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MINOR RESEARCH PROJECT

ON

THE PROBLEMS IN USING ICT FOR MANAGING LIBRARIES OF RAJKOT AND JUNAGADH CITY COLLEGE: A STUDTY

RESEARCHER

VITHAL J RAMANI, LIBRARIAN
(M L I Sc, M Phil)

SAURASHTRA GNANPITH ARTS AND COMMERCE COLLEGE-

BARWALA

FILE NO. 23-2804/11   **DT. 07/07/14**

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DECLARATION

I hereby declared that the theses to be submitted for partial fulfillment for Minor Research Project in the field of Library and Information Science entitled "The Problems in Using ICT for Managing Libraries of Rajkot and Junagadh City College – A Study" is the authentic record of research work carried out by me, for my minor research project (23-2804/11) sponsored by Honorable, University Grants Commission, Pune. The theses are an original creation by myself and not published anywhere else before this that I acknowledged.

Place:

Date: Vithal J Ramani, Librarian,

                                                  S G Arts and Comm. Coll. Barwala

ACKNOWLEDGEMENT

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Chapter-1 Introduction

1.1 Introduction:

The history of an evaluation of mankind is very long. The first industrial revolution and related growth between the 1780s and the 1840s was associated with major innovations in textile and related area. Innovation in stream power and railway provided impetus between the 1840s and 1890s. Electricity and steel were at centre stage of human progress during the 1890s to the 1940s. Innovation like mass production, especially of automobiles and synthetic materials, has been instrumental in economic growth since the 1940s. Now we are at threshold of the era of ICTs, which are generally seen as the technology of the new millennium. Manny developing countries have initiated policy measures and instituted interventions to harness the new technology as a short cut to prosperity. ICT are a significant enabler of successful governance and can go a long way in touching the lives of common man. The role of ICTs is popularly held to be very critical to economic and social development, but there has to be greater use of ICT as an engine of growth. ICT benefits the poor by removing social, economic and geographic isolation by increasing access to information, education and by enabling poor people to participate in decision- making. India is also known for a number of ICT applications in e-governance and poverty alleviation, through the progress of ICT use.

While the ICT is general and the Internet and the world wide web in particular have made libraries' functions easier by facilitating easy communication and easy access to information located anywhere in the world, but they face many problems regarding the use of various day-to-day library activities and functions. The technologies and required skills of librarian have been changed in the past decade in the passed decades. With increasing use of technologies to organize and disseminate information, the computer has become an important tool for accessing information. Libraries have not only have provide the technology necessary for patrons to use their OPECs, but also must supply a means for access to scholarly digital resources and a growing number of electronic databases. The physical space in libraries has been modified to accommodate the additional technology necessary to provide patrons with the tool to use library resources successfully and to meet their information needs. The librarian's role has

changed rapidly in recent years, in response to new forms of information and new methods of teaching and learning. Increasing patrons number haves have spread existing staff more thinly; widening modes of access have brought in more part time patrons; more patron centered learning demands a greater variety of teaching skills; and the explosion of electronic information (from CD-ROM to the Internet) requires continuous updating of knowledge and skills.

Furthermore, patron's expectations of the ability of a library service to deliver high quality services are grooving. Linked to user demands for services is the influence of information technology. Patrons, for example, are becoming more computer literate and the library environment changed substantially. The increased variety of technology used for service delivery. If users wish to be more independent in their search for information, user education in the information system and databases is very important.

Academic librarians face problems of training. Due to lack of sufficient training it would influence the librarians' level of ICT knowledge and skill. They also face difficulty regarding formal training of file management, window, keyboard, word processing, e-mail and Internet. It requires that academic librarians have attended most of courses like orientation, refresher course, and workshop and training regarding their daily function; with the lack such aid they face much confusion. It is found that they also need to attend intermediate or advanced courses.

File management is an important task for library function. They experienced problems with ordering of file, understanding the difference between drives and directories; understanding of the purpose and directories; understanding file management concepts; understandings the purpose of the file management; understanding terminology and locating the files are using DOS. ICT problems like word processing, spreadsheet, database, presentation E-mail Internet, set-up, maintenance and troubleshooting.

1.2 Reason for Selecting the Problem:

Today the electronic tools and technology is easy available in for the development of the field of library and information. Due to innovation and implementation of information and communication technology in college library, college librarians are facing many problems, like technical, financial, managerial, and training related problems are facing by the library

professionals. So researcher decided to collect the data regarding the problems in use of ICT at college level and suggest the way and means for the solution of the problem.

1.3 The Concept of Information:

The term 'information' has been derived from to Latin words 'Formation' and 'Forma'. Both the terms convey the same meaning of giving shape to something and a forming a pattern. Gradually, this term 'information' became complex as specialists and scholars interpreted it in different ways in different contexts. Coffman has rightly observed that "a single precise definition encompassing all its aspects can in principals not be formulated because the term 'information' is used in so many contexts. Hays also writes:"information is slippery concept, amorphous, loaded with connotations and implications and that it has had a variety of meaning and we must have a suitable definitions even it is at the most elementary level".

According to the Roman House Dictionary of the English language the term: "Information can be used in different contexts such as:

- Knowledge communicated or received concerning a particular fact or circumstances
- Any knowledge gained through communication, research, instruction.
- The act of fact of informing.
- An office or employee for distributing information to the public
- In communication theory and individualization of the number of possible choices, expressible as the value of some monotonic function of the number of choices, usually log to the base.
- In computer technology to any data that can be coded for processing by a computer or similar define.

    According to Shanhon, "A selection forms a set of available messages, a selection which reduces uncertainty. Information is that which relieves uncertainty." He treated information is an invariant property of something else a message, a signal, or document.

Neelmeghan, "In a generic sense, it is content which is exchanged when adjusts it environment and as the environment in terms is changed by the reaction of organism."

Bhattacharya, G "A message conveyed or intended to be conveyed by a systematized body of a ideas".

1.4 Attributes of Information:

While analyzing different definitions of 'information' given in the foregoing paragraphs the following attributes could be identified:

The term 'information' is not synonymous to data need knowledge but they are distinctly related to each other.

1. Information, by nature, is subjective and relative. Because it is "human product therefore subjective at least to the extent it is constructed by human representational techniques and artifacts"
2. Information is a unit of complex whole.
3. Information is the finished good product out of data.
4. Information brings change in recipient image. In other words it has the ability to increase the level of knowledge of the recipient. According to Fernandina, "the recipient will exhibited four types of responses on the receipt of information. These are rejection, addition to knowledge without modifying, filling a gap in the initial knowledge structure or changing the previous knowledge structure.

Information is all pervasive in this universe. It organizes controls and runs any system, be it biological, social or mechanical. It is the essence of communication later is life blood of any organism. For a human being communication is vital for living biologically, socially and spiritually, says S R Rangnathan for human beings the information is essential par of life. It creates survival mechanism in terms of defense and protection. It provides a base for cooperation in society which is based on independence; cooperation leads to ultimate social department.

1.5 Meaning and Definition of ICT:

1.5.1 Information and Communication Technology:

ICT (1) has great impact in the field of library and information science as well its stakeholders. Today libraries are shifting their role form the custodian of traditional information resources to the provider of service oriented digital information services. Widespread use of computers, increasing reliance on computer networks, rapid growth of Internet and explosion in the quality, and quantity of information compelled libraries to adopt new means and methods for the storage, retrieval and dissemination of information.

Library automation, development of digital libraries and application of innovative information and communication technology have tremendously increased because it provides enhanced user satisfaction, cost effectiveness, rapid responses, and easier operational procedures. Libraries and information centers have been employing ICT and electronic information resources and services satisfied the diverse information need of their users. But the use of ICTs in library it create many problems in use and usability of e-books, e-journals, CD-ROM databases, only ne databases, web-based resources and variety of other electronic media.

The technology has evolved past thirty years and currently in forth revolution in with innovation and transformation begin with Internet technologies, world wide web, Internet Browsers and evolving Web technologies like CGI, ODBC; JDBC; Servlet, Applets, server-side scripting. This gradual migration towards electronic resources enhanced contents in local contents with provision for electronic repositories to host them locally and increase in in-house digitization activities have major challenges in collection development, services, users, staff.

1.5.2 Information:

In simple terms,(2) the processed data is information. Information consist of data that have been retrieved, processed or otherwise used for informative or inference purpose, argument or as a basis for forecasting or decision making. The way in which the data if a massage are structured is crucial to their effect as information.

The term 'Information' has been derived from two Latin words 'Formation' and 'Forma'. Both the term convey the same meaning of shape to something and forming a pattern. Gradually, this term 'information' become complex

as specialists and scholars interpreted it in different it in different ways in different contexts such as: Shanhon defines information as "a selection from a set of available messages, a selection which reduces uncertainty. Information is that which relieves uncertainty." He treated information as an invariant property of something else-a message, a single, or documents.

American National Standards Institute stresses on human interpretation of data: "Information is the meaning that a human assigns to data by meaning of the know conventions used in their representations."

Brillioum observed that "Information is a raw material and consist of more collection data."

Shera expresses "Information … is a fact. It may be an isolated fact or a whole cluster of facts; but it is still a unit, it is unit of thoughts."
He also adds, that information is that, which is transmitted by the act or process of communication, it may be a message, a signal, a stimulus a response in the receiving organism and therefore, process response potential its motivation is inherently utilitarian, it is instrumental and it usually is communicated in an organized or formalized pattern, mainly because such formalization increases potential utility.
As a property of data, according to ALA World Encyclopedia of Library and Information Science, information is a property of data resulting from or produced by a process that produces the data.

Data and information: according to Faibisoff and Dely, data can be numerically expressed, that is qualified, quantifiable or objective. Data is highly repetitive. Information is an ideal. Information is not highly repetitive or quantified or quantifiable. It is characterized as narrative and subjective. Data than are number or unit facts, frequently repeated. Whereas, information is an ideal. Information is symbols, or a set of symbols, which has the potential for meaning.
According to Huffman the "Information is an aggregate (collection or accumulation) of statements; or facts or fingers which are conceptually by way of reasoning, logical, or any other mental mode of operation interrelated".

However, in the light of above discussions a functional definition of information can be worked out to describe it as mankind's cumulative knowledge derived from all subjects in all sources that could help its users to

reduce their levels of uncertainty.

1.5.3 Information Technology:

According to Menon, Rajeev, general purpose of information technology is to make available the right information at the right time and at the right place. For technology oriented information technology, computer-based information system is the primary mean to this end. Information technology to this stresses the importance of various types of electronics technologies. This is justified by the higher degree of IT integration, the complexity of its application, and its strong consequences for an organization.

Menon defines IT as "A very broad term encompassing all aspects of the management and processing of information by computer, including the hardware and software required to access it.

1.5.4 Information communication:

As per Kumar, P S G, the information communication is the transmission of data over a network by of an electrical or optical channel. The fundamental objective of a communication system is the exchange of information between the points –a source and a destination. A simple communication model would therefore comprise-the Source; Message; Encoder; transmitter; Medium; Receiver; Decoder and the Recipient.

Communication through written symbols is known to have been in practice since 4000BC. Innovation of printing by movable types by Gutenberg in the 15th century was a revolution in communication.

Basic concept: The purpose of emphasis and clarity let us define communication somewhat formally to be the transmission of information between points of origin and destination without altering the sequence or content of the information. We further define a special form of communication in which information is conveyed over long distance as telecommunications. Telephone, radio, and television are example of modern telecommunication. Teleprocessing is a formed by combining telecommunications and data processing. As we expect, a teleprocessing system makes it possible to collect data at one or more point of origin, transmit that data to a central location for processing and distribute the result of processing to one or more points of use. In common practice, the term data communication refers to the transmission from one location to another,

and a teleprocessing system is also called a data communication system.

1.5.5 Information and Communication Technology:

Advent of Information and communication Technology changed the scenario of libraries all over the world. It drastically changed the services of the libraries. The availability of Internet gives access to information relating to almost every aspect of life, education, research and other spheres of knowledge. Development of software technology has generated powerful knowledge management software which has absolutely changed the way literature is to be organized, stored, accessed and retrieved.

The digital revolution driven by ICT has fundamentally changed the working of libraries. It has its strong impact on academic libraries activity, from the library, use of sources in e-form, collection development, management and working of library staff. During the past decade type machines, traditional photocopier, duplicating machines etc. become redundant. In their place computers networked electronic resources, Internet, OPEC etc. have taken the place. Some people were of the opinion that in future there will be no place for librarian between information and information user. They thought that information will be available on WWW. There is fast growth of information communication technology and the consequential information explosion.

The information technology is boon to communication. It enables communication to reach out to masses with ease and be available to the masses without difficulty. Its tools are E-mail, voice mail, teleconference, interesting through chat show, I-pods, blogs interactive broadcasting etc.

1.6 Aims and Objectives of the Research Study:

1.6.1 To determine the extent to which type of ICT based problems are facing by the college librarians.

1.6.2 To ascertain whether an orientation program/training/workshop is necessary to educate the librarians in accessing of various e-resources.
1.6.3 To know about the college librarians need, quality, accuracy, competency, awareness regarding system application, searching option etc.
1.6.4 To study the satisfaction level of librarians, infrastructure facilities available at institute, home and anywhere else.

1.6.5 To identify the area of problem.

1.6.6 To suggest the way and means for the improvement of ICT level.

1.7 Research Methodology:

A well define questionnaire will prepare to collect the comprehensive and relevant data. The questionnaire will be formulated both personally, keeping in a view: the objectives of the study. The study will cover Saurashtra University affiliated colleges of two districts colleges of Rajkot and Junagadh. The study will cover Saurashtra University affiliated colleges. Information will also be collected from faculties, experts of the field.

1.8 Selection of Sampling:

The above study covers college libraries of Rajkot and Junagadh districts of the Saurashtra University. Researcher would like to select 20 colleges' libraries for the random base sampling method for the study. The colleges are affiliated to the Saurashtra University aria. The samples are among those which college libraries have ICT implemented or already completed automation of the libraries.

1.9 The Importance of the Research Project Study:

Saurashtra region is some how backward in the field of higher education. Hon. HRD and UGC promote ICT for college library. At present college librarians are facing many types of ICT related problems. So the study has much importance to notice the problems of college librarians to its various stake holders.

1.10 Usefulness of the Study:

The researcher would like to suggest some valuable suggestion for   to convince the HRD, UGC, state government, INFLIBNET center, college authority, college librarians, and electronics experts to solve the ICT related problems of the college librarians. These suggestions will be remedial for the college libraries, so the research will has much more importance to navigate the field.

1.11Limitation of the Study:

The main limitation of the study is that the researcher can't cover all the colleges of the Rajkot and Junagadh districts. Second the research goes through an English language. So it will be barrier for the person those who have no knowledge of the language.

1.12 Future Project/ Further Study:

The project has very vast field. If any one wants to be further study there are many opportunities to go in deep for which find problems are facing by the university librarians, ICT experts, and students the students of the higher education. The researcher decide to get in depth study to find out problems of university librarians, scholars and students regarding use of ICT

1.13 Planning of the Cauterization:

1.13.1 Introduction:

1.13.2 Review of Related Literature and Development in the Subject:

1.13.3 ICT Tools and Techniques:

1.13.4 Problems in Managing of ICT College Libraries:

1.13.5 Summary, Main Findings, Suggestions and Conclusion

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Chapter-2 Review of Literature and Development in the Subject

Chapter- 2 Review of literature and Development in the Subject

2.1Introduction:

Research is based on the overview of related literature. It plays vital role in the research process. Though, literature search the researcher would come to know what the studies are done on related subject field, which in tern help in avoiding duplication of work. It facilitates the researcher in proper way.

2.2 Meaning of Review of Literature:

A literature review is a critical and an evaluation summary of the themes, and arguments of a specific clearly defined research topic obtained from the published literature. You will need to search the existing literature in order to describe and analyze the similarities, differences, consistencies and issues within pour research topic

2.3Definition of review of literature:

Some of the studies of ICT are as under:

Many studies have been done in the field of e-resources, in which some of provided insight to conceptualization and to frame a design for the present study.

Bhattacharya and Siddique, (2004), expresses in their article the, titled Development in e-publishing: An overview has touched upon the various aspects of e-publishing with special emphasis on e-journals, the major trends of e-publishing, the problem and prospects of e-publishing and also the pricing models of e-journals. Further, the role of the library professionals in managing the e-resources has also been mentioned. It points out that library and information professionals will have to ascertain the impact of e-publishing and should acquire skills to cope intelligently and objectively for effective and efficient functions of library and information centers.

