CHAPTER 5

FINDINGS, OBSERVATIONS, SUGGESTIONS AND CONCLUSION

5.1 INTRODUCTION

The digital library infrastructure and facilities in university libraries of Tamil Nadu is the topic of research. The university libraries only includes in the study. The chapter IV presents the detailed analysis of digital library infrastructure and facilities in university libraries of Tamil Nadu. In this chapter, the major findings, observation and suggestions are discussed. Based on the study and findings the area for further research is also enumerated.

5.2 FINDINGS AND OBSERVATIONS

5.2.1 Sample Size

i. There are 53 universities in the Tamil Nadu. 48 university libraries were responded and the response rate is 90.56% (Table 4.1).

ii. Out the 48 universities, based on the nature of universities 22(81.48%) were ‘State universities’ and 26(100%) were ‘Deemed universities’ (Table 4.2)

iii. There universities were classified based on domain. There are 11 (22.92%) ‘Arts and sciences’, 14(29.17%) ‘Engineering and technology’, 4(8.33%) ‘Medical’ universities, 15(31.25%) ‘Multiple domains’ universities and 4(8.33%) universities belong to ‘other’ domains such as agriculture, education, law, sports etc (Table 4.2)
5.2.2 General Computer Environment

i. All the universities are possessing storage devices such as CD ROM, DVD, Pen drive and Removable Disc. Majority of the universities also using removable hard disc storage device. 50% of the medical domain and others domain are using these storage devices (Table.4.3)

ii. All the universities of respective domain are automated library system. Only 28(58.33%) universities were fully automated. even though the library automation is mandatory in the engineering universities only 9(64.29%) were fully automated. 36(75.00%) universities using commercial software. In all 12(25.00%) universities are using in-house software the maximum number of in-house software used in engineering universities 6(42.86%) (Table 4.5)

iii. All the state and deemed universities are automated their activities. Out of 48 universities 28(58.33%) are fully automated. 20(90.91%) deemed universities using commercial software, 1/4th of the universities were using In-house software. (Table 4.6)

iv. 25.00% of universities are adopting In-house software. 4.16% of universities are adopting open source software remaining 70.84% are using commercial software. Among the commercial software Autolib 13(27.08%) are predominantly used. It is followed by SOUL 7(14.58%) and Libsys 4(8.33%) respectively.(Table 4.7)

v. Out of 22 state universities, 6(27.27%) are adopting In-house software.7(31.82%) state universities are using SOUL software, In deemed university 10(38.46%) are preferring Autolib and 1(3.85%) universities using each Boan, Lin Genie, LMS, Libsuit, Libasoft, Modernlib and TFCS respectively.(Table 4.8)

vi. Out of the 48 universities only 6(12.50%) are using Unix / Linux, the remaining 42(87.50%) are using windows based networking system.
19(39.58%) are using windows 2003, 14(29.17%) universities are using windows NT, 12(25.00%) universities were using Windows server, windows xp 10(20.83%) and windows 2000 is 9(18.75%). The new entrant windows vista also used in 3(6.25%) university. (Table 4.9)

vii. Out of 14(29.17%) universities, 7(31.82%) state universities and 7(26.92%) deemed universities were using Windows NT as an operating system. 11(42.31%) windows 2003 operating system were using in deemed universities and 8(36.36%) in state universities. 12(25.00%) universities were using windows server. The new entrant windows vista also used in 2(9.09%) in state university and 1(3.85%) in deemed universities. Windows XP are similarly used in state universities. (Table 4.10)

