.65) and ‘Responsiveness’ scored the least mean score (3.33). It shows the library staff’s posses good knowledge and skills to provide information to users about library collections and services. It also shows that library staff has ability to convey confidence, politeness, friendliness with respect to users. From the analysis of table, it reveals that users are very much satisfied with the ‘Tangibles’ dimension such as building and furniture, and infrastructure facilities of MA library. The perception of users about the service quality dimensions of Responsiveness is very low.
7.4.2. SRG Central library of BHU

Table 6.5.7 indicates that the comparative analysis of six dimensions of service quality, which were collected from the users of SRG Central library of BHU. The overall average mean of each dimensions analysis shows that ‘Assurance’ perceived the high scored, i.e., (3.76), followed by ‘Responsiveness’, i.e., (3.63), whereas the service quality dimension of ‘Tangible’ scored, i.e., (3.50), followed by ‘Communications’, i.e., (3.44), followed by ‘Access’, i.e., (3.39) and ‘Reliability’ scored the lowest, i.e., (3.33).

7.4.3. Central Reference Library of DU

Table 6.6.7 indicates the comparative analysis of six dimensions of service quality, which were collected from users group of Central Reference Library of University of Delhi. The overall average mean of each dimension analysis shows that ‘Assurance’ got the highest score, i.e., (3.97), followed by ‘Tangible’ and ‘Reliability’ score (3.94), whereas the service quality dimension of ‘Responsiveness’ scored (3.86) followed by Access (3.81), whereas ‘Communication’ got (3.64), which is lowest.

7.4.4. Dr. Zakir Hussain Library of JMI

The overall average mean of each dimensions analysis of Dr. Zakir Hussain Library users indicate that ‘Access’ perceived the highest score, i.e., (3.78), followed by ‘Reliability’, i.e., (3.55), whereas the service quality dimension of ‘Tangible’ scored, i.e., (3.50), followed by ‘Communications’, i.e., (3.36), whereas ‘Assurance’ got (3.31) and ‘Responsiveness’ achieved to be lowest, i.e., (3.27).

7.4.5. Central Library of JNU.

Table 6.8.7 presents the comparative analysis of six dimensions of service quality, which were collected form users of Central Library of JNU. It can inferred that the dimension ‘Tangible’ perceived the highest mean scored, i.e., (3.82), followed by ‘Access’, i.e., (3.51), followed ‘Reliability’, i.e., (3.45), followed by ‘Responsiveness’, i.e., (3.37), whereas ‘Assurance’ got the lowest score, i.e., (3.08).

7.4.6. Central library of NEHU

Table 6.9.7 reveals the comparative analysis of six dimensions of library service quality, which were collected from the users of NEHU library. The overall average mean of each dimension analysis shows that ‘Responsiveness’ perceived the highest score, i.e., (2.61), followed by ‘Reliability’ and ‘Assurance’, i.e., (2.50), whereas the service quality dimension of ‘Access’ score, i.e., (2.47), followed by ‘Communication’ i.e., (2.44), whereas ‘Tangible’ scored the lowest, i.e., (2.31).
7.4.7. Central library of VBU

The comparative analysis of six dimensions of service quality, which were collected from the users of VBU has been analysed and presented in table 6.10.7. it shows that ‘Assurance’ perceived the highest score, i.e., (3.18), followed by ‘Tangible’ and ‘Reliability’ score, i.e., (2.70), followed by the service quality dimension of ‘Communications’ score, i.e., (2.63), followed by ‘Responsiveness’, i.e., (2.58), whereas ‘Access’ scored the lowest, i.e., (2.57).

7.4.8. Major findings of Reliability Dimension

It is found that DU has got the highest mean score, i.e., (3.94), followed by JMI (3.55), followed by AMU got third position with the score of (3.51) and JNU got forth position with (3.45) score. The BHU and VBU scored (3.33) and (2.70), got the fifth and sixth position respectively. NEHU scored the lowest, i.e., (2.50) for the Reliability dimension.

Further items wise analysis indicates that ‘Giving correct answers to reference questions’ scored the highest for user groups of DU, i.e., (4.25), whereas NEHU scores (2.42), which is the lowest mean score of the respondents.

With regard to ‘Making relevant information available’ users of the Central Reference Library of DU scored the highest, i.e., (4.01), whereas NEHU scored (2.63), which is the lowest mean score of the respondents.

The item ‘keeping records consistent with actual holdings/status’ scored the highest for user groups of Central Reference Libraries of DU, i.e., (4.10), whereas NEHU scored (2.33), which is the lowest mean score of the respondents.

Regarding ‘Keeping computer databases up and running’, MA Library of AMU scored the highest, i.e., (3.88), whereas NEHU scored (2.57), which is the lowest mean score of the respondents.

The attribute ‘Making sure that overdue notices and fine notices are accurate.’ scored the highest for user groups of MA Library of AMU, i.e., (3.70), whereas NEHU scored (2.57), which is the lowest mean score of the respondents.

It can be inferred that Central reference Library of DU is more conscious and aware with service quality of Reliability dimension, whereas NEHU is the least concerned about service quality of dimension Reliability.

7.4.9. Major findings of Responsiveness Dimension

Table 6.11.2 shows that the overall mean score of perceptions of service quality of Responsiveness, which were collected from users of seven respective
central university libraries of India to measure the readiness and timelines of library staff to provide information and services.

It indicates that the overall mean score of ‘Responsiveness’ dimension. The Central Reference Library of DU got the highest score, i.e., (3.86), followed by BHU (3.63), whereas JNU got third position with the score of (3.37), and JMI got fourth position with (3.27) score. AMU and NEHU further scored (3.12) and (2.61) and got the fifth and sixth position respectively. VBU scored the lowest, i.e., (2.58) of Responsiveness dimension.

Further the attributes ‘Making new information available’ scored the highest for user groups of Central Reference Library of DU, i.e., (3.98), whereas NEHU scored (2.57), which is the lowest mean score of the respondents.

The item ‘Timeliness delivery of information’ scored the highest for user groups of Central Reference Library of DU, i.e., (4.16), whereas NEHU scored (2.50), which is the lowest mean score of the respondents.

The item ‘Re-shelving of books’ scored the highest for user groups of Central Library of JNU, i.e., (3.87), whereas, AMU scored (2.88), which is the lowest mean score of the respondents.

The attribute ‘Effective ILL System’ scored the highest for user groups of Central Reference Library of DU, i.e., (3.94), whereas VBU scored (2.18), which is the lowest mean score of the respondents.

SRG Central library of BHU, got the highest, i.e., (4.05), for ‘Familiarity with OPAC’, whereas VBU scored (1.97), which is the lowest mean score of the respondents.

The item ‘Recency of journals and newspapers’ scored the highest for user groups of BHU, i.e., (3.72), whereas VBU scored (2.03), which is the lowest mean score of the respondents.

After analyses, it can be inferred that Central Reference Library of DU is more conscious and aware of service quality of Reliability, whereas Central Library NEHU is least concerned about the service quality of Reliability dimension.

7.4.10. **Major findings of Assurance Dimension**

The Central Reference Library of DU got the highest score, i.e., (3.97), followed by BHU (3.76), whereas AMU got third position with the score of (3.65) and JMI got forth position with (3.31) score. JNU and VBU scored (3.08) and (3.18) got fifth and
sixth position respectively. NEHU scored the lowest, i.e., (2.50) for the Assurance dimension.

It can be inferred from the table 6.11.3 that Central Reference Library of DU is more conscious and aware of service quality dimension of Assurance, whereas VBU is the least concerned about quality dimension Assurance. Further item wise analyses indicates that ‘Appearance of staff’ scored the highest for user groups of DU, i.e., (4.24), whereas NEHU scored (2.69) which is the lowest mean score of the respondents. It can be inferred that the overall average mean of user groups of seven central university libraries for ‘Appearance of staff’ is (3.69) which clearly depicts that only three university libraries, i.e., AMU (3.97), BHU (3.97) and DU (4.24) recorded higher than the overall average mean.

The item ‘Thorough understanding of the collections’ scored the highest for user groups of DU, i.e., (4.03), whereas NEHU scored (2.31), which is the lowest mean score of the respondents.

The item ‘Familiarity of CD-ROM System’ scored the highest for user groups of Central Reference Library of DU, i.e., (3.95) whereas VBU scored (2.75) which is the lowest mean score of the respondents.

The item ‘Providing individual attention to users’ scored the highest for user groups of Central Reference Libraries of DU, i.e., (3.88), whereas NEHU scored (2.61) which is the lowest mean score of the respondents.

The item ‘Recognising the regular users by the library staff’ scored the highest for user groups of MA Library of AMU, i.e., (3.80), whereas VBU scored (2.51) which is the lowest mean score of the respondents.

It can be noted that the overall average mean of user groups of seven central university libraries for ‘providing individual attention to users’ is (3.25), which clearly depicts that only two university libraries, i.e., NEHU (2.61), JNU (2.63) were recorded lower than the overall average mean.

It can be inferred from the analyses that DU is more conscious and aware of service quality dimension of ‘Assurance’, whereas VBU is least concerned about the quality dimension of Assurance.

Table 6.11.4 shows that the overall mean score of perceptions service quality of Access, which were collected from users of seven central university libraries of India to measures the ability to reach out for something and finding or getting it as and when it is needed.
7.4.11. Major findings of Access Dimension

It indicates that the overall mean score of Access dimension. The Central Reference Library of DU has got the highest score, i.e., (3.81), universities libraries, followed by JMI (3.78), followed by AMU which scored (3.58) and JNU got forth position with (3.51). BHU and VBU scored (3.39) and (2.57) got the fifth and sixth position respectively, whereas NEHU scored very low, i.e., (2.47) about the quality dimensions of ‘Access’.

Further item wise analysis indicates that ‘Availability of staff at reference desk’ scored the highest for the user groups of BHU library, i.e., (4.05), whereas NEHU scored (2.38), which is the lowest mean score of the respondents.

The item ‘Availability of Xerox facility’ scored the highest for user groups of Dr. Zakir Hussain central library of JMI, i.e., (3.96), whereas VBU scored (2.66), which is the lowest mean score of the respondents.

The item ‘Availability of computer terminals’ scored the highest for user groups of Central Reference Library of DU, i.e., (3.87), whereas VBU scored (2.05), which is the lowest mean score of the respondents.

The item ‘Library opening hours’ scored the highest for user groups of MA library of AMU, i.e., (4.15), whereas VBU scored (2.27) which is the lowest mean score of the respondents.

It can easily be concluded that Central Reference Library of DU is more conscious and aware of service quality of Access, whereas NEHU is least concerned about the service quality of Access dimension.

7.4.12. Major findings of Communications Dimension

The overall mean score of perceptions of service quality of Communications, which were collected from users of seven central university libraries of India to measure the ability to keep clients informed in a language they understand and the ability to listen to them has been presented in table 6.11.5. The overall mean score of Communications dimension indicates that the Central Reference Library of DU got the highest, i.e., (3.64), followed by BHU (3.44), followed by AMU which the scored (3.37) and JMI got forth position with the score of (3.36). JNU and VBU scored (3.23) and (2.62) achieved the fifth and sixth
position respectively whereas NEHU scored the lowest, i.e., (2.44) about the service quality dimension of Communications.

Further items wise analysis shows that ‘Awareness of library facilities and services’ scored the highest for user groups of BHU library, i.e., (4.10), whereas NEHU scored (2.50), which is the lowest mean score of the respondents.

The item ‘Provision of user education’ scored the highest for user groups of Central Library of JNU, i.e., (3.52), whereas NEHU scored (2.21) which is the lowest mean score of the respondents.

The item ‘Availability, clarity, easy in uses of OPAC User manual’ scored the highest for user groups of Central Reference Libraries of DU, i.e., (3.82) whereas NEHU scored (2.24) which is the lowest mean score of the respondents.

The item ‘Availability, clarity, easy in uses of CD-ROM user manual’ scored the highest for user groups of Central Reference Libraries of DU, i.e., (3.81), whereas VBU score (2.32), which is the lowest mean score of the respondents.

The item ‘Assuring the users that her/his Problem will be handled’ scored highest for user groups Central Reference Libraries of DU, i.e., (3.95), whereas NEHU score (2.59), which is the lowest mean score of the respondents.

It can be inferred from the table 6.11.5 that Central Reference Libraries of DU is more conscious and aware of service quality of Communications, whereas NEHU is least concerned about the service quality dimension of Communication.

7.4.13 Major findings of Tangibles Dimension

Table 6.11.6 indicates that the overall mean score of perceptions of service quality of Tangible, which were collected from users of seven respective central university libraries of India to measure the maintenance and physical facility.

It indicates that the overall mean score of Tangibles dimension. The Central Reference Library of DU has got the highest score, i.e., (3.94) followed by JNU (3.82), whereas AMU got third position with the score of (3.61) and JMI got forth position with (3.36) score. JNU and VBU scored (3.23) and (2.62) got the fifth and sixth position respectively whereas NEHU scored the lowest, i.e., (2.44) about the service quality dimension of Tangibles.

Further item wise analysis indicates that ‘Library furniture’ scored the highest for user groups of central library of JNU, i.e., (4.32), whereas NEHU score (2.54), which is the lowest mean score of the respondents.
The item ‘Temperature setting in library’ scored the highest for user groups of Central Reference libraries of DU, i.e., (3.95), whereas NEHU scored (2.21), which is the lowest mean score of the respondents.

The item ‘Proper illumination in the library’ scored the highest for user groups of JMI, i.e., (3.95), whereas NEHU score (2.39), which is the lowest mean score of the respondents.

The item ‘Maintenance of Silence in study hall’ scored the highest for user groups of Central Reference Libraries of DU, i.e., (4.00), whereas NEHU score (2.10) which is the lowest mean score of the respondents.

7.5 TENABILITY OF HYPOTHESES

The researcher developed hypotheses based on the objectives of the research through answer the research questions. They were tested with the help of statistical tools and SPSS (Statistical Package for Social Science.)

HYPOTHESES-1

There is no significant difference in the perception of service quality dimensions of the seven central universities libraries of India.

The service quality was considered in terms of the six dimensions, i.e., tangibles, reliability, responsiveness, assurance, communications and tangibles. The results of the tests of hypotheses showed that the perceptions of service quality in central university libraries. The null hypotheses were tested using the ANOVA test. The hypotheses were accepted at level of significance 0.05.

Reliability Dimension:

Table 6.12.1.1 shows the result of ANOVA. It indicates that F value is significant as the calculated value is greater then the tabulated value. The calculated value of F= 17.73 with (6,28) degree of freedom is significant at 0.05 level of significance, (Tabulated Value F (6.28) (0.05) = 2.4453). Therefore null hypothesis is rejected.

It can be concluded that there is a significant differences in perceptions level of users of seven central university libraries for the service quality dimension of Reliability.

Responsiveness Dimension

Table 6.12.2.1 indicates that F value is highly significant as the calculated value is greater then the tabulated value. The tabulated value F= 10.92 with (6,35)
degree of freedom is significant at the 0.05 level of significance (Tabulated Value $F_{(6.35)}^{(0.05)} = 2.3782$).

Therefore null hypothesis is rejected. It implies that there is a significant difference in perceptions level of users of the seven central university libraries for the service quality dimension of Responsiveness.

**Assurance Dimension**

From the table 6.12.3.1 indicates that F value is highly significant as the calculated value is greater than the tabulated value. The calculated value $F = 13.88$ with (6,28) degree of freedom is significant at the 0.05 level of significance (Tabulated Value $F_{(6,28)}^{(0.05)} = 2.4453$). Further, it highlights that that there is a significant difference in the perception level of users of seven central university libraries for the quality dimension ‘Assurance’. Therefore null hypothesis is rejected.

**Access Dimension**

From the table 6.12.4.1 reveals the result of ANOVA test. It indicates that F value is highly significant as the calculated value is greater then the tabulated value. The calculated value $F = 15.94$ with (6.28) degree of freedom is significant at the 0.05 level of significance, (Tabulated Value $F_{(6,28)}^{(0.05)} = 2.4453$). It can be highlights that the there is a significant difference in the perception level of users between seven central university libraries for the quality dimension Access is concern. Therefore null hypothesis is rejected.

**Communications Dimension**

It is evident from table 6.12.5.1 shows the result of ANOVA. It indicates that F value is highly significant as the calculated value is greater then the tabulated value. The tabulated value $F = 7.38$ with (6, 28) degree of freedom is significant at the 0.05 level of significance, (Tabulated Value $F_{(6,28)}^{(0.05)} = 2.4453$).

It may be conclude that there is a significant difference in the perceptions level of users of the seven central university libraries for the quality dimension of ‘Communications’. Therefore, null hypothesis is rejected.

**Tangible Dimension**

It can be observed from the table 6.12.6.1 that F value is highly significant as the calculated value is greater then the tabulated value of the result of ANOVA. The calculated value $F = 19.48$ with (6,21) degree of freedom is significant at the 0.05 level of significance (Tabulated Value $F_{(6,21)}^{(0.05)} = 2.5727$). Therefore null hypothesis is rejected. It can be summarised that there is a significant differences in
the perceptions level of users of seven central university libraries as far as quality dimension Tangible is concern.

**HYPOTHESES-2**

*There is no significant difference in the perception of services quality dimensions among research scholars and faculty member's with central university libraries of India.*

The investigator used 't'-test to test the significant difference in the perception of service quality dimensions among the faculty members and research scholars of central university libraries of India.

**MA Library of AMU**

Table 6.13.1.1 show that calculated value of statistic t is (0.53) which is less than the tabulated value (2.2280). The null hypothesis may be accepted at 5% level of significance. Hence it can be concluded that there is no significant difference between the perception of research scholars and faculty members of AMU.

**SRG Central library of BHU**

Table 6.13.2.1 reveals that the calculated value of statistic t is (0.012) which is less than the tabulated value (2.228). The null hypothesis may be accepted at 5% level of significance. Hence, it can be concluded that there is no significant difference between perception of research scholars and faculty members of BHU.

**Central Reference Library of DU**

Table 6.13.3.1 reveals that calculated value of statistic t is (0.910) which is less than the tabulated value (2.228). The null hypothesis may be accepted at 5% level of significance. Hence it can be concluded that there is no significant difference between the perception of research scholars and faculty members of DU.

**Dr. Zakir Hussain Library of JMI**

Table 6.13.4.1 reveals that the calculated value of statistic t is (0.509) which is less than the tabulated value (2.228). The null hypothesis may be accepted at 5% level of significance. Hence, it can be concluded that there is no significant difference between the perceptions of research scholars and faculty members of JMI.

**Central Library of JNU**

Table 6.13.5.1 reveals that the calculated value of statistic t is (0.395) which is less than the tabulated value (2.228). The null hypothesis may be accepted at 5% level of significance. Hence, it can be concluded that there is no significant difference between the perceptions of research scholar and faculty members of JNU.
Central Library of NEHU

Table 6.13.6.1 reveals that the calculated value of statistic t is (0.864) which is less than the tabulated value (2.228). The null hypothesis may be accepted at 5% level of significance. Hence it can be concluded that there is no significant difference between the perceptions of research scholar and faculty members of NEHU.

Central Library of VBU

Table 6.13.6.1 depicts that the calculated value of statistic t is (0.767) which is less than the tabulated value (2.228). The null hypothesis may be accepted at 5% level of significance. Hence, it can be concluded that there is no significant difference between the perceptions of research scholars and faculty members of VBU.

HYPOTHESES-3

All the seven central university libraries are maintaining the level of quality management standards and services

The investigator used mean chart and standard deviation chart for analysing the service quality level in the seven central university libraries of India. Mean chart shows the variation/deviation in standard (desired) quality level. Standard level of quality is being measured by taking the average of values (responses) obtained for a particular dimension.

Reliability Dimension

From the fig. 6.14.1.1 and 6.14.1.2 for the dimension Reliability, It can be concluded that DU is best in maintaining service quality of TQM standards as far as the ‘Reliability’ dimension is concerned. AMU, BHU, JMI and JNU Libraries are also good in maintaining service quality of TQM standard, but the two other central university libraries, i.e., NEHU and VBU are not having TQM standards as far as the ‘Reliability’ dimension is concerned.

Responsiveness Dimension

From the fig.6.14.2.1 and 14.2.2 for the Responsiveness dimension, it can be noted that DU is best in maintaining service quality of TQM standards as far as the Responsiveness Dimension is concerned. AMU, BHU, JMI and JNU are also good in maintaining service quality of TQM standard, but the two other central university libraries, i.e., NEHU and VBU are not having TQM standards as far as the ‘Responsiveness’ Dimension is concerned.
Assurance Dimension

From the fig.6.14.3.1 and 14.3.2 charts for the ‘Assurance’ dimension. It can be concluded that DU is best in maintaining service quality of TQM standards as far as the Assurance dimension is concerned. AMU, BHU, JMI and JNU are also good in maintaining service quality of TQM standard, but central university libraries of NEHU is not having TQM standards as far as the ‘Assurance’ dimension is concerned.

Access Dimension

From the fig.6.14.4.1 and 14.4.2 chart for the ‘Access’ dimension, it can be concluded that DU and JMI are best in maintaining service quality of TQM standards as far as the Access dimension is concerned. AMU, BHU and JNU are also good in maintaining service quality of TQM standard, but the two other central university libraries of NEHU and VBU are not having TQM standards as far as the ‘Access’ dimension is concerned.

Communications Dimension

From the fig.6.14.5.1 and 14.5.2 charts for the ‘Communications’ dimension, it can be found that DU is best in maintaining service quality of TQM standards as far as the communications dimension is concerned. AMU, BHU, JMI and JNU are also good in maintaining service quality of TQM standard but the other two central libraries, i.e., NEHU and VBU are not having TQM standards as far as the ‘Communication’ dimension is concerned.

Tangible Dimension

From the fig.6.14.5.1 and 14.5.2 charts for the dimension Tangible, it can be concluded that, DU and JNU are best in maintaining service quality of TQM standards as far as the communications dimension is concerned. AMU, BHU and JMI are also good in maintaining service quality of TQM standard but the two other central universities libraries, i.e., NEHU and VBU are not having TQM standards as far as the Tangible dimension is concerned.

HYPOTHESIS-4

All central university libraries have implemented Total Quality Management principles and practices.

It can be observed from the table 6.2.1 that majority of central university libraries are under the process of the applying of TQM, i.e., 85.71%, whereas BHU
library is still planning to apply TQM principle and practices. So hypothesis is proved to be true.

**HYPOTHESIS-5**

*All central university libraries are not certified with ISO.*

Table 6.2.4 depict that all central university libraries are not certified with ISO. It is clear from the 85.71% of the central university library clear from the findings that libraries are planning to get the certification from ISO except Central Library of VBU reported of no further plan to get the certification of ISO.

**CONCLUSION**

The main objectives of this study were to examine the application of total quality management (TQM) in central university libraries of India. The study find out the existing level of quality based services and facilities in seven Central University Libraries and perceptions about the service quality and implementation of TQM elements. The aim of the research is to measures the user’s perceptions about quality service in university library. To measure the outcome performance and perceptions of quality services through users and librarian, two sets of questionnaire were designed for the investigation of TQM, first set of questionnaire was designed for the librarians of seven respective central university libraries to examine the status and level of TQM element. These include Leadership, Policy and Strategies, Staff Management, Resources and Process. The second set of questionnaire was designed for user groups of research scholar and faculty members. It includes 33 open ended and closed-ended questions referring to different aspects of service quality in an academic library. The questionnaire reflected six dimensions of quality services, i.e., Reliability, Responsiveness, Assurance, Access, communication and Tangibles. All the closed-ended questions were designed to solicit responses on a five-point Likert scale for both types of respondents to measure perception of service quality.

The quantitative and qualitative data collected through questionnaire and informal interview were organized and tabulated by using statistical methods, tables and percentage, mean and average mean. After gathering the questionnaires, the survey data was keyed in Excel file. Before transferring to SPSS version 16.0, the procedures of data treatment were set to validate the data for further analysis. After data treatment, the data was transferred to SPSS Version 16.0 and do statistical
analysis in order to accomplish the purposes of the study. For the analysis, the user’s perception score for each item in the all dimensions were calculated in the form of means, average mean and Standard Deviation (SD). Further to substantiate the data, statistical tests have been conducted namely ANOVA, t-test and control chart for mean.

Analyses of Variance (ANOVA) test were used to identify the differences of service quality dimensions in central university libraries of India and t-test was used to measure the significant differences between perception of service quality of the research scholars and faculty members. For measuring of quality levels, mean control charts were used. On the basis of findings and testing of hypothesis, there is a significant difference in the perceptions level of users of the seven central university libraries for the quality dimension of Reliability, Responsiveness, Assurance, Access, communication and Tangibles. The mean score of each dimension shows that the perception of users about the service quality dimensions in Central Reference Library of DU highest. It shows that research scholars and faculty member are very much satisfied with the services quality dimensions of TQM. On the other hand, the mean score indicates the perception of central library of NEHU users not satisfied with service quality dimensions.

The investigator used 't'-test to test the significant difference in the perception of service quality dimensions among the faculty members and research scholars at 5% level of significance. The result shows that there is no significant difference between the perception of research scholars and faculty members of seven central university libraries. So, the level of perceptions of service quality among the faculty members and research scholars are almost same.

From the table of mean standard charts It is concluded that the central reference library of DU is best in maintaining service quality of TQM standards and AMU, BHU, JMI and JNU Libraries also good in maintaining service quality of TQM standard, but the two other central university libraries, i.e., NEHU and VBU are not having TQM standards as far as the ‘Reliability’ dimension is concerned. NEHU and VBU libraries should try to improve the standard and services.

On the basis of aforesaid mentioned studies, conclusions were drawn and recommendations were made for providing quality based services in all libraries under study. Most of the central university libraries has good collection of all kinds of documents in book and non-book forms. They have almost the same automated
operational infrastructure facilities in their libraries. TQM demands time and persistence. To succeed in an organisation there must be support at the very top and commitment at all levels. It is necessary that all groups of people in an organisation are included in the process. TQM implementation requires patience and tolerance as it is a time consuming process. Therefore, implementation of TQM is not a guarantee of the highest quality but it is a step in the right direction. TQM implements a philosophy of strong leadership participation, policy and strategy of LIS staff management, process and the education of all employees. TQM is proven to be profitable when implemented in a successful way, but there are also problems with the implementation. In the other word, there is a need for an increased focus on the area of organizational change related to TQM. Resistance to change and people’s attitudes are the primary hindrances to implementing TQM in university libraries. The other barriers are the problems of finding the money and time for training while maintaining current services in the university library. Successful TQM implementation requires a thorough understanding of critical success factors, barriers in achieving these factors, and managerial tools and techniques to overcome these barriers. Research in developed countries listed top management commitment to TQM, training for TQM throughout the organization, customer focus and continuous improvement, and a focus on employee involvement and empowerment as the key determinants of successful TQM implementation in university library.

Finally researcher concluded that Information is now considered as an important resource for socio-economic development of a society. So value added information service can only provide the conformance to the requirement of the users and their satisfaction. Libraries adopt management techniques to give their best in the form of service and products to its users. But it is very difficult to give best products and services, if there is no precise definition of what the best is in terms of library goals. There is no universally acceptable tool and techniques to measure, control and improve the quality of products and services in university libraries. Total Quality Management (TQM) is one of such techniques used for the improvement and maintenance of quality or performance of the university libraries. Therefore, it is necessary for library and information professionals to understand core concepts, methods and techniques used in TQM. TQM in the context of libraries is to provide the right information to right user at the right place and time and also at the right cost.
TQM involves defining the output to the requirement, assigning the process (action, methods and operations) specifying input requirement (men, machines, materials, information, skills etc.) maintaining, monitoring / controlling the adherents to user requirement, identifying changes in users requirements, communicating changes in process and inputs. TQM requires continuous improvement of all operations and activities in the organization. It is recognized that customer satisfaction can only be obtained by providing a high quality product or service and continuous improvement of the quality of the product / services is the only way to maintain a high level of customer satisfaction. As the product / output quality is the result of process quality, it must also be improved continuously, so measurement and monitoring of all activities and process is necessary as part of quality improvement programme.

Customer/ users requirements are not restricted to the needs of functionality of a product or service, but may relate to ease of use, availability, delivery method, familiarity, reliability, time effectiveness, reputation, enjoyment, etc. It is necessary to understand what the users actually need and design the service and deliver them to satisfy the expectations of users. This is necessary for the successful implementation of TQM in libraries.

In the context of TQM quality is defined as meeting the requirements of customers, both internal and external customers. Understanding the needs and requirements of both these users are compulsory for the success of TQM in libraries. The quality chain in a library comprises supplier customer interaction from the external supplier; through numerous customer suppliers inter faces within the library.

Identification of the internal and external user is very important in TQM. In libraries, the external customer is the real user, but in certain situations the same users becomes a supplier as like the book supplier or the services suppliers or the library staff. Similarly, the library staff also becomes the use as like the original user in the library. For example, the library staffs who deals the book selection work is a supplier of book details to the order clerk, but at the same time, he is the user/customer who receive request from the original user. Both the library staff and the original user in a library play such customer-supplier roles. So satisfaction of the needs and requirements of these users is very important in TQM.

TQM maintains and improves all library processes automatically by a process of designing, controlling, detecting and implementing. The prevention of errors and wastages of resources, like material, effort, time, etc are vital to the success of TQM.
in university library. TQM recognizes that the achievement of the right first time depends not only on management commitment but also on the involvement of all staff. Through setting clear objectives, making the employees properly trained and providing them with good working facilities, the library can prevent wasted efforts and errors and target the services to meet the customer requirements, make the efficient use of the resources and increase the satisfaction of users.

The library management concentrates on the staff, their empowerment, satisfaction and commitment to service quality. This will create a culture compatible with TQM. All library activities and processes must be defined, described and recorded in the form of staff manual, policies and programs etc. The managerial experiences of implementing TQM in libraries emphasized the need of well-defined quality policy, design and development of systems and procedure manuals in libraries. These manuals are the good source of information to staff, users, management, and auditors, to understand the services offered, procedures and programs carried out, responsibilities of staff, systems used etc.

The librarian should be committed to the users, profession, basic human value and excellence and this has to be communicated to lower level properly and clearly. The librarian should have a clear vision about the performance and quality of the library services provided and it must be recorded properly. It will equip the library staff with sense of purpose, confidence, determination and committed effort to produce good results.

Effective functioning of a library is vested on the trust between the librarian and the other library staff. A well defined library system ensures optimum utilization of skills and knowledge of the library staff. An open system will ensure trust among the library staff and permit two-way communication between the staff and librarian. A well designed library staff manual covering job description, role duties and responsibilities, tools and techniques, etc. Teamwork in libraries is essential for the success of TQM. It enables the management to get diverse talents, skills, expertise and experience of other to the problem solving tables.

SUGGESTIONS AND RECOMMENDATION

Based on the above discussion and observations, following suggestions are made for the implementation of quality in university libraries.

1. Most of the central university libraries are planning to apply the principles and element of TQM and result also indicates that no one library is certified with
ISO. So it can be strongly recommended that librarian should try to implement the TQM Philosophy in library and information system.

2. All the central university library should appoint a qualified quality consultant for improvement of quality based services and product.

3. Seminar and workshop related to quality management should be conducted regularly. This will help them to be responsive and learn new way and techniques of doing things.

4. Quality based collection of resources should be increased for the students and research scholars.

5. Inter library loan service must be enhanced and made effective. The ILL regulations must be officially set in all university libraries.

6. The user satisfaction cannot always be equated to the success or failure of the system, but often it is an important source for pointing out the loopholes in the system and its services.

7. Feedback from learners and faculty is essential for continuous improvement in quality of information services.

8. Assessment of LIS services in the framework suggested above will help the LIS professionals to improve and implement quality information services.

9. There is a need to develop standards / norms for assessing quality of information services with particular reference to academic Libraries.

10. There is a need to evolve methodologies and mechanisms for improvement of quality information services.