Gunter, (2005), carried out a survey in UK, For this study the researcher collected data from online panel and it found that a significant proportion of a respondent were aware of an e-books. The study also obtained more conveniently and is cheaper than hard copy versions. Moreover it was found that early e-book was used primarily for reference work, that reading for leisure and entertainment.

Natrajan, M., (2003), narrates that the selection criteria of e-resources in his paper stress the importance of resources and lays down different criteria of evaluation. Also describes the need for evaluating e-resources under the headings like content, access, technical supports, cost, legal and supports tools, the emphasizes that the LIS' professionals should select the different types of e-resources and evaluation of the same should be done before acquiring accessing them for their users.

Schaffer, Bradley, L (2001), in his articles examines the impact of electronic technology. The article further explores how electronic resources have changed the way students and scholars conduct research. The objectives of the study is not to condemn or criticize the electronic format but to prove that it is not the only format but there are other tools for the documentation of information. As such electronic resources should compliment.

Arora and Kaul, (1992), wrote an article in Anals of Libra & In. Sci. titled "recent information technology and their impact on dissemination of information." This article stresses upon the development and progress made by the telecommunication technology and micro computer technology, which offers better products and services and also improving the information processing and management needs. The article also discusses the increasing use of micro computers for storing, recognizing and disseminating information for efficient and effective result.

A paper presented by, ILA Seminar discusses the different services and tools of internet and the needs of Internet in library for facilitating the users in providing effective services. The paper comments on the contribution made

by internet in the field of library and information service and also brings out the advantages of using internet.

Deshpande, Anuradha and Padmavathi, (1999), cited in their paper on overview and need for e-journals, their availability, advantages and technical requirement to access e-journals on the internet. The paper also explains that libraries can make substantial savings in acquisitions and documents delivery if they ensure wide spread areas of e-journals, which will ultimately save the time, money and effort. And finally it concludes by providing a solution to serious problems with access quality control and financing because e-journals are available with less pay get more.

Some studies have studied the cost benefit analysis of electronic information. It was found that cost benefit analysis can support the contention that the choice to offer e-products or service is economically sound or not and also CBA combined as a marketing tool also. The study also reveals that cost benefit analysis can be used to examine the cost effectiveness of an electronic database and it was found that CBA (cost benefit analysis) can be used by the librarian's to justify budgets and acquisition and also to provide insight into the true costs of providing library services.

Janakrishna, (2001), said that high speed networks are becoming widespread. The growth of Internet over the past three few years have been phenomenal. Telecommunications companies complete provide local and long distance Internet service across the United States; international links reach almost every country in the world; every sizable company has its internal network; universities have built up their campus networks; individuals can purchase low-cost, dial-up services for their homes.

The coverage is not universal. Even in the U S there are many gapes and some countries are not yet connected at all, but in many countries of the world it is easier to receive information over the Internet than to acquire printed books and journals by orthodox methods.

2.4 Terminology ICT:

2.4.1 Defining computer literacy:

Menon, Rajeev, (2009), define computer literacy is the skills required to retrieve information efficiently and communicate effectively using computer hardware and software, based on a conceptual understanding of computer technology and how it can be used to accomplish specific task, including an awareness of its inherent limitations, as well as its advantages. Because hardware and software are progressively upgraded, an ongoing effort is required of the user to remain computer literate.

2.4.2 ICT via library:

Librarianship is supposed to have changed more over the last few decades then in its entire previous history. The factor affecting such change may be divided into four categories: economics, technology, higher education and organization (Farley, Broad-Preston and Hayward (1998). The wide spread use of ICT in libraries, and especially the development and access to digital information resources via internet has raised a number of challenges and concern for librarians and the resulting skill need for new skills and competences suitable for the digital information environment. According to Menon further said that the role of librarians in the digital environment is evolving. Librarians are now being expert to possess skills and expertise, in addition to the traditional library and information management skills, specifically in the use of ICT, e-publishing, digital information management and knowledge management.

Chisenga, L and Rorissa, A (2001), told that the technological changes have resulted in libraries constant questioning their future and the competencies will need to survive professionally. He add in his article 'new library competencies', who investigated the market change regarding the demand for computer literacy for librarians in academic and public libraries in United States from 1974 to 1989, revealed that computer applications have changed in many aspects the way by which librarians provide services as a result, computer literacy has gradually become an important competent for librarians in many positions.

Woods worth, also suggested that technical competences are the most critical ones for all librarians, even if they obtained their professional

credentials as recent as the early 1990s. Basic competencies for librarian must include knowing what the internet is and is not; evaluating and using hardware, software and networks; and understanding basic computer and information science concept according to Marmion, D (1998), in his article; facing the challenge: technological challenge facing the library profession today is that of preparing our employees to use technology effective to effectively to meet this challenges libraries must pay much more attention to technological training and computer skills than they traditionally have in the past. Computers, connectivity and electronic information are redefining the library profession and what librarians do. According to Lathan, L (2000), narrates in his paper, says that technical literacy is no longer a specialty but a survival skill for all librarians while this skill rapidly obtained a name, "computer literacy" title consensus has been developed an precisely what set of abilities it actually represents.

2.4.3 IT skills for librarians:

Krissof, A and Konrad, L urge that for librarians or users to consider them truly information literate in this day and age. Latham again urge that every librarian should be familiar with installing, configuring and using browser.

Saunders – McMaster, (1997), add that librarians need to have working knowledge of HTML, table, browsers, graphic, placement, CGT, programming, UNIX and Java. All librarians should be familiar with installing, configuring, and using a browsing and should be able to discuss intelligently their favorite search engines on the Web and explain why they use each one. Librarians should also be able to discuss when a Web search is preferable to a print search, and vice-versa. Beyond the functionality, however, we need to look at ways to use e-mail to expand communications within the organization, particularly large organizations. Due to penetration of standards, all staff should be familiar with whichever version of window is run within the organization, how to navigate through Window (with and without mouse) and how to manage files associated with Windows. Saunders-McMaster again cites the challenge facing libraries is to get their libraries librarians up to speed to master tools they use in working with electronic information.

2.5 The Various Problems facing by College Librarians Regarding ICT:

Some past studies of the problems of the ICT has tried to cite under.
2.5.1 Satisfaction level of the librarians regarding the facilities:

Birandar, (2007), expressed to define some terminology on behalf of US Office of Technology that an "information infrastructure" implies a conceptual analog that incorporates all facets and aspects of transportation systems and the structures supporting these systems, regardless of the specific mode of transportation. Thus the information infrastructure analogy can not be confied to the national interstate highway. It also tried to explain about "communication Infrastructure" as "the underline structure of the technical facilities and institutional arrangements that supports communication via telecommunication, broadcasting, film, audio and video recording, cable, print, and mail.

Ahmad, (2012), the network is basic matter of ICT facility and utility. He stated about network card problem that library network card manufacturers try to create card setting that work in the majority of computers. If librarian has system with one serial port, one parallel port, and no unusual cards, there is a good chance the default setting will work. On the other hand, if librarians have a CD-ROM drive, a second serial port, a music or some other special card, the network card may have the same settings already used by one of those devices.

Bist, (2007), viewed in his article regarding challenges in improvement of ICT infrastructure that it is the key to provide universal and affordable access to information to citizen scarred geographically. The challenges that we face in ICT for development is designing technologies and networks that are suited for the needs of our citizen. Despite the growth of Internet, India has to provide a robust telecommunication infrastructure with suitable, sufficient and reliable bandwidth for Internet connections along with necessary hardware and software. Faster network with sustainable for their necessary updating is the need of the hour.

Bist also searched out about the problems regarding rural area which affects the rural college libraries that the access to the Internet as well as the telecommunications confined mainly to the urban centers in India and the rural areas remain beyond the ambit of new technology. Hence connecting

rural area is a bigger challenge because subscribers are geographically dispersed populated and economically weak.

Bist further cited about rural India's problem regarding community owned ICT enterprises and new wave of wireless and related technologies together may offer significant potential to extend networks and offer new services in rural area.

The research of Patil and Parmeshwar is very interesting regarding satisfaction with existing Internet facilities was asked, there is need of sufficient Internet facilities in the library, the response of the research scholars regarding internet facility answered the research scholars responded, 62.07% responded that the Internet facility is not satisfactory and remaining 37.93% research scholars responded that the Internet facility is satisfactory. Regarding the satisfaction with the Internet facility in the library, 50% of the faculty in the library and the remaining 50% faculty members stated that they are not satisfied with the existing Internet facility.

Lakshmi, Sagar and Malleswara reported about infrastructure facility in college library that it is evident from the infrastructure requirements of digitization of engineering colleges library selected; all the libraries have high capacity processors, required RAM and resolutions. They add that the capacity of hard disk of computers is sufficient for digitization.

Kochtanek and Matthews (2004) reviewed about infrastructure management of college library that it is helpful if the individuals who maintain the LAN have more than a working knowledge of the LAN software. LAN managers and others working with LAN can study the typical requirements to pass several examinations relating to the infrastructure maintains.

Adomi, Esharenana E, (2011) provided very clear picture that in spite of many technological problems associated with ICT , most libraries have and continue to put ICT development at the top of their priorities and this has resulted in development of ICT infrastructure developments.

2.5.2 Various Problems Facing by the College Librarians Regarding ICT:

Kumar and Sharma (2007), noted the survey of National Manuscript Mission (NMM) that the primary object of using digital technology to preserve the manuscript for posterity. The working group of the mission in its first meeting observed that there are no digitization standards thus far available those the mission in its massive digitization initiative can adopt.

2.5.3 The technical Issues:

The development of digital environment was replaced by the realization that building digital libraries are more than going online with a websites. The handling technical issues are responsible work. It is true that the nature of digital information is not fixed, easily copied, and remotely accessible by multiple users simultaneously. So some of technical issues take place as under.

Some of technical issues as the studied by Urs, (2007). Regarding library infrastructure and architecture like high speed local networks and fast connections to the Internet. She also marked that variety of digital formats including audio and video. Another problem is full text search engines to index and provide access to resources, variety of services, such as Web servers and FTP servers.

Tyagi, Srinivas (2001) provided very clear picture about specific problem created by technology are formatting policies on information at national and international levels, international cooperation and control over information flow transnational boarder, defending international roles of private, public, government, profit and non-profit sectors, in handling information. He further add that allocation of and control over resources, including communication channels, assessment of the impact of information technology on individuals and society and initiating follow-up actions, development in skills of staff, redefining the role of information manager or mediator and ultimate user of the user of the benefits of the new technology. Defining and legislating on intellectual property rights.

Tyagi also searched out about technological managerial problems that the study of user relation to man machine interface problems and developments to meet them, validation and evaluation of different sources of information and technologies, development of requisite polices strategies and organization of managing information at both national levels. As per him, selection of further areas of research and development in information technology and their application.

Gandhi, Raghavendra and Chidanandappa, (2007), identified problem related technical architecture that the libraries will need to insure and upgrade current technical architectures to accommodate digital materials. It requires high-speed local networks, fast connections to Internet, database for support of digital formats, full text search engine, services like, web, FTP, electronic document management for meet technical challenges.

Berkeley Public Library find out the problems of RFID technology in the library that the college librarian have to face problem of performance of exit sensors, with the familiarity of tag secret and may user remove it, easy to deceive the technology are the main problems of the this system.

Singha, (2010), predicted about problem related to the network computers that the cost of ownership reasons, software on network computers commonly aren't upgraded because there is nothing that need to be upgraded. If you think about the concept of the NC, you can see that upgrades, whether software or hardware, out to be done on the server, not the client.

Christine, L Borgman (1996) has identified some problems related online catalogue searching that there are three layers of knowledge required for successful successful online searching:

The first one is conceptual knowledge of how the information retrieval process works- how to translate an information need into a search query, problems arise in this area because people arrive at a catalog with incomplete information for any of the indexes provided by the catalogue.

Second one is semantic knowledge of how to formulate a search query- how and when to use different search features. In a manual catalogue, the user is expected only to recognize the entries while in an automated catalogue; the user is expected to formulate queries.

Third one is technical skills in conducting a search query- having a basic knowledge of computing skills and any required syntax for entering a specific search query.

Adomi, Esharenana E, (2011), highlights on some technological updating that the technology has a short life-cycle which is costly to update which means that when its life comes to an end, new technology is needed and this comes at a high cost. For example, Microsoft Patch Security Management System, which makes sure that Microsoft operating software programs remain up to date with contemporary security threats. The short life cycle also results in data loss where migration of data from one software to another has to be done after up dating. He further notice that another problem that has to addressed if full potential of ICT were to realized is its over dependence on the Internet.

2.6 Conclusion:

The researcher of the project has to search our various literature form the different sources of the information. As we know that the search of literature of the related subject has great importance for the research work. Without referred the proper material the line and length of the subject can not justified. So a little bite of the previous studies related to the subject related would like to cited and make a little effort to carried out some important past studies for the research work.

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Chapter- 3 Various Tools and Technology of ICT

Chapter- 3 Various Tools and Technology of ICT

3.1. Introduction:

Information technology is also boon to public relation. Its tools enable a public relation practitioner to reach out to many with ease and be available to many without difficulty in promoting understanding and generaring goodwill. Its tools are E-mail, voice mail, teleconferences, websites on the internet, I-pod, blogs, interactive broadcasting internet chat session, etc.

3.2. Some Tools of ICT

Various tools and techniques of information and communication are given below.

3.2.1E-mail:

It is the medium of quick and easy information and responding to the caller. Communicator can make their correspondence faster with hundred per cent accuracy.

3.2.2Voice mail:

It is an electronic device very much in use by a practitioner as well as a communion to communicate with the company or an organization. The number can be advertised or published which can be dialed by the interested party but for public relation practitioner it is better that it's a tall free number where the called and not the caller party pay. Any party can ring up the number and be answered by an automatic device. The caller can give his name, telephone number, place, and time and date while putting the message, which will be stored in voice mail box. The PR practitioner can retrieve messages everyday at fix time and after listening have transcribed them. He cam take action upon them and can reply to them giving dictation in a PC and programming it to dial out to number who called him and read out his replies to the callers. These voice mail boxes can enhance the efficiency of a communicator to a great extent.

3.2.3Tele-conferences:

Organizing conferences over telecommunication network can save much cost, time and inconvenience of travelling. Video conferencing is another mode which is also cheaper than physical conferring. Nowadays high speed digital telecom infrastructure is reaching out to small cities also. This is extremely useful for modern communication. People are gathered for difference purpose in different cities and countries are being invited to the video conference sites in their own city and the person who holds the conference is able to talk to all of them both by audio and video interaction.

Website on the Internet: this is a wonderful device through which massages, library put e-resources on website and anybody can access them without any written request. This could, render in matter of time, render the printing and mailing of annual report, etc. obsolete as this device would control the expenditure on printing and mailing. Instead, all the material could be put on the websites. This would also save enormous resources which go in to mailing activities. A part from it those who have got 'E-mail' address could receive the entire material by file transfer from the company.

3.2.4 Interactive Broadcasting:

It is a simple method. One can appear on FM radio or TV channel and while he is talking there could be phone-ins and all such toll free calls can be from anywhere in the country or any where in the world. People can buy time on any broadcast channel and hold nationwide/worldwide press or shareholders meeting.

3.2.5 Internet Chat Meeting:

This is at another mode where a communicator very inexpensively communities with any number of people online on the internet through his PC. All these methods have revolutionized communication all over the world. It is for the library and information professionals how soon they get themselves exposed to all the methods that are going to make his work much easier and efficient.

3.2.6 Multimedia:

Multimedia is a combination of text, graphics video, 3-D animation, music, other sounds and voice. Video can include most of the items as well but one important part can included is the software which combines several parts together in a linear or interactive presentation. In this presentation the viewer has no means to interact. It runs from to end. One could only start or stop it. On the country, an interactive presentation can be directed by the user by checking on items of interest and finding the users own way through the information.

Multimedia has several carriers which have their own plus and negative points. The different among carriers are by way of their capacity, the target group, the platform on which they can play the purpose for which they are used and whether they are to be used on or offline? An online carrier cannot be handed over physically because it is accessed by means of cables such as networks telephone or television. A good example of an online career is an Internet, where the presentation is placed on computer somewhere in the world and can be reached via a computer network which is connected mainly via cables. Offline carriers have to be inserted in a player such as CD-Rom, CD-I, Video, etc.

3.2.7 Diskette:

It is lowest category in the range of a carrier and is used mostly for data collection. Nevertheless, a diskette can also contain music, small animation and pictures. It can, therefore, be used for multimedia purposes. A diskette has limited capacity. This is a disadvantage because only a small carrier of data can be placed on it.

