CHAPTER –VII
FINDINGS, SUMMARY AND CONCLUSION
CHAPTER VII

7.1 Introduction

Visvesvaraya Technological University has started research activities in the 92 engineering colleges in Karnataka. Since then these colleges are called as recognized research centres. As of 2011-12 altogether 30 subject areas have been identified for research programmes. In the present study these 30 subjects have been brought under the cluster of 8 broader disciplines: Civil Engineering, Mechanical Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science and Engineering, MBA, applied technology and Basic Sciences for the convenience of identification and allocation of resources, facilities and services. A well structured questionnaire is designed and distributed to 1778 researchers to know the resources, facilities and services and their effectiveness in research centre libraries. Out of these 1072 researchers responded.

Further, it is found that a large segment of the researchers belongs to the disciples of Mechanical Engineering (21.9%), followed by Computer Science department (10.4%), Electronics department (9.9%) and Civil department (9.8%). While considering the number of engineering colleges recognized as research centres for research programmes, 58 (13.4%) research centres have been recognized for doing research in Mechanical department, 43 (10%) research centres for Electronics department, 41 (9.5%) research centres for Chemistry department, 39 (9%) research centres for Mathematics department, 38 (8.8%) research centres for Computer Science department and only 1 (0.2%) research centre each is for Polymer Science and Technology, Bio Medical Engineering, Automobile Engineering, Power System, Science and Humanities, Hydrology and Water Resource Engineering, Food Technological, Aero Mechanical System, Avionics Engineering and Mining Engineering.

Further it is found that all the 82 (100%) research centre libraries have book lending and reference service, followed by 79 (96.3%) research centres have reprographic service, 78 (95.1%) of the research centres have internet browsing service, 73 (89%) research centres have newspaper clipping services, 72 (87.8%) research centres have photocopy services, 71 (86.6%) each research centres have
current awareness services and new arrival list services, 70 (85.4%) research centres have bar-coding facility, 66 (80.5%) each research centres have referral services and literature search facility, 61 (74.4%) research centres have scanning services, 60 (73.2%) research centres have printing services, 59 (72%) research centres have inter-library loan service, 48 (58.5%) research centres have printed periodical indexes services, 46 (56.1%) research centres have abstracting services, 41 (50%) research centre libraries have creations of institute repository services above mentioned facilities and services in VTU research centres libraries. While, considering gender-wise the category of research scholars, 326 (30.4%) were female and 746 (69.6%) were male respondents.

7.2 Issues Studied and Analysed

The study attempts to find out the availability of the library collection and services of different types in 92 VTU research centres libraries in Karnataka. It studies type-wise, form-wise and subject-wise library collection, facilities and services in all these 92 research centres libraries. It also attempts to study up-to-date ness of these library collections. Further, the study analyses the data to trace common titles of effectiveness of library services in various research centre libraries so as to know the extent of duplication. Other issues studied and analyzed include the organization of these library collections and services, problems faced by libraries in developing effectiveness of collection, facilities and services, use of these services by different category of researchers and their views on effective collection, facilities and services, orientation to users as well knowledge and skill of library staff, adequacy of collection and services.

7.3 Verification of the Hypothesis

7.3.1 The Facilities and Services in VTU Research Centre Libraries are Adequate

H1 stated as ‘The facilities and services in VTU research centre libraries are adequate’ is accepted partially as majority of the facilities and services offered are more than adequate (>50%) and very few facilities and services are offered inadequate (<50%). In the case of book lending service, reference service, e-journals, centres have reprographic service, internet browsing service, news paper clipping
services, photocopy services, current awareness services and new arrival list services, referral services and literature search facility, scanning services, printing services, inter-library loan service, printed periodical indexes services, abstracting services and institute repository services more than 50% of the institutions offering above mentioned facilities and services. However, in the case of fax and RFID facilities are not offered as expected as these facilities and services are offered less than 50% (Table 5.18).

Hence H1 stated as The facilities and services in VTU research centre libraries’ are adequate’ is accepted partially from both librarians and researchers point of view.

7.3.2 The Utility and Provision of Electronic Resources in VTU Research Centre Libraries are Satisfactory

H2 stated as ‘The utility and provision of electronic resources in VTU research centre libraries’ are satisfactory’ is accepted as it was found that 78 (95%) subscribe to e-journals and e-books, more than 50% subscribe to IEEE (CSE, ISE,E&C,E&E), ASME (Mechanical), Springer, McGraw Hill’s Access Engineering, Science Direct, ASCE (Civil) and EBSCO Business Source Elite e journals (Table 5.9).

H2 stated as ‘The utility and provision of electronic resources in VTU research centre libraries’ are satisfactory’ is partially accepted. In the case of use of online journals we find that except for Springer and J gate, the use of e journals was found to less than 50% for IEEE, ASME, ASCE, Science Direct, EBSCO Business source Elite, and McGraw Hill’s Access Engineering (Table 6.59).

7.3.3 The Initiation of Computerization of Library and Extent of its use by Researchers in VTU Research Centre Libraries is Limited.

H3 stated as ‘The initiation of computerization of library and extent of its use by researchers in VTU research centre libraries is limited.” It is partially accepted, as the initiation of digitization of library and extent of its use by researchers in VTU research centre libraries varied from 75 (91.5%) to 10 (12.2%). However, except for Ph.D. Thesis table of content service, the digitization process was found to be more than 50% for the services such as provision for downloading information from the
internet, printed table of contents of journals, magazines, CDs service, printed table of contents of e-journals service, provision of list of digital library website, provision of list of relevant websites, providing links to the other library portals and provision of project and dissertation table of content service. Further, it was observed that about 50% libraries use digital library software for digitization (Table 5.20).

From the users perspectives it is observed that 769 (71.8%) researchers indicated ‘effective’ to computerized issue and returns service (Table 6.39), followed by 451 (42.1%) researchers found ‘effective’ with computerized reservation of materials (Table 6.40), about 660 (61.5%) researchers found ‘effective’ with computerized OPAC search services (Table 6.41), 199 (18.6%) researchers found ‘effective’ with email notifications (6.42), 125 (11.7%) researchers indicated ‘effective’ with computerized article alert service (Table 6.43), 638 (59.5%) researchers found ‘effective’ with arrangement of electronic resource and services (Table 6.44), 159 (14.9%) researchers found ‘effective’ with table of contents services (Table 6.45), and a majority of (667; 62.2%) researchers found ‘effective’ with new arrivals list (Table 6.46).

As far as effectiveness of website are verified, it was found that there are 338 (31.5%) researchers found frequent accuracy of information from the website (Table 6.47), followed by 413 (38.5%) researchers found that website provides useful information (Table 6.48), 381 (35.5%) researchers indicated that website provides high quality information (Table 6.49), 397 (36.1%) researchers indicated they information found is relevant from the website (Table 6.50), 378 (35.3%) researchers indicated website include clear instructions (Table 6.51), and 402 (37.5%) researchers indicated that library provide website link to institutional repository frequently (Table 6.52).

Hence, from the users perspective also, it is clear that H3 stated as ‘The initiation of computerization of library and extent of its use by researchers in VTU research centre libraries is limited’, is partially accepted.
7.3.4 The Use of Network, RFID Technology and Barcode in VTU Research Centre Libraries is Limited

H4 stated as ‘The use of network, RFID technology and barcode in VTU research centre libraries is limited’ is partially accepted it was found that more than 81 (98.8%) research centre libraries indicated that the library system work under network environment (Table 5.28). However, only 3 (3.7%) research centre libraries indicated that RFID Technology exists (Table 5.33). There are 70 (85.4%) research centre libraries indicated that they use bar coding (Table 5.34).

Hence H4 stated as ‘The use of network, RFID technology and barcode in VTU research centre libraries is limited’ is partially accepted.

7.3.5 The Methods Used in Acquiring Information Sources and Use of Budget in VTU Research Centre Libraries is Very Effective

H5 stated as ‘The methods used in acquiring information sources and use of budget in VTU research centre libraries are very effective’ is partially accepted due to the following factors. From year 2007-08 to 2011-12 (Table 5.6), the budgetary allocations are increasing year by year. Further, it was found that more than 74% of them indicated that the budget is allocated department wise for purchase of books & other resources either to a large extent or moderate extent. However, less than 50% responses to a large or moderate extent were observed for some part of the budget is reserved for future requirements. Expenditures are regularly checked throughout the year and more money is allocated to recurring than non recurring heads (Table 5.15).

Hence H5 stated as ‘The methods used in acquiring information sources and use of budget in VTU research centre libraries are very effective’ is partially accepted.

7.3.6 The Methods Used in Maintenance of Stock, Managing Periodical Section and Providing Reference Service in VTU Research Centre Libraries are Very Effective

H6 stated as ‘The methods used in maintenance of stock, managing periodical section and providing references in VTU research centre libraries are very effective’ is partially accepted. It was found that more than 50% of responses for effectiveness ranges from a moderate to a large extent for methods such as technical section staff
are instructed to avoid delays in sending books to the stack section, used books are verified physically then shelved, librarian closely supervises that the books are correctly shelved on the book racks, non book materials are shelved in the special transparent cabinets, stacks are regularly cleaned and vacuumed, use of adjustable shelves to shelve books, normal shelf height is maintained so that a person can reach easily, all book shelves to have enough vacant space to get fresh air and light for each volume, Slanting light is thrown on the spines of all books arranged in the shelves, and Adequate provision is made for further expansion of stack (Table 5.19).

