CHAPTER-6

FINDINGS, SUGGESTIONS AND CONCLUSION

6.1 Introduction

The present chapter includes the summary of the major findings, suggestions and recommendation for further research. The survey was carried out in twenty five biotechnology colleges’ libraries in Gujarat. Available ICT Infrastructures for the development of digital environment in the colleges and LIS professional development for different types of library activities like library services, user needs, digital library initiative, computer skills, managerial skills, conceptual skills, marketing skills and awareness for the developments of Digital Library. Evaluated through structured questionnaire

To the best of our knowledge, this is a first kind of extensive survey of Biotechnology colleges LIS professionals for various parameters make a digital library.

Following are the major finding resulted from this study.

6.2 Findings

6.2.1 Types of colleges

Biotechnology course offered at self finance colleges are comparably more 21 (84%) than that was offered by government colleges 4 (16%).
6.2.2 Accreditation Status
Among the 25 Biotechnology colleges 15 (60%) has accreditation of NAAC & AAA, 3 (12%) has ISO whereas 7 colleges (28%) has not applied for accreditation (non-accredited).

6.2.3 Courses Offered
Selected Biotechnology Colleges and Research Institutes offering variable courses such as Bachelor in Biotechnology (3 years), M. Sc. Integrated Biotechnology (5 years), Master of Biotechnology (2 years) and Research in Biotechnology (Ph. D. in Biotechnology).

6.2.4 Collection Development
This is poorly developed parameters in studied Biotechnology Colleges. More training and development particularly for e-book and online databases information and workshop need to be arranged for LIS professionals.

6.2.5 Infrastructure Availability
More than 75% (19) colleges has adequate infrastructure facilities. Additionally, 32 CCTV cameras and solar facilities are also available in V.V.P Engineering College Rajkot offering BE in Biotechnology, 06 (24%) Biotechnology colleges lacks of proper infrastructures facilities.

6.2.6 Computer Servers and Networking
Out of 25 Biotechnology colleges libraries, 22 (88%) has server and networking infrastructure facilities in their libraries whereas 3 (12%) missing these infrastructure.
6.2.7 Scanner

Majority of the biotechnology colleges libraries 17 (68%) has scanner facility for the document scanning, cropping, editing, image resolution. 8 (32%) not providing the same to their users.

6.2.8 Library Services

Library services provided for developing digital environment in the colleges are comparatively good.

6.2.9 Wi-Fi Facilities

21 (84%) colleges out of 25 colleges has Wi-Fi facilities for their students and staff where as 4 (16%) colleges doesn’t have Wi-Fi facilities within the campus.

6.2.10 Internet Facilities

Biotechnology College’s library provides access to high mega bits per second (mbps) data access facility through internet servers to their students and staff. Only 1 (4%) college library not providing internet facilities in library out of 25 Biotechnology College’s.

6.2.11 Audio-Video Facilities

6 (24%) colleges libraries do not have facilities for their library users.

6.2.12 Inter Library Loan Facilities

25 out of 17 (68%) colleges are providing facilities where as 08 (32%) colleges are not providing facilities to their library users for particular resources. In this situation, LIS professional managerial skills improved for the development of digital environment.
6.2.13 Document Delivery Services (DDS)

Among the 25 Biotechnology College’s libraries, 11 (44%) colleges’ library has good document delivery services where as 14 (56%) colleges has not having document delivery services for their library users.

6.2.14 Digital Resources

Some Biotechnology colleges libraries also has digital resources services (DR, IR and Web OPAC) for their library users. In this study, only 03 (12%) biotechnology colleges (Out of 25) libraries provide these services. This indicates that there is a need for LIS professional skills development for digital environment. LIS professional should attend the workshop, training related to use of digital software’s.

6.2.15 Gender wise LIS Professionals

Libraries managed by male LIS professional i.e. are more 16 (64%) than that was managed by female 09 (36%). His/her work done with sincerity and honesty fulfills the colleges aim and gives best satisfaction to their library users and management.