3.2.8 CD:

It is another way of storing data to cope u with the demands of expansion in storing capacity of data. Therefore, we saw CD-Rom and CD-I was developed simultaneously with a storing capacity of 640 MB. The CD-Rom is played on CD-Rom player combined with a computer. It was originally used for storage of text, pictures and software but, as the capacity and speed of computer have increased, it has become more and more popular for showing multimedia applications directly from CD-Rom. The CD-I was developed to store mainly sound and film materials but never became popular as CD-Rom.

3.2.9 Hard Disk:

Visual presentation can also be placed on the hard disk of a computer itself. This way maximum performance of the PC can be obtained and the presentation can be trained to PC itself. Hard disk presentation is mainly used by sales people for large audiences. There is, however, one disadvantage. The presentation cannot be physically handed over as in the case with a CD-Rom or diskette.

3.2.10 New Developments:

The development in info-technology is incredible. Everyday new software is released. Updates of programs are issued and studied are studied are developed. Some years ago hardly anybody had heard of internet. Today millions of people are suffering the world via the World Wide Web (www).
With the space of two years employment in multimedia in Germany has exceeded the total workforce in the whole car industries. And this may continue as increasing number people have access to a computer with a hard disk drive, a CD-Rom player and a modem connection with Internet.

3.2.11 Internet:

Internet has changed the boundaries of marketing because of its level of interactivity and immense commercial opportunities. As there are hardly any costs for distributing knowledge, information services, Internet has changed the worldwide trade. It is a unique way to penetrate market and find or active distribution and sales channels.

Multimedia is a knowledge that is based on technology and is a it is useful in library fairs and exhibition. It is yet another discovery.
There are three major ways to use multimedia in relation to such functions. First is Internet which is useful tool to reach for suitable function all over the world and get the details of them on the screen. Secondly, multimedia tools can enhance the impact of the presentation at library fairs and function of the field. The third use of presentation is at fairs and exhibitions. The third use of multimedia is a virtually participate in fairs.

3.2.14 Digital Reference:

Reference services requested and provided over the Internet, usually via

e-mail, instant messaging (chat), or Web based submission forms, usually answered by librarians in the reference department of a library, sometimes by the participants in a collaborative reference system serving more that one institution.

3.2.15 Domain:

All the hardware software resources controlled by a single computer system. In a local area network (LAN), all the clients, all the clients, and devices under the control of a single security database, administered under a common set of rules and procedures. On the Internet, all the IP address, the highest level domain being the type of entity serving as network host, indicated by the top level domain name. In database management all the possible values of the data contained in a specific field present in every record in a file.

3.2.16 E-print:

A preprint in digital format, distributes electronically. The use of e-print serves to provide access to collection of preprints is a comparatively new mode of scholarly communication, developed on the physical sciences to circumvent the delays and high cost is commercial publishing.

The ICT has strong base of supporting tools and techniques for performing heavy duty. Among these I would like to discuss as a tools like electronic library, digital Library, virtual library, Internet and various e- resources and techniques like various hardware and software.

3.3 Some ICT Techniques:

Srimrugan, (2011), cited that the enabling technologies resulted in moving libraries and information centers into the computer age. The first part of this automation process was computerization of the circulation system which was perceived as a real need. A move towards authority retrieval and thereafter the catalogue card followed a few years later. Meanwhile, work had been underway in information retrieval in the database and online world.

Previously, libraries had to depend largely on their own staff to prepare in-house catalogue cards. The need for standardization, even in the manual age, led to AACR2 and later to the ISBN format.

3.3.1 Various E-Resources

Some e-resources are given below:

3.3.1 Digital Library:

Terms such as Electronic Library, Digital Library and Virtual Library, were defined separately in isolated components. Today, the technological advancements have made all three concepts more or less same. Americans have popularized the term digital library to denote all the tree concepts.

Definitions of Digital Libraries:

There are many definitions of "digital library" terms such as "electronics Library" and "virtual Library" are often used synonymously. The elements that have been identified as common to these definitions are:

- The digital library is not single entity.
- The digital library requires technology to link the resources of many;
- The linkages between the many digital libraries and information services are transparent to end users.
- Universal access to digital libraries and information services is a goal; and
- Digital library collections are not limited to document surrogates: they extend to digital artifacts that can be represented or distributed in printed form.

Hence Digital library or Electronic Library is a library which exists solely in electronic form or on paper. The building blocks required for such a library may not exist, and the chemical steps for such a library may not have been tested. These libraries are used in the design and evaluation of possible libraries.

The purposes of Digital Libraries:

The purposes of the digital library system are:

- To expedite the systematic development of the means to collect, store, and organize information and knowledge in digital form; and of digital library collection;
- To collect the economical and efficient delivery of information to all sectors of the society;

- To encourage cooperative efforts which leverage the considerable investment in research resources, computing and communication network;
- To strendhan communication and collaboration between and among the research, business and education communities;
- To take an international role in the generation and dissemination of knowledge in area of strategic importance;
- To contribute for life long opportunities for all.

Types of Digital Libraries:

The research undertaken when reviewing the web pages revealed a range of terms that refers to similar conceptualized services:

There are six types of Digital Libraries as under:

1. WWW Virtual Library
2. Clearing house
3. Subject Gateways
4. Gateways
5. Portal
6. Vortal
7. Internet Resource Catalogue

Issues in development of Electronic/Digital Libraries:

There are five areas that needed addressing before the electronic library can become a reality. They are:

1. Technical issues
2. Legal issues
3. Economic issues
4. Psychological Issues
5. Educational issues

The electronic libraries cannot become a reality until a number of technical issues are resolved. It cannot take effect unless issue to do with copyright privacy etc.

Advantages of Electronic/Digital Libraries:

Electronic Libraries are visualized as "benchmark in the technology' and practicing knowledge disseminate. The action word for digital libraries is "does something. Start getting involved and must practice"

1. Accessibility from anywhere

2. Provide access to more information than possible to physically acquire and maintain.

3. Support both formal and informal education.

4. Media Integration

5. Remote access to expensive and rare material.

6. Greater opportunity for publishing.

Normally accessing Electronic/Digital Library is restricted to registered users only. This is because the library has to pay for the most electronic resources available through the Electronic Library. One has to type in his/her computer username and password to log into the electronic library.

3.3.2 Virtual Library:

Menon, Rajeev expresses his idea regarding virtual libraries that "Library without walls" in which the collections do not exists on paper, microform, or other tangible form at a physical location but is electronically accessible in digital format via computer networks. Such libraries exists only on a very limited scale, but in a most traditional print-base libraries in the United States, catalogues and periodical indexes are available online, and some periodicals and reference works are often available in electronic full text. Some libraries and libraries systems call themselves "virtual" because they often inline services. The term digital library is more appropriate because the term digital virtual suggests that the experience of using such a library is not the same as the "real" real thing when in fact the experience of reading the or view a document on a computer screen may be qualitatively different from reading the same publication in print, but the information content is the same regardless of format.

What is Virtual Library?

The term has been define by many different people in many differ ways. It is a library in which the holdings are found in electronic stacks. It is a library

that exists, without any regards to a physical space or location. It is a technological way to bring together the resources of various libraries and information services, both internal and external, all in one place, so users can find what that need quickly and easily,. Sound great. It has also some drawbacks and limitations.

Advantages of Virtual Libraries:
There are many advantages to going virtual. Some of the advantages include the following:
- It saves and/or reduces the physical space taken up by library materials
- It often adds enhanced searching capabilities in a digital format.
- The library materials are available at the users' desktop, regardless of where the user is physically located.
- It allows for the inclusion of materials only available on the internet or in digital format.
- It provides the user with the capability to download and manipulate text.
- It often allows for multiple, concurrent users.
- It eliminates the problems of a books being missing or off the shelf.
- It less labor intensive.

Limitations of Virtual Libraries:

The limitation includes the following:

- Every product has its own distinct user interface. .
- Users need to remember different passwords for different products.
- The scope of coverage and available archive is often limited.
- There often difficulties with download and printing.
- Often there is no cost saving, especially when both the virtual and point product are maintained.
- Every thing is NOT available in digital format.
- There are restrictions, which very from vendor to vendor, on how the product can be used.
- The virtual library relies on power and computer networks in order to be available for use.
- Users can't spread everything out in front of them and use it all at once.
- Users are most comfortable for books.

The last point is very interesting one. Users have comfort level with books. However, what still holds true is that, with a book, or set of book, there is a quantifiable beginning and end, which is not as clear with digital products and gets even more blurred when users move at figuring out when to stop and how to separate the good from the bad.

3.3.3 Internet:

Internet a brief history:

Raj, R K, narrates about internet that it is very familiar among us. This section is relatively brief because it is assumed that most readers are generally connected either directly or indirectly with the Internet. The Internet is a "network of networks." Age of Internet started in 1962 at Massachusetts in America. After an incubation period of seven years it appeared in 1969 as ARPANET. Its origin has been founded in 1970 by the department of defense for military purposes, Government of USA. Soon there were three major breakthroughs:

1. Interface Message Processor

2. Network Topology

3. Network Metrics

4. Architectural Designs

In 1971 came FTP and in 1972 E-mail became a reality. Internet basically utilizes the convergence of computer and communication technology.

In 1990 ARPANET was converted in public network and opened to the public.

Services of Internet:

Internet is today limitless network of computer all over the world. The large among them is called servers. They store enormous amount of data and theme to the information users. Information is communicated through telephone, satellite link including optical fiber cables. For a common man Internet means a PC connected to a phone line through a modem.

This has resulted into successful launching of E-mail, E-education and also E-governance.

E-Governance:

The NICNET connects direct and Panchyat level government offices to a state government secretariat. This provides movements of files with a click of a mouse ending red tapism forever and presenting governments online.

All state governments are now online and have communication link downloaded with the districts and Panchayat's as also upward and parallel with central and state government.

Blue tooth revolution:

Blue tooth wireless technology has virtually changed the scenario altogether by replacing the cable used on mobile devices with radio frequency waves thus providing wireless mobile connectivity.

Info-Technology and Communication:

Information technology is a boon to communication. It enables communicators to reach to masses with ease and be available to the masses without difficulty. Its tools are E-mail, voice mail, teleconferencing, interneting through chat shows, I-pods, blogs interactive broadcasting, etc.

Info-Technology and Public Relations:

Information technology is a boon to PR. Its tools enable a PR practitioner to reach out to many with ease and be available to many without difficulty in promoting understanding and generating goodwill. Its tool are E-mail, voice mail teleconferences, websites on the Internet, iPod, blogs, interactive broadcasting.

E-mail:

It is the medium of quick and easy information and responding to the caller. PR practitioners can make their correspondence faster with hundred percent accuracy.

Voice mail:

It is an electronic device very much in use by a PR practitioner as well as a communication to communicate with the company or an organization. The number can be advertised which can be dialed by the interested party but for PR practitioner it is better that it is a toll free number and not the caller and not caller party pays.

Tele-conferences:

Organizing conferences over telecommunication network can save much cost, time and inconvenience of travelling. Video conferencing another mode which is also cheaper than physical conferences.

Websites on the Internet:

This is a wonderful device through which messages, company press releases and annual reports could be put on website and nobody can access them without any written request this could in matter of time, render the printing and mailing of annual report, etc.

Interactive broadcasting:

It is a simple method. One can appear on FM radio or TV channel and while he is talking there could be phone-ins and all such toll free calls can be anywhere in the country or any where in the world.

Internet Chat Sessions:

This is yet another mode where a communicator very inexpensively communicates with any numbers of people online on the internet through his PC. All these methods have revolutionized communication in the world.

E- Book:

Origin and Evaluation of E-book:
The first printing press with movable type that was invented in 1450 by Johns Gutanberg the printing press by making it similar and it similar and more affordable. Although the first hypertext novel was published in 1987 , did not capture public attention until the online publication of Stephen King's novel riding the bullet in March 2000. Within 24 hours, the text had been downloaded by 400,000 computer users.
Simply speaking, E-books are the electronic version of printed books. E-books have been defined as:
- Online Dictionary of Library and Information Science[i] "A digital version of a traditional print book designed to be read on a personal computer or an e-book reader (a software application for use on a standard-sized computer or a book-sized computer used solely as a reading device)

- E-book is a term used to describe a text analogous to a book that is in digital form to be displayed on a computer screen.
- An E-book is digital reading material that one views on desktop or not book computer or on a dedicated, portable device with a large storage capacity and the ability to download new titles through a network connection.

E- Journal:

E-journals are often referred to interchangeably as "electronic publishing", "electronic serials", online journals", and "electronic periodicals". Gail Macmillan defines E-journals as "any serials produced, published and distributed nationally and internationally via electronic networks such as Binet and Interne

Some Definitions of E-Journals:

MacMillan Gail, define the e-journals that the, "E-journals available electronically via a computer or a computer network, that they or they may not be published in some other physical medium, but that are not CD-ROMs.

Wikipedia defines electronic journals as "Electronic journals are scholarly journals or magazines that can be accessed via electronic transmission. They are a specialized form of a electronic document: they have the purpose of providing materials, articles, the metadata is entered into specialized databases, such as DOAJ or OACL as academic libraries and special libraries.

Features of electronic journals:
E-Journals offer many opportunities to today's users that were not available to their predecessors.

Mounissamy, P., Kaliamal, A., Swarup, Rani, (2005), addresses that the multidimensional features of E-journals, they are becalming the choice of academic as well as public library users. Electronic journals can be accessed round the clock across geographical barriers, which make e-journals omnipresent. The e-journals get published or reach the subscribers much before there counterparts. Another important point of e-journal is that more than one person can access them at a time. Moreover, articles can be

downloaded and printed simultaneously by more than one reader, depending on access rights and permission.

Blogs:

Brief history of blog:

A Blog – Wikipedia is a website where entries are made in a journal style and displayed in a server chronological order. The term blog traces its origin from word weblog coined by Johan Bargeron 7th December 1997. This term has been quickly adopted both as a noun as well as verb.

A typical blog entry can have TITLE representing main heading of the post; BODY carrying contents put through posting: PERMALINK representing URL of the article; DATE including date and time of publication of blog entry. Additionally, COMMENTS allows users to leave comments on the blog; CATAGORIES subjects/s covered under a particular blog are indicated.

Fame and features:

The features of a blogs had a direct impact on the fame and familiarity of blogging. Although blogging is almost only a decade old phenomenon but it exploded on web like a big a fire. The spread of blog fever is ascribed to the fact that blogs let online contents to publish quite easily without need of any markup language or editor.

Blogs and Library services:

The very trend set by bloggers from the field of journalism, politics, medicine art and culture also crept in the libraries and library science field. The professionalism is this field is making use of blogs for communicating technical skills among professionals beside there is increasing use of dispensing patron service through library blogs.

Some familiar blogs are:

Peter Scott's library blog:

Though [ii] this blogs blogger shares technical knowledge regarding use of Internet to help library patrons. Scott compiled first hypertext index of internet resources, Hyaline released in 1991 and has maintained following sites: libdex, Library index, Library weblogs (by and for Librarian) Weblogs compedian- a site for blogging resources.

Library technician:

Though this blog an anonymous blogger shares can technical knowledge and view about the profession besides job market.

OSS4LIB:

Here blogger lists open source or free software's designed for libraries and provides news about ongoing open source projects and related issues beneficial for libraries. It is maintained by Dan Chudnov, staff programmer at Yale Centre for Medical Information.

Beyond the job:

This employment oriented blog maintained and mainly contributed by two references Librarian / Professors in Library and Information science namely Sarah Jhonson and Sringer Gorden. The blog provides tips, news and notices for library jibs.

E-portal:

It is a just like a super market, where one can get everything from a single shop. Portals provide a single interface to search various databases. e.g. Under UGC Infonet :e-journals consortium Indian universities are accessing many different databases or products. User has to serve individually for a single term if/he wants to search in all the provided products than this exercise need much time to cover all products. Here portals can help a user; portals will search the needed term in all the products from single interface.

Open Access:

Access to information consequent to the information technology revaluation was a major landmark of the last century. In spite of the remark achievements in making information accessible, a major share of vital research data is still behind access barriers. Scholars from around the world

and particularly from the developing world have been categorically denied access to vital research literature.

Definitions of Open Access:

The most fascinating concept "Open access" as defined by Wikipedia" is on going publication practice which defers in the way traditional methods of publishing papers to the public get submitted, review, authenticated and finally published. The word "open" here means a change in how publication is negotiated between author and publisher and access has an influx on how the audience can be obtain the publication"

Peter Suber has provided a brief definition of open access as "literature that is digital online, free of charge and free of most copyright and licensing restriction".