In the case of managing periodical sections in research center libraries it was found that more than 50% response ranges from moderate to a large extent for methods such as current periodicals are regularly displayed, bound volumes of periodicals are well maintained and kept dust free, subject-wise arrangement of bound volumes of periodicals, arrival of journals in time is ensured and adequate systems are provided to enable the use of e-journals. However, it was found that less than 50% responses ranges from moderate extent to a large extent for methods of maintaining a good kardex, current journals are issued overnight and user slip method is used to check the daily usage rate of journals (Table 5.23)

7.4 Finding of the Study

7.4.1 Librarian’s Opinion towards Provision of Library Resources, Services and Facilities in Research Centre Libraries

1. Designation and Gender-wise Distribution of Library staff

   a. The data relating to gender-wise distribution of library staff working in 82 research centre libraries shows that out of total 82 library staff, 64 are male and remaining 18 are female (Table 5.1).

   b. The designation-wise data about library staff shows that there are 56 (68.3%) respondents who possess the designation is “Librarian”, followed by 12 (14.6%) possess the designation as “Chief Librarian”, 6 (7.3%) possess the designation as “Senior Librarian”, 5 (6.1%) as “Selection Grade Librarian”, 2 (2.4%) as “Assistant Librarian” and only 1 (1.2%) has the designation as
“Library Manager”. There is no one female respondent exist in the designation of ‘Assistant Librarian’ and ‘Library manager’ (Table 5.1).

2. Age-wise Distribution of Library Staff

The data relating to age-wise distribution of library staff shows that out of total 82 library staff there are 20 (34.1%) respondents belong to the age group of 36-45 years, followed by 27 (32.9%) belong to the age group of 25-35 years, 17 (20.7%) belong to the age group of 46-55 years and 10 (12.2%) belong to the age group of above 55 years (Table 5.2).

3. Educational Status-wise Distribution of Library Staff

The data relating to educational status-wise distribution of library staff shows that there are 43 (52.5%) respondents who hold both M.L.I.Sc. and M.Phil. degree, followed by 31 (37.8%) who hold M.L.I.Sc degree and remaining 8 (9.7%) hold both M.L.I.Sc and PhD degrees. Further, none of the female respondents possess Ph.D degree (Table 5.3).

4. Experience-Wise Distribution of Library Staff

The years of work experience of library staff in 82 research centre libraries under study range between below 5 years to above 20 years. Out of the 82 library staff, there are 26 (31.75%) library staff have “6 to 10 years” of professional experience, 25 (30.5%) respondents have “below 5 years” of experience, 18 (22.0%) respondents have “11 to 20 years” of experience & remaining 13 (15.9%) library staff have “above 20 years” of work experience (Table 5.4).

5. Types of Library Staff

a. The professional, semi-professional and non-professional library staff working in 82 research centre libraries under study range between below 2 to above 6. There are 32 (39%) research centre libraries employed 3-4 professional library staff, followed by 25 (30.5%) libraries have employed below 2, 16 (19.5%) libraries have employed 5-6, the rest of the 9 research centre libraries have employed above 6 professional library staff. (Table 5.5)
b. The data relating to semi-professional staff working in 82 research centres shows that there are 55 (67.1%) research centre libraries have employed below 2 semi-professional library staff, 20 (24.4%) libraries have employed 3-4, 5 (6.1%) libraries have employed 5-6, rest 2 (2.4%) of the research centres libraries have employed above 6 semi professional library staff. (Table 5.5)

c. The data relating to non-professional staff shows that there are 37 (45.1%) research centre libraries employed below 2 non-professional library staff, 24 (29.3%) libraries have employed 3-4, 12 (14.6%) libraries have employed 5-6, rest 9 (11%) research centre libraries s have employed above 6 non-professional library staff (Table 5.5). The data relating to personnel working in VTU research centres libraries under study reveals that there is no uniform staff formula adopted in the appointment for manpower requirements in research centre libraries under study. (Table 5.5)

6. Library Users

a. The number of users in 82 research centre libraries under study range between below 1001 to above 5000. There are 38 (46.3%) research centre libraries have 1001-2000 users, followed by 16 (19.5%) research centres have 2001-3000 users, 14 (17.1%) research centres have 3001-4000 users, 6 (7.3%) research centre have below 1000 users, 5 (6.1%) research centres have that 4001-5000 users and 3 (3.7%) research centres have more than 5000 users using their respective libraries.

b. The number of staff category of users in 82 research centre libraries under study range between below 100 to above 301. There are 32 (39%) research centre libraries have 100-200 staff using their libraries, followed by 24 (29.3%) research centre libraries have 201-300 staff, 19 (23.2%) libraries have above 301 staff users and remaining only 7 (8.5%) libraries have below 100 staff users.

c. The number of researcher category of users in 82 research centre libraries under study range between 1 to above 51. There are 23 (28.0%) research centre libraries have 11-25 researchers, followed by 21 (25.6%) libraries have 1-5 researchers, 18 (22.0%) libraries have 6-10 researchers, 11 (13.4%)
libraries have 26-50 researchers and only 9 (11.0%) research centre libraries have more than 51 researchers use their libraries (Table 5.10).

7. Library Budget

The budgetary resources of 82 research centre libraries for a period of 5 years range between less than 10 lakhs to 20-30 lakhs. There are 29 (37.7%) research centre libraries spent 20-30 lakhs during 2011-12, 22 (28.6%) libraries spent 10-20 lakhs in the financial year 2010-11, 33 (44%) libraries spent 10-20 lakhs, 16 (21.3%) libraries spent less than 10 lakhs. During the financial year 2009-10, 31 (42.5%) libraries spent 10-20 lakhs, 20 (27.4%) of the libraries spent less than 10 lakhs. In 2008-09, 31 (44.9%) libraries spent 10-20 lakhs, 18 (26.1%) libraries spent less than 10 lakhs and in 2007-08, 31 (49.2%) libraries spent less than 10 lakhs, 13 (20.6%) research centre libraries spent 10-20 lakhs (Table 5.6).

8. Document Collection

a. Collection of Printed Books

The collection of printed books in 82 research centre libraries under study range between below 20000 to above 60000. There are 36 (43.9%) research centre libraries have 20001-40000 books, followed by 19 (23.2%) libraries have more than 60000 books, 15 (18.3%) libraries have below 20000 books and 12 (14.6%) research centre libraries have 40001-60000 books (Table 5.7).

b. Collection of Printed Journals

The collection of printed journals in 82 research centre libraries under study range between below 50 to above 100. There are 38 (46.3%) research centres libraries have above 101 printed journals, followed by 25 (30.5%) libraries have 76-100 printed journals, 16 (19.5%) libraries have 51-75 printed journals and 3 (3.7%) research centre libraries have below 50 printed journals (Table 5.7).

c. Collection of Bound Volumes

The collection of bound volumes in 82 research centre libraries under study range between below 100 to above 2000. There are 13 (19.4%) research centre libraries have 501-1000 bound journals, 12 (17.9%) each libraries have above 101-250 and 251-500 and 1001-2000 bound journals collections, 11 (16.4%) libraries have
above 2000 bound journals and remaining 7 (10.4%) research centre libraries have below 100 bound journals collections. (Table 5.8)

d. Collection of Project Reports

The collection of project reports in 82 research centre libraries under study range between below 100 to above 2000. There are 17 (25.4%) each research centres libraries have 251-500 and 501-1000 project reports, followed by 11 (16.4%) libraries have 1001-2000 project reports, 10 (14.9%) libraries have more than 2000 project reports, 9 (13.4%) libraries have 101-250 project reports and only 3 (4.5%) research centre libraries have below 100 project reports (Table 5.8).

9. Subscription to E-journals

The data relating to subscription to e-journals in 82 research centre libraries shows that there are 78 (95.1%) research centre libraries subscribe to e-journals (Table 5.21).

10. Subscription to Number of E-journals Databases

The subscription to e-journals databases in 82 research centre libraries under study range from 1-3 to above 9. There are 31 (39.7%) research centres libraries subscribe to 7 to 9 e-journals databases, followed by 21 (26.9%) libraries subscribe to 4 to 6 e-journals databases, 19 (24.4%) libraries subscribe to 1 to 3 e-journals databases and only 7 (9.0%) research centres libraries subscribe to above 9 e-journals databases (Table 5.9).

11. Subscription to Types of E-journals

The data relating to subscription to different of types of e-journals shows that there are 76 (97.4%) research centre libraries subscribe IEEE e-journals, 54 (69.2%) libraries subscribe ASME e-journals, 53 (67.9%) librareis subscribe Springer e-journals, 49 (62.8%) libraries subscribe the McGraw Hill’s engineering e-journals, 47 (60.3%) libraries subscribe the Science direct e-journals and 43 (55.1%) research centre libraries subscribe the ASCE and EBSCO Business source Elite e-journals (Table 5.22).
12. Physical Infrastructure

a. Seating Capacity

The seating capacity in 82 research centre libraries under study range between below 100-200 to above 500. There are 28 (34.1%) research centre libraries have 101-200 seating capacity, followed by 20 (24.4%) libraries have 201-300 seating capacity, 13 (15.9%) libraries have 301-400 seating capacity, 10 (12.2%) libraries have above 500 seating capacity, 6 (7.3%) libraries have above 500 seating capacity and remaining only 5 (6.1%) research centres have 401-500 seating capacity (Table 5.11).

13. Number of Books Borrowed Per Day

The number of books borrowed per day in 82 research centre libraries under study range between below 100 to above 500. There are 28 (34.1%) research centre libraries the number of books borrowed per day are 101-200, followed by 26 (31.7%) libraries it is 201-300, 10 (12.2%) libraries it is 301-400, 7 (8.5%) libraries it is below 100 books, 6 (7.3%) libraries it is above 500 and 5 (6.1%) research centre libraries 401-500 books borrowed per day (Table 5.12).

