CHAPTER-5

VERIFICATION OF THE HYPOTHESES, FINDINGS, SUMMARY & CONCLUSION

5.1 Introduction

Any college or educational institute has to inevitably endure library services and facility, so that to be academically well achieved and to facilitate the need of students and researches in its block. Library as a part of the institution, augments the reputation and the status of that specific institution, as to scholastically grow and get accreditation by many National and International organizations/Boards; which grades these institutions and categorizes them according to their academic environment; while doing so these organizations (like UGC, AICTE etc.) try and look for many criteria to gauge and elucidate the quality of the institution by its participation in bringing up the quality of education and research intuition in student bodies. Total Quality Management is such a measuring tool which constructs and draws information of libraries’ contributions in afore mentioned features of any given institution to validate its ability and accomplishment level. In this background, the researcher undertook this subject of study and has come to the below endured results through analyzing the raised hypothesis.

This chapter deals with the verification of hypothesis, main findings, implications and benefits of the TQM in management college libraries. The chapter ends with the detailed suggestions to improve TQM and suggestion for future researches with the conclusion.
<table>
<thead>
<tr>
<th>Hypotheses No.</th>
<th>Statement</th>
<th>A/R/PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>TQM applications in management colleges are up to the mark with reference to libraries</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>Management colleges accredited by different agencies differ significantly in their TQM scores with special reference libraries</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>Management college libraries selected for the study have adequate facilities</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4</td>
<td>Management college libraries selected for the study have adequate services</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5</td>
<td>Different types of management college libraries differ significantly in their opinion on TQM scores</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6</td>
<td>Management colleges with and without ISO certifications differ significantly in their opinion on TQM</td>
<td>Rejected</td>
</tr>
<tr>
<td>H7</td>
<td>Secondary variables such as establishment year, qualification, experience, and gender significantly influence the perception on TQM</td>
<td>Rejected</td>
</tr>
<tr>
<td>H8</td>
<td>Management college libraries with inadequate, adequate and excellent infrastructural facilities differ significantly in their TQM adoption</td>
<td>Partially Accepted</td>
</tr>
<tr>
<td>H9</td>
<td>Management college libraries with inadequate, adequate and excellent library services differ significantly in their TQM adoption</td>
<td>Partially Accepted</td>
</tr>
</tbody>
</table>
5.2 Verification of hypotheses

5.2.1 H1: TQM applications in management colleges are up to the mark

H1 stated as ‘TQM applications in management colleges are up to the mark’ is accepted as in the components of TQM, the observed values were significantly more than the expected values. In other words, the application of TQM in management libraries was up to the mark. Further, one sample ‘t’ tests revealed significant differences between expected and observed values, except for the component Training and development strategy. The observed mean values for Leadership, Policy and strategy, Staff management, Team work, Training and development strategy, Resources and Processes were 48.81, 57.90, 55.57, 25.83, 23.38, 21.60, and 16.38 irrespectively as against the expected values of 45, 49, 49, 22.5, 22.5, 18.75, and 15. The total observed mean TQM scores were 249.47 as against the expected value of 228.75. All these clearly indicate that on the whole the application of TQM is well maintained in the management libraries of Bangalore (Table 4.1).

When TQM components were ranked for their applications, following trends were observed. Policy and strategy component ranked 1 with 57.90 (89.08%) of the application, followed by Resources 21.60 (86.40%), team work 25.83 (86.10%), staff management 55.57 (85.49%), processes 16.38 (81.90%), leadership 48.81 (81.35%) and least application of TQM was found for Training and development strategy with rank 7 (Table 4.2).

Hence H1 stated as ‘TQM application in management colleges are up to the mark’ is accepted as it is noticed that on an average in all the components of TQM as well as in total TQM scores, the observed scores were much more than the expected scores.

5.2.2 H2: Management colleges accredited by different agencies differ significantly in their TQM scores

H2 stated as ‘Management colleges accredited by different agencies differ significantly in their TQM scores’ is accepted as One way ANOVA revealed significant differences between non accredited, NAAC, NBA and EQUIS accredited institutions in TQM scores. F tests revealed significant differences both in individual components and in total scores. The F values obtained for leadership (F=5.541; P
value=.002), policy and strategy (F=7.792; P value=.000), staff management (F=4.108; P=.011) team work, (F=4.586; P=.007), training and development strategy (F=3.780; P=.016), resources (F=7.292; P=.000) and processes (F=5.519; P=.002). On the whole it is evident from the table that EQUIS had least TQM, followed by non accreditation, NAAC and NBA accreditation had highest TQM scores (Table 4.3, Table 4.4 and Table 4.5).

Hence H2 stated as ‘Management colleges accredited by different agencies differ significantly in their TQM scores’ is accepted as the test statistics clearly revealed that accreditation process by different agencies had significant influence over TQM scores.

5.2.3 H3: Management college libraries selected for the study have adequate facilities

H3 Stated as ‘Management college libraries selected for the study have adequate facilities’ is accepted as we find that in most of the management libraries 51 (96.2%) have provided adequate facilities like photocopier, telephone/intercom, fax 38 (71.7%), DVD player 43 (81.1%), audio-visual system 40 (75.5%), scanner and multimedia each with 45 (84.9%), bar coding/RFID system 44 (83.0), library software 45 (84.9), OPAC search 46 (86.8%), digital library 45 (84.9), UPS/diesel generator 42 (79.2), local area network 51 (96.2), AV/seminar room 35 (66.0%), newspaper/magazine section 52 (98.1%), suggestions/complaint box 45 (84.9%) and rest room 38 (71.7%) to a large extent and chi-square tests further confirmed by significant probability values of .000 level. Only in the case of Research Cabins/Private Study, we find 24 (45.3%) of the availability, which was found to be less significant (P value=.000) (Table 4.6 and Table 4.7).

Hence H3 stated as Management college libraries selected for the study have adequate facilities’ is accepted as we find that most of the management college libraries have provided adequate facilities except for Research Cabins/Private Study.

5.2.4 H4: Management college libraries selected for the study have adequate services

H4 Stated as ‘Management college libraries selected for the study have adequate services’ is accepted as we find that most of the management college
libraries have provided services - photocopying 50 (94.3%), bibliographies 36 (67.9%), reference 53 (100%), paper clippings 51 (96.2), current awareness 46 (86.8%), SDI services 38 (71.7%), abstracting 33 (62.3), indexing 32 (60.4%), inter library loan 41 (77.4%) internet 51(96.2%) and literature search 34 (64.2%) we find significantly higher extent of services provided by the libraries. Further, these findings were confirmed by chi-square tests, where all the obtained chi-square values were found to be significant at .000 level. Only in the case of translation, we find only 5 libraries were offering the services and a large majority of the libraries were not offering translation services (Table 4.8).

Hence, H4 stated as ‘Management college libraries selected for the study have adequate services’ is accepted as we find sufficient provision of services, except for translation services.

5.2.5 H5: Different types management college libraries at different levels differ significantly in their opinion on TQM scores

H5 stated as ‘Different types of management college libraries differ significantly in their opinion on TQM scores’ is rejected as One way ANOVA revealed non-significant differences between different types of management colleges in their TQM scores. The F values obtained for leadership (F=.494; P value=.779), policy and strategy (F=.207; P value=.958), staff management (F=.389; P value=.854), team work (F=.276; P value=.924), training and development strategy (F=.335; P value=.889), resources (F=.130; P value=.985) and processes (F=.495; P value=.778) and total TQM scores (F=.279; P value=.923). In other words the management college libraries selected for the TQM assessment had similar levels of scores in individual components as well as in total TQM (Table 4.9, Table 4.10, Table 4.11 and Table 4.12).