Search Engine:

Today internet has completely revolutionized the communication word ever before. By using Internet, one can look up information on any subject like airline Information, business information and what not.

What is search engine?

A search engine is a searchable database of Internet files collected by a computer program (called a wanderer, crawler, robot, worm, or spider). Indexing is created from the collected files e. g. title, full text, abstracts, URL, or metadata. There are no selection criteria for the collection of files, though evaluation can be applied to ranking schemes that returns the results of query.

3.4 Conclusion:

The recent advancement of ICTs have strendhened father the link between knowledge and broad based development and the "knowledge revolution" provides an opportunity to foster access to basic library services and improve information and communication technology outcomes. Thus, effective adoption of ICT in libraries will acceleration the level of

knowledge, acquisition and consequently, will improves national development.

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Chapter-4 Impact of ICT in College Library Management

Chapter -4   Impact of ICT in College Library Management

4.1 Introduction:

Management is a mental process as per cited by Kumar, P S G, Up to starting stage of civilization man has been acquiring and sharpening the principal of management for better understanding of nature, exploitation of resources, human relations, organization and governance. These all the scientific thoughts of management longs towards fairly recent origin, it has caught the attention of scientists, information scientists planners and policy-framers, officers and decision-makers and in fact every one in every field. In this time management has brought many changes than that of earlier. Today management has attained the status of science by contributions of men like Taylor, Frank and Gilbreth, Gantt, Fayol and others. Library and information profession has started adoption the principles of scientific management for library administration since the middle of the 20th century.

2.1 What is Management?

Today management is the key component in all the aspects of human life. It touches all the branches of the universe of knowledge. To achieve the goal and objectives of each and every person, institute and organization it is necessary to make proper management. For this require some resources like skilled men power, proper material and needed money. By this way it is possible to leads, guides and directs, the organization to achieve its predetermined objectives it called management.

It is not earlier the 'art of management' was not there. In fact, it was there at all the times in different forms in different organizations. The only difference is that art, system, practice, experience or philosophy was not widely known to the public. This came to very recently though various communication means when it is crossed the barriers of people, organizations, languages and countries to which it was originally confined. Today, these managerial functions and principals are universal and applied to all types of organizations depending upon situation or environment to provide effective results. We can say that library and information centers are not exception to it.

4.3 Definitions of Management:

The term management has defined by Koontz, H and others in many ways. Some of them are shown as under:

4.3.1Terry, George, defined that "management is a distinct process consisting of planning, organizing, actuating and controlling, utilizing in each both science and art, and followed in order to accomplish pre-determined objectives".

4.3.2 Koontz, Harold, defined as "management is the art of getting things done through and with informally organized group".

4.3.1 Fayol, Henry also stated that "to manage is to forecast and to plan, to organize to command, to coordinate and to control".

So it is clear that management is an art, process, planning, organization forecast and can state in many way.

4.4 Characteristics of Management:

The characteristics of management are stated by Kumar in his book are shown as under:

4.4.1 It is an art as well as science. It is an art because managerial skills is a personal possession and intuitive. It is a science because, it has developed certain principals, laws, generalizations which to a great extent universally applicable.

4.4.2 It is group effort management. Management to be successful requires the effort of a group of persons and not any particular individual.

4.4.3 Achievement of the objectives- management presupposes some goals to be achieved. There must be pre- determined objectives and the group involved should strive to fulfill these objectives.

4.4.4 It is a process. The executives or managers, who utilize the resources to the optimum benefits is the process of management. It involves, the course of action to be taken, securing necessary physical means, recruiting for the performance of requisite tasks, and the process involves seeing that the job is properly accomplished.

4.4.5 Management is a system of authority- is considered as basic

managerial functions. It is a rule making and rule enforcing body and is bound with a web of relationship between superiors and subordinates.

4.4.6 Management is needed at all levels. It is not restricted at the top level only. The lowest level person has to perform the same type of function of decision-making s at the top level.

The characteristics of management are indicates its special identity.

4.5   Functions of Management:

There are many functions of management have found. These functions are useful for managing libraries in proper system. According to Armstrong many managers and scholars have found that the analysis of management that the analysis of management is facilitated by a useful and clear organization of knowledge. The study of management shows that it is helpful to break it down into five managerial functions- planning, organization, staffing, leading, and controlling, around which can be organized the knowledge that underlines those functions. Thus, principals, theory, and techniques of management are grouped into these five functions.

This framework has been used and tested for many years. Although there are different ways of organizing managerial knowledge, most text book authors today have adopted this or a similar alternative ways of structuring at times with alternative way of structuring knowledge.

Some scholars have organized managerial knowledge around the roles of manages, as the study of management, since it also focuses on what managers do and provides evidence of planning, organizing, staffing, leading, and controlling.

4.6 Managerial Roles of Librarian:

The ten managerial roles identified by Mintzberg are indicated below:

4.6.1 Interpersonal Roles:

- The figurehead roles identified performing ceremonial and social duties as the organizations representative.
- The leader role some special task.
- The liaison role for communicating particularly with outsiders.

4.6.2 Informational Role:

- The recipient role for receiving information about the operation of an enterprise.

- The disseminator role for passing information to subordinates.

- The spokesperson role for transmitting information to those outside the organization.

4.6.3 Decision Roles:

- The entrepreneurial role for new challenges.

- The disturbance-handler role.

- The resource allocator role.

- The negotiator role for dealing with various persons and groups of persons.

6.7 Managerial Skills among Librarians:

Katz, (1995), express the managerial skills among librarian are stated below:

6.7.1 The technical skill: It is in librarian is knowledge of and proficiency in activities involving methods processes and procedures. Thus, it involves working with tools and specific techniques.

6.7.2 Human skill: Librarians required understanding human skill. It will convert in cooperation and teamwork. It is the creation of an environment in which people feel secure and free to express their opinions.

6.7.3 Conceptual Skill: Some conceptual skill is required to prove ability to see the "big picture" to recognize significant element in a situation, and to understand the relationships among the elements.

6.7.4 Design skill: It is the ability to solve problems in ways that will benefit the college library. to be effective, particularly at upper organizational levels, managers must be able to do more than see a problem.

Kochtanek and Matthews, (2004) attempted to find out the Special job skills to manage ICT based college library are given below:

6.7.5 Library Skills: the college librarian should knowledge of MARC records structure, related issues, and information retrieval

system.

6.7.6 Library system skills: The librarian should aware of the vendors and producers in the marketplace, know hardware and software capabilities, and have a basic understanding of contracts'

6.7.7 Computer Skills: He /She must aware of desktop operating environments server operating system, software, software programming fundamentals, database design, and troubleshooting skills.

Database Management Skills: The college librarian will often need learn about a specific database management system to help a vendor expand tables, restore corrupted tables, and produce add hoc custom reports using a report generation tool.

Network Skills: Understand network design, network services, protocols, network management, network application, and Internet Technologies. Some portion of a system manager's time will be spent on issues such as validating and authentication users so they can access a wide range of information networks.

6.7.8 Management Skills: A work oriented librarian will have basic management skills to able to manage resources and technologies, deal with security and back on regular basis and that the backups are tested.

They also highlights that the college librarian should likely deal with a various functions related to the library management in electronic environment. He will have to deal with co-workers at various level regarding proxy servers, video editing equipments and software, filtering software, digital security cameras, wireless networks, e-books, interlibrary loan software, web page management, E-mail systems, supporting classroom instruction, electronic reserves, digital archival materials, maintaining 'office' applications and writing local scripts.

4.8 Role of Librarian During Emergency:

Kochtanek and Matthews, (2004) suggested some disaster recovery actions for the time of emergency in the college library. The causes of the disaster might arise from several sources as mention below:

4.8.1 Power Brownout or Blackout: If the library installed battery backup capabilities, then staff will have the time for an orderly shutdown of some or all the applications.

4.8.2 Physical Disaster: the physical disaster refers fires, flood and earthquakes, among other things. If the equipment or software seriously damaged then the library should have an action plan for quickly replacing the necessary components so it can become operational again.

4.8.3 Security Disaster: in the situation of the library's LAN or other structure has been infected with a computer virus or has been hacked and the various database have become corrupted. This portion of the emergency disaster plan may well be identical to a computer security plan.

This plan should provide a systematical blueprint of the action to be taken and the people to be notified in the event of the major emergency. Besides notified library staff members it may be necessary to inform about personnel those who are involved related to this task, so during emergency, it is easy to handle the task with their help.

4.9 Meaning and Definition of Library Management:

4.9.1 Meaning of Library Management:

Today is given almost important to every type of organization. Every organization has its some objectives or goals. It need some system or tool which can utilize its resources effectively to achieve these objectives. This system, which leads guides and directs the organization to achieve its pre determined objectives, is calling Management.

Library management means managing Library in such a way that person can get any needed information within no time, in proper way, as according to their requirement. Similarly, it should be convent for library staff as well its patrons is relates with history of library.

4.9.2 Definition of Library Management:

Some definitions of library management are given below:

- As according to the Dictionary of Library Science, Menon, (2009). In automated systems, an integrated set of applications designed to perform the business and technical functions of a library, such as acquisitions, cataloging, circulation, and the provision of publication access".

- ALA Glossary of Library Science, Kumar, (2003), defined library

management as "the process of coordinating total resources of an organization towards the accomplishment of desired goals of that organization through the executing of a group of inter-related functions such as planning, organization, staffing, directing, and controlling".

4.9.3 Application of Information and Communication Technology in Library Management:

Kumar, (2003) Describes in his book that important of ICT as a vital source in today's society hardly needs emphasis as information brings people thoughts together. As a matter of fact, in the post industrial society, it has been said that what counts is not raw muscle power or energy but information, and needed the advanced economics of the world have already become information-intensive, consequently, large investments are being made in the IT which can be used in libraries, in the context of Ranganathan's forth's law "Save the time of the reader/staff", for many purposes.

However, while Libraries and information Centers have risen to the occasion and are trying to adapt and adapt ITC for their operations, they are being affected by a number of external forces-political, economical, social and technological- and internal variables for a change. Thus, the challenge of change, the pressure for accountability, and the emergence of enterprise culture are emphasizing the fact that library and information services need to be proactive rather than passive and hence, need to be positively and effectively managed.

4.10 Impact of ICT on Various Functions of College Library:

The innovation of e-technology has tremendous impact on the function of library. The technology has contributed ICT scientists to perform their work with more efficiency, accuracy and less time consuming. With the help of the technology college librarian can perform their skills for the better service.

The following operations of the library functions can be speedily processed by the computer. These are outlined briefly:

4.10.1 Acquisition:

Menon, Rajeev, (2009), tried to define the meaning of acquisition that, "The process of selecting, ordering, and receiving materials for library or archival collections by purchases and negotiating with outside agencies, such as publishers, dealers, and vendors to obtain resources to meet the need of the institution's clientele, in the most economical and expeditious manner.

Library automation has much effect on work and work style on the department of acquisition. There are number of functions are make easy with the help of this new techniques. Tasks in acquisition like duplication checking, preparing of order list, sending orders to book suppliers, monitoring orders and follow up action, verification with order file and innovation, maintaining state of funds and budget control etc.

4.10.1.1 Duplication Checking:

The checking of duplication of is one of the most tedious works of the library. It is very important that if some literature is existing in the library and other unnecessary and same literature can be identified easily with the help of various tools and techniques existing in the library. Within no time this comparison can be done by a single click of mouse.

The prevention from duplication to the library is save time, money, space, and energy. Result of this college librarian and library personals can spare their time in satisfactory service of their client.

4.10.1.2 Preparation of Order List:

Making of an order list is one kind of blue print of real library materials. So the computer more helpful to prepare the order list of the books and other library materials. Before innovation of computer in the library the preparation of order of books were manual. It took to much time and manpower. Now days this work can be made with the help of tools and techniques. It is easy to add new details deduct some matter and can perform the preparation of order in proper manner.

4.10.1.3 Sending Orders to book Supplier/s:

Through the Internet librarian can send the order list. There it is not necessary to post the order letter to the vendor. This facility makes the

library process easy, swift, cheap, more authentic than physical, changeable and save tine and money. The vendor or supplier gets the list and he/she can think about the order earlier. They need not to wait for order letter. This resulted into early response. The can inform the librarian either the ordered material is available in the library or not. So librarian can contact to the agency.

4.10.1.4 Monitoring Orders and follow up action:

College library automation cooperates in monitoring orders and follows up actions. It makes easy and accurate of monitoring orders and follow up action the order which sent to the vender. The use of computer in the library also make continent it design making regarding response of vendor about order.

4.10.1.5 Verification with order File and Innovation:

The work through computer allows verification of order file. The college librarian can verify the file sent by vendor/publisher with the sent order. He/she can come to conclude that witch types books and other materials are wants to provide the agency.

It is easy for librarian innovate the matter after verify the vendor's response. Librarian can be decide regarding quality, publisher, and author, year of publication and price of materials and can innovate as per their requirement.

4.10.1.6 Maintaining State of Funds, budget Control:

Utilization of fund in library is key matter in each and every library. To perform this function, information and communication technology (ICT) will be helpful to librarian regarding allocation of budget and optimum use of it.

ICT facilitate college librarian state of fund. So he/she can decide at which level the budget of books, journals, furniture and factures, renovation of library is remain. In short we can say that with the help of ICT tools and technique it is easy to maintain budget and librarian can convince the authority about utilization of fund and present position of library's financial position. It can make clear picture for future project.

4.10.2 Cataloguing:

Tiwari, (2011), describe catalogue in Dictionary of Library and Information Science, that "A comprehensive list of the books, periodicals, maps and other materials in a given collection, arranged in a systematic order to facilitate retrieval, is a cataloguing.

Innovation of computer in library affects almost all the fields and functions of the library. Computer useful in duplicating cataloging card, in preparation of authority file, sorting, checking and filing of cataloguing cards, automating generation of added entries and developing centralized and cooperating system. These are shown below in detail.

4.2.1 Duplicating cataloguing Cards:

ICT tools and techniques are helpful in making duplicating cataloguing cards. When source card is torn, theft, soil or burn, it is easy to make duplication of it. When required copy of it for any cause it is easy to get through stored data from computer.

Duplicating of cataloging cards can get in less time, with less energy and money. It can be easy available for library cooperation purpose.

4.2.2 Preparation of authority file/subject headings list:

Digitization of library is the main record of the library. The college librarian can make authority file/subject heading list of various titles from the existing database of the library. The subject heading list can be make with the software technique.

This facility allows users to search for their thirst area of interest with the help of subject heading list. So preparation of authority file or subject heading list is easy to prepare for librarian.

4.2.3 Sorting, Checking and Filing of Catalogue Cards:

Technical process can be made on computer in less time, with great accuracy and flexibility. Online public access catalogue is the best example. Computer can sort out, check and fill of catalogue cards and make copy of it through printer.

4.2.4 Automatic generation of added entries:

Computer can generate added entries. With the help of computer, librarian free from labor work. Library software has provided special provision to

generate automatic generation of added entries. These types of added entries give more search option to researcher, scholars and students.

4.2.5 Developing Centralized and Cooperating system:

As according to Mr. Shera, the scholar of cooperation, "cooperation is self help as wall as mutual help". This is the era of cooperation. No library can stand alone; one library can work for all and all for one. ICT enabled library can manage centralized and cooperative system.

Librarian can develop centralized and cooperative system for extension of library activities. This concept allow the library activities more vide, less expensive, more public oriented and less time consuming.

4.10.3 Circulation Control:

As per Dictionary of Library Science, Menon, stated that the library department responsible for activities connected with the leading and return of library materials, including re-shelving, searching, rush request for material in process, etc. that means all the work between issue and return the materials of the library.

Circulation control in the library is the most current issue for each and every library. There are so many problems can be solved with innovation of information and communication technology in the library. College librarian can manage circulation by software technique.

4.3.1 Registration of members:

Registration of members through computer is very comfortable for library. College librarian can add new members, year vise, stream vise, status vise easily. He/she has to manage this task one or two time in a year if semester system in the college. This process helps in making of library card. The needed detail for other assistance can get easily from the member profile.

4.3.2 Charging and Discharging of Documents:

There it requires charging and discharging of documents in the library. As per requirement of college library client it is necessary to change in present documents. Computer provides wide facilities in addition and deduction of any details related any documents. So it need not to spoil, make line, or require any other reform. Due to this facility records of documents can be keeping clean.