5.2.3 Digital Environmental Infrastructure

5.2.3.1 Availability of Digital Form of Materials

i. All the university libraries were having CD ROM as a digital form of materials, 100% of e-journals available in engineering, medical and multiple domain university libraries, Medical and Multiple domain university libraries are having 100% of online databases Nearly 19(39.58%) universities were having in the form of e-books. (Table 4.11)

ii. Libraries from state universities and deemed universities are having 100% of digital materials available in the form of CD ROM. 26(100.00%) deemed universities are having e-journals. 8(36.36%) state universities and 18(69.23%) deemed universities are having Audio/Video materials. e-books are possessed has 7(31.82%) in state universities and 12(46.15%) deemed universities. 15(68.18%) state universities and 26(100.00%) deemed universities were using online databases. (Table 4.12)
5.2.4 Online Resources

i. Out of 48 universities, 25(52.08%) are having “IEEE. It is followed by 11(22.92%) libraries having “IEE” and “Science direct”. The other online digital resources orders of preferences are “ASME” 24(50.00%), “ACM” “ProQuest” and “J-Store” 22(45.83%), “Science direct” and “J-Gate” 21(43.75%), “ACS” 18(37.50%) and “ASCE” 16(33.33%), as 3rd, 4th and 5th rank respectively. Majority of online resources are subscribes mainly in engineering and technology and multiple domain universities libraries. (Table 4.13)

ii. Majority of the deemed universities are subscribing online resources then state universities. J-Gate 14(63.63%) and J-Store 16(72.73%) is the highest subscription in the state universities. In the case of deemed universities “IEEE” and “ASME” 20(76.92%) is the highest subscribing. (Table 4.14)

5.2.5 Digital Library Hardware Facilities

i. All the libraries of different domains of university have document printer, system with CD drive, CD/DVD writer and UPS. Majority 13(86.67%) computer server was available in multiple domain universities. 13(86.67%) clients/computer work stations available in multiple domain universities. Nearly 1/3 of the universities have document scanner in their library. More than half of the universities have both barcode printer and reader. 18(37.49%) universities have LCD projector. 9(18.75%) universities have both web camera and digital camera, only 4(8.33%) universities have CCTV. (Table 4.15)

ii. All the libraries of state university 22(100%) and deemed university 26(100%) are having document printer, system with CD drive, CD/DVD writer and UPS were available. Computer server and barcode reader 22(84.62%) available in deemed university and 16(72.73%) in
State universities. In state universities 10(45.45%) universities have barcode reader and barcode printer whereas 21(80.77%) barcode printer available in deemed university. Only 2(9.09%) CD ROM tower, CCTV available in state universities and 3(11.54%) CD ROM tower, 2(7.69%) CCTV available in deemed university. Digital camera facilities were available in state universities 4(18.18%) and 5(19.23%) in deemed university. (Table 4.16)

iii. 21(43.75%) universities are having data server of which 3(75.00%) other domain universities are having data servers. In the case of application server 2(50.00%) medical universities having application server followed by multiple domain 4(26.67%) and others universities 1(25.00%). (Table 4.17)

iv. Almost 11(42.31%) deemed universities are having the data server whereas only 10(45.45%) state universities possess same. among 11(22.92%) application server, 7(26.92%) are having in deemed universities and 6(27.27%) are having in state universities. Very less percentage 2(7.69%) CD/Mirror server available in deemed universities when compare with State universities 4(18.18%). (Table 4.18)

v. All the libraries irrespective of domains are having scanner facilities. (Table 4.19)

vi. Out of 48 universities, all the libraries of deemed universities 26(100%) and state universities 22(100%) are having scanner in their respective universities. (Table 4.20)

vii. 36(75.00%) universities having document scanners. 13(27.08%) universities having book scanner, 11(22.92%) universities having page scanner, One in each engineering and technology and multiple domain
universities are having large document scanner. (Table 4.21)

viii. Out of 36 universities, 23(88.46%) deemed universities and 13(59.09%) state universities are having document scanner. 9(34.62%) deemed universities and 4(18.18%) state universities having book scanner. One in each State and deemed universities are having large document scanner. (Table 4.22)

5.2.6 Digital Library Software Facilities

i. Half of the universities are having digital library software facilities. Multiple domain universities are having the maximum i.e 8(16.67%) universities. (Table 4.23)

ii. Out of 22 universities 14(53.85%) of deemed universities were having digital library software. In state only 8(36.36%) universities are having digital library software. (Table 4.24)

iii. Out of 22(45.83%) universities. 10(20.83%) universities are having In-house software, 12(25.00%) universities are having open source software (Table 4.25)

iv. Out of 22 universities, 3(13.64%) state universities and 7(26.92%) deemed universities are using In-house software. 5(22.73%) state universities and 7(26.92%) deemed universities are using open source software. (Table 4.26)

5.2.7 Digital Library Access / Architecture

i. 18(37.50%) university libraries have open access system for their digital libraries, 15(31.25%) universities adopting closed access, 3 each in Arts and science universities, engineering and technology
and multiple domain universities having partially closed access. (Table 4.27)

ii. Out of 26 deemed universities, 10(38.46%) universities having open access and closed access system for their digital libraries, in State universities, 8(36.36%) universities follow open access and 5(22.73%) are follow closed assess. In the case of Partially Closed Access 5(19.23%) universities deemed universities and 4(18.18%) state universities are adopting it. (Table 4.28)

iii. All the libraries are having Internet facility, internet or LAN facilities. Out of 48 universities, 41(85.42%) libraries are having LAN. It is followed by WAN in 3(6.25%) universities and Intranet in 13(27.08%). Only 3(20.00%) in multiple domain universities are following WAN. In the case Intranet 5 each in engineering and technology, multiple domain universities and one each arts and science, medical and others universities are using Intranet. 1(25.00%) each in medical universities and others universities are having WiFi connectivity. (Table 4.29)

iv. All the state and deemed university libraries are having Internet facility, 21(80.77%) deemed universities and 20(90.91%) state universities are having LAN connectivity in their libraries. Only 1(4.55%) in state universities and 2(7.69%) in deemed universities are having WAN connectivity. 3(13.64%) universities from state universities are having Intranet and WiFi connectivity whereas in deemed universities 10(38.46%) and 8(30.77%) are having Intranet and WiFi connectivity. (Table 4.30)

v. Majority of 30(62.50%) universities are having leased line connectivity. Among these 10(66.67%) libraries of multiple domains having leased line connection. Out of 10(20.83%) universities, 4(28.57%) engineering and technology universities, 3(27.27%) arts
and science universities, 2(13.33%) multiple domain universities and 1(25.00%) in others universities are having dedicated line. 8(16.67%) universities having ISDN Dial up Only one university each in engineering and technology universities and others universities are having VSAT connectivity. (Table 4.31)

vi. Out of 30(62.50%) universities, 15 universities from state and deemed universities are having leased line. 5 universities each in state and deemed universities are having dedicated line connectivity, 6(23.08%) in deemed universities and 2(9.09%) in state universities are having ISDN Dial up connectivity. 1 university each in state and deemed university having VSAT connectivity respectively. (Table 4.32)

vii. Majority 44(91.67%) universities are using Internet explorer, it is followed by fire fox 12(25.00%), Netscape is used by 7(14.59%) universities. Arts and science universities prefer 9(81.82%) of “Internet Explorer”, and 2(18.18%) of “Fire fox”, respectively. In the case of Multiple domain universities 14(93.33%) prefer “Internet Explorer”, 5(33.33%) prefer “Netscape”, and “Fire fox”, 3(20.00%) “Opera”, and 1(6.67%) “Mosaic”. 3(75.00%) of “Internet Explorer”, and 2(50.00%) of “Fire fox”, used by others universities. (Table 4.33)

viii. Out of 48 universities, 25(96.15%) deemed universities have a preference of Internet explorer and 19(86.36%) state universities preferred Internet explorer (Table 4.34)

ix. 24(50.00%) arts and science universities have the domain name for their website as .ac.in, 8(72.73%). 6(42.86%) engineering and technology universities have the domain name of .ac.in. 2(50.00%) medical universities have the domain name of ac.in and 1(25.00%) in the domain name of .com and .edu. 6(40.00%) multiple domain
universities have the domain name of ac.in. 2(50.00%) others universities have the domain name of .ac.in and .org. (Table 4.35)

x. All the university libraries provide library profile in their websites. Only 5(33.33%) multiple domain universities and 2(14.29%) engineering and technology universities provides web OPAC in their website. 6(12.50%) universities were given links to access online database with user id and password authentication. 2(13.33%) multiple domain universities are having institutional repository. (Table 4.36)

xi. All the state and deemed universities are provide library profile in their websites. 5(19.23%) deemed universities and 1(4.55%) state universities providing online database. each one university from state and deemed universities having Institutional repository. (Table 4.37)

xii. 31(64.58%) universities are having separate section for digital library. Out of which 13(86.66%) multiple domain universities having a separate section for digital library. It is followed by 9(64.28%) engineering and technology universities, 5(45.45%) arts and science universities and 2(50.00%) medical and other universities having a separate section for digital library. (Table 4.38)

xiii. Out of 31 universities, 21(80.77%) deemed universities having separate section for digital library whereas in state universities only 10(45.45%) have separate section. (Table 4.39)

5.2.8 Digitisation

i. All the engineering and technology universities, medical universities and multiple domain universities have born digital materials whereas 19(39.58%) are having “digitally created materials” in this 8(57.14%)
in engineering and technology universities and 5(33.33%) in multiple
domain universities. (Table 4.40)

ii. 25(96.15%) in deemed universities and 21(95.45%) in state
universities are having born digital materials whereas 10(45.45%)
state universities and 9(34.62%) deemed universities are having
digitally created materials. (Table 4.41)

iii. 31(64.58%) universities are harvested digital materials from web, it is
followed by 23(47.92%) are licensed from a vendor, 18(37.50%)
acquire from outright purchase, 13(27.08%) created in-house and
4(8.33%) receive as donation. Nearly half of the engineering and
technology universities and 4 universities from arts and science and
multiple domain universities are acquire from outright purchase. 4
arts and science and multiple domain universities and 3 engineering
and technology universities are created in-house. (Table 4.42)

iv. Out of 31 universities, 16(72.73%) state universities and 15(57.69%)
deemed universities are harvested digital materials from Web.11
(42.31%) deemed universities and 12(54.55%) state universities are
acquiring licensed from a vendor. 2 universities from state and
deemed universities are acquiring digital materials as a donation
(Table 4.43)

v. 19(39.58%) universities were converting student projects reports,
thesis etc. to digital format. Out of 17(35.42%) universities,
6(40.00%) in multiple domain, 5(35.71%) in engineering and
technology and 3(27.27%) in arts and science universities converting
rare and frequently used documents to digital form. Only 2 domains
such as multiple domain universities 6(40.00%) and engineering and
technology universities 3(21.43%) are converting all documents to
digital form. 3(20.00%) multiple domain universities and 2(18.18%)
each in arts and science and engineering and technology 2(14.29%) are converting in house publications. (Table 4.44)

vi. 11(42.31%) in deemed universities and 8(36.36%) state universities are converting students projects reports, thesis. 10(38.46%) deemed universities and 7(31.82%) state universities are converting rare and frequently used documents to digital form. 7(26.92%) deemed universities are converting all documents to digital form as well as converting selected documents to digital form as per the expert opinion (Table 4.45)

vii. 1/3rd of the universities converting data by keying. 22(45.83%) universities are converting both (keying and scanning) and 5(10.42%) by digital camera. 3(75.00%) in medical universities and 2(50.00%) other universities are adopting conversion mode by scanner. 4(28.57%) engineering and technology universities, 2(50.00%) medical universities and 1(25.00%) in others universities are converting by both keying and scanning. (Table 4.46)

viii. Half of the state universities and 11(42.31%) deemed universities are conversion by both (keying and scanning). 23(88.46%) deemed universities and 13(59.09%) state universities are conversion by scanner. In 3(13.64%) state universities the data is conversion by keying and digital camera. (Table 4.47)