Hence, H5 stated as ‘Different types of management college libraries differ significantly in their opinion on TQM scores’ is rejected as the one way ANOVA revealed non-significant differences between different types of management
5.2.6 H6: Management colleges with and without ISO certifications differ significantly in their TQM

H6 stated as ‘Management colleges with and without ISO certifications differ significantly in their TQM’ is rejected as independent samples ‘t’ tests revealed non-significant differences between those colleges with and without ISO certification in TQM scores. ‘t’ tests revealed significant differences both in individual components and in total scores. The t values obtained for leadership (t=1.0; P value=.322), policy and strategy (t=1.187; P value=.241), staff management (t=1.9; P value=.063), team work (t=1.273; P value=.209), training and development strategy (t=1.568; P value=.123), resources (t=.205; P value=.838) and processes (t=.338; P value=.737) and for total TQM scores (t=1.37; P value=.177). On the whole it is found that ISO certification did not have significant influence over TQM scores (Table 4.13).

Hence H6 stated as ‘Management colleges with and without ISO certifications differ significantly in their TQM’ is rejected as it is clear that non-significant differences between those management college libraries with and without ISO certification in TQM scores. ‘t’ tests revealed significant differences both in individual components and in total scores.

5.2.7 H7: Secondary variables such as establishment years, qualification, experience, gender and age significantly influence perception on TQM

H7 stated as ‘Secondary variables establishment years, qualification, experience, gender and age significantly influence perception on TQM’ is rejected as most of the test statistics revealed non-significant differences between the selected demographic variables on TQM scores.

a. TQM and years of establishment

One way ANOVA revealed non-significant differences between colleges with different establishment years (<10, 11-20, 21-30 and above 30 years) in their TQM scores. The F values obtained for leadership (F=1.551; P value=.213), policy and strategy (F=.517; P value=.673), staff management (F=.290; P value=.832), team work (F F=.705; P=.554), training and development strategy (F=2.641; P=.060), resources (F=.896; P value=.450), processes (F=.549; P value=.651) and total TQM
scores \((F=0.847; P \text{ value}=0.475)\). In other words the management libraries selected for
the TQM assessment with different years of establishment had similar levels of scores
in individual components as well as in total TQM (Table 4.14 and Table 4.15).

b. TQM and educational level

Educational qualification of the respondents did not have significant influence
over TQM scores of the libraries either individually or in total TQM scores. When the
data were subjected to One way ANOVA, following results were found. ANOVA
revealed non-significant differences between respondents with different qualifications
M.L.I.Sc, M.Phil and Ph.D) in their TQM scores. The F values obtained for leadership
\((F=0.064; P \text{ value}=0.938)\), policy and strategy \((F=0.138; P \text{ value}=0.871)\), staff
management \((F=0.290; P \text{ value}=0.750)\), team work \((F=1.199; P \text{ value}=0.310)\), training
and development strategy \((F=0.756; P \text{ value}=0.475)\), resources \((F=0.232; P \text{ value}=0.794)\),
processes \((F=0.179; P \text{ value}=0.837)\) and total TQM scores \((F=0.061; P \text{ value}=0.941)\). In
other words respondents educational levels did not influence TQM score both in
individual components as well as in total TQM (Table 4.16).

c. TQM and experience

One way ANOVA revealed non-significant differences between respondents
with varied levels of experience (<5, 5-10, 11-15, 16-20 and 20 years) in their TQM
scores. The F values obtained for leadership \((F=0.359; P \text{ value}=0.837)\), policy and
strategy \((F=0.594; P \text{ value}=0.669)\), staff management \((F=0.811; P \text{ value}=0.524)\), team
work \((F=1.466; P \text{ value}=0.227)\), training and development strategy \((F=0.042; P
\text{ value}=0.997)\), resources \((F=0.427; P \text{ value}=0.788)\), processes \((F=0.898; P \text{ value}=0.472)\) and
total TQM scores \((F=0.509; P \text{ value}=0.729)\). One can definitely conclude that
experience of the teachers was independent of TQM scores both in individual
components and total TQM scores, where experience of the teachers did not affect the
TQM scores as revealed by the test statistics (Table 4.17 and Table 4.18).

d. TQM and gender

Male and Female librarian’s respondents differed significantly in their
assessment of TQM scores at least in 2 of the components of TQM. In the case of
staff management \((t=2.399; P \text{ value}=0.020)\) and in training and development strategy
\((t=2.009; P \text{ value}=0.050)\) female respondents had higher scores compared to male
respondents. In rest of the components of TQM and in total TQM scores, male and
female respondents had similar scores as revealed by the non-significant t values. In leadership (t=1.183; P value=.242), policy and strategy (t=1.494; P value=.141), team work (t=0.848; P value=.400), resources (t=1.696; P value=.096), processes (t=1.152; = P value.255) and for total TQM scores (t=1.847; P value =.071). In most of the components there was no significant difference between male and female respondents in their TQM scores, indicating that gender as such had some limited influence over TQM scores both for individual components and total TQM scores (Table 4.19).

e. TQM and age

One way ANOVA revealed non-significant differences between respondents belonging to different age groups (<30, 31-40, 41-50, and above 50 years) in their TQM scores. The F values obtained for leadership (F=1.776; = P value.164), policy and strategy (F=1.493; P value =.228), staff management (F=1.214; = P value.315), team work (F=1.144; P value =.341), training and development strategy (F=.255; P value =.857), resources (F=1.002; P value =.400), processes (F=1.918; = P value.139) and total TQM scores (F=1.417; P value =.249). One can definitely conclude that age groups of the respondents were independent of TQM scores both in individual components and total TQM scores, where experience of the teachers did not affect the TQM scores as revealed by the test statistics (Table 4.20).

Hence H7 stated as ‘Secondary variables such as establishment years, qualification, experience, and gender significantly influence perception on TQM’ is rejected as most of the test statistics revealed non-significant differences between the selected demographic variables on TQM scores.

5.2.8 H8: Management libraries with inadequate, adequate and excellent facilities differ significantly in their TQM adoption

H8 stated as ‘Management libraries with inadequate, adequate and excellent facilities differ significantly in their TQM’ is partially accepted as One way ANOVA clearly revealed significant difference in TQM scores of components staff management, Training and development strategy and in total TQM scores. In total TQM scores, F value of 3.857 was found to be significant at .028 level. The mean total TQM scores of libraries with inadequate, adequate and excellent facilities were
226.18, 245.22 and 263.33 respectively. The table revealed a linear increase in the TQM scores as the facility levels increased.

In the case of self management also, ANOVA revealed a significant difference (F=5.315; P value=.008), where the table revealed a linear increase in the TQM scores as the facility levels increased. The mean self management scores of libraries with inadequate, adequate and excellent facilities were 48.00, 55.56 and 59.04 respectively.

In the case of training and development strategy, again libraries with inadequate (mean 19.82), adequate (mean 23.50) and excellent (mean 24.92) facilities differed significantly. F value of 4.040 was found to be significant at .024 level (Table 4.21 and Table 4.22).

However, in rest of the components-leadership, policy and strategies, teamwork, resources and processes, libraries with inadequate, adequate and excellent facilities did not differ significantly as revealed by one way ANOVA.

Hence H8 stated as ‘Management libraries with inadequate, adequate and excellent facilities differ significantly in their TQM’ is partially accepted as it is clear that a linear increase in the TQM scores as the facility levels increased in few of the components of staff management, training and development strategy and in total TQM scores.

5.2.9 H9: Management libraries with inadequate, adequate and excellent services differ significantly in their TQM adoption

H9 stated as ‘Management libraries with inadequate, adequate and excellent services differ significantly in their TQM’ is partially accepted as one way ANOVA revealed significant difference in TQM scores of components, resources and in total TQM scores. In total TQM scores, F value of 3.141 was found to be significant at .050 level. The mean total TQM scores of libraries with inadequate, adequate and excellent facilities were 237.00, 237.94 and 263.88 respectively. Having noticed a linear increase in the TQM scores as the service levels increased.

In the case of Resources also, ANOVA revealed a significant difference (F=3.824; = P value.028), the mean self management scores of libraries with inadequate, adequate and excellent facilities were 21.42, 19.71, and 23.04
respectively. It is evident from table that libraries with excellent services had higher TQM scores (Table 4.12 and Table 4.13).