4.3.3 Updating the Records File:

Library records are updated by the computer program smoothly. Record files are easy to transfer from one place to another. New Data of library files can add and old one can be cancel with a single click. This process saves time, space, and energy of librarian and other library personal. Computer helps in updating the data file and library records can keep smoothly.

4.3.4 Preparation of Reminders:

Some time books and other materials receive late or can't receive due on date from client. In such situation librarian can prepare reminders to the user. Ready made format for reminders available on the records of librarian. He/she has makes necessary change for particular name of user. This way librarian can manage the reminder of the issued materials in short time. The reminders can be sent to the client through hard or soft copy.

4.3.5 Maintaining Statistics:

The statistical data is very important for the proof of library record. With the help of the statistical figures librarian and authority come to know the real position of the library. The statistics can synthesize, analyze by computer with less time.

4.3.6 Information Retrieval etc:

Information retrieval is one of the important tasks for circulation section. Information retrieval can be done through these tools and techniques are sound and speedy. Librarian can manage the information retrieval function whenever required for particular purpose.

4.10.4   Serial Control:

Serial control defined by Tiwari, Purushotham, (2011), in Dictionary of Library and Information Science that, "A general term encompassing all the activities involved in managing a serial collection, including but not limited to receiving, claiming, invoice processing, binding, circulation, and record maintenance, usually accomplished by the serial department of a library, manually or with the aid of an automated serials control system.

Thus, this responsibility is very time consuming matter. This work can be handling by computer with great accuracy, speed, and control.

4.10.4.1 Ordering of Serials:

Ordering of serials is routine work of college librarian but perform with the help of electronic tools is spatiality. The librarian can do this work via e-mail. He can change the details of it without reminder of the former order. This work can easily handle with great care. This

4.10.4.2 Receipt and updating the record file:

The receipt of serial is required accuracy. The librarian has to search out which issue's receipt is remaining. On the software receipt and its updating can be handling without any trouble. It can be recorded and saved in proper place. When it demanded for proof librarian can retrieve with a single click.

4.10.4.3 Receipt of Venders/publisher:

This record is required for past and future reference of serials. Receipt of vendor and publisher is one kind of proof for paid the amount of the journal. This record can be kept by the college librarian with the help of various techniques.

4.10.4.4 List of Holding:

Computer can make list of holding within no time. Holding can get by reminder to the vendor or publisher. This record keeps alert library personals to meet the holding list. Computer can manage lists of holding issues through its previous record. This lists are useful for irregular receiving if issues of the journal. College librarian can take fast action against.

4.10.4.5 Preparing List of additions:

With the help of library automation college librarian can make lists of addition of lists of additions. It is easy to get addition list of this section. Librarian can prepare lists of additions through this system.

4.10.4.6 Preparing List of Binding:

Binding is quite necessary for re use of library materials. Computer helps in making list of bindings of issues. It also helps in which journal, which issue

is misplace or no received. Due to this detail can mention on the front page of the bond volume.

4.10.4.7   Documentation and Information Retrieval:

Tiwari, (2011), highlights about the documentation that the process of systematically collecting, organizing, storing, retrieving and disseminating specialized documents, especially of a scientific, technical, or a legal nature, usually to facilitate research or preserve institutional memory. He narrates whole process within documentation of the library.

He also adds about information retrieval that the process used to selectively recall recorded information from a file of data. The process of documentation and information in which computer technology can helps easily.

4.10.4.8 Indexing of Micro and Macro Documentation:

Indexing of micro and macro documents is time consuming and complication in manual process. This work can be done with the help of computer systematically. It can make this work by synthesis and analysis of entries of various types of documents. There are so many computer based techniques are available in software to develop the indexing of micro and macro documentation.

4.10.4.9 Thesaurus Construction:

Thesaurus is a book of synonyms and near-synonyms in a written language, usually arranged conceptually, although dictionary arrangement is not unknown. The various terms and links can match with the operations of thesaurus constructions by computer system. This can be helpful to the college librarian to satisfy the multidimensional need of college library users.

4.10.4.10 Abstracting Work:

 ICT technique can make a brief, objective representation of the essential content of a book, article, speech, report, dissertation, standard, or other work, presenting the main points in the same order as the original but having no independent literary value.

4.10.4.11 Compilation of Union Catalogues/Lists:

Computer can selects and assembles written or printed material from the words of various persons or bodies, or the various works of a single person or body, into a ordered whole, without editorial alteration of the original next. The resulting documentation is called compilation

4.10.4.12 Bibliography Work:

Computer perform a systematic list or enumeration of written works by a specific author or on a given subject, or that share one or more common characteristics. This work is can make by computer with no time.

4.10.4.13 Searching and print-outs of queries of users:

Software's are useful in preparation of various types of queries. It make a request submitted as input in a search of an online catalogue or bibliography database to retrieve records or documents relevant to the users information need.

4.11 Meaning of ICT Library Management:

4.11.1 Introduction:

The concept of implementation computer is started during 70s as noted by Tiwari, (2011), in his book. The computers help in collect, process, disseminate and manage data in proper way. Today's libraries are using computer tools and techniques for make better management of library functions. Libraries have to manage repositories and access points for prints for print, audio and maps, printed documents, microforms, videotapes, DVDs, video games, e-books, e-journals, e-databases, blogs, portals and many other electronic resources.

Libraries often manage public facilities to access to their electronic resources and the Internet. Thus, modern libraries are increasingly being redefined as place to get ICT enable services centre.

5.11.2 Meaning of ICT Library Management:

The meaning of ICT library is to manage most of functions of library through electronic machine which accepts data from an input device, performs arithmetical and logical operations in accordance with a pre-defined program, and finally transfers the processed data to an output

device either for further processing or in final printed form. This way with the help of ICT tools library can manage by electronically.

4.11.3 Concept of ICT Library Management:

The Libraries has been converting into age of new era with electronic tools and techniques. So there are many new managerial issues arise against the library and librarians. The librarian has to prepare himself for the challenges to handle various tasks with the help of electronic technologies. Managing library in a new environment, with new tools and technique required various types of assistance like, technical, financial, managerial support, refresher and orientation, ICT awareness training is required.

There are many tools and techniques are available to perform various tasks in to manage library. Bits, Rajendra, (2007) mentioned his thoughts that due to Internet, e-mail, browsing, multimedia, wireless loops, cable TV, direct-to-home TV entertainment and Internet access the relevant and wide range technologies available to manage ICT library. Library management in Information and communication technology (ICT) world has made easy to handle the library within limited resources.

4.11.3 The Advantages of ICT Library Management:

The advantages of library management with the help of Information and communication technology (ICT) are shown by Ahmed, (2012), in his book 'Computer in Library Management' are narrated as under:
- Increase speed:
It increases speed of each and every functions of library with the help using various techniques. It is easy to transfer files and folders in the system it can help in boost the function speed.
- Save the time of Librarian and stake holders:
It saves time in storing the information, information handling and processing and retrieval. It saves the time because all the functions are done at enormous speed.
- Updating is possible:
It allows systems to lead in updating the records files much more quickly

and easily than the manual system.

- Greater library cooperation:

With the help of ICT managed library it is possible to the opportunities of library cooperation will increase. The system installed in different institutions can be hooked to each other via satellite and through a central agency and there can be known each others collection.

 - Better library Management:

The cost of operating will be decreasing by the help of information and communication technology. The resources can be used in multipurpose.

- Staffing:

The need of services has been increasing day by day. To meet the work force ICT is the key to operate many functions with less man power. So library can decrease the staff and spare its budget.

- New services:

Many new services can be introduced without any extra cost or manpower. And many library services can be generated only as a by product of the records already available on the system.

- Protection of record is possible:

The system protects against loss of these records by fire, earthquake, and other natural disasters. Recreation of the files from the machine readable form of records is also much easier.

-Report production is possible:

Various types of reports about library activities and other letters, follow up notices, sending of reminders can automatically be generated.

The above advantages are the results of ICT management of library.

4.12 The Role of Various Stakeholders in ICT Library Management:

The role of various stakeholders is given below:

4.12.1 Role of Librarian:

It is very important that all the functions of library in ICT system have to manage successfully is the result of proper training, hard work, self confidence and proper work direction. To reap the fruits of new technology e-literacy is among librarian is quite necessary.

4.12.2 Role of Authority:

The library authority has to perform an impotent role before library automation, during automation and after automation.

The role of authority before library automation is to prepare library personals mentally. So they can free from stress of new challenges. They can provide psychological support for training, workshops, orientations, conferences of ICT related themes. They may provide required infrastructural facilities, lightings and wirings, air-conditions before the installation of ICT in the library.

The role of authority during the installation of ICT components is very crucial. The authority should be ready to help the librarian when require budget for hardware and software, on duty live for training, workshop, fees for participants, TA, DA can cultivate their skills of information and communication technology. This will be resulted into positive thinking towards new technologies.

The role of authority after installation if ICT in library to provide regular budget for maintenance, fees for consultant, special budget of technology up gradation, provision for fill new posts for fulfill future load.

4.12.3 Role of Consultant:

Timely service in this system is the first priority to run all the functions of library in proper manner. The consultant has to perform their service in various stages and situations.

The person or company has to provide proper guidance to librarian as well other library personals regarding how to make use of tools and techniques before start the library automation. At initial stage they have to orient the library personal about hardware and software installed, its characteristics, quire and maintains it.

The role of consultant after installed the system is normal. He has to guide

the staff for problems arisen during the day to day functions. He may be guide whenever hardware and software are obsolescing.

4.12.4 Role of Client:

The readers have to require competences for use of these technologies like reading skill, information handling skills, ability to interpret concepts, computer literacy, information literacy and network skills.

The clients have to support to library and librarian in some critical situations like, system failure, server down, light gape and any types and technical problems arise during routine process. Not only this but also users of library in this environment have give moral as well as psychological support to the library staff and librarian. They can also contribute and share there knowledge with librarian which they acquired from outside.

The other moral duties of client are that they have to protect the ICT tools and techniques and try to make positive use of it. Clients can serve the system by make proper use of tools, take care of it, avoid spoiling, get ready themselves by fore coming problems.

4.12.5 Role of Society:

Library is an important part of society. In this time no society can live without the help of library services. Of course, library take wide form of conventional one but it is the wider range of one type of library spread in the society via various types of networks. So all citizen have to perform their moral duties to prevent the library resources from anti-social elements, various types of illegal activities, like cyber crimes, hackings of sites, thefts of personal matters, broke the copyright guidelines etc.

All citizens have to contribute and take keen interest to strengthen the modern library by pay regular taxes, library fees. fines and ready to donate in some critical situation take place with library in electronic hazards.

4.13 Impact of E-Technology on Library Management:

4.13.1 Impact on Work style:

The impact of electronic technology has totally change work patient of library than that of before. Before the innovation and implementation of computer in library the work had done manually. Library functions like book selection, order, accusation, issue-return, information retrieval, information repackaging, information consolidation, CAS, SDI, abstracting services were provide manually but in this time the above works are done by electronic technology. So the work style has been changing with the innovation of e-technology.

4.13.2 Impact on Librarian:

4.13.3 Status:

The post of a librarian is the top of the institute. He/she is considered the power house. Dr. Radhakrishna gave more importance to library and librarian at college level. In ICT environment the status of a librarian is very important. He performs all the functions related to the e-technology. So we can say that the importance of the post of a librarian is compare to electronics experts.

4.13.4 Qualification:

The qualification of the librarian at college was M L I Sc. before implementation of ICT. Today in electronic environment institutes demands some additional qualification for the post of a librarian. Some of them demands additional qualifications of the field of electronics. So it is clear for the new post of librarian he/she has adequate knowledge of computer technology. That's why they can manage the modern library without any problems.

4.13.5 Experience:

Now days experience is consider as the best teacher in the present position. So librarian has to acquire experience of IT enabled library. The person

should be with knowledge of search strategy, various languages, Internet, hardware and software. With the help of experience, the person can solve the routine problems without help of consultant. It resulted into less cost of library consultant budget. So experienced, and trained person is become real asset of the institute.

4.13.6 Expectation:

All the take holders of the library expect that the librarian may have solution of their problem. So the expectation of the society from librarian is arising more and more. In this situation he/she must be aware to satisfy the need of the stake holder of the library. It is his moral duty to get new knowledge of the IT field and update for coming challenges.

4.13.7 Mental Effect:

The information and communication technology has brought many benefits. But it is also true that it also brought many mental problems for the library personals. Among these problems stress is the common problem at any where. The librarian is the responsible person in the institute. He has to answer the various demands of their patrons. Perpetual work under the stress, may converted into many disorders and converted into psycho-somatic diseases.

4.13.8 Physical Effect:

The work of library personal is mental but it may effect on body. Due to continuous work with electronic equipment it create many physical effects like back-pain, headache, eye problem, vibrations of fingers as well whole body, knee problems are the major problems among them.

4.13.9 Impact on Client:

The clients are becoming very smart, e-literate and experienced. They can get freedom through the e-technology and search needed information at any time, any where with less expense. They can get information free from bias.

They need not to wait till response of library personal. They can meet their need with the help of tools and techniques established in the library.

4.13.10 Impact on Budget:

The budget of every library always limited. So it is very clear that library has to allocate their finance in a such a way that they can meet their need for ICT tools, require hardware and software, consulting charges, in case of budget for technological change. It is matter of planning how to make to end one within limited financial resources.

4.13.11 Impact on Culture:

Men are a rational animal. They are habitual to live in their conventional system since   centuries. So it is difficult to make major change in their fundamental library patent. Some of them may feel something different due to innovation of technological changes. The direct tough to the book and other reading material has toughing and its feeling take effect last long. We can indeed say that the impact of ICT beneficial but the conventional library system feel fear that it may loose its identity.

4.13.12   Impact of ICT on Library Services:

The rapid development of information and communication technology (ICT) has great impact on the library services. The viewpoint of Ahmad, (2012), regarding this is the advancement of computer technology and recent development s in integrated circuit technology and microelectronics have created a situation where hundreds of thousands of electronic components can be fabricated on the thin wafer of a silicon chip smaller than even a human nail. Computer capabilities thereby have been increased hundreds of times and, at the same time, have becomes less expensive, less energy-consuming and more reliable than ever before.
There are so many factors affected on the library services in ICT environment:

4.13.13 Time Factor:

Time is the most important matter in the library for the client. Due to ICT in library as per principle of Dr. S R Rangnathan it is easy to save the time of not only users but all the stake holders of the library. The saved time converted into national development. The library personals can save there time by avoiding unnecessary duplication. They can get more time for other client

4.13.14 Speed Factor:

The speed of every library services is possible with the help of Information and communication technology. The librarian as well other staff members get free from some tedious work. Due to electronic technology all the functions of the library are to be easy for Librarian, Library staff members, its readers, authority and for consultant.

4.13.15 Accuracy Factor:

With the help of computer work can be done more accurate than that of manual one. All the records of transaction state clear position of the library with time and date. The numerical and mathematical matter stated by the computer remain hundred percent accurate accept human mistake. The computerized copy is considered as an authorized copy.

4.13.16 Quality Factor:

The quality of the library services considered good in compare to manual system. The product is almost filtered, processed and made by experts. So there is may be less possibility of compromising of quality.

4.13.17 Transparency Factor:

In the electronic technology nothing is secret. The entire stake holder can see the status of the library and its current position. Users of the library are free to use most of the system of the library and get what they want. Authority also can see the budgetary matter, which types of services provided by the

library, they can survey the satisfaction level of the reader as well library personals. Librarian also produces evidence in case of any type of elegance and any type of misuse done by the users of tools and technology of the library. So transparency is one of the forms of freedom.

4.14 Role of ICT in New Environment:

4.14.1 Problems Facing by College Librarians Regarding ICT College Library Management:

College Librarians are facing problems regarding managing e-publishing. Tiwari(2011) he reviewed that providing access that matches the technological capabilities of both library professional and collection development require knowledge of the electronic delivery mechanisms, as well the subject content of e-publishing. In response of availability of required tools and facility Navlani and Satiza expressed that Dr. Radhakrishna in 1948 emphasized that "training in higher branches of learning and research is merely a question of learning how to use the tools and if the library tools are not there; how can the students learn to use them? He stresses on the importance of tools and techniques in the library. So shortage of tools in the library creates many problems in his/her work.

Nath and Bahal, searched out in their paper regarding the ICT knowledge and skills of librarians at the Chandigarh city libraries and problems faced in the use of ICT management in according to them the librarians facing the following problems in ICT environment, the with courtesy of both the above research has taken in my study to avoid duplication.