ix. 14(29.17%) universities converting textual matter, Nearly half of the universities are converting pictures, 5(33.33%) in multiple domain universities, 2 each in arts and science, engineering and technology, others universities and 1(25.00%) in medical universities. One each universities in arts and science, engineering and technology and other universities are converting audio / video etc. (Table 4.48)
x. 9(34.62%) deemed universities are converting textual matter and 5(19.23%) universities are converting pictures whereas in state universities 7(31.82%) universities are converting pictures and 5(22.73%) universities are converting textual matter. (Table 4.49)

xi. Out of 33(68.75%) universities are among this, 12(80.00%) multiple domain universities, 9(64.29%) engineering and technology universities, 6(54.55%) arts and science universities and 3(75.00%) each in medical and others universities adopting PDF format. 6(54.55%) universities in arts and science, 4 universities each in engineering and technology and multiple domain universities, 2(50.00%) medical universities and 1(25.00%) in others universities are adopting TXT format. 2(14.29%) engineering and technology and 1 each in arts and science and other universities are adopting XML format. (Table 4.50)

xii. Majority of the state universities 19(73.08%) adopting PDF format whereas in state universities only 14(63.64%) adopting PDF. 10(45.45%) state universities is adopted TXT. 8(30.77%) deemed universities and 6(27.27%) state universities adopting HTML (Table 4.51)

xiii. The majority 32(66.67%) universities using JPEG format. All the universities in others universities are using JPEG format, 7(46.67%) multiple domain universities are using both TIFF and GIF. Arts and science 2(18.18%) using TIFF and 3(27.27%) using GIF format respectively. (Table 4.52)

xiv. Out of 32(66.67%) universities, 16(61.54%) deemed universities and 16(72.73%) state universities are using JPEG format, 5(22.73%) state universities are using TIFF and GIF. In deemed universities 11(42.31%) are using TIFF and 7(26.92%) using GIF. (Table 4.53)
xv. All the universities in arts and science universities are adopted MP3 format, 3(21.3%) engineering and technology and 1 university each in arts and science and multiple domain universities are adopted RAM / RM format. One university each in medical, multiple domain and other universities are adopting AU format. Only 1(7.1%) are adopting MIDI / MOD’s in multiple domain universities. (Table 4.54)

xvi. Out of 40(83.33%) universities, most used audio format is MP3, it is used by 22(84.62%) in deemed universities and 18(81.82%) in state universities. 2(2.09%) state universities are using AU and RAM / AM format whereas in deemed universities. 3(13.64%) WAV format are using in state and deemed universities respectively. (Table 4.55)

xvii. More than half of the universities are adopted MPEG format, 4(26.67%) in multiple domain universities are adopting Real video format whereas in engineering and technology universities 3(21.43%) adopting this format. 5(35.71%) engineering and technology universities, 2(13.33%) multiple domain universities and 1(25.00%) each in medical and others universities are adopting Quick time format, each one university in arts and science 1(9.09%), engineering and technology 1(7.14%), medical 1(25.00%) and multiple domain 1(6.67%) universities are adopting AVI format. (Table 4.56)

xviii. 15(57.69%) of deemed universities are adopting MPEG format whereas in state universities only 17(77.27%). 6(23.08%) of deemed universities adopting Quick time and Real video similarly in state universities 3(13.64%) are adopting AVI and Quick time format. 1(3.85%) deemed universities are adopting AVI and VRML format. (Table 4.57)
xvii. More than 1/4th of the universities falls under “Selection”, and “Quality”, 4(36.36%) arts and science universities falls under “Access”, 3(27.27%) are falls under “Selection”, and “Quality”, 2(18.18%) in “Longevity”, and 1(9.09%) in “Integrity”. In the case of multiple domain universities 8(53.33%) falls under “Quality”, it is followed by 6(40.00%) “Selection”, 4(26.67%) “Longevity” and “Access” and 2(13.33%) falls under “Integrity”. 3(75.00%) of “Access” and 1(25.00%) of “Longevity” seen in other universities. (Table 4.58)

xx. 10(38.6%) deemed universities falls under “selection”, and 13(50.00%) as “Quality” whereas in state universities 8(36.36%) as “Selection” and 5(22.73%) as “Quality”. 3(13.64%) state universities and 3(11.53%) deemed universities falls under “Integrity”. 7(26.92%) universities in deemed and 6(27.27%) universities in state falls under “Longevity”. In the case of “Access “, 8(36.36%) state universities and 6(23.08%) deemed universities. (Table 4.59)

xxi. 17(35.42%) universities are adopting “Migration and reforming”, 3(75.00%) other universities and 3(21.43%) engineering and technology adopting universities “Refreshing” technology, 5 each universities in arts and science 5(45.45%), engineering and technology 5(35.71%) and multiple domain universities 5(33.33%) are adopting “Migration and reforming” technology. 3(20.00%) in multiple domain universities and 1 each in engineering and technology, medical and other universities are adopting “Output of analogue media” technology. (Table 4.60)

xxii. 5(19.23%) deemed universities are adopting “Refreshing “, and “Output of analogue media”. 11(42.31%) deemed universities and 3(13.64%) state universities are adopting “Data Archaeology”, technology. Half of the state universities and 6(23.08%) deemed universities are adopting “Migration and reforming”, each 2
universities in state and deemed universities are adopting “Emulation” technology. (Table 4.61)

**xxiii.** 35(72.92%) of universities were digitise their examination question paper, 6(40.00%) universities in multiple domain and 6(42.86%) engineering and technology universities are digitise project report. All the medical universities are digitise Question papers and syllabus, 5(33.33%) universities in multiple domain and 3 universities in each engineering and technology and other universities are digitise Ph.D thesis. Universities in multiple domain and 2 universities each in arts and science and engineering and technology universities are digitise their lab manuals. 2(14.29%) universities in engineering and technology and 1 university each in medical universities, multiple domain universities and other university are digitise convocation address. (Table 4.62)

**xxiv.** Out of 35(72.92%) universities, 1/3\textsuperscript{rd} of the deemed universities and 16(72.73%) state universities are digitise “Question papers”, nearly 20(76.92%) deemed universities and more than half of the state universities are digitise syllabus materials. Half of the deemed universities and 6(27.27%) state universities are digitise “Project reports”. Out of 14(29.17%) universities, 8(36.36%) state universities and 7(26.92%) deemed universities are digitise “Ph.D thesis”, (Table 4.63)

**xxv.** The “Less Space” is highly noticed in the libraries under study since it is observed with (2.31) as mean value. and “Any time Access” (2.17) and “Easy to Access” (2.17) as second and third ranks respectively. (Table 4.64)

**xxvi.** In arts and science universities “High” priority is given to “Less Space” 5(45.50%) and the “Moderate” priority has been given to “Digital form” 10(90.90%) whereas in engineering and technology
“High” priority is given to “Less Space” 5(35.70%) and the “Moderate” priority has given to “Digital form” 11(78.60%). In medical universities “High” priority is given to “Easy to Access” 3(75.00%) and the “Moderate” priority is given to “Digital form” 3(75.00%). (Table 4.65)

xxvii. In state universities “High” priority is given to “Less Space” 11(50.00%) followed by “Moderate” priority has been given to “Digital form” 16(72.70%) and “Low” priority is given to “Less Space” (22.70%) whereas in deemed universities “High” priority is given to “Less Space” 12(46.20%) and by “Moderate” priority has been given to “Digital form” 19(73.10%) (Table 4.67)

xxviii. The “Full Extent” priority is given to “Copyright and IPR Issues” 29(60.40%) and the second “Greater Extent” priority is given to “Formats and style”, and “Machine dependency” 19(39.60%) (Table 4.70)

xxix. Arts and science universities the “Full Extent” priority is given to “Dynamic nature of digital content” 7(63.60%) and the second “Greater Extent” 5(45.50%) priority is given to, and “Machine dependency” (Table 4.71)

xxx. Engineering and technology universities the “Full Extent” priority is given to “Copyright and IPR Issues” 8(57.10%) and the second “Greater Extent” priority is given to, and “Technical Problem” 5(35.70%) (Table 4.72)

xxxi. Medical universities the “Full Extent” priority is given to “Copyright and IPR Issues” and “Technical Problems”, 2(50.00%) the second “Greater Extent” priority is given to, and “Technological obsolescence” 4(100%) (Table 4.73)
xxxii. Multiple domain universities the “Full Extent” priority is given to “Copyright and IPR Issues” 11(73.30%) and the second “Greater Extent” priority is given to, and “Formats and style” 9(60.60%) (Table 4.74)

xxxiii. Other domain universities the “Full Extent” priority is given to “Copyright and IPR Issues” 2(50.00%) and the second “Greater Extent” priority is given to, and “Machine dependency”, “Fragility of the media”, and “Shorter life span of digit media”. 2(50.00%) (Table 4.75)

xxxiv. The state university “Full Extent” priority is given to “Copyright and IPR Issues” 11(50.00%) and the second “Greater Extent” priority is given to “Machine dependency” 9(40.90%) (Table 4.76)

xxxv. The deemed university “Full Extent” priority is given to “Copyright and IPR Issues” 18(69.20%) and the second “Greater Extent” priority is given to “Formats and style” 13(50.00%) (Table 4.76)

5.2.9 Findings in Relation to Hypotheses

The study undertaken as indicated that the hypotheses:

1. There exists willingness on digitisation among the university libraries.

2. There is a significant difference in the hardware and software facilities among the university libraries.

3. There exist variations in the digital collection among the university libraries in Tamil Nadu.

4. There exists the technological difference among the university libraries on networking and internet connectivity.
5. There exists a facility for data capturing, digital conversion and preservation of digital materials among the university libraries.

6. There exists hurdles / problems / constrains in the development of digital library.

Stated in the chapter 1, under section 1.9 have been tested in chapter 4 and found valid.

5.2.10 Suggestions

This study has identified the importance of information particularly in the field of digital library. The use of digital library resources and digital preservation, digitisation process in the university libraries differs from person to person. On analyzing the data in chapter four, a number of findings and observations require the formulation of the following suggestions to enhance the capabilities of university libraries.

5.2.10.1 Building Provision for Digital Library

In the light of observation made by investigator about the inadequate provision of library building in most of the university libraries under study and in view of the demand for the provision of effective digital library services which needs better physical infrastructure, it is suggested the universities authorities shall take necessary steps for the provision of effective digital library services in Information Communication Technology (ICT) environment.

5.2.10.2 Provision of Computers Terminals, Hardware, Software and other ICT Infrastructure

In the view of existing situation with regard to the provision of computer terminals, hardware, software and others ICT infrastructure in most of the university libraries, it is suggested to provide more computer terminals, hardware and software to facilitate the easy access to digital resources by the university library users.
5.2.10.3 Manpower Issues

Man power plays a vital role in Library and Information Science field. In the view of present study, it is suggested to initiate the following:

i. To initiate steps in filling up all the vacant posts in the library by suitable qualified library and information science persons.

ii. Provision of orientation and refresher course programmes to the university library professionals to acquire information to keep-up-to-date themselves to give a better service to the users.

iii. Encouraging library professional/Information scientist for participating in International, National and regional conferences, seminars and workshops etc.

5.2.10.4 User Educational Programmes

It is necessary to conduct user studies periodically in order to ascertain the information needs of users and accordingly plan for the provision of necessary ICT and digital library based services. Further, it is suggested to conduct user education programmes and information literacy programmes about the use of ICT environment, digital library and online resources.