14. Basis for Fund Allocation for the Purchase of Books and Journals

The data relating to different basis for allocation of fund in 82 research centre libraries shows that in 43 (52.4%) research centres fund is allocated based on AICTE norms to a large extent, followed by in 38 (46.3%) research centres where fund is allocated based on HODs recommendations to a large extent and in 25 (30.5%) research centres fund is allocated based on principal’s recommendations to a large extent (Table 5.13).

15. Measures Used in Acquiring Required Information Resources

The data relating to different measures used in acquiring required information resources in 82 research centre libraries shows that there are 65 (79.3%) research centre libraries where they select and acquire the required information resources in accordance with the list of recommended books given in the syllabus to a great extent, followed by 45 (54.9%) libraries refer AICTE guidelines to a large extent and 26
(31.7%) research centre libraries consider users’ demand for multiple copies to a large extent (Table 5.14).

16. Measures Used in Effective Utilization of Library Budget

The data relating to use of different measures for effective utilization of budget in 82 research centre libraries shows that there are 41 (50%) research centre libraries where the budget is allocated department-wise for acquiring information resources to a large extent and in 29 (35.4%) research centre libraries the expenditures are regularly checked throughout the year to a large extent (Table 5.15).

17. Computerization of Library Operations

The data relating to computerization of library operations in 82 research centre libraries shows that there are 29 (35.4%) research centres where the entire acquisition operations automated, followed by 67 (81.7%) libraries where they automated cataloguing operations, 64 (78%) libraries automated their circulation and 32 (39%) research centre libraries have automated in serial management (Table 5.16).

18. Equipments

The data relating equipments held in research centres under study shows that there are 81 (98.7%) research centre libraries have computers and printers, followed by 74 (90.2%) libraries have photocopiers, 73 (89%) libraries have barcode readers, 69 (84.1%) libraries possess scanners, 30 (36.5%) libraries have video displays, 29 (35.3%) libraries have digital cameras and 25 (30.4%) research centre libraries have over head projectors (Table 5.17).

19. Facilities and Services

The data relating to facilities and services in 82 research centre libraries shows that all the 82 (100%) research centres libraries have book lending and reference service, followed by 79 (96.3%) libraries have reprographic service, 78 (95.1%) libraries have internet browsing service, 73 (89%) libraries have newspaper clipping service, 72 (87.8%) libraries have photocopy service, 71 (86.6%) each libraries have current awareness service and new arrival list service, 70 (85.4%) libraries have bar-coding facility, 66 (80.5%) each libraries have referral service and literature search service, 61 (74.4%) libraries have scanning service, 60 (73.2%) libraries have printing
service, 59 (72%) libraries have inter-library loan service, 48 (58.5%) libraries have printed periodical index service, 46 (56.1%) libraries have abstracting service, 41 (50%) libraries have institutional repository service, 13 (15.9%) libraries have fax service and 3 (3.7%) research centres libraries have RFID facility (Table 5.18).

20. Internet facility

a. The data relating to provision of internet facility in 82 research centre libraries shows that there are 77 (93.99%) libraries provide the internet facility and only 5 (6.1%) research centre libraries do not provide the internet facility (Table 5.25).

b. The data relating to various purposes for which internet facility provided in 82 research centre libraries shows that there are 77 (93.9%) research centre libraries provide internet facility to access to E-journals/E-books, 73 (89%) libraries provide internet to access Online Public Access Catalogue (OPAC), 66 (80.5%) libraries provide internet to e-mail messaging and 50 (61%) research centre libraries provide the internet to procure document (Table 5.26).

c. The data relating to various methods used to increase internet use in 82 research centre libraries shows that there are 75 (91.5%) research centre libraries regularly update and maintain computer systems, followed by 70 (85.4%) libraries maintain log books to enter entry and exit details of users, 68 (82.9%) libraries open their internet centre from 8 am to 8 pm, 67 (81.7%) libraries have kept enough number of computer systems for users to use internet, 46 (56.1%) libraries reserved some systems for faculty and researchers separately, 45 (54.9%) libraries do not permit the users to own CD/pen drive for downloading of information from the internet and only 4 (4.9%) libraries kept their internet centre open for 24 hours (Table 5.27).

21. Methods used for Effective Maintenance of the Library Stack

The data relating to use of different methods used for effective maintenance of stack in 82 research centre libraries shows that there are 51 (62.2%) research centre libraries where the method of close supervision on whether the books are correctly shelved on the respective book rack or not is followed to a great extent, followed by 50 (61%) libraries where the method of physical verification of books and then shelve
to rack is followed a large extent, in 46 (56.1%) libraries stacks are regularly cleaned and vacuumed to a large extent and in 44 (53.7%) each research centre libraries the technical section staff are instructed to avoid delays in sending books to the stack section and see that all book shelves have enough vacant space to get fresh air and light for each volume to a large extent (Table 5.19).

22. Computerized Services

The data relating to use of computer in providing services in 82 research centre libraries shows that there are 75 (91.5%) research centre libraries which allow for downloading information from the internet, 62 (75.6%) libraries provide printed table of contents of journals, magazines and CDs, 61 (74.4%) libraries provide printed table of content of e-journals, 59 (72%) libraries provide list of relevant digital library websites, 59 (69.5%) libraries provide list of relevant web sites, 49 (59.8%) libraries provide proved links to the other library portals, 47 (57.3%) libraries provide table of content of projects and dissertations and only 10 (12.2%) research centre libraries provide table of contents of Ph.D. thesis (Table 5.20).

23. Methods used in Effective Management of Periodical Section

The data relating to different methods used in effective management of periodical section in 82 research centre libraries shows that there are 67 (81.7%) research centre libraries where they regularly display current periodicals to a great extent, followed by 49 (59.8%) libraries provide adequate systems to enable the use of e-journals to a large extent, 48 (58.5%) libraries well maintain and keep dust free the bound volumes of periodicals to a large extent and 43 (52.4%) research centre libraries keep subject-wise arrangement of bound volumes of periodicals to a large extent (Table 5.23).

24. Methods used in Effective Provision of Reference Service

The data relating to methods used in effective provision of reference service in 82 research centre libraries shows that there are 51 (62.2%) research centre libraries placed the OPAC nearer to reference desk as an effective method to provide reference service to a large extent, followed by 45 (54.9%) libraries made the reference desk highly visible and located centrally in the reference section to increase the effectiveness to a large extent, 44 (53.7%) libraries made available current and
up-to-date reference sources in the reference section to increase the effectiveness to a large extent, 40 (48.8%) libraries chosen professional reference librarian with good communication skill as in charge of reference staff to improve effectiveness to a large extent, 34 (41.5%) libraries provide suggestion box in the reference section to improve the quality of service to a large extent and 29 (35.4%) research centre libraries provide user feedback forms in the reference section to improve the quality of service to a large extent (Table 5.24).

25. Networking Environment

a. The data relating to networking environment in 82 research centre libraries shows that there are 81 (98.8%) research centres have network environment for the library system. (Table 5.28).

b. The data relating to types of network under which 82 research centre libraries work shows that there are 72 (88.9%) research centre libraries have LAN network and remaining 9 (11.1%) research centres have WAN network (Table 5.29).

26. Use of Digital Library Software

a. The data relating to use of digital library software in 82 research centre libraries shows that there are 41 (50%) research centres libraries use digital library software for digitization purpose (Table 5.30).

b. The data relating to use of types of digital library software in research centre libraries shows that there are 21(51.2%) research centre libraries use DSpace digital library software, followed by 15 (36.6%) libraries use other digital library software, 4 (9.8%) libraries use Greenstone Digital Library Software and only 1 (2.4%) research centre library use E-Print digital library software (Table 5.31).

c. The data relating to copyright policy in digitizing the collection in research centre libraries shows that there are 11 (13.4%) research centre libraries have the copyright policy dealing with the provision of its resources in digital format (Table 5.32).
27. Use of RFID Technology

The data relating to use of RFID technology in 82 research centre libraries shows that there are 3 (3.7%) research centres where they use RFID technology (Table 5.33).

28. Use of Bar Coding Facility

The data relating to use of bar coding facility in 82 research centre libraries shows that there are 70 (85.4%) research centre libraries adopt bar coding facility (Table 5.34).

7.4.2 Researchers’ Opinion about Effectiveness of Library and Information Services in VTU Research Centre Libraries

29. Age and Department-wise Distribution of Researchers

The age-wise distribution of respondents shows that out of total 1072 respondents there are 541 (50.5%) researchers who belong to the age group of 31-40 years, followed by 269 (25.1%) belong to the age group of below 30 years, 241 (22.5%) belong to the age group of 41-50 years and 21 (2.0%) are in the age group of 51-60 years. The department-wise distribution of respondents shows that there are 187 (17.5%) respondents belong to CSE, 78 (7.4%) are from Applied Technologies, 122 (11.5%) are from Civil, 140 (13%) are from Electronics, 154 (14.3%) are from Basic Science, 57 (5.3%) are from Electrical, 259 (24.1%) are from Mechanical and the remaining 75 (7%) are from department of MBA (Table 6.1).

30. Gender-wise Distribution of Respondents

The data about gender-wise distribution of respondents shows that out of total 1072 respondents, 746 researchers are male representing 69.6% and remaining 326 (30.4%) are female respondents (Table 6.2).