4.14.2 File Management:

The 9.52% librarians experienced problems with ordering of files, while 14.28% had problems with understanding the different between drives and directories; understanding file management concepts; understanding the purpose of file management; understanding terminology and locating files are using DOS.

4.14.3 Word Processing and Spreadsheet:

The 9.52% librarians had problems with indenting in the Microsoft Word and 4.76% librarians experienced problems such as no training, while 14.25% forgot functions that were not used often and 4.76% had problems with transferring data and formulas.

4.14.4 Database and Presentation:

All the 21 librarians did not respond to the question relating to database problems. Presentations 14.28 librarians experienced problems with a need for more training, while 19.04% never used presentations; was unfamiliar with all the functions and found the clipart difficult to use.

4.14.5 E-mail and Internet:

The 19.04% librarians experienced problems with viruses; slow delivery, while 4.76% had problem with opening attachments.

4.14.6 Set-Up, Maintenance and troubleshooting:

The 47.61% librarians experienced problems with keeping pace with chance, support from IT supplier's staff was not prompt; understanding computer jargon; ignorance; lack of training and a lack of knowledge and understanding. Unfortunately, a majority of the librarians did not respond to the question about problems they had experienced in each of the above sections. It should therefore not be assumed that most librarians had no problems as the quantitative data may suggest. The few, indicated problems then as a result of lack of knowledge, understanding and training.

4.15 Problems of Librarians for Managing Library in the New Media Pose:

Due to innovation of new media, they create many problems for managing library for librarians as per narrated by Ready and Verma, they have tried out to explain it.

4.15.1 In case of technological obsolescence is a problematic than deterioration. Punched cards, for example, were made of relatively strong

paper and would last well if kept in proper humidity, but nobody has a reader for them any more.

4.15.2 Due to technological obsolescence, there are also devices that disappear for business reason: if a particular kind of worm or magnetic optical disk, for example, is only provided by one supplier, or even just its charge in product line, may render parts or replacement readers hard to find.

4.15.3 The technologies have its own format, as well as physical device. Merely the ability to get the bits off the device may not mean they can be easily used.

4.15.4 It is easy to copy the digital media without our any error, in principle; however the equipment required doing so for some kinds of media, e.g.., CD-ROM.

4.15.5 It requires some special machinery to look at the information on the object. Thus, mere physical inspection of it will usually not suffice to tell whether it is still in good shape.

4.15.6 Format, software and hardware are often intermingled; information may be preserved but if the software to print, search, and edit it has gone, it may be quite costly to make any use of it.

4.16 Some Controversy of ICT:

Ready and Verma also cited some usefulness but controversial matter in their study.

It is true that digital media can copied without error and survival of digital format does not depend on the permanence of a particular object, but upon widespread distribution of the information and regular refreshing of it onto new technology. In general the lifetime of the technology is limited by commercial concerns. When technology improves, old storage technologies disappear.

When physical material collapses, it will be a common way in the life in the digital age. The steady decrease of the cost and size of digital media would make this attractive even if we were not driven to it by technological obsolescence. As new media become ever less available, libraries should expect to transfer their digital holdings, either by transcribing themselves, or by buying copies on new media from somebody else.

The new copies should not be only a newer physical format, but in whatever software format is closer to standard at the later time. But in whatever

software format is closest to standard at the later time. Peter Lyman, Librarian and Dean, University of Southern, California, U S A, pointed out that while paper deteriorates when used, digital media often not only do not suffer from being used, but benefit from use ; if something is used, the librarian will find out faster when the users want it on a new device.

As according to the observation the software formats are often longer-lived than the physical devices. We know that the UNIX word processing software from 1975 from 1975, for example, is still in use. Many storage devices like law density magnetic tape, removable disk packs have the time had gone. Unfortunately there are so many wider varieties of logical formats and much more varied expertise is required to deal with the software content than with the physical material.

The same is true traditionally, of course: a specialist in paper conservation can work on a book regardless of the language it is written in, while a specialist in cataloging one discipline or reading one language normally works only with books meeting that condition. It takes fever experts to keep up with tape and disk machine that it dose to keep up with the much wider variety of word processing system.

There is one positive side is that the intervention of machinery between the actual object and the reader means that the users are unlikely to become emotionally attached to the particular physical media, and thus reformatting of advanced technology should not produce the objects that accompany reformatting of books. It is not expected that the computer media will have any artificial value.

4.17 Managing Problems Regarding Preservation and Archives of Digital Documents:

The collection of the library is very is being ever grooving in the library. As per Dr. S R Rangnathan's fifth law of library Science "Library is an ever growing institute." The growing documents of library should be preserve and archives in such a way that the preserved material can retrieve when it required.

Mallinson, (1988), through lights on preservation of library materials in machine readable form and which kind of problems are arise, are cited.

It is quite necessary that the preserved document should retrieve in its origin

form and function of it when it is accessed.

In response to the problems of saving digital documents it is says that they be printed and saved in hard copy form. This is a rear-guard action and not a true solution. Beyond this loss of finicality, printing digital documents sacrifices their form, which may be of unique historical, contextual, or evidential interest.

There it is also another fear of the translating the documents into digital format the casual reader may be a disastrous loss to a scholar, historian, or lawyer.

As according to our experience of converting digital documents from their native form into that of some other software application in order to read them. At its best, such conversion often sacrifices meaningless garbage.

When the digitization program is going on it is quite necessary to save its original identity in case of historical documents, society places a high value on retaining the originals so we may verify that contents has not been lost in transcription.

The serious problem in digitization is that the losses are caused by paradigm shifts, means such as those between networked, hierarchical, and relational database, which may redesign of documents to migrate to some one other paradigm. In such case the origin documents it to be orphaned by it origin. If the paradigm does not take place by digitizing the contents and context may losses.

The archive is in flux. Much of this has to do with the pace of technological change, and the perceived locus of control. The concept "temporary" measures rests on an assumption that one day we will all catch with terminology. This assumption underlines much of the technology purchasing that if we buy the "right" computer or software at the "right" time, we will finally be state of the art. The reality is that Microsoft and others will continue to change operating platform, hardware and software every year. Manufacturers operate within a structure of premeditated obsolescence, of staggered improvement and alteration, ensuring that there will be no "end state" program upon which we can all settle.

Due to electronic media, software applications, and computer hardware will all continue to change at a rapid rate, and because policies must be developed to address that reality, the archive must be developed to address that reality, the archive must change. The very notion of a permanent or fixed archive may have to give way to an ecological preservation system that is in a state of constant change.

4.18 Managing Digital Resources in College Libraries:

The variety of digital format is very wide. These formats are changing perpetual. So it becoming more complex as per viewed out by Chakravarthy and Murthy, as revised software versions add new features or functionality. It is not uncommon for software enhancements to leave unreadable, files generated by earlier versions. The serious matter is that confronting managers of digital collection are not unstable media or obsolesce of hardware, but format and software obsolescence.

Migration is one of the major strategies for managing the later period of a digital lifecycle. The arrangement of the structural and data elements in a unique and specific manner is represent file format. Migration is prone to generating errors. When the set of structural elements in the source format does not fully match the structural elements of the target format, an obvious error occurs.

For instance, in a spreadsheet file a structural element defines a cell containing a numeric value. In case of comparable element is missing from the format specifications of the target format, data will be loss. The data itself does not convert properly when subtle error might take place.

The nature of floating point format number is different in some format. Some allows 16 digits while other 8. Today in market software are available in form local developed and commercial off-the-self data migration. With the help of it the migration could be tested, measured and evaluated. Any person can design a suit of risk assessment tools. In addition file migration was appealing since it could encompass different preservation scenarios as under:

4.18.1 Change in digital formats when files are converted from one application to another.

4.18.2 Routine refreshing of digital files.

4.18.3 Creation of derivative access copies, e.g., the conversion of TIFF images into a PDF file.

4.18.4 Changing in digital formats when files are converted from one format to another. –

So it can characterize the migration as an uncertain process generating uncertain outcomes. One way to minimize the risk associated with such

uncertainty is to develop a risk management scheme that can deconstruct the migration process into discrete steps that can be described and qualified.

The means of risk management is structuring the process of analyzing risks. If the risk assessment methodology is well specified, different individuals, supplied with the same information about a digital file, should estimate similar risk values.

Cornel identified three major categories of risk that must be measured when considering migration as a digital preservation strategy is as under.

Infrastructure risk: there are so many institutional supports, funding, system hardware and software and the staff to manage the digital collections. All these and the stake holders, who use the collections, will be affected to some degree by a migration of data. Legal and policy issues associated with digital information will introduce additional risks.

File format risk: these will include the internal structural elements of the file that may be subject to medication during migration.

Conversion process risks: the conversion software may or may not produce the intended result, in gross or very subtle ways.

With a view to decrease risk many methods or tools has to be developed to help quantify risk possibility and impact in each of the risk categories. Conversion process risks can be accomplished by examining a file before and after the migration process. A test file can be passed through the conversion software, migrating from source to target format.

If the field and field values of the original source file are properly reduced in the target file, the risks incurred in migration are significantly reduced. If the and their values are not properly converted, the risk of migration is significantly increased. When the field tags and values in the test file are known data changes associated with file conversion can be independently verified and characterized along a risk matrix.

4.19 Some Problems of Information Technology Facing by the Libraries:

To use the IT or to implement IT in the libraries for providing the effective and efficient services, we find some practical problems they may be as under:

4.19.1 Budget :

- Insufficient funds.
- Inadequate provision of recurring cost.
- IT affects regular budgeting provision.
- IT takes major share from the library.
- Annual maintenance cost of IT products affects the collection development.
- Operational costs are exceeding year by year.

4.19.2. Salaries:

- The library staff members are not interested in learning IT application in the library due to poor salary.
- Higher salaries foe a trained staff also affecting the collection the collection development.

4.19.3 Staff:

- Library staff members are not interested in IT adoption in the library.
- Inadequate trained staff in IT applications.
- Lac of coordination among library staff.
- Lac of scope for library professional due to IT applications.
- Utilization of IT applications will increase the number of supporting staff.

4.19.4 Users:

- Lac of IT knowledge on the part of users.
- Lack of interest on the part of users.

4.19.5 Library Authority:

- No support from the library authority for IT application in the library.
- The library professionals are not deputed in learning IT application in the library from the higher authority.

- Lac of professional recognition by the library authorities.

4.19.6 Library:

- IT often disturbs the routine work of the library.
- IT applications will spoil the image of library.
- It application allows less control over the library.
- A fear on Modern IT.

4.20   Conclusion:

Managing libraries in ICT environment is one of the challenging issues. Although it helps a lot to meet all the activities of the libraries in diversified need. The researcher had tried to indicate out some hints regarding how to manage various ICT tools and techniques like e-publishing, e-book, e-resources, e-technology, Internet, e-product, cost benefit of e-information of e-product, terminology of computer literacy, ICT and ICT skills for librarians, some reviews of institutional repositories and benefit of ICT.

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Chapter-5

Problems in Using ICT in Rajkot and Junagadh City Colleges

Chapter-5

Problems in Using ICT in Rajkot and Junagadh City College Libraries:

5.1 Introduction:

Librarians of the Rajkot and Junagadh district colleges are facing problems regarding ICT implement and in routine work of various functions of the computerize libraries. So the researcher wants to draw out that which types of problems are the college librarians are facing.

Researcher would like to take 10 samples of the each district colleges, which have the ICT enable college libraries of both districts. Selection of sampling has taken on ICT base facility.

5.2   List of sample colleges of both the city:

5.2.1 List of sample colleges of the Rajkot city:

No	Name of College	Address	Contact	E-mail
1.	L B Gardi BSW, BCA & Science College-Rajkot	At. Rajkot, Akshavadi, Opp. G T Seth Vidyalay, K K V Hall Circle, Kalavad Road, Raj.	2812588505	Ibgardi.college@gmail.com
2.	R K College of Physiotherapy-Kasturbadham	At. Kasturbadham, Bhavnagar Highway,		Rkcollegephysiotherapy.co.in

3.	Murlidhar B. Ed. College-Rajkot	At. Rajkot, Kanak Nagar Main Rd., Sant kabir Rd.	2812701148 9426224603	Karanrathod 51@yahoo.com
4.	H & H B Kotak Institute of Science-Rajkot	At. Rajkot, yagnik Road.	2812465643 9374293999	hhbks@yahoo.co.in
5.	Om College of Computer Science-Rajkot	3-Sardar Nagar, Opp. Tagor, Hostel, Rajkot-1	02812480550	OMCOLLEGE_RAJKOT@YAHOO.IN
6.	Bharad Institute of Teachers Eduction-Rajkot	At. Tramba, Bhavnagar High Way, Dis. Rajkot	02812457709	
7.	Jasani Arts and Commerce College-Rajkot	At.Rajkot, Yagnik Road.	2812466053 9825623121	F.SHASTRI @YAHOO. COM
8.	Gnanaganga College of Science and Management- Rajkot	At. Rajkot, Yogidham Gurukul Kalavad Road.	9825403388 9825403388	
9.	R P Bhalodia Mahila Art Commerce and Home Sc. College-Rajkot	At. Rajkot, 7-manhar plot.	2812460012 9825621567	
10.	P D Malaviya College of Commerce-Rajkot	At. Rajkot, Gondal Road.	2812386382 9825594959	pdmalaviya @yahoo.co.in

5.2.2   Sample list of colleges of Junagadh city:

No	Name of College	Address	Contact	E-mail
1.	Subhas College of Journalism-Junagadh	Subha marg khamdrol Marg Rail Crossing, Junagadh	2872624174 28722621721	dsmcollege@yahoo.com
2.	Junagadh Kelavani mndal B. Ed. College-Junagadh	Sabalpur Chowkdi, Dhoraji High Way, Nr. Rail Way Crossing, Junagadh	2872660730 9328710118	jungadhkelavanimandal@yahoo.com
3.	J N Bhattu College of Education-Junagadh	Ahir Kanya Chatralay, Nr. Bilnath Temple, Vanthali Road, Junagadh	2762673010	setmahila@gmail.com
4.	Junagadh Kelavni Sanhalit BCA College-Junagadh	Kala Complex, 2nd Floor, Sardarbag , Junagadh	2852632708	jkmjnd@gmail.com
5.	Sarasvati College of Computer Science and & Information Technology-Junagadh	Green City, Baypass Rd., Chabari Rail Way Crossing, Junagadh	02853200043 9427184586	ccsit_junagadh@yahoo.co.in
6.	Dharmajivandasji Institute of Information Technology-Junagadh	Swaminarayan Gurukul, College Road Junagadh	2762621381 9925233188	ssdiit_ind@yahoo.com

7.	Patel Technology&B.Ed. Computer Science College-Junagadh	College Road, S T Colony, Junagadh	2762670644	Pkmc1515@gmail.com
8.	Kabila Dholaria Mahila BBA College-Junagadh	Joshipura, Junagadh	2852611290	godhanisachin@gmail.com
9.	N P Arts and Commerce College-Junagadh	At. Keshod, Hospital Rd.,362220, Dis Junagadh	287102362	npcollegekeshod@gmail.com
10.	Yadav College of Computer Science-Junagadh	Yadav Acadami, Nr., Madhuram Bypass, Junagadh	2852672362 9426819757 9429380996	Yadav.college@yahoo.com

5.3Analysis of the problems:

Problems facing by the college librarians of the both the city colleges librarians:

Various types of problems response given by the both the city college librarians are given below:

5.3.1Technical Problems:

5.3.1.1 In response to which types of technical problems are facing the college librarians: Here RCL stands Rajkot City Librarians and JCL stands Junagadh City Librarians:

No.	Type of Problem	RCL	P/C	JCL	P/C
1.	Usages	2	23.23	6	75
2.	Maintenance	8	88.89	5	62.50
3.	Obsolesce	4	44.45	5	62.50
4.	Portability	5	55.56	7	87.50
5.	Failure	4	44.45	6	75.00
6.	Shape and Size	6	66.67	3	37.50
7.	Version Base	8	88.89	5	62.50
8.	Life	5	55.56	7	87.50
Total		42	56.34	44	68.75

As per data analysis, the above problem facing by the RCL (56.34%), while JCL (68.75%). So that the both the librarians are facing the above problem but we can conclude that the JCLs are facing this problem 10.44% more than that of RCL. We can also found that the problem in bifurcate points like usages the RCLs have experienced only 23.23%, While JCLs have felt 75% problems in usages of computer. So the gape between this is 52.77%. It's a major gap between them. The lowest gap in the problem "version base" found 26.39% (88.89-62.50). The response indicate that the JCLs are facing more problems than that of the RCLS.