5.2.10.5 Library Consortium

Due to financial crunch and the rising costs of journals, many academic/research/scientific libraries cannot subscribe to all the required journals and databases. Libraries formed consortia to overcome the problem and share the resources. Sharing electronic resources have become necessity of individual libraries due to their decreasing excellence, further it is suggested to establishment and development of network and networking systems like INDEST-AICTE, INFLIBNET and UGC-INFONET Digital Library Consortium. (Appendix D)
5.2.10.6 Training for Digital Library Professionals

Training and development is an important aspect of personnel development for an organization. Training may be provided in the form of orientation courses, in-service training courses and undergoing formal educational programs. In the field of Library and Information Services, it has been realized that the impact of the Information Technology (IT) on informational professionals has become deeply rooted that demands continuous improvement of professional skills of information professionals. Hence it is suggested that the following organizations are given training for library professionals:

i. IIMK (Indian Institute of Management, Kozhikode)
ii. DELNET (Developing Library Network)
iii. IISc (Indian Institute of Science)
iv. OSS Lab (Open Source Software)
v. UNESCO (United Nations Educational, Scientific and Cultural Organization)

5.2.10.7 Financial Resources

Finance is the most vital factor that determine the effectiveness of the library adequate funds are necessary to build library collection to provide services to their users and to purchase and maintain various digital library equipment, hardware and software, online resources etc, hence it is suggested that, the university authority may get the funds from the following government funding agency by way providing a minor or major projects:

i. UGC (University Grants Commission)
ii. AICTE (All India Council for Technical Education)
iii. MHRD (Ministry of Human Resource Development)
iv. ARDE (Armament Research and Development Establishment)
v. ICMR (Indian Council of Medical Research)
vi. FICCI (Federation of Indian Chambers and Commerce Industry)
vii. DRDO (Defence Research and Development Organisation)
viii. RRLF (Raja Rammohun Roy Library Foundation)
ix. NMM (National Missions Manuscripts)

5.2.10.8 Fund Generation

In the view of existing situation with regard to the funds, it is suggested the universities authorities

i. To provide institutional membership to all the academic institutions.

ii. To start journal, book’s publication division for the educational society.

iii. To create video lectures according to the curriculum and syllabus and it may be made available in the publication division.

5.2.10.9 Digital Library Open Source Software

In the view of existing situation with regard to the open source software is available in worldwide, it is suggested the library professionals to adopt software like DSpace, Greenstone, Eprints etc to facilitate the easy access to digital resources. (Appendix G).

5.2.10.10 Establishment of New Universities

In the view of existing situation with regard to universities in Tamil Nadu at present there were only 16 districts are having universities, it is suggested the authorities shall take necessary steps to establish at least one universities in each revenue district in Tamil Nadu which facilitate the enhancement of standard higher education (Appendix B)
5.3 DIRECTIONS FOR FURTHER RESEARCH

The investigator has identified the following topics for further research based on the present study:

1. Comparative study on the digital library infrastructure and facilities between private universities and government universities in Tamil Nadu.

2. E-resources and their usage patterns amongst the university libraries in Tamil Nadu.

3. Information and Communication Technology literacy among the library professionals in universities of Tamil Nadu: With special reference to government universities.

4. Digital Library Initiatives and Usage of Digital Library Resources in the University Libraries of Tamil Nadu: A study

5. Applications of Information Communication Technology and related man power problems in the university libraries of Tamil Nadu

5.4 CONCLUSION

The study is on the digital library infrastructure and facilities in the universities libraries of Tamil Nadu. The study emphasizes that the existing university libraries such as arts and science, engineering and technology, medical, multiple domain and other universities infrastructure in terms of digital library, e-resources and services, online resources and services, internet facilities, digital library hardware and software are more to be strengthened.

There is a transformation phase taking place among university libraries by way of switching over from print to electronic information media which highlights the role of digital library in the changing environment. The creation and formation
of digital information must be made available to other library either by networks or consortia.

The other networking system such as INDEST-AICTE, INFLIBNET and UGC-INFONET must come forward in sharing the financial burden and crunches in university libraries in developing the digital library.

The investigator stresses that the present libraries should accept the challenges being faced by ICT which would supplement and complement library users. The librarian should completely transform themselves with the changing scenario. Electronic resources will be fruitful only balanced collection of information resources; provision of ICT based services in addition the service offered by information professional.