However, in rest of the components-leadership, policy and strategies, self management, teamwork, training and development strategies, and processes, libraries with inadequate, adequate and excellent services did not differ significantly as revealed by One way ANOVA.

Hence H9 stated as ‘Management libraries with inadequate, adequate and excellent services differ significantly in their TQM’ is partially accepted as extent of services, had significant influence over TQM scores in components-resources and in total TQM scores.

5.3 Main findings of the study

5.3.1 Demographic profile of management college libraries

1. Years of establishment

The data relating to management levels of 53 management colleges shows that majority 40 (75.5%) of the management libraries comes under private unaided management, 4 (7.5%) are deemed, 4 (7.5%) are private aided, 3 (5.7%) are minority management colleges, 1 (1.9%) from (UCC) University Constituent College and 1 from government management.

Further when years of establishment are verified, majority 28 (52.8%) of the management libraries were 11 to 20 years old, followed by 9 (17.0%) each libraries less than 10 years old and more than 30 years old and remaining 7 (13.2%) libraries are between 21 to 30 years old.

It is evident that deemed college were of recent in origin, followed by UCC and government college libraries which had the longest years of establishment (Table 3.1).

2. Accreditation-wise distribution

There are, 20 (37.7%) each are either accredited by NAAC or NBA, 1 (1.9%) management college library is accredited by EQUIS and 12 (22.6%) management libraries are not accredited at all (Table 3.2).
3. ISO certification of management college libraries

Majority 35 (66.0%) of management libraries have not undergone ISO certification as against only 18 (34.0%) management libraries have undergone ISO certification (Table 3.3).

5.3.2 Demographic profile of the sample

4. Age-wise distribution of respondents

There are 14 (26.4%) respondents are less than 30 years old, followed by 23 (43.4%) respondents are between the age 31 to 40 years, 7 (13.2%) are in the age group of 41 to 50 years and remaining 9 (17.0%) are in the age group of above 50 years (Table 3.4).

5. Gender-wise distributions of respondents There are 36 (67.9%) respondents are male and remaining 17 (32.1%) are female (Table 3.5).

6. Education qualification of respondents

There are 31 (58.5%) librarians who hold M.L.I.Sc degree, followed by 18 (34.0%) respondents who posses M.Phil degree and only 4 (7.5%) possess Ph.D degree. There are 4 (7.5%) respondents with Ph.D and M.Phil degree (Table 3.6).

7. Professional Experience of the respondents

There are 16 (30.2%) respondents have experience of 11 to 15 years, 14 (26.4%) have 5 to 10 years, 10 (18.9%) have less than 5 years of experience, 9 (17.0%) have experience of more than 20 years and lastly 4 (7.5%) have 16 to 20 years of experience (Table 3.7).

5.3.3 Print and e-resource collections

8. Collection of Books

a) Volumes

The data relating to total collection of books in management college libraries shows that out of the 53 college libraries, 14 (26.4%) have less than 10000 volumes, followed by 17 (32.1%) have between 10001 to 20000 volumes, 14 (26.4%) have been 20001 to 50000 volumes and remaining 8 (15.1%) have more than 50000 volumes. When chi-square test was applied to various groups of frequencies of
volumes, a non-significant difference was observed (Chi-square=3.226; P value =.358) (Table 3.8).

b) Titles

When number of titles were analyzed, it was found that 10 (18.9%) of each of the institutes possess less than 2500 and 2500 to 5000 titles respectively. 13 (24.5%) of them possess 5000 to 10000 titles, 14 (26.4%) of them possess 10000 to 20000 titles and remaining 6 (11.3%) of them possess more than 20000 titles. When chi-square test was applied to various groups of frequencies of titles, a non-significant difference was observed (Chi-square=3.698; P value =.448) (Table 3.9).

5.3.4 Journals Collection

9. National Journals

The data relating to collection of national journals shows that there are management college libraries have 9 (17%) less than 25 journals, 17 (32.1%) each libraries possess 25 to 50 and 50 to 100 journals respectively. The remaining 10 (18.9%) libraries possess more than 100 journals. Chi-square test revealed a non-significant difference between these groups of frequencies of journals (X^2=4.283; P value=.232) (Table 3.10).

10. International journals

The data relating to collection of international journals shows that there 21 (39.6%) management college libraries have less than 10 international journals, 18 (34.0%) possess 10 to 25 international journals, followed by 10 (18.9%) possess 25 to 50 international journals and remaining 4 (7.5%) have more than 50 international journals. Chi-square test revealed a significant difference between these groups of frequencies of international journals (X^2=13.491; P value=.232) further confirming that very few of the institutes possess more than 50 journals (Table 3.11).

11. Bound volumes of journals

The data relating to collection of bound volumes shows that there are 15 (28.3%) management college libraries have less than 100 bound volumes of journals, followed by 9 (17.0%) possess 101 to 250 and 251 to 500 bound volumes of journals. There are 20 (37.7%) college libraries possess more than 500 bound volumes of journals.
Chi-square test revealed a non-significant difference between these groups of frequencies of bound volumes of journals ($X^2=6.396$; $P$ value=.094) (Table 3.12).

12. Project reports

The data relating to collection of project reports shows that there are 13 (24.5%) management college libraries have less than 100 project reports, 12 (22.6%) have 101 to 500 project reports, 18 (34.0%) have 501 to 2500 reports and remaining 10 (18.9%) possess more than 2500 project reports. Chi-square test revealed a non-significant difference between these groups of frequencies of project reports ($X^2=2.623$; $P$ value=.454) (Table 3.13).

13. Patents

The data relating to collection of patents shows that there are 50 (94.3%) management college libraries do not have any patents, 1 (1.9%) each has 2, 8 and 10 patents respectively. Chi-square test revealed a significant difference between these groups of frequencies of patents ($X^2=135.906$; $P$ value=.000) further confirming that majority of the institutes do not have any patents (Table 3.14).

14. Standards and specifications

The data relating to standards and specifications shows that there are 43 (81.1%) management college libraries do not have standards, 2 (3.8%) each have either 4 and 5 standards, 1 (1.9%) each have either 15, 18, 23, 125, 800 and 7000 standards respectively. Chi-square test revealed a significant difference between these groups of frequencies of standards ($X^2=135.906$; $P$ value=.000) further confirming that majority of the institutes do not have any standards (Table 3.15).

15. Reports

The data relating to report shows that there are 36 (67.9%) management college libraries do not have any reports, 6 (11.3%) have between 1 to 50 reports, 7 (13.2%) possess 51 to 500 reports and remaining 4 (7.6%) have more than 500 reports. Chi-square test revealed a significant difference between these groups of frequencies of reports ($X^2=368.792$; $P$ value=.000) further confirming that majority of the institutes do not have any reports (Table 3.16).
16. E books

The data relating to e-books shows that there are 23 (43.4%) management college libraries have less than 25 e-books, 4 (7.5%) have 26 to 100 e-books, 17 (32.1%) have 101 to 500 e-books and remaining 9 (17%) have more than 500 e-books. When chi-square test is applied to various groups of frequencies of e-books, a significant difference was observed (Chi-square=16.057; P value=.001) further confirming that most of the institutes have less than 25 e-books (Table 3.17).

17. E journals (full text)

The data relating to e-journals (full text) shows that there are 14 (26.4%) management college libraries have less than 100 E journals (full text), 18 (34.0%) have 101 to 500 E journals (full text), 10 (18.9%) have 501 to 2000 E journals (full text) and remaining 11 (20.8%) possess more than 2000 E journals (full text). Chi-square test revealed a non-significant difference between these groups of frequencies of E journals (full text) ($X^2$=2.925; P value=.403) (Table 3.18).

18. E-journals (Abstracts)

The data relating to e-journals (Abstracts) shows that there are 26 (49.1%) management college libraries do not have E-journals (Abstracts), followed by 3 (5.7%) have less than 10 E-journals (Abstracts), 4 (7.5%) possess 11 to 50 E-journals (Abstracts). 3 (5.7%) posses more than 51 to 500 E-journals (Abstracts), 10 (18.9%) possess 500 to 2500 E-journals (Abstracts) and remaining 7 (13.2%) posses more than 2500 E-journals (Abstracts). Chi-square test revealed a significant difference between these groups of frequencies of E-journals (Abstracts) ($X^2$=44.245; P value=.000) confirming that majority of them do not have E-journals (Abstracts) (Table 3.19).

19. Multimedia systems

The data relating to multimedia systems shows that there are 14 (26.4%) management college libraries do not have multimedia, 20 (37.7%) possess less than 5 multimedia, 8 (15.1%) possess 5 to 10 multimedia, 5 (9.4%) have 11 to 25 multimedia and remaining 6 (11.3%) possess more than 25 multimedia. Chi-square test revealed a significant difference between these groups of frequencies of multimedia ($X^2$=15.019; P value=.005) confirming that majority of them either had less than 5 or no multimedia (Table 3.20).
20. Bibliographic data bases

The data relating to bibliographic data bases shows that there are 45 (84.9%) management college libraries do not have bibliographic data bases, followed by 4 (7.5%) possess 2 bibliographic data bases, 1 (1.9%) of each have 10, 16, 200 and 5280 bibliographic data bases. Chi-square test revealed a significant difference between these groups of frequencies of multimedia ($X^2=20.415; P\ value=.000$) confirming that majority of them do not have bibliographic data bases (Table 3.21).

21. Full text data bases

The data relating to full text data bases shows that there are 33 (62.3%) management college libraries do not possess full text data bases, followed by 8 (15.1%) possess less than 5 full text data bases and 12 (22.6%) have more than 5 full text data bases. Chi-square test revealed a significant difference between these groups of frequencies of full text data bases ($X^2=20.415; P\ value=.000$) confirming that majority of them do not have full text data bases (Table 3.22).

22. CDs

The data relating to CDs shows that there are 5 (9.4%) management college libraries have less than 100 CDs, 7 (13.2%) of them have 101 to 250 CDs, 16 (30.2%) have 251 to 500 CDs, 4 (7.5%) have 501 to 1000 CDs, 14 (26.4%) have 1000 to 2500 CDs and remaining 7 (13.2%) have more than 2500 CD collections. Chi-square test revealed a significant difference between these groups of frequencies of CDs ($X^2=13.906; P\ value=.000$) confirming that majority of them have either 251 to 500, or 1000 to 2500 CDs (Table 3.23).

23. DVDs

The data relating to DVDs shows that there are 18 (34.0%) management college libraries do not have DVDs, 9 (17%) possesses less than 50 DVDs, 2 (3.8%) have 51 to 400 DVDs, 11 (20.8%) possess 101-250 DVDs, 7 (13.2%) possess 251-500 DVDs and remaining 6 (11.3%) possess more than 500 DVDs. Chi-square test revealed a significant difference between these groups of frequencies of DVDs ($X^2=146.170; P\ value=.000$) confirming that majority of them do not have DVDs (Table 3.24).
24. NPTEL hard disk video

The data relating to NPTEL hard disk video shows that there are 44 (83.0%) management college libraries have NPTEL hard disk video and remaining 9 (17.0%) have NPTEL hard disk video. Chi-square test revealed a significant difference between these groups of frequencies of NPTEL hard disk video ($X^2=23.113$; $P$ value=.000), further confirming that majority of them did not have NPTEL hard disk video (Table 3.25).

5.3.5 Collection development of books in management college libraries

25. During 2009-10, 2010-11 and 2011-12

a. During 2009-10, 13 (24.5%) management college libraries have added less than 500 books, 11 (20.8%) each added 501 to 1000 and 1001 to 2500 books, 14 (26.4%) added 2501 to 5000 books and remaining 4 (7.5%) added more than 5000 books. Chi-square test revealed a non-significant difference between groups of frequencies of addition of books ($X^2=5.774$; $P$ value=.217) (Table 3.26).

b. During 2010-11, 11 (20.8%) added less than 500 books, 14 (26.4%) added 501 to 1000 books, 14 (26.4%) added 1001 to 2500 books, 9 (17%) added 2501 to 5000 books and remaining 4 (7.5%) added more than 5000 books Chi-square test revealed a significant difference between groups of frequencies of addition of books ($X^2=7.283$; $P$ value=.122) (Table 3.27).

c. During 2011-12, 11 (20.8%) added less than 500 books, 10 (18.9%) added 501 to 1000 books, 14 (26.4%) each added either 1001 to 2500 books and 2501 to 5000 books and remaining 4 (7.5%) added more than 5000 books Chi-square test revealed a significant difference between groups of frequencies of addition of books ($X^2=6.340$; $P$ value=.175) (Table 3.28).

5.3.6 Collection development of e-books

26. During 2009-10, 2010-11 and 2011-12

a. During 2009-10, 30 (56.6%) management college libraries do not add any e-books, 2 (3.8%) added less than 25 e-books, 5 (9.4%) added 26 to 50 e-books, 7 (13.2%) added 51 to 100 e-books, 6 (11.3%) added 101 to 250 e-books, 2 (3.8%) added 251 to 1000 e-books and remaining 1 (1.9%) added more than 1000 e-books. Chi-square
test revealed a significant difference between groups of frequencies of addition of e-books ($X^2=81.585$; P value=.000), indicating that very few either do not add any e-books and more than 1000 books into their library (Table 3.29).

b. During 2010-11, 27 (50.9%) do not add any e-books, none added less than 25 e-books, 5 (9.4%) added 26 to 50 e-books, 7 (13.2%) added 51 to 100 e-books, 8 (15.1%) added 101 to 250 e-books, 5 (9.4%) added 251 to 1000 e-books and remaining 1 (1.9%) added more than 1000 e-books. Chi-square test revealed a significant difference between groups of frequencies of addition of e-books ($X^2=48.094$; P value=.000), indicating that majority of the institutes do not add any e-books (Table 3.30).

c. During 2011-12, 25 (47.2%) do not add any e-books, none added less than 25 e-books, 4 (7.5%) added 26 to 50 e-books, 5 (9.4%) added 51 to 100 e-books, 9 (17.0%) added 101 to 250 e-books, 7 (13.2%) added 251 to 1000 e-books and remaining 3 (5.7%) added more than 1000 e-books. Chi-square test revealed a significant difference between groups of frequencies of addition of e-books ($X^2=38.132$; P value=.000), indicating that very few of the institutes do not add any e-books (Table 3.31).

5.3.7 Budgetary allocation

27. Books

a. During 2009-10, 9 (17.0%) management college libraries each either 5 to 10 lakhs and more than 10 lakhs. 25 (47.2%) allocated 15 lakhs and 9 (17.0%) allocated less than a lakh and one management college library do not allocate any amount for books (Table 3.32).

b. During 2010-11, None allocated more than 10 lakhs, 11 (20.8%) allocated 5-10 lakhs, 13 (24.5%) allocated 1-5 lakhs, 21 (39.6%) allocated less than a lakh and 8 (15.1%) do not allocate any amount to books (Table 3.32).

c. During 2011-12, again none allocated more than 10 lakhs, 16 (30.2%) of each allocated either 1 to 5 lakhs or 5 to 10 lakhs, 6 (11.3%) allocated less than a lakh and remaining 3 (5.7%) do not allocate any amount for books Chi-square test revealed significant differences for groups of frequencies of allocation amounts for the years
2009-10 ($X^2=28.981; \ P value=.000$), 2010-11($X^2=7.0; \ P value=.072$) and 2011-12 (Table 3.32).

28. E-books

a. During 2009-10, there are 33 (62.3%) management college libraries do not allocate any amount on e-books, 4 (7.5%) allocated less than 50000, 6 (11.3%) allocated 50000 to 1 lakh and remaining 10 (18.9%) allocated more than lakh for e-books (Table 3.33).

b. During 2010-11, it is observed that 30 (56.6%) do not have any allocation, 3 (5.7%) allocated up to 50000, 7 (13.2%) allocated 50000 to 1 lakh and 13 (24.5%) allocated more than a lakh for e-books (Table 3.33).

c. During 2011-12, 29 (54.7%) have no allocation, 2 (3.8%) allocated up to 50000, 3 (5.7%) allocated between 50000 to 1 lakh and 19 (35.8%) allocated more than 1 lakh. Chi-square tests revealed significant differences for groups of frequencies of allocation for all the years-2009-10 ($X^2=40.66; \ P value=.000$), 2010-11 ($X^2=32.06; \ P value=.000$) and for 2011-12 ($X^2=38.70; \ P value=.000$) (Table 3.33).

29. Journals

a. During 2009-10, 1 (1.9%) management college library do not allocate any amount, 8 (15.1%) allocated up to 50,000, 12 (22.6%) allocated .5 to 1 lakh, 16 (30.2%) allocated 1 to 2 lakhs, 12 (22.6%) allocated 2 to 5 lakhs and remaining 4 (7.5%) allocated above 5 lakhs for journals (Table 3.34).

b. During 2010-11, 1 (1.9%) allocated none, 9 (17.0%) allocated up to 50000, 7 (13.2%) allocated .5 to 1 lakh, 15 (28.3%) allocated 1 to 2 lakhs, 17 (32.1%) of them allocated 2-5 lakhs and remaining 4 (7.5%) of them allocated more than 5 lakhs for journals (Table 3.34).

c. During 2011-12, again 3 (5.7%) do not allocate any amount for journals, 5 (9.4%) each allocated either up to 50000 and .5 to 1 lakh, 13 (24.5%) allocated 1 to 2 lakhs, 20 (37.7%) allocated 2 to 5 lakhs and remaining 7 (13.2%) allocated more than 5 lakhs for journals. Chi-square test revealed significant differences for groups of frequencies of allocation amounts for the years 2009-10 ($X^2=17.76; \ P value=.003$),
2010-11 ($X^2=21.83; P value=.001$) and for 2011-12 ($X^2=23.64; P value=.000$) (Table 3.34).

30. E-journals

a. During 2009-10, 17 (32.1%) management college libraries do not allocate any amount, 8 (15.1%) allocated up to 50,000, 4 (7.5%) allocated .5 to 1 lakh, 2 (3.8%) allocated 1 to 2 lakhs, 12 (22.6%) allocated 2 to 5 lakhs and remaining 10 (18.9%) allocated above 5 lakhs for e-journals (Table 3.35).

b. During 2010-11, 15 (28.3%) allocated none, 6 (11.3%) allocated up to 50,000, 1 (1.9%) allocated .5 to 1 lakh, 4 (7.5%) allocated 1 to 2 lakhs, 13 (24.5%) allocated 2 to 5 lakhs and remaining 14 (26.4%) allocated more than 5 lakhs for e-journals (Table 3.35).

c. During 2011-12, 11 (20.8%) do not allocate any amount for e-journals, 3 (5.7%) each allocated either up to 50,000, .5 to 1 lakh and 1 to 2 lakhs, 15 (28.3%) allocated 2 to 5 lakhs and remaining 18 (34%) allocated more than 5 lakhs for e-journals. Chi-square test revealed significant differences for groups of frequencies of allocation amounts for the years 2009-10 ($X^2=16.85; P value=.003$), 2010-11 ($X^2=19.79; P value=.001$) and for 2011-12 ($X^2=25.91; P value=.000$) (Table 3.35).

31. CD-ROM databases

a. During 2009-10, 28 (52.8%) management college libraries do not allocate any amount, 3 (5.7%) allocated up to 10,000, 9 (17%) allocated .1 to .5 lakh, 6 (11.3%) allocated .5 to 1 lakh and remaining 7 (13.2%) allocated above 1 lakhs for CD-ROMs database (Table 3.36).

b. During 2010-11, 28 (52.8%) do not allocate any amount, 2 (3.8%) allocated up to 10,000, 9 (17%) allocated .1 to .5 lakh, 6 (11.3%) allocated .5 to 1 lakh and remaining 8 (15.1%) allocated above 1 lakhs for CD-ROMs database (Table 3.36).

c. During 2011-12, 28 (52.8%) do not allocate any amount, 1 (1.9%) allocated up to 10,000, 9 (17%) allocated .1 to .5 lakh, 3 (5.7%) allocated .5 to 1 lakh, and remaining 12 (22.6%) allocated above 1 lakhs for CD-ROMs database. Chi-square test revealed significant differences for groups of frequencies of allocation amounts for the years.
2009-10 ($X^2=37.47; P \text{ value}=0.000$), 2010-11 ($X^2=38.42; P \text{ value}=0.000$) and for 2011-12 ($X^2=43.13; P \text{ value}=0.000$) (Table 3.36).

5.3.8 Verification of TQM components

a. Leadership

32. Role of leadership quality in accomplishing desired level of efficiency and effectiveness

The data relating to opinion with regard to important role played by leadership in accomplishing the desired level of efficiency and effectiveness of library shows that there are 29 (54.7%) respondents strongly agreed, 19 (35.8%) agreed, 1 (1.9%) indicated neither agreed nor disagreed, 4 (7.5%) strongly disagreed and none disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.25).

33. Commitments and competence towards effective library services

Opinion with regard to important role played by leadership in commitments and competence towards effective library services shows that there are 17 (32.1%) respondents agreed and 33 (62.3%) strongly agreed, 2 (3.8%) strongly disagreed and remaining 1 (1.9%) neither agreed nor disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.25).

34. Confidence in getting strong management support and commitment

The data relating to opinion with regard to important role played by leadership in confidence in getting strong management support and commitment is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response is similar for those libraries with and without ISO certification. There are 41 (77.0%) of the agreement for the statement by respondents, 21 (39.6%) agreed and 20 (37.7%) strongly agreed, 6 (11.3%) neither agreed nor disagreed, 4 (7.5%) disagreed and 2 (3.8%) strongly disagreed (Table 4.26).
35. Interpersonal relationship among library staff

Opinion with regard to important role played by leadership in interpersonal relationship among library staff shows that there are 27 (50.9%) respondents strongly agreed, 15 (28.3%) agree, 6 (11.3%) neither agree nor disagree, 3 (5.7%) strongly disagreed and remaining 2 (3.8%) disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response is similar for those libraries with and without ISO certification (Table 4.26).

36. Equal potential to work for the common purpose

Opinion with regard to important role played by leadership in equal potential to work for the common purpose shows that there are 20 (37.7%) respondents agreed, 18 (34.0%) strongly agreed, 5 (9.4%) strongly disagreed, 3 (5.7%) disagreed and remaining 7 (13.2%) neither agree nor disagree. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response is similar for those libraries with and without ISO certification (Table 4.27).

37. Appreciation for outstanding performance in public and criticism privately or poor performance

The data relating to opinion with regard to important role played by leadership in appreciates for outstanding performance in public and criticizes privately for poor performance is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response is similar for those libraries with and without ISO certification. There are 37 (69.0%) respondents, 21 (39.6%) agreed and 16 (30.2%) strongly agreed, 16 (13.2%) neither agree nor disagree, 4 (7.5%) strongly disagreed and 5 (9.4%) strongly disagreed (Table 4.27).

38. Maintenance of co-ordination among library staff

The data relating to opinion with regard to important role played by leadership in maintenance of co-ordination among library staff shows that there are 20 (37.7%) respondents agreed, 27 (50.9%) strongly agreed and 3 (5.7%) each indicated either strongly disagreed and neither agreed nor disagreed. Contingency coefficient revealed
a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.28).

39. Open decision making through benchmarking and brainstorming

The data relating to opinion with regard to important role played by leadership in open decision making through benchmarking and brainstorming is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification. It is found that 43 (81%) of the agreement for the statement by respondents, 24 (45.3%) agreed and 19 (35.8%) strongly agreed, 4 (7.5%) indicated neither agreed nor disagreed, 5 (9.4%) strongly disagreed and 1 (1.9%) just disagreed (Table 4.28).

40. Incorporating of latest information and communication technology

Opinion with regard to important role played by leadership in incorporating of latest information and communication technology shows that there are 22 (41.5%) respondents strongly agreed, 21 (39.6%) of the respondents agreed, 6 (11.3%) neither agreed nor disagreed and remaining 4 (7.5%) strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.29).

41. Utilization of talents of library staff

The data related to opinion with regard to important role played by leadership in utilization of talents of library staff shows that there are 34 (64.2%) respondents strongly agreed, 14 (26.4%) just agreed, 2 (3.8%) neither agreed nor disagreed, 3 (5.7%) strongly disagreed and none disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.29).

42. Provision of leadership training

Opinion with regard to important role played by leadership in provision of leadership training shows that there are 19 (35.8%) respondents agreed, 16 (30.2%)
strongly agreed, 4 (7.5%) disagreed, remaining 14 (26.4%) neither agreed nor disagreed and none strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.30).

43. Identification and rewards to leadership of library staff

The data relating to opinion with regard to important role played by leadership in identification and rewards to leadership of library staff is considered, contingency coefficient revealed a significant association (CC=.447; P=.010), where it is clear that those with ISO certification have higher agreement on the statement compared to those respondents whose libraries are without ISO certification. On the whole having noticed that 33 (62.3%) of the agreement for the statement by respondents where in 17 (32.1%) agreed and 16 (30.2%) strongly agreed, 11 (20.8%) indicated neither agreed nor disagreed, 4 (7.5%) disagreed and 5 (9.4%) strongly disagreed (Table 4.30).

b. Policy and Strategy

44. Careful planning, designing and communication through staff meetings

The data relating to opinion with regard to important role played by policy and strategy in careful planning, designing and communication through staff meetings shows that there are 21 (39.6%) respondents strongly agreed, 22 (41.5%) just agreed, 6 (11.3%) neither agreed nor disagreed, 4 (7.5%) strongly disagreed and none disagreed. Contingency coefficient revealed a significant association (CC=.390; P value=.023) between ISO certification categories and responses, indicating that those respondents with ISO certification have higher levels of agreement compared to those without ISO certification, who expressed more ambiguity (Table 4.31).

45. Insisting of library culture, strategy and information-based technology

The data relating to opinion with regard to important role played by policy and strategy in insisting of library culture, strategy and information-based technology shows that there are 24 (45.3%) respondents indicated agreement, 24 (45.3%) each of agreed and strongly agreed, 2 (3.8%) disagreed and remaining 3 (5.7%) indicated ambiguity. Contingency coefficient revealed a non-significant association between
ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.32).

46. Awareness about library policies

Opinion with regard to important role played by policy and strategy on awareness about library policies is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole it is evident that there is 46 (86.7%) of the agreement for the statement by respondents in which 19 (35.8%) agreed and 27 (50.9%) strongly agreed, 3 (5.7%) indicated ambiguity, 1 (1.9%) disagreed and 3 (5.7%) strongly disagreed (Table 4.32).

47. Taking quick decision through proper communication

Opinion with regard to important role played by policy and strategy in taking quick decision through proper communication shows that there are 21 (39.6%) respondents agreed, 23 (43.4%) strongly agreed, 5 (9.4%) indicated ambiguity, 4 (7.5%) strongly disagreed and none of them disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating a similarity in the response pattern of respondents belonging to with and without ISO certification libraries (Table 4.33).

48. Removal of unwanted steps to improve quality outcome

The data relating to opinion with regard to important role played by policy and strategy in removal of unwanted steps to improve quality outcome shows that there are 28 (52.8%) respondents agreed and 16 (30.2%) strongly agreed, 2 (3.8%) each of them either disagreed or strongly disagreed and remaining 5 (9.4%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response is similar for those libraries with and without ISO certification (Table 4.33).

49. Keep in touch with interdepartmental and inter-personal communication

The data relating to opinion with regard to important role played by policy and strategy on keep in touch with interdepartmental and inter-personal communication is considered contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO
certification. On the whole it is found that 48 (90.6%) of the agreement for the statement by respondents 22 (41.5%) agreed and 26 (49.1%) strongly agreed, 2 (3.8%) of them indicated ambiguity, 1 (1.9%) of them disagreed and 2 (3.8%) of them strongly disagreed (Table 4.34).

50. Dependence on quality teams

Opinion with regard to important role played by policy and strategy about dependence on quality teams shows that there are 23 (43.4%) respondents agreed, 5 (28.3%) strongly agreed, 7 (13.2%) indicated ambiguity, 3 (5.7%) strongly disagreed and 5 (9.4%) disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating a similarity in the response pattern of respondents belonging to with and without ISO certification libraries (Table 4.34).

51. Initiation in providing, maintaining and reviewing structural processes for various problems

The data relating to opinion with regard to important role played by policy and strategy on initiation in providing, maintaining and reviewing structural processes for various problems shows that there are 28 (52.8%) respondents agreed 17 (32.1%) strongly agreed, 3 (5.7%) strongly disagreed and remaining 5 (9.4%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.35).

52. Concentration upon the problem definitions, problem documentation, measurement analysis and solutions implementation

Opinion with regard to important role played by policy and strategy on concentration upon the problem definitions, problem documentation, measurement analysis and solutions implementation is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole it is clear that there is 47 (88.7%) of the agreement for the statement by respondents where in 30 (56.6%) agreed and 17 (32.1%) strongly agreed, 4 (7.5%) indicated ambiguity, 1 (1.9%) of each either disagreed or strongly disagreed (Table 4.35).
53. Trust customer services satisfactions and judge the services

The data relating to opinion with regard to important role played by policy and strategy on trust customer services satisfactions and judge the services shows that there are 27 (50.9%) respondents strongly agreed, 20 (37.7%) agreed, 4 (7.5%) indicated ambiguity, 2 (3.8%) strongly disagreed and none of them disagreed. Contingency coefficient revealed a significant association (CC=.486; P value=.001) between ISO certification categories and responses, indicating that those respondents with ISO certification had higher levels of agreement on the statement than those respondents without ISO certification (Table 4.36).

54. Use of library data output, measurement tools

Opinion with regard to important role played by policy and strategy on use of library data output, measurement tools shows that there are 27 (50.9%) respondents agreed and 20 (37.7%) strongly agreed, 2 (3.8%) strongly disagreed and remaining 4 (7.5%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.36).

55. Maintaining a thumb rule for customer satisfaction

Opinion with regard to important role played by policy and strategy on maintaining a thumb rule for customer satisfaction is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole it is clear that there are 38 (71.7%) of the agreement for the statement by respondents in which 18 (34.0%) agreed and 20 (37.7%) strongly agreed, 10 (18.9%) indicated ambiguity, 3 (5.7%) strongly disagreed and remaining 2 (3.8) just disagreed (Table 4.37).

56. Conduct regular survey of the library customer

The data relating to opinion with regard to important role played by policy and strategy on conduct regular survey of the library customer shows that there are 19 (35.8%) respondents strongly agreed, 21 (39.6%) agreed, 8 (15.1%) indicated ambiguity, 5 (9.4%) disagreed and none of them strongly disagreed. Contingency
coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification (Table 4.37).

57. The feedback mechanism

Opinion with regard to important role played by policy and strategy on the feedback mechanism shows that 47 (88.7%) indicated agreement in which 32 (60.4%) strongly agreed and 15 (28.3%) agreed, 2 (3.8%) strongly disagreed and remaining 4 (7.5%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.38).

c. Staff Management

58. Encouragement from the management to support and recognize library professionals in the form of incentives and promotions

Opinion with regard to important role played by staff management on encouragement from the management to support and recognize library professionals in the form of incentives and promotions shows that there are 22 (41.5%) respondents strongly agreed, 16 (30.2%) agreed, 7 (13.2%) indicated ambiguity, 4 (7.5%) of each either strongly disagreed or disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.39).

59. Library staff as an asset to the college to be developed rather commodity to be used

The data relating to opinion with regard to important role played by staff management on library staff as an asset to the college to be developed rather commodity to be used shows that majority 49 (92.5%) of the respondents indicated agreement in which 23 (43.4%) agreed and 26 (49.1%) strongly agreed, 2 (3.8%) disagreed and 1 (1.9%) each of them indicated either ambiguity or disagreement. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.39).
60. Make use of intelligence, kindness and hard work of library staff

Opinion with regard to important role played by staff management on make use of intelligence, kindness and hard work of library staff is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole it is clear that there is 47 (88.7%) of the agreement by respondents where in 16 (30.2%) agreed and 31 (58.5%) strongly agreed, 4 (7.5%) indicated ambiguity and 2 (3.8%) strongly disagreed (Table 4.40).

61. Decentralization of decision making

Opinion with regard to important role played by staff management on decentralization of decision making shows that there are 26 (49.1%) of the respondents agreed, 18 (34%) strongly agreed, 4 (7.5%) indicated ambiguity, 3 (5.7%) strongly disagreed and 2 (3.8%) disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.40).

62. Dependence on the delegation of power

Opinion with regard to important role played by staff management about dependence on the delegation of power shows that there are 20 (37.7%) respondents agreed, 18 (34.0%) strongly agreed, 4 (7.5%) disagreed, 5 (9.4%) strongly disagreed and 6 (11.3%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.41).

63. Delegation of power to subordinates

Opinion with regard to important role played by staff management on delegation of power to subordinates is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole it is clear that 43 (81.2%) of the agreement for the statement by respondents where in 25 (47.2%)
agreed and 18 (34.0%) strongly agreed, 8 (15.1%) indicated ambiguity, and 2 (3.8%) strongly disagree (Table 4.41).

64. Provision of authority and power to subordinate staff

Opinion with regard to important role played by staff management on provision of authority and power to subordinate staff shows that there are 22 (41.5%) respondents agreed, 14 (26.4%) strongly agreed, 6 (11.3%) of each of them either indicated ambiguity or disagreement or remaining 5 (9.4%) strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.42).

65. Job satisfaction through participative management

Opinion with regard to important role played by staff management on job satisfaction through participative management shows that a majority 37(69.8%) respondents indicated agreement in which 23 (43.4%) agreed and 14 (26.4%) strongly agreed, 4 (7.5%) strongly disagreed, 1 (1.9%) disagreed and 11 (20.8%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.42).

66. Enhancing skills for continuous improvement of library staff

Opinion with regard to important role played by staff management on enhancing skills for continuous improvement of library staff is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole it is clear that there is 77 (88%) of the agreement for the statement by respondents where in 22 (41.5%) agreed and 25 (47.2%) strongly agreed, 3 (5.7%) indicated ambiguity, 2 (3.8%) disagreed and 1 (1.9%) strongly disagreed (Table 4.43).

67. Understanding and faith in employee’s capabilities, competencies, knowledge and skills

Opinion with regard to important role played by staff management on understanding and faith in employee’s capabilities, competencies, knowledge and skills shows that there are 25 (47.2%) respondents agreed, 21 (39.6%) strongly
agreed, 5 (9.4%) indicated ambiguity and 2 (3.8%) disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.44).

68. Performance appraisal and evaluation of the library staff

The data relating to opinion with regard to important role played by staff management on performance appraisal and evaluation of the library staff shows that there are 19 (35.8%) respondents agreed and 15 (28.3%) strongly agreed, 4 (7.5%) strongly disagreed, 3 (5.7%) disagreed and 12 (22.6%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.44).

69. Seniority is not a best criteria for promotion

Opinion with regard to important role played by staff management on seniority is not a best criteria for promotion is considered, contingency coefficient revealed a non-significant association indicating a similarity in the response pattern of the respondents with and without ISO certification. On the whole having noticed that 32 (60.4%) of the agreement for the statement by respondents, in which 17 (32.1%) agreed and 15 (28.3%) strongly agreed, 12 (22.6%) indicated ambiguity, 6 (11.3%) strongly disagree and 3 (5.7%) strongly disagree (Table 4.45).

70. Appropriate award for achieving objectives

Opinion with regard to important role played by staff management on appropriate award for achieving objectives shows that there are 23 (43.4%) respondents agreed, 16 (30.2%) strongly agreed, 5 (9.4%) indicated ambiguity, 6 (11.3%) strongly disagreed and remaining 3 (5.7%) just disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.45).
71. Provision of telephone/intercom and internet services in each section of the library

The data relating to opinion with regard to important role played by staff management on provision of telephone/intercom and internet services in each section of the library shows that a majority 43 (81.1%) respondents indicated agreement in which 20 (37.7%) agreed and 23 (43.4%) strongly agreed, 5 (9.4%) strongly disagreed, 2 (3.8%) disagreed and 3 (5.7%) indicated ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.46).

d. Team Work

72. Working as a team with suppliers, users and employees

Opinion with regard to important role played by team work on working as a team with suppliers, users and employees shows that there are 25 (47.2%) respondents strongly agreed, 23 (43.4%) just agreed, 3 (5.7%) indicated ambiguity, 2 (3.8%) strongly disagreed and none of them disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.47).

73. Believe in team work rather than an individual work

Opinion with regard to important role played by team work on believe in team work rather than an individual work shows that majority 49 (92.4%) of the respondents indicated agreement in which 20 (37.7%) agreed and 29 (54.7%) strongly agreed, 2 (3.8%) each either indicated ambiguity or strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.25).

74. Working as a team in library

Opinion with regard to important role played by team work on working as a team in library is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the
pattern of response was similar for those libraries with and without ISO certification. It is clear that about 47 (88.7%) of the agreement for the statement by respondents in which 23 (43.4%) agreed and 24 (45.3%) strongly agreed, 4 (7.5%) indicated ambiguity and 1 (1.9%) either disagreed or strongly disagreed (Table 4.25).

75. Active involvement of each section of library

Opinion with regard to important role played by team work on active involvement of each section of library shows that there are 25 (47.2%) respondents agreed, 24 (45.3%) strongly agreed, 3 (5.7%) indicated ambiguity and remaining 1 (1.9%) just disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.48).

76. Participation in other activities as a team

Opinion with regard to important role played by team work on participation in other activities as a team shows that majority 50 (94.4%) of the respondents indicated agreement in which 23 (43.4%) strongly agreed and 27 (50.9%) agreed, 1 (1.9%) each of them either indicated strongly disagree or disagree and ambiguity. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.49).

77. Prevalence of team spirit amongst all ranks in library

The data relating to opinion with regard to important role played by team work on prevalence of team spirit amongst all ranks in library is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification. It is clear that 46 (86.8%) of the agreement by respondents 24 (45.3%) agreed and 22 (41.5%) strongly agreed, 4 (7.5%) indicated ambiguity, and 3 (5.7%) strongly disagreed (Table 4.49).
e. Training and development strategy

78. Preference for skill enhancement of library staff

Opinion with regard to important role played by training and development strategy on preference for skill enhancement of library staff shows that there are 19 (35.8%) respondents strongly agreed, 17 (32.1%) just agreed, 11 (20.8%) indicated ambiguity, 2 (3.8%) disagreed and 4 (7.5%) strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.50).

79. Support library staff for higher education

Opinion with regard to important role played by training and development strategy on support library staff for higher education shows that there are 19 (35.8%) respondents agreed, 24 (45.3%) strongly agreed, 7 (13.2%) indicated ambiguity and 1 (1.9%) disagreed and remaining 2 (3.8%) strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.50).

80. On job training for the library staff

The data relating to opinion with regard to important role played by training and development about on job training for the library staff is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification. It is evident that 35 (66%) of the agreement for the statement by respondents in which 20 (37.7%) agreed and 15 (28.3%) strongly agreed, 9 (17.0%) indicated ambiguity, 3 (5.7%) disagreed and 6 (11.3%) strongly disagreed (Table 4.51).

81. Encourage library staff to participate in the seminars and conferences

Opinion with regard to important role played by training and development on encourage library staff to participate in the seminars and conferences shows that there are 25 (47.2%) respondents agreed, 20 (37.7%) strongly agreed, 4 (7.5%) of each indicated ambiguity, 3 (5.7%) strongly disagreed and remaining 1 (1.9%) disagreed.
Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.51).

82. Regular training for library staff

Opinion with regard to important role played by training and development on Regular training for library staff shows that majority 39 (73.6%) of the respondents indicated agreement in which 23 (43.4%) strongly agreed and 16 (30.2%) agreed, 5 (9.4%) indicated strongly disagree and none disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.52).

83. Sufficient resources for employee training

Opinion with regard to important role played by training and development on sufficient resources for employee training is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification. It is clear that there is 33 (62.2%) of the agreement for the statement by respondents in which 20 (37.7%) agreed and 13 (24.5%) strongly agreed, 11 (20.8%) indicated ambiguity, 5 (9.4%) disagreed and 4 (7.5%) strongly disagreed (Table 4.52).

f. Resources

84. Proper planning for allocation of library budget

Opinion with regard to important role played by resources on proper planning for allocation of library budget shows that 23 (43.4%) each of the respondents either agreed or strongly agreed, 5 (9.4%) indicated ambiguity, 2 (3.8%) strongly disagreed and none disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.53).
85. Provision of effective quality based library services at a minimal price in short time

Opinion with regard to important role played by resources on provision of effective quality based library services at a minimal price in short time shows that majority of the respondents indicated agreement 23 (43.4%) of both agreed and strongly agreed, 5 (9.4%) indicated ambiguity and remaining 1 (1.9%) each of them either strongly disagreed or disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.53).

86. Choice of library suppliers and vendors on the basis of their commitment to supply documents in time with latest editions

The data relating to opinion with regard to important role played by resources on choice of library suppliers and vendors on the basis of their commitment to supply documents in time with latest editions is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification. Having noticed that there is 49 (92.4%) of the agreement for the statement by respondents in which 20 (37.7%) agreed and 29 (54.7%) strongly agreed, 3 (5.7%) strongly disagreed, 1 (1.9%) indicated ambiguity and none disagreed (Table 4.54).

87. Using information and communication technology resources along with paper based information resources

Opinion with regard to important role played by resources on using information and communication technology resources along with paper based information resources shows that there are 25 (47.2%) of the respondents strongly agreed, 21 (39.6%) agreed, 3 (5.7%) of each either indicated ambiguity or strongly disagreed and remaining 1 (1.9%) just disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.54).
88. Sincere efforts in preserving the library buildings, books, furniture’s and equipment’s in a good condition

Opinion with regard to important role played by resources on sincere efforts in preserving the library buildings, books, furniture’s and equipment’s in a good condition shows that majority 50 (94.3%) of the respondents indicated agreement in which 37 (69.8%) strongly agreed and 13 (24.5%) agreed, 1 (1.9%) indicated ambiguity and remaining 2 (3.8%) each of them strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO (Table 4.55).

g. Processes

89. Identification of key process by breaking the processes in small activities

Opinion with regard to important role played by processes on identification of key process by breaking the processes in small activities shows that there are 24 (45.3%) of the respondents agreed, 13 (24.5%) strongly agreed, 7 (13.2%) indicated ambiguity, 6 (11.3%) strongly disagreed and remaining 3 (5.7%) just disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.56).

90. Give an opportunity to individual staff to improve the processes of his/her work

Opinion with regard to important role played by processes on give an opportunity to individual staff to improve the processes of his/her work shows that majority 50 (94.4%) of the respondents indicated agreement in which 24 (45.3%) agreed and 26 (49.1%) strongly agreed, 1 (1.9%) indicated ambiguity and remaining 2 (3.8%) strongly disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.56).
91. Consultation with staff and library customers

The data relating to opinion with regard to important role played by processes on consultation with staff and library customers is considered, contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification. Having noticed that 47(88.7%) of the agreement for the statement by respondents in which 24 (45.3%) agreed and 23 (43.4%) strongly agreed, 3 (5.7%) of ambiguity, 3 (5.7%) strongly disagreed and 1 (1.9%) just disagreed (Table 4.57).

92. Insist upon using the analysis tools for identifying success of the library mission

The data relating to opinion with regard to important role played by processes on insist upon using the analysis tools for identifying success of the library mission shows that 26 (49.1%) of the respondents agreed, 20 (37.7%) strongly agreed, 3 (5.7%) of each either indicated ambiguity or strongly disagreed, and remaining 1 (1.9%) just disagreed. Contingency coefficient revealed a non-significant association between ISO certification categories and responses, indicating that the pattern of response was similar for those libraries with and without ISO certification (Table 4.57).

5.4 Suggestions

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

1. Quality Assurance of Library and Information System should be part of the Quality Assurance of University TQM project;

2. There is a need to develop standards/norms for assessing quality of information services with particular reference to Distance Education Libraries;

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

4. More funds to be allocated for studying the quality of information services on project basis;
5. Training of staff members in providing quality information services

5.5 Suggestions for further research

- The present study was restricted to only management college libraries, future researchers can concentrate on libraries of other types.

- The study area was restricted in the present study to only Bangalore City. Future researcher can concentrate on other cities and states too.

- Relationship between performance appraisal and total quality management could be interest of other researchers.

- Influence of organizational structure and organizational climate on TQM could be another area of interest.

- Few of the psychological variables can be well related to TQM like job satisfaction, job burnout, work efficacy; etc will be of interest of the future researchers.

5.6 Conclusion

The study clearly revealed that current TQM applications are of ‘up to the mark’ in management college libraries of Bangalore and it is evident that the same colleges have been graded according to their accreditation level and differed in their TQM scores. In all the components of TQM, the observed values were significantly more than expected values including total TQM scores. Policy and strategy component ranked 1 with mean obtained value 57.90 (89.08%) of the TQM application and least application of TQM was found for training and development strategy with rank 7. Hence there is a need to provide training and development programmes to librarians in providing quality information services. There are, 20 (37.7%) each are either accredited by NAAC or NBA, 1 (1.9%) management college library is accredited by EQUIS and 12 (22.6%) management libraries are not accredited at all. Management libraries selected for the TQM assessment had similar levels of scores in individual components as well as in total TQM. ISO certification, years of establishment, did not have significant influence over TQM scores. There are 31 (58.5%) librarians who hold M.L.I.Sc degree, followed by 18 (34.0%) respondents who posses M.Phil degree and only 4 (7.5%) possess Ph.D degree. There
are 4 (7.5%) respondents with Ph.D and M.Phil degree. It was found that educational level of the respondents did not influence TQM score both in individual components as well as in total TQM. Gender had a limited influence over TQM on staff management and in Training and development strategy; female respondents had higher scores compared to male respondents. It is found that more than 2/3rd of the management college libraries provided required facilities and services for students, research scholars, teaching staff and other visitors. It is clear a linear increase in the TQM scores as the facility levels increased in few of the components of staff management, Training and development strategy and in total TQM scores. Extent of services had significant influence over TQM scores in components - resources and in total TQM scores.

This study highlights the importance of application of TQM in management college libraries for upgrading the services offered, improvising the qualities and thereby making a new era of traditional and digital information combination for the betterment of student and research communities in particular and others in general.

The study has a considerable implication for the development of a framework to assist in the implementation of TQM in management college libraries in specific and other libraries in general. The outcome from the present study believed to provide a significant contribution in terms of generating knowledge and recognizing the importance of Total Quality Management (TQM).