Bar Chart-1   Technical Problems of Librarians
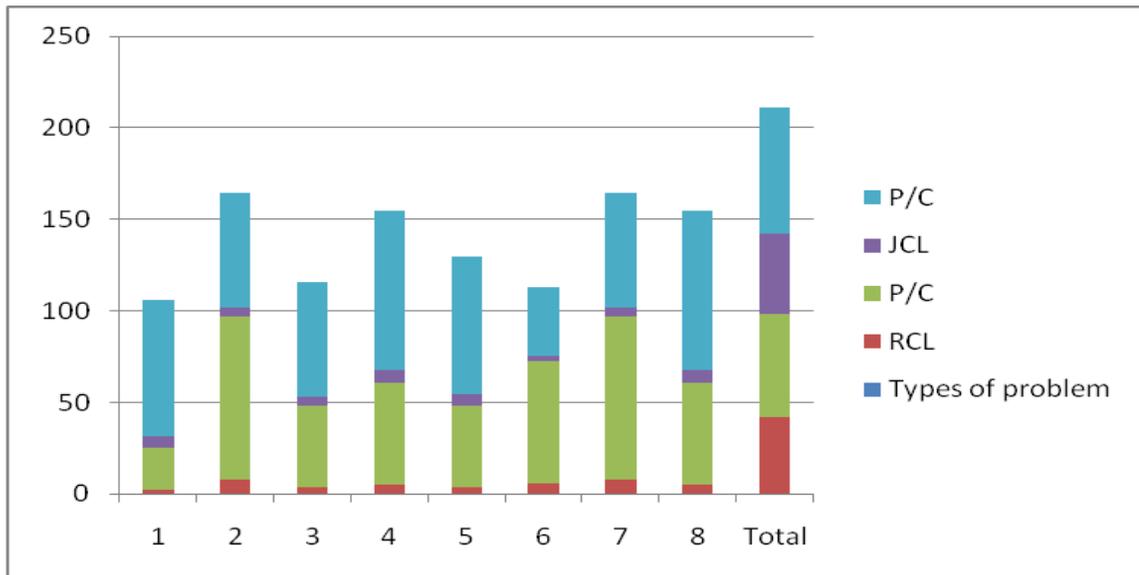
5.3.1.2 In response, facing the problem regarding "back up".

No.	RCL	P/C	JCL	P/C
01	02	22.23%	04	50%

The problem regarding "back up" identified 22.23% in RCL, while 50% in JCL. It indicates that the "back up problem felt 27.77% more in JCL than RCL librarians.

5.3.1.3 in response of problem "digitization".

No.	RCL	P/C	JCL	P/C

01	09	100%	09	100%

As per above analysis we can come to know that the both types of college librarians are facing the problem "digitization" remain same.

5.3.1.4 In response of which type of computer base problem like:

Problems	RCLs	P/C	JCLs	P/C
In the use of computer	04	44.45	06	75.00
In use of key board	02	22.23	06	75.00
In use of mouse	01	11.12	05	62.50
In various connection	05	55.56	05	62.55

The college librarians facing ICT based problems in use of computer, key board, mouse, in various connections. Some response found from the questions. In the computer base question JCL faces 77.78% and RCL faces 33.34% problems. The gape between this is 44.53% more problematic than that of JCL. The gap in the problem "in various connections" is 19.44%, while the more gap found (52.77) in use of key board.

Bar Chart-2 Computer Based Problems
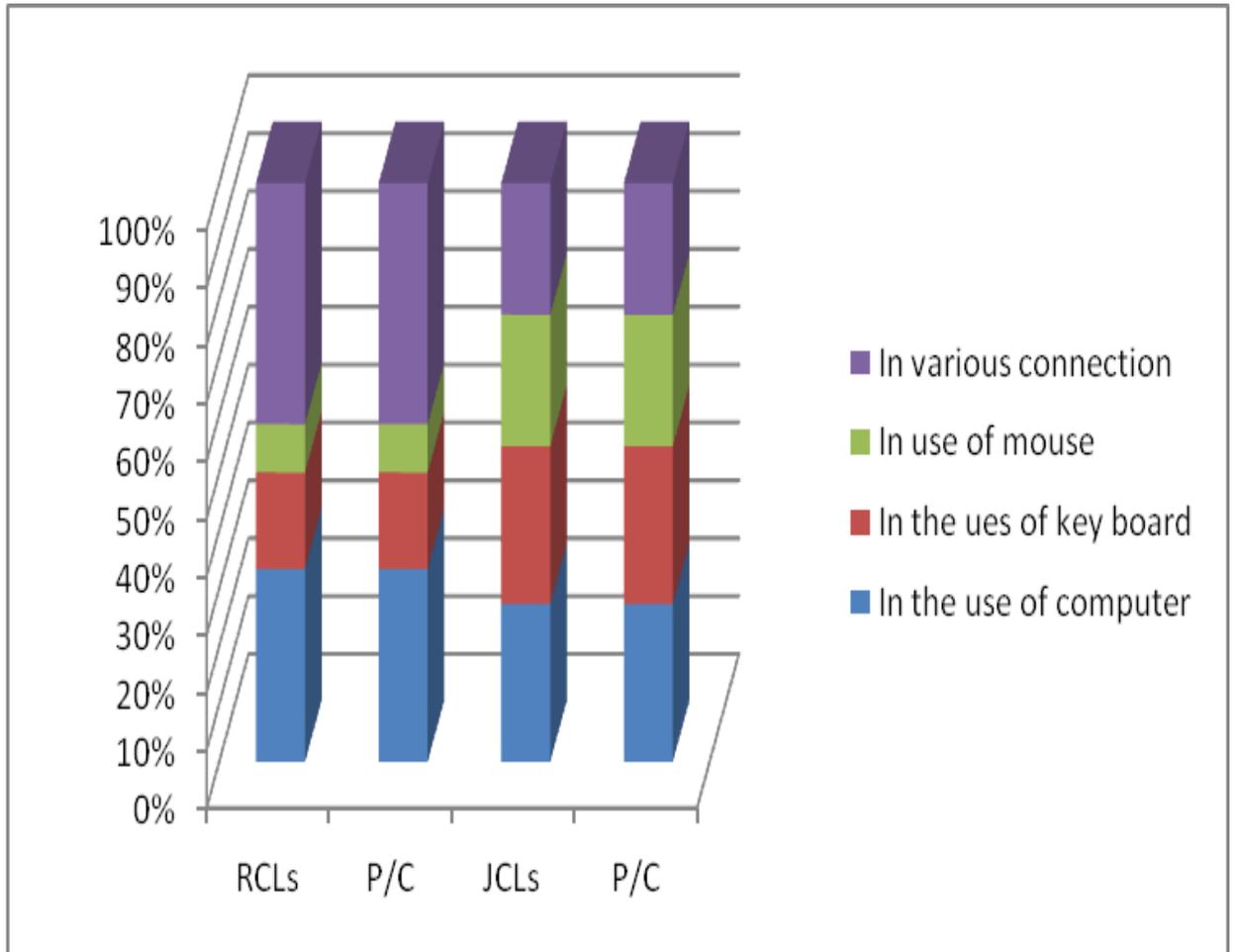
5.3.1.5 In the response of timely maintenance and repair service:

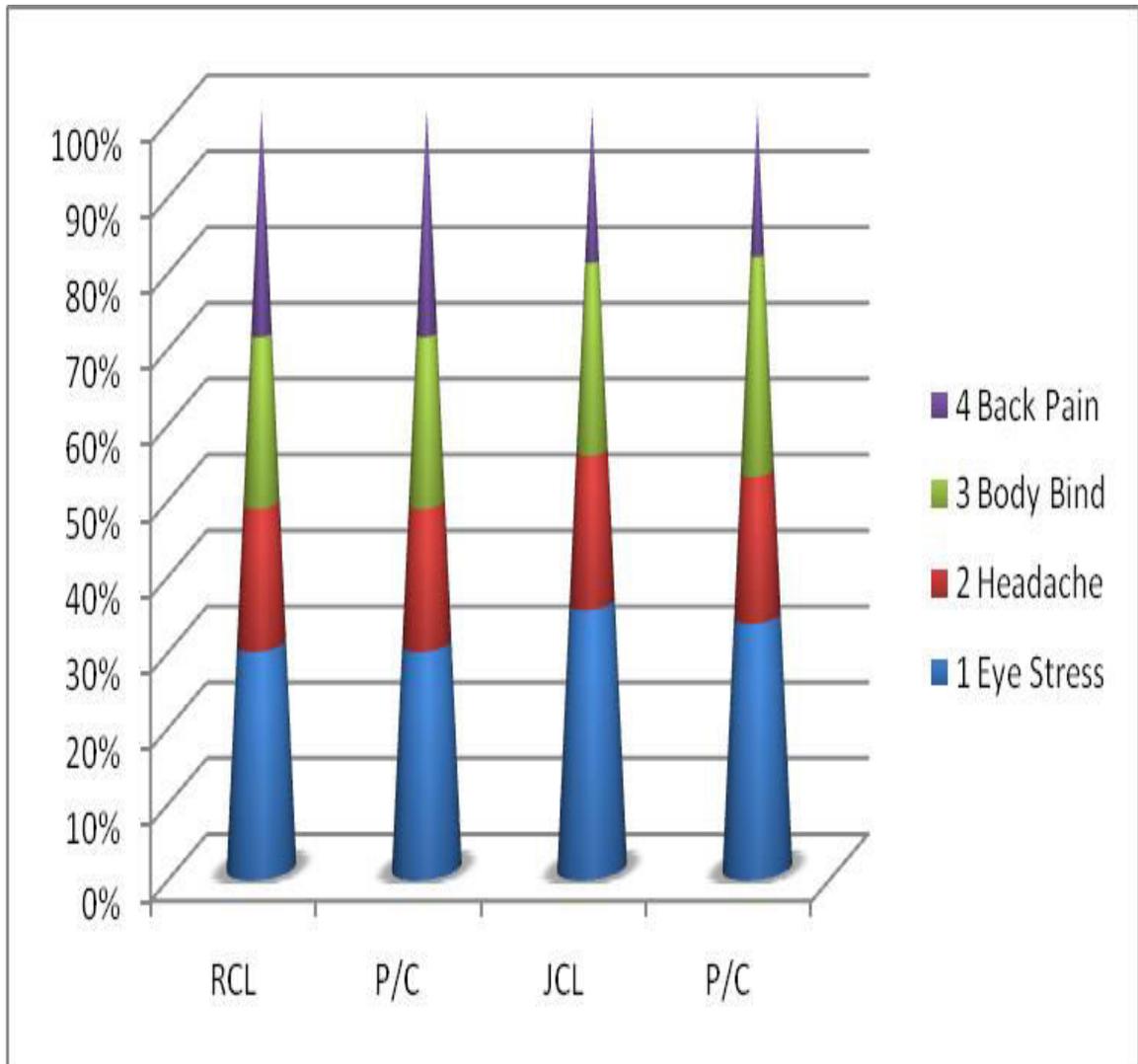| No.	RCL	P/C	JCL	P/C
01	07	77.78	08	100

The maintenance and repair service problem felt in both the types of college librarians. The RCL faces 77.78%, while JCL faces 100% problem regarding this.

5.3.1.6 In response of physical problem regarding this:

No.	Problems	RCL	P/C	JCL	P/C
01	Eye Stress	08	88.89	07	87.50
02	Headache	05	55.56	04	50.00
03	Body Bind	06	66.87	05	75.00
04	Back Pain	08	88.89	04	50.55

Through the response analysis, it can say that the physical problems due to using ICT is RCL(75.05%) facing more in compare to CCL(65.62%). The gape between this is 9.43%. In other word RCL facing 9.43% more physical problems. The other finding is that the RCL(88.89) felt 39.89% more back pain in compare of JCL(50%), while the lowest gap between both is (1.39%) of eye stress among them.

Bar Chart-3 Physical Problems of Librarians

5.3.1.7 In response of mental problems due to use of ICT.

No.	RCL	P/C	JCL	P/C
01	07	77.78	06	75

The college librarians facing mental stress as per analysis, RCL 77.78% and JCL 75%. This shows that the JCL feel less (27.28%) mental problem than that of RCL.

5.3.1.8 In response of satisfaction regarding technical assistance at institute.

No.	RCL	P/C	JCL	P/C
01	08	88.89	04	50.00

In favor of technical assistance at institute noted more38.89% in RCL (88.89%) than JCL (50%). The JCL suffers more (38.89%) regarding the technical assistance at institute.

5.3.2 Managerial Problems:

The college librarians are facing some managerial problems regarding ICT:

5.3.2.1 In response to convince authority for requirement of ICT tools and techniques:

No.	RCL	P/C	JCL	P/C
01	06	66.67	07	87.5

The RCL (66.67%) and JCL (87.50%) can convince the authority for the requirement of ICT tools and techniques.

5.3.2.2 In response to agree authority for consultancy and maintenance:

No.	RCL	P/C	JCL	P/C
01	07	77.78	08	87.50

The JCL succeeded 77.78% to agree the authority for consultancy and maintenance in compare to RCL (77.78).

5.3.2.3 In response to promote your authority for ICT implementation:

No.	RCL	P/C	JCL	P/C
01	09	100	07	87.50

The respondent shows that the RCLs are promoted more (100%) in compare to JCL (87.50). The RCLs are more satisfied by their authority in the matter of promotion in implementation of ICT.

5.3.3 Financial Support Related Problems:

The purpose to ask this question is how the both the types of librarians get form their authority and which kind of questions they are facing in implementation of ICT.

5.3.3.1In response of allocation of budget for ICT:

No.	RCL	P/C	JCL	P/C
01	09	100%	08	100%

As per table data it can clear that the RCL (100%) and JCL (100%) both have no problem regarding allocation of budget. They are fully promoted by the authority in the field of promotion of financial support.

5.3.3.2 In response of utilization of budget in purchase of hardware, software and digital ICT resources:

No.	RCL	P/C	JCL	P/C
01	08	88.89	08	100

As according RCL response analysis, they have utilized 88.89% budget in purchase of hardware and software and digital ICT resources, while JCL has 100%.

Bar Chart-4 Utilization of Budjet
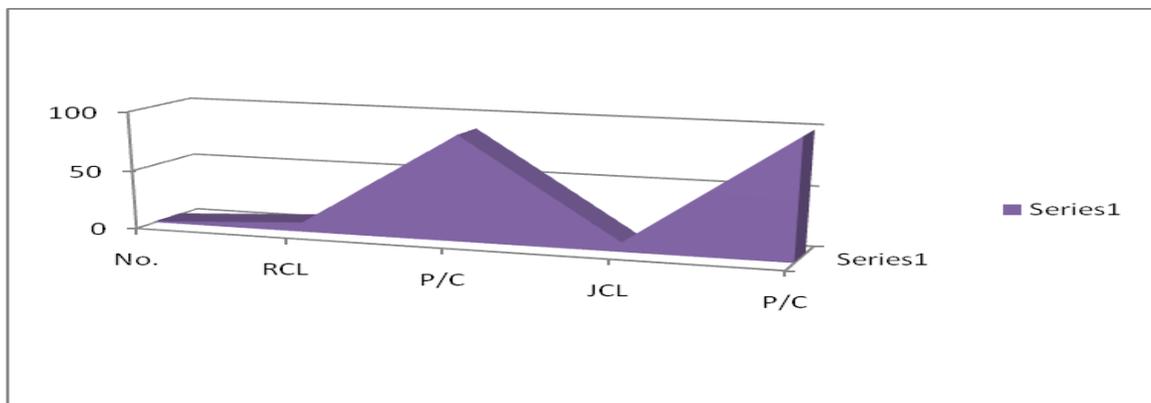
5.3.3.3 In response about opinion regarding ICT enable library is more costly or less:

No.	Problems	RCL	P/C	JCL	P/C
01	More	05	55.56	06	75.00
02	Less	03	33.34	01	12.5
03	Unans.	01	11.12	02	25.00

The JCL believes that the ICT enable library is more costly than that of RCL. In case of response of regarding less cost, JCL have low response. The RCL gave feedback that ICT is 33.34% less costly. In response of this

question RCL (11.12%) and JCL (25%) can't prefer to answer to the question.