6.2.16 Qualification of LIS Professionals

Six (24%) Biotechnology college’s librarian acquired Ph. D in Library and Information Sciences, 4 (16%) has Master in Philosophy (M. Phil) degree in Library and Information Sciences and 15 (60%) college’s librarian has Master of Library and Information Science (MLISc).
6.2.17 Library Staff

The overall strength of studied Biotechnology Colleges are 35 Professional staff and 24 non professional staff (Total 59). Each and every staff members of libraries are important and co-ordinate every physical and digital library function as well as library development.

6.2.18 Computer Course

LIS professional have a professional degree with computer proficiency course are necessary requirements for their working strength and acquire job efficiency in the LIS sector. It’s necessary to know recent work flow related to all library activities through computer knowledge.

Out of 25 Biotechnology colleges librarians has done different computer course like as CCC 11 (44%), COPA 02 (8%), M. S. Office 06 (24%) and PGDCA 01 (4%). Five (20%) of the library staff/librarian does not have knowledge related to computer courses.

6.2.19 LIS Experience

Over all experience of LIS professionals. A large number of the LIS professionals (36%) has 0-5 years LIS experience, 24% professionals has 6-10 years of LIS experience, 24% has 11-15 years of LIS experience and 4% of them have 16 years of LIS experience. Maximum length of services in LIS professional gain more knowledge in LIS field and implement new initiative related to library development.

36% of LIS professional has desires of getting the training and workshop for library as well as language improvement (English communication) classes. 0-5
years LIS professional are young professionals (Junior LIS professionals) exchange their knowledge, computer proficiency and latest technology knowledge with their senior LIS professional.

6.2.20 Computer Literacy and Awareness of Softwares

Over all computer literacy and awareness of softwares for LIS professional development are necessary requirements for the development of library automation as well as help for creation of digital environment.

Only 02 (8%) librarians have not familiar with Acrobat Reader and Anti-Virus softwares. Photoshop softwares awareness and familiarity observed in 14 (56%) colleges LIS professionals where as 11 (44%) colleges LIS professionals are unfamiliar with the same.

6.2.21 Awareness of Digital Library Softwares

Mostly, 18 (72%) LIS professionals are aware about the DSpace open source software. These softwares are user friendly and easy to work with.

6.2.22 Awareness of Plagiarism Software’s

Data related to awareness of plagiarism softwares in LIS Professionals of 19 (76%) colleges suggest that they are aware for plagiarism softwares such as Turnitin and Urkund to checkout duplication of work with already published work. 6 (24%) LIS Professionals are not aware about plagiarism softwares.

6.2.23 Awareness of Different Laws

Table 5.2.9 and Graph 5.2.9 shows the analyzed data for different laws non-awareness ratio are copyright 06 (24%), patent 10 (40%), trade mark 08 (32%),
DRM 11 (44%), IPR 05(20%) and WIPO 10 (40%) by LIS professional out of 25 colleges

6.2.24 Professional Skills Development

(a) Technical skills

LIS professionals at various colleges. Their colleges contribution to develop of digital library out of 25 librarians 4 (9%), dynamic 5 (11%), service oriented 4 (9%), innovative 6 (13%), relevant 10 (22%), service ability 8 (17%), responsibility of the organization 13 (6%) and visibility of library services is 6 (13%).

(b) Human Skills

Out of 25 librarians such as conscientious 7 (29%), empathy 11 (42%), honest 4 (17%) and team work 3 (12%). Human skills are the important desired skills in current digital era. It can be defined as the ability to work, understand and motivate LIS professional, both individually and in group.

(c) Conceptual Skills

Conceptual skills in the colleges LIS professionals consists cheerfulness (23%), intelligent (18%), intense (45%) and successful (14%). For the growth of information technology, conceptual skills are required to a great extent. LIS professionals may be technically and interpersonally better but may lack the ability to rationally process and interpret information.
(d) Professional Skills in Computer Literacy

Among the 25 colleges librarians professionals, 3 (12%) of librarians doesn’t have computer literacy skills where as 22 (88%) of them are having adequate literacy skills.

6.2.25 Motivational Factors for Development of Digital Library

(a) Management Response

Out of 25 Biotechnology colleges librarians there were positive response from their management side in 23 (92%) colleges whereas 2 (8%) are lacking motivation from the management for creation of digital library.

(b) Motivation by Principal/Director/Head

Majority of the colleges Principal/Director and Head motivates librarian and their staff. 92% colleges (n=23) motivated by their higher authority to take initiatives for digitization of library resources as compared to 2 (8%) which where lacking such types of motivation.

(c) Library Committee Members

More than 75% college’s librarian had positive response for the digitization of their library by the library committee members.

(d) Library Staff Members

Library staff members of 18 (72%) colleges supported the LIS staff for the creation and development of digital library. Whereas 7 (28%) lacks motivations from their staff members.
6.2.26 Computer Expert

Support from computer expert’s help available in 15 (60%) colleges while 10 (40%) colleges lack is positive response computer experts.

6.2.27 Library Forum

Out of 25 LIS professional 13 (52%) connected with library forum and 12 (48%) where not familiar or non-participating in the library forum.

6.2.28 University Librarian

12 (48%) LIS Professionals motivate from University Librarian whereas 13 (52%) with the same.

6.2.29 Student Need

25 out of 18 (72%) motivation by student need whereas 7 (28%) not positive response.

6.2.30 Participation in Different Seminars, Conferences, Workshops for Developing Digital Library

(a) Seminars/Conferences

LIS professional attending different seminars, conferences for the purpose for getting latest knowledge, update and new initiatives. Out of 25 Biotechnology colleges LIS professionals 23 (92%) professionals attended seminars, conferences and 2 (8%) colleges professionals not attend.

(b) Workshop

LIS professional attended different workshop for the purpose for getting latest knowledge, update and new initiatives like as digital library and library
automation. Out of 25 colleges, 18 (72%) colleges LIS staff attends the workshops whereas 7 (28%) not attending the same.

(c) Training Course

17 (68%) colleges attend training courses whereas 8 (32%) not attending the training courses.

(d) Online Tutorials

Among the LIS professionals 18 (72%) using web based online tutorials for the purpose of user need and interest on depth knowledge through online tutorials.

6.2.31 Use of Marketing Methods for Library Services and Products

(a) Orientation Program

Out of 25 colleges 24 (96%) LIS professional every year organized library orientation program for their newly enrolled students. 1 (4%) college not organized the library orientation program.

(b) New Arrivals Information

24 (96%) colleges LIS professionals has new arrivals information and 1 (4%) college, not maintained the same.

(c) Library Web Portal

16 (64%) colleges LIS professional provides web portal facilities whereas 9 (36%) are not able to provide the information about marketing methods and services of digital resources to their users.
(d) News Papers Clipping

out of 25, 22 (88%) colleges LIS professionals has news papers clipping system as a part of their library activities for one academic year to their library users. 3 (12%) can’t publish it at any regional, local and state level.

(e) Book Reservation

Majority of colleges 10 (40%) has facilities to provide book reservation option to their library users whereas in 15 (60%) colleges same was not available.

(f) Use of Social Media

Good response from 15 (60%) colleges as they are using social media. Ten colleges (40%) not connected through social media.

(g) Screen Shot

11 (44%) colleges, LIS professionals providing information through screen shot services. 14 (56%) colleges LIS professionals not providing information such through screen shot.

6.3 Suggestions

- Every librarian must keep himself/herself updated with every new innovation in the field of ‘Library and Information Science’
- Librarian must be aware of all the current affairs and must put efforts to help the library users in further studies and research.
- Librarian must provide all the information to the readers in all the available forms such as books, e-books, digital forms etc., so that their precious time can be saved.
- Librarian must be resourceful enough to provide the readers with all the study/education related information.
- Librarian must learn to use all the types of resources like computer, printer, scanner, photo copier machine, bar-coding etc. to provide the best library services.
- Library collection must be according to the syllabus and for that library committee must be formed including experts of all the subjects, class representative, principal of the institute and must take note of their suggestion and update the collection.
- Library facilitates such as Wi-Fi facility, Internet facility, Audio-Video, Inter Library Loan etc., for the value based higher education.
- Every librarian must work collaboratively with computer experts, subject experts, etc., to develop the library.
- With growing in experience, every librarian must be enthusiastic for innovation and must use his/her intelligence to develop the library.
- It is the duty of every librarian to be a companion for the development of the institute and the library.
- Librarian always wish to receive the support motivation and appreciation from the Management, Principal/ Head of the institute, Staff members etc.,
- Librarians must be felicitated with duty leave, participation fees, etc. to participate in seminars, conferences, workshops, training courses, online tutorials etc. to develop the Digital Library.
- Librarian must acquire expertise in English language along with any one regional language and also must take classes for the same so that he/she satisfy and communicate with all library users.
6.4 Testing of Questions of the Study

Five main questions of the study which was formulated at the early stage of this study were tested with the furnished data in order to agree on the strong point and significance of the proposals that guided the entire consideration. On testing of the questions of the study, the following outcomes were obtained.

1. What is the status of Digital Library Infrastructures in Biotechnology Colleges of Gujarat?
   - Table 5.1.6 shows the infrastructures available at Biotechnology colleges. Majority 19 (75%) Biotechnology colleges have adequate infrastructure facilities. All the Biotechnology colleges’ libraries under the study have well developed Digital Library Infrastructures for library automation as well as establishment to digital environment, even the biotechnology college’s libraries which is still at proposal stage and have necessary digital infrastructure and latest personal computers, scanners, photo copy machine and high storage server. Most of Biotechnology college’s libraries have sufficient amount of different types of hardware, software and freely available open source digital library software.

2. What is the status of E-resources in Biotechnology Colleges Libraries in Gujarat?
   - Table 5.1.5 shows the library collection in Biotechnology colleges. 11 (44%) Biotechnology colleges subscribe and available e-resources and 14 (56%) can’t access and subscribe e-resources. Biotechnology colleges subscribed INFLIBNET NLIST membership every year. 16 (64%) Biotechnology colleges’ library access through INFLIBNET e-consortium, NLIST e-resource like as e-books and e-journals. All Biotechnology
colleges’ libraries have Institutional Repository. Twenty eight (28%) Biotechnology colleges libraries has access to electronic journals, e-book and subject related databases license.

3. What is the status of LIS professional in Biotechnology colleges of Gujarat?
   • Table 5.2.2 and Graph 5.2.2 shows the qualification of LIS Professionals. Six (24%) Biotechnology college’s librarian acquired Ph. D in Library and Information Sciences, 4 (16%) has Master in Philosophy degree in Library and Information Sciences and 15 (60%) College’s librarian has Master of Library and Information Science. Biotechnology college’s libraries in Gujarat under the study have professional staff appointed as per the norms and standard of UGC and State Government rules and regulations.

4. Which type of skills necessary for librarian to develop digital environment in Biotechnology colleges of Gujarat?
   • All biotechnology colleges librarians acquire following necessary skills for developing the digital environment. Table 5.2.10 shows the professional skills development.

   **Technical Skills**
   • Graph 5.2.10 (A) indicates the various technical skills parameters analyzed for LIS professionals at various colleges. Their colleges contribution to develop of digital library out of 25 librarians 4 (9%), dynamic 5 (11%), service oriented 4 (9%), innovative 6 (13%), relevant 10 (22%), service ability 8 (17%), responsibility of the organization 13 (6%) and visibility of library services is 6 (13%).

157
Human Skills

- Graph 5.2.10 (B) represents the information about human skills parameters out of 25 librarians such as conscientious 7 (29%), empathy 11 (42%), honest 4 (17%) and team work 3 (12%). Human skills are the important desired skills in current digital era. It can be defined as the ability to work, understand and motivate LIS professional, both individually and in group.

Conceptual Skills

Graph 5.2.10 (c) shows the conceptual skills in the colleges LIS professionals out of 25, 24 librarians has consists of cheerfulness 5 (23%), intelligent 4 (18%), intense 10 (45%) and successful 3 (14%). For the growth of information technology, conceptual skills are required to a great extent. LIS professionals may be technically and interpersonally better but may lack the ability to rationally process and interpret information.

Professional Skills in Computer Literacy

Table 5.2.11 and Graph 5.2.11 represent the professional skills in computer literacy. Among the 25 colleges librarians professionals only 3 (12%) of librarians doesn’t have computer literacy skills whereas 22 (88%) of them are having adequate literacy skills.

5. How the librarians develop professional skills in digital environment?

- Table 5.2.13.1, Graph 5.2.20, Table 5.2.13.2, Graph 5.2.21, Table 5.2.13.3, Graph 5.2.22, Table 5.2.13.4 and Graph 5.2.23 shows the seminar, conferences, workshop, training course and online tutorials. All the biotechnology colleges librarian of Gujarat has different types of skills acquired and implements in day to day library activities. LIS professionals always getting the skills from participating in workshop out of 25, 18
(72%), trainings 17 (68%), seminars 23 (92%) and human resource development programme. Using online tutorials 18 (72%), LIS group forum 13 (52%) interact with another LIS professionals for the recent update and digital environment issue.
6.5 Proposed Model for LIS Professionals Development and Creation for Digital Environment

Skills → Digital Process → Utilization for Digital Resources

- Listening
- Commitment
- Time Consciousness
- Leadership Ability
- Motivating Abilities
- Effective communication
- Adapting to change as and when required
- Team work and co-operation
- Honest services

1. Creation and capture of content
2. Storage and management
3. Search and access
4. Distribution

1. Marketing for Digital Resources and Services
2. Workshop and Training Program for Library Users

Integrated Function For Digital Environment

Figure: 6.1: Proposed Model for LIS Professionals Development and Creation for Digital Environment
According to my opinion, LIS Professionals Development and Creation for Digital Environment, proposed model presented in Fig.6.1 should be followed

6.5.1 Skills

All the librarians should understand the importance of the accessibility, creating, and utilization of digital resources for library users. The essential skills required for creating and managing of digital environment includes listening, commitment, time consciousness, leadership ability, motivating abilities, effective communication, adapting to change as and when required, team work and co-operation and honest services.

6.5.2 Digital Process

Most importance factor for the development of the digital environment is integrated functioning. Digital process converts traditional resources through data capturing, editing, formatting, managing data and uploading the newly created resources in the digital form. Digital Process includes various parameters such as creation and capture of content, storage and management, search and access as well as distribution.

6.5.3 Utilization for Digital Resources

Librarian should carefully categorize the digital resources by considering targeted users for optimal and successful utilization of digital resources followed by its marketing. This can be done by arranging specific trainings, seminars and workshops for the library users. There by increasing the marketing of digital resources, it's maximum utilization and benefits.
So as per the above proposed model for LIS professional skills development and creation for digital environment, the skills, digital process and utilization of digital resources are interrelated and followed sequentially by the colleges librarian to create digital environment.

6.6 Further Research

Evaluation of the LIS Professional Skills Development in Colleges Librarians in Digital Environment: with special reference to colleges of Biotechnology in Gujarat can be studied from LIS professional point of view and it would be helpful to improve digital library in Gujarat.

1. A networking model of Gujarat State Biotechnology Mission under the Biotechnology Colleges Libraries in Gujarat to share the physical resources as well as digital resources would be help full for involving scientist’s and research scholars of Biotechnology.

2. Impact of Digital environment on Engineering Colleges of Gujarat and other Indian states can be taken as a topic of study to evaluate the changes in digital libraries over the years.

6.7 Conclusion

The study was conducted mainly to understand the LIS professional skills development of college librarians in digital environment especially in Biotechnology colleges in Gujarat. The perception of LIS professional about the skills development prevailing in biotechnology college libraries has been found out. The present study of 25 Biotechnology colleges librarians suggest that there were positive response from their management side in 92% colleges whereas 8% colleges Library and Information Science (LIS) staff are lacking motivation form
their management for the creation of digital library. Majority of the librarians have positive perception about the professional skill development, but certain factors such as needs to attend the workshop, seminars, conferences and training requirement for the improvement of digital environment need to be addressed. It is noted that training for open source software for digital environment has a prominent role among the digital environment. Mostly, LIS professionals are aware about the DSpace software. This softwares is user friendly and easy to work with. Best practices of their digital resources through open source software should be created and followed as early as possible for the benefit of the library users. It is suggested that further studies on professional skills development in digital environment can be conduct by covering other colleges at Gujarat State and National level.

It is concluded that improvement in above aspects could lead to better professional skills development in Biotechnology colleges libraries of Gujarat which guarantee highly creative, committed LIS Professionals