31. Department-wise Distribution of Respondents

The data about department-wise distribution of respondents shows that out of 1072 researcher respondents, 246 (22.9%) belong to Mechanical Engineering department, 139 (13%) researchers belong to Computer Science department, 115 (10.7%) researchers belong to Electronics department, 106 (9.9%) belong to Civil department, 75 (7%) belong to MBA department, 63 (5.9%) belong to Chemistry
57 (5.3%) belong to Mathematics department, 56 (5.2%) belong to Electrical department, 52 (4.9%) belong to Bio-technology department, 33 (3.1%) belong to Physics department, 29 (2.7%) belong to Information Science department, 25 (2.3%) belong to Telecommunication department, 19 (1.8%) belong to MCA department, 12 (1.1%) belong to Chemical Engineering department, 8 (0.7%) belong to Industrial and Production Engineering department, 6 (0.6%) belong to Textile Technology department, 5 (0.5%) belong to Polymer Science department, 3 (0.3%) belong to Industrial Engineering and management department and Bio-medical department, and remaining 1 (0.1%) each researcher belong to Aeronautical, Automobile, Instrumentation technology department (Table 6.3).

32. Research Centre-wise Distribution of Respondents

The data about research centre-wise distribution of respondents shows that out of 1072 respondents there 89 (8.3%) researchers belong to SJCE research centre, Mysore, 78 (7.3%) researchers belong to MSRIT research centre, Bangalore, 63 (5.9%) researchers belong to PESIT research centre, Bangalore, 50 (4.7%) researchers belong to BIET research centre, Davangere, 44 (4.1%) researchers belong to BMSCE research centre, Bangalore (Table 6.4).

33. Frequency of Library Visit

The data about user opinion on frequency of library visit shows that out of 1072 researchers there are 371 (34.6%) researchers who visit the library weekly, followed by 260 (24.3%) researchers who visit the library twice a week, 151 (14.1%) researchers who visit the library fortnightly, 134 (12.5%) researchers visit the library daily, 84 (7.8%) researchers visit the library once in a month and only 72 (6.7%) researchers visit the library occasionally (Table 6.5).

34. Purpose of Visit to the Library

The data about user opinion on various purposes for which they visit the library shows that out of 1072 researchers there are 1055 (98.4%) researchers who visit the library to use e-journals, followed by 1047 (97.7%) researchers visit the library to use the Internet, 1008 (94%) researchers visit the library to refer books, 951 (88.7%) researchers visit the library to borrow books. Further, about 888 (82.8%) each researchers visit the library to read newspapers and to use audio-visual
resources, 745 (69.5%) researchers visit library to use print journals, 636 (59.3%) researchers visit the library to refer project reports/PhD thesis and 615 (57.4%) researchers visit library to use back volumes of journals, 235 (21.9%) researchers visit the library to use government publications, 175 (16.3%) researchers visit the library to use e-books and only 41 (3.8%) researchers visit the library to request for inter library loan (Table 6.7).

35. Convenience of Working Hours

The data about user opinion on convenience of working hours shows that out of 1072 researchers there are 1046 (97.6%) researchers who opined that the working hours of the library is convenient, as against 26 (2.4%) researchers who opined that the library working hours are not convenient (Table 6.6).

36. Effectiveness in Accessing of Resources in Pursuing Research

a. Effectiveness in Accessing Journals

The data about user perception on effectiveness in accessing journals in pursuing research shows that out of 1072 researchers there are 418 (39%) researchers opined that the access to the journals in research centre libraries is ‘somewhat effective’, followed by 287 (36.1%) researchers who opined ‘effective’, 204 (19%) researchers who opined ‘very effective’, 60 (5.6%) researchers who opined ‘ineffective’ and only 3 (0.3%) researchers opined ‘very ineffective’ (Table 6.8).

b. Effectiveness in Accessing Books

The data about user perception on effectiveness in accessing books in pursuing research shows that out of 1072 researchers there are 509 (47.5%) researchers who opined that the access to books in their research centres is ‘effective’, followed by 384 (35.8%) researchers opined ‘very effective’, 167 (15.6%) researchers opined ‘somewhat effective’, 11 (1%) researchers opined ‘ineffective’ and remaining only 1 (0.1%) researcher opined ‘very ineffective’ (Table 6.9).

c. Effectiveness in Access to E-Journals

The data about user perception on effectiveness in accessing e-journals in pursuing research shows that out of 1072 researchers there are 449 (41.9%) researchers who opined that the access to e-journals in their research centres is
‘effective’, followed by 358 (33.4%) researchers opined ‘very effective’, 227 (21.2%) researchers opined ‘somewhat effective’, 27 (2.5%) researchers opined ‘ineffective’ and 11 (1.0%) researchers opined ‘very ineffective’ (Table 6.10).

d. Effectiveness in Access to E-Books

The data about user perception on effectiveness in accessing e-books in pursuing research shows that out of 1072 researchers there are 745 (69.5%) researchers who opined that the access to e-books in research centres is ‘ineffective’, followed by 209 (19.5%) researchers indicated ‘very ineffective’, 102 (9.5%) researchers indicated ‘somewhat effective’ and remaining 16 (1.5%) respondents indicated ‘effective’ (Table 6.11).

e. Effectiveness in Access to Abstracting and Indexing Resources

The data about user perception on effectiveness in accessing abstracting and indexing sources in pursuing research shows that out of 1072 researchers there are 578 (53.9%) researchers opined the access to abstracting and indexing sources is ‘somewhat effective’ followed by 271 (25.3%) researchers opined ‘effective’, 154 (14.4%) researchers opined ‘ineffective’, 49 (4.6%) researchers opined ‘very ineffective’ and 20 (1.9%) researchers opined ‘very effective’ (Table 6.12).


The data about user perception on effectiveness in accessing government publications in pursuing research shows that out of 1072 researchers there are 482 (45%) researchers indicated the access to government publication in their research centres is ‘ineffective’, followed by 299 (27.9%) researchers indicated ‘somewhat effective’, 208 (19.4%) researchers indicated ‘very ineffective’, 75 (7%) researchers indicated ‘effective’ and remaining only 8 (0.7%) researchers indicated ‘very effective’ (Table 6.13).

g. Effectiveness in Access to Thesis/Dissertations/Projects

The data about user perception on effectiveness in accessing thesis/dissertations/projects in pursuing research shows that out of 1072 researchers there are 504 (47%) researchers opined that the access to thesis/dissertations/projects in their research centres is ‘somewhat effective’, followed by 314 (29.3%) researchers opined
‘effective’, 157 (14.6%) researchers opined ‘ineffective’, 61 (5.7%) researchers found ‘very effective’ and remaining only 36 (3.4%) researchers opined ‘very ineffective’ (Table 6.14).

**h. Effectiveness in Access to Patents/Standards**

The data about user perception on effectiveness in accessing patents/standards in pursuing research shows that out of 1072 researchers there are 607 (56.6%) researchers who indicated that the access to patents/standards in their research centres is ‘ineffective’, followed by 213 (19.9%) researchers indicated ‘very ineffective’, 186 (17.4%) researchers indicated ‘somewhat effective’, 60 (5.6%) researchers indicated ‘effective’ and only 6 (0.6%) researchers indicated ‘very effective’ (Table 6.15).

**i. Effectiveness in Access to CD ROM Database**

The data about user perception on effectiveness in accessing CD ROM databases in pursuing research shows that out of 1072 researchers there are 581 (54.2%) researchers opined that the access to CD ROM databases in their research centre is ‘ineffective’, followed by 231 (21.5%) researchers opined ‘somewhat effective’, 199 (18.6%) researchers opined ‘very ineffective’, 53 (4.9%) researchers opined ‘effective’ and only 8 (0.7%) researchers opined ‘very effective’ (Table 6.16).

**j. Effectiveness in Access to Conference/Workshop/Seminar Proceedings**

The data about user perception on effectiveness in accessing conference/workshop/seminar proceedings in pursuing research shows that out of 1072 researchers there are 612 (57.1%) researchers opined ‘somewhat effective’, followed by 304 (28.4%) researchers opined ‘effective’, 104 (9.7%) researchers opined ‘ineffective’, 38 (3.5%) researchers indicated ‘very ineffective’ and only 14 (1.3%) researchers opined ‘very effective’ (Table 6.17).

**37. Methods used in Keeping Abreast of Current Developments in research area**

The data about user opinion on use of different methods for keeping abreast of current development in their research area shows that out of 1072 researchers there are 964 (89.9%) researchers indicated that they use method of browsing journals to keep abreast of current developments in their research field, followed by 918 (85.6%) researchers who refer conference/seminars/workshop proceedings, 902 (84.1%)
researchers who browse abstracts, 868 (81%) researchers access technical reports/research reports, 564 (52.6%) researchers who attend personal communication/lectures and 537 (50.1%) researchers who use current awareness services to keep abreast of current developments in their research field (Table 6.18).

38. Effectiveness of Library and Information Services

a. Effectiveness of Literature Search Service

The data about user perception on effectiveness of literature search service provided by research centre libraries in pursuing research shows that out of 1072 researchers there are 446 (41.6%) researchers who opined that the literature search service is ‘somewhat effective’, followed by 417 (38.9%) researchers opined ‘effective’, 112 (10.4%) researchers opined ‘very effective’, 82 (7.6%) researchers opined ‘ineffective’ and only 15 (1.4%) researchers opined ‘very ineffective’ (Table 6.19).

b. Effectiveness of Abstracting Service

The data about user perception on effectiveness of abstracting service provided by research centre libraries in pursuing research shows that out of 1072 researchers there are 467 (43.6%) researchers opined that the abstracting service is ‘somewhat effective’, followed by 299 (27.9%) researchers opined ‘effective’, 225 (21%) researchers opined ‘ineffective’, 43 (4%) researchers opined ‘very effective’ and remaining only 38 (3.5%) researchers opined ‘very ineffective’ (Table 6.20).

c. Effectiveness of Current Awareness Service

The data about user perception on effectiveness of current awareness service provided by research centres in pursuing research shows that out of 1072 researchers there are 475 (44.3%) researchers opined that the current awareness service is ‘somewhat effective’, followed by 415 (38.7%) researchers indicated ‘effective’, 91 (8.5%) researchers opined ‘ineffective’, 80 (7.5%) researchers opined ‘very effective’ and only 11 (1%) researchers indicated ‘very effective’ (Table 6.21).

d. Effectiveness of Inter-Library Loan Service

The data about user perception on effectiveness of inter library loan service provided by research centres in pursuing research shows that out of 1072 researchers
there are 362 (33.8%) researchers opined inter-library loan services is ‘ineffective’, followed by 178 (16.6%) researchers opined ‘somewhat effective’, 57 (5.3%) researchers opined ‘effective’, 16 (1.5%) researchers opined ‘very effective’ and 459 (42.8%) researchers opined ‘very ineffective’ (Table 6.22).

39. Effectiveness of Computerized Services

a. Computerized Issue and Return services

The data about user perception on effectiveness of computerized issue and return service provided by research centres shows that out of 1072 researchers there are 483 (45.1%) researchers opined ‘very effective’ followed by 286 (26.7%) researchers indicated ‘effective’, 205 (19.1%) researchers opined ‘somewhat effective’, 47 (4.4%) researchers opined ‘very ineffective’, 39 (3.6%) researchers opined ‘ineffective’ and remaining only 12 (1.1%) researchers found this service not available (Table 6.37).

b. Reservation of Books

The data about user perception on effectiveness of computerized reservation of books provided by research centres shows that out of 1072 researchers there are 282 (26.3%) researchers opined that the computerized reservation is ‘somewhat effective’, followed by 230 (21.5%) researchers opined ‘effective’, 221 (20.6%) researchers indicated ‘very effective’, 175 (16.3%) researchers opined ‘ineffective’, 150 (14%) researchers opined ‘very ineffective’ and remaining only 14 (1.3%) researchers found this not available (Table 6.38).

c. OPAC Search Services

The data about user perception on effectiveness of OPAC search service provided by research centres in pursuing research shows that out of 1072 researchers there are 351 (32.7%) researchers opined ‘very effective’, followed by 309 (28.8%) researchers opined ‘effective’, 235 (21.9%) researchers opined ‘somewhat effective’, 127 (11.8%) researchers opined ‘very ineffective’, 36 (3.4%) researchers opined ‘ineffective’ and remaining only 14 (1.3%) researchers found it not available (Table 6.39).
d. E-mail Notification

The data about user perception on effectiveness of e-mail notification provided by research centres in pursuing research shows that out of 1072 researchers there are 186 (17.4%) researchers opined ‘somewhat effective’, followed by 132 (12.3%) researchers indicated ‘ineffective’, 110 (10.3%) researchers indicated ‘effective’, 89 (8.3%) researchers opined ‘very effective’, 541 (50.5%) opined ‘very ineffective’ and remaining 14 (1.3%) researchers indicated it as not available (Table 6.40).

e. Computerized Article Alert Services

The data about user perception on effectiveness of article alert service provided by research centres in pursuing research shows that out of 1072 researchers there are 578 (53.9%) researchers opined ‘very ineffective’, followed by 199 (18.6%) researchers found ‘ineffective’, 155 (14.5%) researchers found ‘somewhat effective’, 96 (9%) researchers found ‘effective’, 29 (2.7%) researchers found ‘very effective’, and remaining only 15 (1.4%) researchers found it not available (Table 6.41).

f. Table of Contents Services

The data about user perception on effectiveness of table of contents service provided by research centres in pursuing research shows that out of 1072 researchers there are 406 (37.9%) researchers opined ‘ineffective’, followed by 287 (26.8%) researchers opined ‘very ineffective’, 207 (19.3%) researchers opined ‘somewhat effective’, 110 (10.3%) researchers opined ‘effective’, 49 (4.6%) researchers opined ‘very effective’ and remaining only 13 (1.2%) researchers opined it not available (Table 6.42).

g. New Arrivals List

The data about user perception on effectiveness of new arrival list service provided by research centres in pursuing research shows that out of 1072 researchers there are 538 (50.2%) researchers indicated ‘effective’, followed by 283 (26.4%) researchers indicated ‘somewhat effective’, 129 (12%) researchers indicated ‘very effective’, 65 (6.1%) researchers indicated ‘very ineffective’, 49 (4.6%) researchers indicated ‘ineffective’ and remaining only 8 (0.7%) researchers indicated it not available (Table 6.43).
40. User opinion about Adequacy of Facilities

a. Printer Facility

The data about user opinion on adequacy of printer facility provided by research centres shows that out of 1072 researchers 350 (32.6%) researchers indicated that the printer facility is ‘somewhat adequate’, followed by 256 (23.9%) researchers opined ‘inadequate’, 212 (19.8%) researchers opined ‘adequate’, 161 (15%) researchers opined ‘very inadequate’ and remaining 93 (8.7%) researchers indicated ‘very adequate’ (Table 6.23).

b. Scanner Facility

The data about user opinion on scanning facility in research centre libraries shows that out of 1072 researchers there are 281 (26.2%) respondents indicated that the scanning facility is ‘inadequate’, followed by 98 (9.1%) researchers opined ‘somewhat adequate’, 40 (3.7%) researchers opined ‘adequate’, 25 (2.3%) researchers opined ‘very adequate’ and remaining 628 (58.6%) researchers opined ‘very inadequate’ (Table 6.24).

c. Photocopying Facility

The data about user opinion on photocopying facility in research centre libraries shows that out of 1072 researchers there are 415 (38.7%) researchers opined that photocopying facility is ‘somewhat adequate’, followed by 260 (24.3%) researchers opined ‘adequate’, 209 (19.5%) researchers opined ‘inadequate’, 120 (11.2%) of them opined ‘very adequate’ and remaining only 68 (6.3%) researchers opined ‘very inadequate’ (Table 6.25).

d. Computer Facility

The data about user opinion on computer facility in research centre libraries shows that out of 1072 researchers there are 445 (41.5%) indicated that the computer facility is ‘adequate’ followed by 339 (31.6%) researchers indicated ‘somewhat adequate’, 221 (20.6%) researchers indicated ‘very adequate’, 47 (4.4%) researchers indicated ‘inadequate’ and remaining 20 (1.9%) indicated ‘very inadequate’ (Table 6.26).
41. User Opinion about Adequacy of Physical Infrastructure

a. Individual Study Rooms

The data about user opinion on adequacy of individual study rooms in research centre libraries shows that out of 1072 researchers there are 440 (41%) researchers indicated that the individual study rooms facility in their research centres are ‘inadequate’ followed by 301 (28.1%) researchers indicated ‘very inadequate’, 227 (21.2%) researchers opined ‘somewhat adequate’, 99 (9.2%) researchers opined ‘adequate’ and 5 (0.5%) researchers indicated ‘very adequate’ (Table 6.27).

b. AV Viewing Rooms

The data about user opinion on adequacy of AV Viewing rooms in research centre libraries shows that out of 1072 researchers there are 543 (50.7%) researchers who opined the number of AV viewing rooms is ‘inadequate’, followed by 390 (36.4%) researchers opined ‘very inadequate’, 129 (12%) researchers opined ‘somewhat adequate’, 6 (0.6%) researchers opined ‘adequate’ and 4 (0.4%) researchers opined ‘very adequate’ (Table 6.28).

c. Library Display area

The data about user opinion on adequacy of library display area in research centre libraries shows that out of 1072 researchers there are 490 (45.7%) opined that the library display area is ‘adequate’, followed by 314 (29.3%) researchers found ‘very adequate’, 237 (22.1%) researchers indicated ‘somewhat adequate’, 25 (2.3%) researchers indicated ‘inadequate’ and remaining only 6 (0.6%) researchers indicated ‘very inadequate’ (Table 6.29).

d. Library Furniture

The data about user opinion on adequacy of library furniture in research centre libraries shows that out of 1072 researchers there are 530 (49.4%) researchers indicated that the library furniture is ‘adequate’, followed by 335 (31.5%) researchers indicated ‘very adequate’, 196 (18.3%) researchers indicated ‘somewhat adequate’, 6 (0.6%) researchers indicated ‘inadequate’ and (0.5%) respondents indicated ‘very inadequate’ (Table 6.30).
e. Lighting

The data about user opinion on adequacy of lighting in research centre libraries shows that out of 1072 researchers there are 508 (47.4%) researchers opined the lighting facility is ‘adequate’, followed by 379 (35.4%) researchers opined ‘very adequate’, 176 (16.4%) researchers opined ‘somewhat adequate’, 5 (0.5%) researchers opined ‘inadequate’ and only 4 (0.4%) researchers opined ‘very inadequate’ (Table 6.31).

f. Air Conditioning facility

The data about user opinion on adequacy of air conditioning facility in research centre libraries shows that out of 1072 researchers there are 821 (76.6%) researchers indicated the air conditioning facility is ‘very inadequate’, followed by 237 (22.1%) researchers indicated ‘inadequate’, 6 (0.6%) researchers indicated ‘somewhat adequate’ and only 2 (0.2%) researchers opined ‘very adequate’ (Table 6.32).

g. Seating facility

The data about user opinion on adequacy of seating facility in research centre libraries shows that out of 1072 researchers there are 549 (51.2%) researchers opined that the seating facility is ‘adequate’, followed by 282 (26.3%) researchers opined ‘somewhat adequate’, 219 (20.4%) researchers opined ‘very adequate’, 16 (1.5%) researchers opined ‘inadequate’ and only 6 (0.6%) researchers opined ‘very inadequate’ (Table 6.33).

h. Provision of Group Study Room Facilities.

About 450 (42%) opined the provision of group study facilities in the research centre libraries are somewhat adequate, followed by 449 (41.9%) researchers as inadequate, 97 (9%) researchers indicate adequate, 50 (4.7%) researchers as very inadequate and remaining only 26 (2.4%) researchers as very adequate (Table 6.34).

i. Adequacy of Parking Facility

The data about user opinion on adequacy of parking facility in research centre libraries shows that out of 1072 researchers there are 634 (59.1%) researchers indicated that the parking facility is ‘adequate’, followed by 238 (22.2%) researchers
indicated ‘very adequate’, 144 (13.4%) researchers indicated ‘somewhat adequate’, 44 (4.1%) researchers indicated ‘inadequate’ and 12 (1.1%) researchers indicated ‘very inadequate’ (Table 6.35).

42. Use of Online Public Access Catalogue (OPAC)

Majority of 929 (86.7%) researchers use the online public access catalogue (OPAC) and only 143 (13.3%) researchers are not using the OPAC (Table 6.36).

43. Effectiveness of Information in Library Websites

a. Accuracy of Information in Website

The data about user perception on effectiveness of accuracy of information in the websites of research centres shows that out of 1072 researchers there are 365 (34%) researchers who opined that the website frequently provides accurate information about research centre libraries, followed by 262 (24.4%) researchers as frequently, 29 (20.4%) researchers indicated not at all, 150 (14%) researchers as less frequently and rest 76 (7.1%) researchers as very frequently (Table 6.44).

b. Usefulness of Information Provision in Website

The data about user perception on effectiveness of usefulness of information provided by websites of research centres shows that out of 1072 researchers there are 326 (30.4%) researchers indicated ‘frequently’, followed by 314 (29.3%) researchers opined ‘quite frequently’, 211 (19.7%) researchers indicated ‘not at all’, 134 (12.5%) researchers indicated ‘less frequently’ and remaining 87 (8.1%) respondents indicated ‘very frequently’ (Table 6.45).

c. High Quality Information in Website

The data about user perception on effectiveness of high quality information provided by websites of research centres shows that out of 1072 researchers there are 338 (31.5%) researchers opined ‘quite frequently’, followed by 297 (27.7%) researchers opined ‘frequently’, 211 (19.7%) researchers opined ‘not at all’, 142 (13.2%) researchers opined ‘less frequently’ and remaining only 84 (7.8%) researchers indicated ‘very frequently’ (Table 6.46).
d. **Relevancy of Information in Website**

The data about user perception on effectiveness of relevancy of information provided by websites of research centres shows that out of 1072 researchers there are 328 (30.6%) researchers indicated ‘quite frequently’, followed by 289 (27%) researchers indicated ‘frequently’, 216 (20.1%) researchers indicated ‘not at all’ relevant followed by 141 (13.2%) researchers indicated ‘less frequently’ and remaining only 98 (9.1%) researchers indicated ‘very frequently’ (Table 6.47).

e. **Clarity of Instructions in Website**

The data about user perception on effectiveness of clarity of instructions in websites of research centres shows that out of 1072 researchers there are 341 (31.8%) researchers opined ‘quite frequently’, followed by 287 (26.8%) researchers indicated ‘frequently’, 220 (20.5%) researchers indicated ‘not at all’, 133 (12.4%) researchers indicated ‘less frequently’ and remaining only 91 (8.5%) researchers indicated ‘very frequently’ (Table 6.48).

f. **Provides Link to Institutional Repository in Website**

The data about user perception on effectiveness of provision of link in websites of research centres shows that out of 1072 researchers there are 325 (30.3%) researchers indicated ‘frequently’, followed by 270 (25.2%) researchers indicated ‘quite frequently’, 77 (7.2%) researchers indicated ‘very frequently’, 43 (4%) researchers indicated ‘less frequently’ and remaining 357 (33.3%) researchers indicated ‘not at all’ (Table 6.49).

44. **Use of Internet Facility**

The data about user opinion on use of internet facility in research centre libraries in pursuing research shows that out of 1072 researchers there are 1025 (68.6%) researchers who use internet in research centre libraries and only few 47 (4.4%) researchers do not use internet facility in research centre libraries (Table 6.50).
45. Methods used to Increase the Effectiveness of Internet

a. Method of Keeping Internet Centre Open for 24 hours

The data about user opinion on use of different methods to increase effectiveness of internet service in research centre libraries shows that out of 1072 researchers there are 905 (84.4%) researchers ‘not at all agree’ that the method of keeping the library Internet centre is kept open 24 hours will increase the effectiveness, followed by 119 (11.1%). researchers opined ‘somewhat disagree’, 41 (3.8%) researchers kept ‘neutral’, 4 (0.4%) researchers opined ‘somewhat agree’ and 3 (0.3%) researchers opined ‘strongly agree’ (Table 6.51).

b. Method of Keeping Internet Centres open from 8 am to 8 pm

The data about user opinion on use of method of keeping internet centre open from 8 am to 8 pm to increase effectiveness of internet service in research centre libraries shows that out of 1072 researchers there are 359 (33.5%) researchers opined ‘strongly agree’, followed by 286 (26.7%) researchers opined ‘neutral’, 283 (26.4%) researchers opined ‘somewhat agree’, 79 (7.4%) researchers opined ‘somewhat disagree’ and remaining 64 (6%) respondents opined ‘strongly disagree’ (Table 6.52).

c. Maintenance of Updated and Well Maintained Computer Systems

The data about user opinion on use of method of keeping well maintained and updated computer systems to increase effectiveness of internet service in research centre libraries shows that out of 1072 researchers there are 342 (31.9%) researchers opined ‘strongly agree’, followed by 312 (29.1%) researchers opined ‘somewhat agree’, 269 (25.1%) researchers opined ‘neutral’, 77 (7.2%) researchers opined ‘somewhat disagree’ and remaining 72 (6.7%) ‘strongly disagree’ (Table 6.53).

d. Permission to Use Pen Drive/CDs

The data about user opinion on method of use of pen drive/CDs to download information to increase effectiveness of internet service in research centre libraries shows that out of 1072 researchers there are 311 (29%) respondents opined ‘strongly agree’, followed by 310 (28.9%) researchers opined ‘somewhat agree’, 246 (22.9%)
researchers opined ‘neutral’, 113 (10.5%) researchers opined ‘strongly disagree’ and remaining 92 (8.6%) researchers opined ‘somewhat disagree’ (Table 6.54).

e. Reservation of Some Systems

The data about user opinion on use of method of keeping reservation of some systems for researchers to increase effectiveness of internet service in research centre libraries shows that out of 1072 researchers there are 241 (22.5%) researchers who opined ‘somewhat disagree’, followed by 232 (21.6%) researchers opined ‘strongly disagree’, 231 (21.5%) researchers opined ‘neutral’, 202 (18.8%) researchers opined ‘somewhat agree’ and remaining 166 (15.5%) researchers opined ‘strongly agree’ (Table 6.55).

46. User Opinion about Use of Journals for Research Work

The data about user opinion on use of journals for their research work in research centre libraries shows that out of 1072 researchers there are 1013 (94.5%) researchers indicated that the institution subscribe for e-journals, followed by 1000 (93.3%) researchers indicated that journals are well organized, 951 (88.7%) researchers opined that subject-wise arrangement of bound volumes of journals, 921 (85.9%) researchers indicated subscribed journals are useful for study, 584 (54.5%) researchers indicated availability of printed periodical indexes and remaining 131 (12.2%) researchers indicated to issue current journals for overnight (Table 6.56).

47. Methods used for Effectiveness in satisfying researcher needs

a. Regular Display the Current Journals

The data about user opinion on use of method of display of current journals shows that out of 1072 researchers there are 388 (36.2%) researchers ‘somewhat agree’ that the regular display of library display of current journals in their research centres satisfy their information needs, followed by 272 (25.4%) researchers ‘strongly agree’, 59 (5.5%) researchers ‘somewhat disagree’ and remaining only 32 (3%) researchers indicated ‘strongly disagree’ and 321 (29.9%) researchers have not responded (Table 6.57).
b. Availability of Variety of E-journals

The data about user opinion on availability of variety of journals to increase effectiveness in research centre libraries shows that out of 1072 researchers there are 357 (33.3%) researchers opined ‘somewhat agree’ that the availability of variety of e-journals in their research centres will satisfy their information needs, followed by 206 (19.2%) researchers opined ‘strongly agree’, 121 (11.3%) researchers opined ‘somewhat disagree’ and 25 (2.3%) researchers opined ‘strongly disagree’ and 363 (33.9%) researchers remained ‘neutral’ (Table 6.58).

c. Suitability of E-journals for Research Work

The data about user opinion on suitability of e-journals for their research work to increase effectiveness in research centre libraries shows that out of 1072 researchers there are 371 (34.6%) researchers ‘somewhat agree’ that the e-journals are suitable for research work in the research centres, followed by 222 (20.7%) researchers indicated ‘strongly agree’, 115 (10.7%) researchers indicated ‘somewhat disagree’, 19 (1.8%) researchers opined ‘strongly disagree’ and 345 (32.2%) researchers opined ‘neutral’ (Table 6.59).

d. Arrival of Journals in Time is Ensured

The data about user opinion on ensuring timely arrival of journals in research centre libraries shows that out of 1072 researchers there are 345 (32.2%) researchers opined ‘somewhat agree’ that the arrival of journals in time is ensured in their research centre libraries, followed by 168 (15.7%) researchers indicated ‘somewhat disagree’, 120 (11.2%) researchers ‘strongly agree’, 28 (2.6%) researchers opined ‘strongly disagree’ and 411 (38.3%) researchers opined ‘neutral’ (Table 6.60).

48. Access to Types of E-Journal Databases

The data about user opinion on access to variety of e-journal databases in research centre libraries shows that out of 1072 researchers there are 826 (77.1%) researchers access the Springer e-journals from research centre libraries, followed by 548 (51.1%) researchers access J-gate e-journals, 435 (40.6%) researchers access IEEE e-journals, 381 (35.5%) researchers access McGraw hill’s e-journals, 254 (23.7%) researchers access ASME e-journals, 229 (21.4%) researchers access for
Science direct e-journals, 122 (11.4%) researchers access for ASCE e-journals and only 87 (8.1%) researchers have access for EBSCO e-journals from research centre libraries (Table 6.61).

49. Increase the Effectiveness of the Book Collection

a. Usefulness of Books

The data about user opinion on usefulness of books in research centre libraries shows that out of 1072 researchers there are 420 (39.2%) researchers ‘strongly agree’ that the books are useful for their research in the research centre libraries, followed by 386 (36%) researchers opined ‘somewhat agree’, 32 (3%) researchers opined ‘somewhat disagree’, 9 (0.8%) researchers opined ‘strongly disagree’ and 225 (21%) researchers opined ‘neutral’ (Table 6.62).

b. Up-to-datedness of Books' Collection

The data about user opinion on up to datedness of book collection in research centre libraries shows that out of 1072 researchers there are 430 (40.1%) researchers ‘strongly agree’ that the library book collection is up-to-date in the research centre libraries, followed by 382 (35.6%) researchers opined ‘somewhat agree’, 45 (4.2%) researchers opined ‘somewhat disagree’, 6 (0.6%) researchers opined ‘strongly disagree’ and 209 (19.5%) researchers indicated ‘neutral’ (Table 6.63).

c. Well organized Book Collection

The data about user opinion on well organization of book collection in research centre libraries shows that out of 1072 researchers there are 479 (44.7%) researchers ‘strongly agree; that the book are well organized in the research centre libraries, followed by 379 (35.4%) researchers indicated ‘somewhat agree’, 35 (3.3%) researchers opined ‘somewhat disagree’, 4 (0.4%) researchers opined ‘strongly disagree’ and 175 (16.3%) researchers opined ‘neutral; (Table 6.64).

d. Regular Display of New Arrival of Books

The data about user opinion on regular display of new arrival of books in research centre libraries shows that out of 1072 researchers there are 429 (40%) researchers ‘strongly agree’ that there is regular display of new arrival of books in the research centre libraries, followed by 383 (35.7%) researchers indicated ‘somewhat
agree’, 196 (18.3%) researchers indicated ‘neutral’, 52 (4.9%) researchers indicated ‘somewhat disagree’ and remaining only 12 (1.1%) researchers indicated ‘strongly disagree’ (Table 6.65).

e. Subject Wise Arrangement of Books

The data about user opinion on use of method of keeping well-maintained and updated computer systems to increase effectiveness of internet service in research centre libraries shows that out of 1072 researchers there are About 505 (47.1%) researchers strongly agree that the books are arranged subjects wise in the research centre libraries followed by 368 (34.3%) researchers opined somewhat agree, 162 (15.1%) researchers opined neutral, 30 (2.8%) researchers opined somewhat disagree and remaining few 7 (0.7) researchers opined strongly disagree (Table 6.66).

f. Subscription for E-books

The data about user opinion on subscription of e-books in research centre libraries shows that out of 1072 researchers there are 532 (49.6%) researchers ‘somewhat disagree’ that the library subscribe for e-books in the research centre libraries, followed by 181 (16.9%) researchers opined ‘neutral’, 68 (6.3%) researchers opined ‘somewhat agree’, 16 (1.5%) researchers opined ‘strongly agree’ and remaining 275 (25.7%) researchers opined ‘strongly disagree’ (Table 6.67).

50. User opinion about Methods Used in Increasing Effectiveness of Reference service

a. Centralized Location and Visibility of the Reference Desk

The data about user opinion on use of method of keeping the reference desk central location to increase effectiveness of reference service in research centre libraries shows that out of 1072 researchers there are 380 (35.4%) researchers opined that centralized location and visibility of the reference desk in the research centre libraries is ‘effective’, followed by 316 (29.5%) researchers opined ‘very effective’, 303 (28.3%) researchers opined ‘somewhat effective’, 57 (5.3%) researchers opined ‘ineffective’ and remaining only 16 (1.5%) researchers opined ‘very ineffective’ (Table 6.68).
b. **OPAC is Nearer to the Reference Desk**

The data about user opinion on use of method of keeping OPAC near to reference desk in research centre libraries shows that out of 1072 researchers there are 332 (31%) researchers opined that keeping OPAC nearer to reference desk in the research centre libraries is ‘ineffective’, followed by 273 (25.5%) researchers who opined ‘somewhat effective’, 151 (14.1%) researchers opined ‘effective’, 56 (5.2%) opined ‘very effective’ and remaining 260 (24.3%) researchers opined ‘very ineffective’ (Table 6.69).

c. **Good Communication Skills of Reference Librarian**

The data about user opinion on good communication skills of reference librarian to increase effectiveness of reference service in research centre libraries shows that out of 1072 researchers there are 310 (28.9%) researchers opined that good communication skill of reference librarian is ‘ineffective’, followed by 239 (22.3%) researchers opined ‘somewhat effective’, 207 (19.3%) researchers opined ‘effective’, 100 (9.3%) researchers opined ‘very effective’ and remaining 216 (20.1%) researchers opined ‘very ineffective’ (Table 6.70).

d. **Availability of Current and Up-to-date Reference Sources**

The data about user opinion on availability of current and up-to-date reference sources to increase effectiveness of reference service in research centre libraries shows that out of 1072 researchers there are 472 (44%) researchers opined that the availability of current and up-to-date reference sources is ‘effective’, followed by 330 (30.8%) researchers opined ‘somewhat effective’, 209 (19.5%) researchers opined ‘very effective’, 53 (4.9%) researchers opined ‘ineffective’ and remaining only 8 ((0.7%) researchers opined ‘very ineffective’ (Table 6.71).

e. **Maintenance of Separate Register for Successfully Answered Questions by Reference Librarian**

The data about user opinion on use of method of maintenance of separate register for successfully answered questions to increase effectiveness of reference service in research centre libraries shows that out of 1072 researchers there are 514 (47.9%) researchers opined that the maintaining of separate register of the
successfully answered questions by the reference library is ‘effective’, followed by 292 (27.2%) researchers opined ‘somewhat effective’, 192 (17.9%) researchers opined ‘very effective’, 65 (6.1%) researchers opined ‘ineffective and remaining 9 (0.8%) researchers opined ‘very ineffective’ (Table 6.72).

51. Overall Assessment of Effectiveness of Library Services

The data about user opinion on overall effectiveness of library services in research centre libraries shows that out of 1072 researchers there are 624 (58.2%) researchers opined that the overall library services in the research centre libraries opined ‘effective’, followed by 317 (29.6%) researchers opined ‘somewhat effective’, 86 (8%) researchers opined ‘very effective’, 40 (3.7%) researchers opined ‘ineffective’ and remaining only 5 (0.5%) researchers indicated ‘very ineffective’ (Table 6.73).

a. Information about the Latest Publications/Articles

The data about user opinion on provision of information on latest publications/articles in research centre libraries shows that out of 1072 researchers there are 762 (71.1%) researchers indicated that they receive information about the latest publications/articles in their subject area and remaining 310 (28.9%) researchers did not receive information (Table 6.74).

b. Availability of Required Articles/Documents Library Collection

The data about user opinion on availability of their required articles/documents in the collection of research centre libraries shows that out of 1072 researchers there are 327 (30.5%) researchers indicated that the articles/documents required from library collection in the research centre libraries are ‘most of the time available’, followed by 319 (29.8%) researchers opined ‘frequently available’, 213 (19.9%) researchers opined ‘occasionally available’, 164 (15.3%) researchers opined ‘always available’ and remaining 49 (406%) researchers indicated ‘hardly available’ (Table 6.75).

c. Methods used in Promoting the Use of Library Resources and Services

The data about user opinion on various methods used in promotion of library resources and services in research centre libraries shows that out of 1072 researchers
there are 977 (91.1%) researchers opined that the maintaining visitors book for comments on the library and considering these users’ comments/suggestions promote the use of resources and services in libraries, followed by 892 (83.2%) researchers opined that the method of provision of suggestion boxes and user feedback forms for improving the library at the key locations of the library and considering these suggestions/feedback promote the use of library, 883 (82.40%) researchers opined that the method of regular display of library events/programs etc., on notice board, 491 (45.8%) researchers opined that the regular organization of user orientation programs improve the use of libraries, 309 (28.8%) researchers opined that the table of content service, 294 (27.7%) researchers opined that conduction of special invited lectures on different occasions by resource persons and 294 (27.4%) researchers opined that provision of list of relevant websites promote the use of resources and services (Table 6.76).

52. User opinion about Library Staff

a. Willingness of Library Staff to Help Users

The data about user opinion about willingness of library staff in research centre libraries shows that out of 1072 researchers there are 401 (37.4%) researchers opined ‘somewhat agree’ that the library staff are willing to help users followed by 346 (32.3%) researchers opined ‘strongly agree’, 292 (27.2%) researchers opined ‘neutral’, 25 (2.3%) researchers opined ‘somewhat disagree’ and remaining only 8 (0.7%) researchers opined ‘strongly disagree’ (Table 6.77).

b. Readiness of Library Staff to Respond to Users

The data about user opinion on readiness of library staff to respond to researchers in research centre libraries shows that out of 1072 researchers there are 426 (39.7%) researchers ‘somewhat agree’ that library staff are ready to respond to users, followed by 338 (31.5%) researchers opined ‘strongly agree’, 269 (25.1%) researchers opined ‘neutral’, 32 (3%) researchers opined ‘somewhat disagree’ and remaining few 7 (0.7%) researchers ‘strongly disagree’ (Table 6.78).
c. Sound ICT Skills in Library Staff

The data about user opinion on sound ICT skills of library staff in research centre libraries shows that out of 1072 researchers there are 431 (40.2%) researchers ‘somewhat agree’ that library staff have sound ICT skills in their research centre libraries, followed by 322 (30%) researchers opined ‘neutral’, 262 (24.4%) researchers opined ‘strongly agree’, 45 (4.2%) researchers opined ‘somewhat disagree’ and remaining 12 (1.1%) researchers opined ‘strongly disagree’ (Table 6.79).

d. Library Staff Installs Confidence in Providing Current Awareness Services

The data about user opinion on installation of confidence in providing current awareness service in research centre libraries shows that out of 1072 researchers there are 412 (38.4%) researchers opined ‘somewhat agree’ that the library staff install confidence in providing current awareness service in their research centre libraries, followed by 311 (29%) researchers opined ‘neutral’, 285 (26.6%) researchers opined ‘strongly agree’, 54 (5%) researchers opined ‘somewhat disagree’ and remaining only 10 (0.9%) researchers opined ‘strongly disagree’ (Table 6.80).

e. Good Communication Skills in Library Staff

The data about user opinion on communication skills of library staff in research centre libraries shows that out of 1072 researchers there are 425 (39.6%) researchers opined ‘somewhat agree’ that library staff have good communication skills, followed by 317 (29.6%) researchers opined ‘strongly agree’, 278 (25.9%) researchers opined ‘neutral’, 48 (4.5%) researchers opined ‘somewhat disagree’ and remaining only 4 (0.4%) researchers opined ‘strongly disagree’ (Table 6.81).

f. Provision of Services at the Promised Time

The data about user opinion on provision of services at promised time by library staff in research centre libraries shows that out of 1072 researchers there are 438 (40.9%) researchers ‘somewhat agree’ that the library staff provide services at the promised time in their research centre libraries, followed by 317 (29.6%) researchers opined ‘strongly agree’, 264 (24.6%) researchers opined ‘neutral’, 40 (3.7%) researchers opined ‘somewhat disagree’ and remaining only 13 (1.2%) researchers indicated ‘strongly disagree’ (Table 6.82).
g. Keeping the Users Well Informed

The data about user opinion on by role of library staff in keeping the users well informed in research centre libraries shows that out of 1072 researchers there are 432 (40.3%) researchers ‘somewhat agree’ that library staff keep the users well informed in research centre libraries, followed by 299 (27.9%) researchers indicated ‘strongly agree’, 284 (26.5%) researchers indicated ‘neutral’, 48 (4.5%) researchers indicated ‘somewhat disagree’ and remaining only 9 (0.8%) researchers indicated ‘strongly disagree’ (Table 6.83).

53. Users Opinion on Reasons Contributing to the Effectiveness

a. Provision of Quality Service to Users

The data about user opinion on effectiveness in provision of quality service in research centre libraries shows that out of 1072 researchers there are 371 (34.6%) researchers opined that libraries are ‘very effective’ in providing quality service in their research centre libraries, followed by 367 (34.2%) researchers opined ‘effective’, 275 (25.7%) researchers opined ‘somewhat effective’, 47 (4.4%) researchers opined ‘ineffective’ and remaining only 12 (1.1%) researchers opined ‘very ineffective’ (Table 6.84).

b. Utilization of Libraries for Higher Duration by Users

The data about user opinion on effectiveness in the utilization of libraries for higher duration by users in research centre libraries shows that out of 1072 researchers there are 393 (36.7%) researchers opined ‘effective’, followed by 369 (34.4%) researchers opined ‘very effective’, 253 (23.6%) researchers opined ‘somewhat effective’, 47 (4.4%) researchers opined ‘ineffective’ and remaining 10 (0.9%) researchers opined ‘very ineffective’ (Table 6.85).

c. Maximum User Motivation by Library staff

The data about user opinion on effectiveness in terms of maximum user motivation by library staff in research centre libraries shows that out of 1072 researchers there are 374 (34.9%) researchers opined ‘very effective’, followed by 361 (33.7%) researchers opined ‘effective’, 267 (24.9%) researchers opined
‘somewhat effective’, 60 (5.6%) researchers opined ‘ineffective’ and remaining 10 (0.9%) researchers opined ‘very ineffective’ (Table 6.86).

d. Co-operation of Library Staff with Users

The data about user opinion about cooperation of library staff in research centre libraries shows that out of 1072 researchers there are 412 (38.4%) researchers opined ‘very effective’, followed by 395 (36.8%) researchers opined ‘effective’, 212 (19.8%) researchers opined ‘somewhat effective’, 47 (4.4%) researchers opined ‘ineffective’ and remaining 6 (0.6%) researchers opined ‘very ineffective’ (Table 6.87).

e. Increase in Library Visits by the Users

The data about user opinion on role of library staff in increasing library visits by users in research centre libraries shows that out of 1072 researchers there are 399 (37.2%) researchers opined ‘effective’, 386 (36%) researchers opined ‘very effective’, 226 (21.1%) researchers opined ‘somewhat effective’, 53 (4.9%) researchers opined ‘ineffective’ and remaining 8 (0.7%) researchers opined ‘very ineffective’ (Table 6.88).

7.5 Suggestions

The following suggestions are made based on the analysis of the data for the study, interactions, discussions, personal interviews that the researcher had with the researchers and librarians of the VTU research centres in Karnataka. The suggestions are also supplemented by the feedback that the users had given at the end of the questionnaire. The following suggestions given by researchers would improve the effectiveness of library resources, services and facilities in VTU research centre libraries.

i) Libraries should subscribe more number of reputed e-journals databases and e-books like Science Direct, Elsevier, Springer etc.

ii) As IEEE journals are more standard ones and accessed by more number of researchers so these should be given full access.

iii) Library should subscribe for more number of e-journals related to mathematics, physics, chemistry and other similar subjects.
iv) More number of computers should be added in the library so that it can be utilized by research scholars.

v) Internet facility and Wi-Fi internet access is most desirable in research centre libraries.

vi) More number of books especially books on mathematics, physics and chemistry subjects should be added to the libraries.

vii) Library should subscribe more number of books of foreign authors and publishers and conduct awareness programs on new books.

viii) Appoint qualified library staff.

ix) An email with the latest arrivals and related materials to be sent to the users.

x) Library working hours should be increased.

xi) Conference proceedings and thesis and dissertation collection should be increased.

xii) Reading rooms in some of the libraries is quite small, which can be extended; group discussion rooms can be facilitated.

xiii) Required more number of professional library staff.

xiv) Salary as per norms for each staff should be provided.

xv) Good independent library building is to be established as per library experts’ suggestion.

xvi) Good coordination between librarian, principal and management is a must.

xvii) There is necessity for computerization of all the operations of library.

7.6 Recommendations for Further Research

The researcher believes that more studies need be taken up to know, improve and encourage the effectiveness of library and information services by the researchers in general university libraries and any other research centre libraries in particular. The present study is on “Effectiveness of library and Information services to the
researchers in VTU: A study” focussed on researchers in the VTU research centres only. The future research areas may be the following:

i) Effectiveness of library and information services in different geographical areas in India.

ii) Effectiveness of library and information services of medical, basic science, humanities or any other disciplines.

iii) Comparative study on effectiveness of library services for engineers, scientists, doctors, pharmacists.

iv) Effectiveness of library and information services taking into consideration of other criteria for measurement.

v) Furthermore, depth study needs to be carried out to know effectiveness of IT services.

7.7 Conclusion

In the current education era, library is considered as one of the important resource centre. With the use of effective tools pertaining to information and technology, library is an playing effective role and integral component for any high quality research institution, irrespective of any specialization. In the present scenario, many of the technical libraries are supportive to research, providing multi-disciplinary, multi-mode, multi-media information to the researchers. The present study found the strength and weaknesses of resources, facilities and services of VTU research centre libraries through rigorous analysis of the data, interaction, discussion and personal interview with librarians, researchers under study. It is found that all the research centres (82) have adequate collection of books and provide lending and reference services. Regarding use of barcode technology 70% use bar coding technology and its use has to be increased to 100% for the better results. The Library Staff In-Charge/Co-ordinator of library needs to be on continuous assessment that leads to learning and development. The salary of the library staff need to be provided in accordance with the standard norms. In relation to the budget and expenditure, during the academic year 2011-12, it was reduced from 37.7% to 20.6% which needs to be monitored that the allocated budget are not being utilized as required. Further, it
is found that 95% of electronic resources are being used by researchers are using the e-resources which are flexible and more relevant. There is a need to acquire more number of e-resources. It is found that 93.9% research libraries have internet facilities and only 6% were found without internet facilities. There is need for Internet with Wi-Fi connectivity to increase accessibility. However, most of libraries are equipped. A continues feedback from researchers need to be maintained for the improvement of libraries to upgrade.