Bar Chart-5 Feedback of Cost Effectiveness of ICT
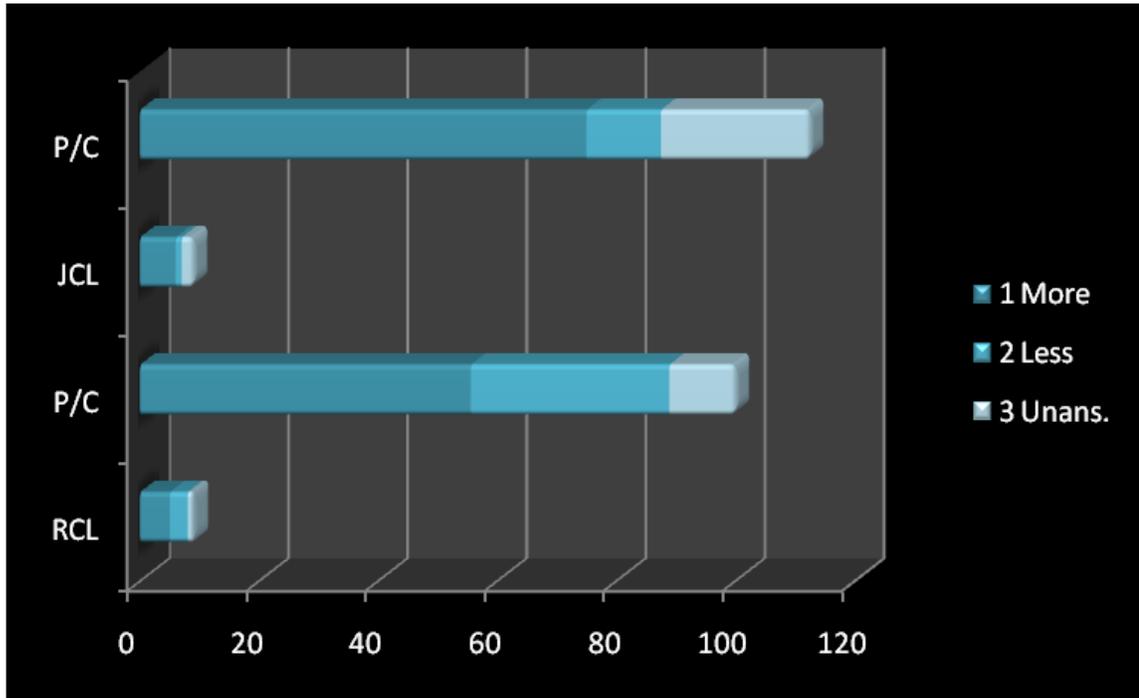
5.3.4 Training, Conference and Seminar Related Problems:

5.3.4.1 In response of any ICT training leave related problem arise:

No.	RCL	P/C	JCL	P/C
01	07	77.78	05	62.50

The JCLs (62.50) are facing 15.28% less problems in compare to the RCLs (77.78%).

Bar Chart-6 Training, Conference and Seminar
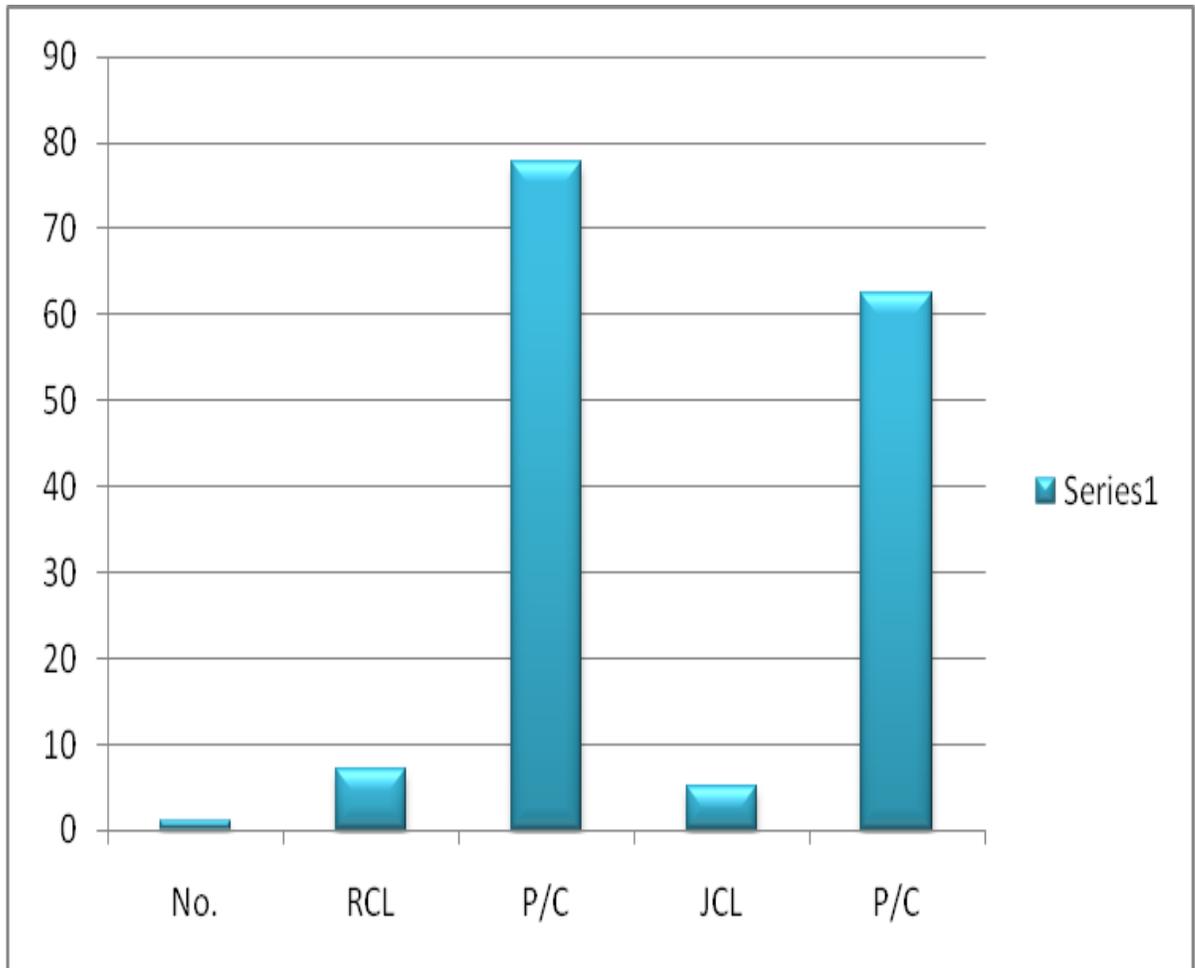
5.3.4.2In factor of requirement of OP/RC and training:

No.	RCL	P/C	JCL	P/C
01	09	100	08	100

 The response of, requirement of OP/RC and training, both the type of college librarians has required such training 100%.

5.3.4.3 In response of training of "SOUL" software:

No.	RCL	P/C	JCL	P/C
01	07	77.78	04	50.00

The RCL obtained more training of "SOUL" training than that of JCLS. It shows that the RCLs are more aggressive in getting training of standerd software recommended by UGC.

5.3.4.4 In response of, is your institute bare expense for training:

No.	RCL	P/C	JCL	P/C
01	05	55.56	03	37.5

In the response of the expense facilities provide by the institute the RCL (55.56%) has given more (18.06) convince than that of JCL (37.5%)

5.4 Conclusion:

Analysis of the resonance from the college librarians is the main thing of the study. The theme of the all the research activities of this project. The researcher has analyzed the collected questionnaire from the respondents and interpreted it. The interpretation of the college librarians like technical problems, managerial problems, financial problems and training and skill development problems are mentioned in the chapter. The analysis of the problems is bifurcate and tried to mention of it with the help of tables and charts.

Chapter-6

Summary, Main Findings, Suggestions and Conclusion

Chapter- 6 Summary, Main Findings and Suggestions:

6.1 Summary:

The present research project has divided in to six part whose summary has given below:

Chapter-1

The chapter one leads the high lights of the research design of the research project. It provides introductory information and importance of the information and communication technology. In detail the concept of information is narrated. The meaning, definition, attributes of information has cited. The aims and objectives of the research study, research methodology, selection of sampling, the importance of the research study, usefulness of the study, limitation of the study, what can be done for the further research in the subject, related to the subject is mentioned. In end of the chapter the cauterization of the theses is given.

Chapter-2
Review of Literature and Development in the Subject:

This chapter covers meaning of review of literature, its definitions and some basic information of the review of literature. The opinions of various scholars' past studies related to the information and communication technology have been tried mention in the chapter. It also provides details which types ICT related problems have experienced in the past. It has discussed past issues like entry of ICT in the library, ICT skills, and literacy among librarians. The detail study cited satisfaction level of librarians regarding ICT facility in the college library. In the chapter two various types of ICT related problems facing in the past by the librarians have tied to mention.

Chapter- 3

Various Tools and Techniques of ICT:

The chapter three covers various tools, technology and ICT related services like e-mail, voice mail, teleconference, internet broadcasting, internet chatting, multimedia, diskette, CD, hard Disk, Internet, Blogs, portals, digital reference, domain, e-prints, some techniques like digital library, virtual library, Internet, E-book, e-journal, open access, search engine, and concluded the chapter.

Chapter-4

Importance of ICT in College Library Management:

Meaning, definition, characteristic, functions, various roles of college librarians, definition of library management, application of ICT in college library management, impact of ICT on various functions of college library, concept and meaning of library management, some controversy of ICT are cited. Managing problems regarding preservation and archive of digital documents, managing digital resources in college libraries are discussed. Some problems in using ICT in college libraries by librarians like, budget, salary, staff, and users in ICT environment are well decorated in the chapter.

Chapter-5

Problems in Using ICT in Rajkot and Junagadh City Colleges Libraries:

The above chapter five contains list of samples of the research project. The main thing in the chapter is that the analysis and interpretation of the respondents are given with the help of tables and charts. The problems like technical, training, conference, seminar related problems has discussed in the chapter.

Chapter-6

Summary, Main Findings, Suggestions and Conclusion

6.1 Summary:

The last phase of this thesis, chapter-6, and the summary of chapter 1 to 6 is given. The main findings have got out according to the analysis of the

problems of the both the Rajkot and Junagadh city colleges librarians regarding ICT has mention in the chapter five with tables and different charts. The problems of the ICT enable college librarians regarding technical problems, managerial problems, Financial support related problems and training conference related problems are already explained in the chapter 5 with narration of the problems

6.2 Main Findings:

From the collected data and after analyses the above data tabulated in the above tables revels following findings:

1. Both the types of college librarians are facing the various types of Information and Communication Technology (ICT) related the problems.

2. The gap found in the both the types of librarians regarding ICT related problems.

3. The Rajkot city college librarians experienced comparatively less problems, than that of Junagadh college librarians.

4. The digitization is the similarly 100% problematic to the both the types RCL and JCL.

5. The computer based problem like use of key board, mouse, and problem in joining various connections, in general RCL feel more than 38% less than that of JCL.

6. The maintenance and repair service is more problematic for JCL.

7. The JCL feels less physical and mental problems in compare to RCL.

8. The satisfaction level of RCL (88.89%) regarding technical assistance from institute is more than JCL (50%).

9. The JCL is aggressive to convince authority for requirement of ICT tools, techniques and make agree in consultancy and maintenance, while RCL is to be promoted more for ICT implementation.

10. There is no budgetary problem for RCL and JCL but JCL is 11.11% ahead in purchase of hardware and software.

11. As per above study RCL feel less costly the ICT enable library in compare to JCL. The three (33.34%) among nine answered that it is less costly and 1(11.12%) remain unanswered. The JCL felt 75% more costly, two (25%) remain unanswered about the cost of it.

12. Both the types of college librarians are facing the problems of "training leave" but the RCL (77.78%) suffer more than JCL9 (62.5).

13. The city and rural college librarians are favor (100%) for RC and OP.

14. The RCL is aware in the more matter of "SOUL" training in compare to JCL.

15. The RCL (55.56%) institutes bare expense of training 18.06% more than that of JCL (37.50%).

6.3 Suggestions:

1. All the stake holders should be make necessary steps to solve the ICT related problems among the college librarians.

2. To try to find out the causes of the major gap of the problems among the RCL and JCL related to the ICT.

3. Remedial steps should be taken for solve the digitization related problems by the all responsible.

4. Try to improve various types of computer related skills through OP/RC, workshop and training with necessary duty leave, required fees, TA, DA and should also motivate for psychological support.

5. To facilitate adequate maintenance and repair services with no time.

6. To motivate RCL for better health to improve the physical and mental health through Yoga, meditation and provide better furniture as per their requirement.

7. The JCLs should provide better training, equipments, ICT environment, skills, by financial support, more training leave for boost their ICT skill in compare to RCLs.

8. The feedback of both the types of librarian show that the there is sufficient financial support has been provided, it indicates that the some bridge course is necessary to be enthusiastic to the college librarians in promotion of to be more aggressive for better ICT skills.

9. The college authority, state government, central government and UGC Should take active part in and provide proper guideline for this.

10. College librarians should make collective effort for their ICT related problems with a link among them for the discuss of remedial solution.

11. INFLIBNET should arrange skill development programmed for better training without charge as per convenience schedule for college librarians.

12. Government and college authority have to appoint permanent ICT assistant professionals like primary school computer lab assistance for solve day today solution of the computer related problems.

6.4 Conclusion

The explosion of information and knowledge has created many problems in the field of Library and information science and on library professionals. In this research project it has to try to cite about the problems facing by the city college librarians at which extent and how they can be solved. It has to be tried out to know the roots of the problems and also try to give valuable

remedial suggestions to solve the problems of both the city college librarians regarding the Information and Communication Technology (ICT).

Through this project it can say hat the college librarians are facing many problems before, during and after ICT practice in the college libraries. It is true that the college librarians have to take more interest to make to end one for handle the successful operations of the college libraries.

The only remedy is ICT to meet diversified need of library clients to satisfy them for their routine demand. In the modern era no library can stand alone without sound support of ICT. With the help of ICT they can do their work within short time, with less men power, and with great accuracy.

The researcher has discussed in the chapter one regarding introductory information of the subject and cleared the meaning of ICT, its definition, attributes of the information, reason for selecting the problem, aims and objectives of the research project, research methodology, selection of sample, importance of the research project study, usefulness of the research project study, limitation of the research study, what can be future study done in this area and planning of the cauterization is like to mention.

The thesis contains past studies by the scholars review have cited related to the problems in using ICT at various stage. The general information of the review of literature, its definition and meaning is explained.

It is necessary to give detail data of ICT tools, techniques and which types of services provide by the ICT is listed in the chapter three. It high lights the tools which are user friendly and useful for their routine.

Managing ICT library required necessary skills, literacy and training fir the proper library management. So here in chapter four some library management aspects like what is library management, its characteristics, functions of management, managerial skills for librarians, managerial role of librarian during emergency, impact of ICT on various functions of library, role of various stake holders, problems of librarians in new era, managing archival and preservation problems, managing digital resources in college libraries and in last some problems of information technology facing by the college librarians are tried to mention.

The real problems facing by the college librarians of Rajkot and Junagadh city regarding ICT is discussed in the chapter five. List of sample colleges of both the city, problems like, technical problems, managerial problems, financial support related problems, training, conference and seminar related problems are tried to cite in the chapter.

In the last phase of the these summary of the six chapter, main findings, valuable suggestions for improve ICT related problems at college library level suggested, which can be useful for policy makers, college authority, college librarians, college library users and all the stake holders of the ICT field. With this concluded the research project.

Abbreviations:

CAB: Cost Benefit Analysis ,7
CAS: Current Awareness Service, 50
CD Rom: Compact Disc Read Only Memory, 9, 12, 35
DOS: Disc Operating System, 75
FTP: File Transfer Protocol, 42
INFLIBNET: Information Library Network, 16, 107
ICT: Information and Communication System, 8, 9 ,10
ILA: Indian Library Association, 21
ISBN: International Standard Book Number, 37
MLISc, Master of Library and Information Science, 71
NNM: National Manuscript Ministry, 17
NICNET: National Information Network, 42
PC: Personal Computer, 35
SDI: Selective Dissemination of Information, 50
USA: United States Of America, 22, 25
UGC: University Grants Commission, 16, 107

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- Anglo American Catalogue Rules –II,37
- Dictionary of Library Science, by Rajeev Menon
- Dictionary of Library and Information Science,
- Dictionary of Computers by Pankaj Dhaka
- Dictionary of Computers, by Bhamor N P
- Modern English Gujarary Dictionary by Pandurang Ganesh Deshpande
- International Encyclopedia of Library Automation by Purusotham Tiwari
- Encyclopedia of Information Technology by R C Chakravarthy
- Encyclopedia of Library Science and Information Technoloy, by
- Encyclopedia of Library and Information Technology by Rajiv Ready

Institutions:

Author Index:

Key Word Index: