Application of ICT in Senior College Libraries Comparative Study of Rural Area and Metropolitan City

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Abstract: This comparative study aims to explore the application of Information and Communication Technology (ICT) in senior college libraries and analyze the differences between rural area and metropolitan city libraries. The main purpose of this research is to understand how ICT has been implemented in these libraries, evaluate the impact of ICT on library services and user experience, and identify any disparities that may exist between rural and metropolitan libraries. The study utilizes a mixed-methods approach, combining quantitative data analysis and qualitative interviews. Data is collected from a sample of senior college libraries, with representation from both rural and metropolitan areas. The quantitative analysis focuses on the types of ICT infrastructure and services available in these libraries, the level of digital literacy among library staff and users, and the extent of ICT integration in library operations. The findings reveal several significant differences between rural and metropolitan senior college libraries in terms of ICT adoption and utilization. Metropolitan libraries generally exhibit higher levels of ICT integration, offering a wider range of digital resources, advanced automation systems, and access to online databases and e-journals. On the other hand, rural libraries tend to have limited ICT infrastructure, relying on traditional library systems and offering fewer digital resources to their users. Moreover, the study uncovers variations in the level of digital literacy among library staff and users. While metropolitan libraries benefit from better digital skills among their personnel and user community, rural libraries face challenges in enhancing digital literacy due to limited resources and access to training programs. This study emphasizes the significance of ICT in modern senior college libraries, regardless of their location. It highlights the need for rural libraries to bridge the digital divide and invest in ICT infrastructure and staff training to provide equitable access to information resources. Furthermore, the study underscores the importance of collaboration between rural and metropolitan libraries, promoting knowledge sharing and capacity building in ICT implementation. The findings from this research have practical implications for senior college library administrators, policymakers, and stakeholders involved in library development. The study suggests strategies to enhance ICT integration in rural libraries, such as resource sharing, collaboration with technology partners, and targeted digital literacy programs. By addressing the disparities identified in this study, senior college libraries can strive towards providing inclusive and effective information services to their users, regardless of geographical location.

Keywords: Academic Library, Information and Communications Technology, Research and Development, Digital Literacy

1. Introduction

Libraries of any institute and types are serving as crucial part and supports to modern education system. Libraries and information centers are providing services to academic users based on their needs. The structure, nature, principles, services and tasks of libraries are depending on the requirements of the society. Libraries are playing essential role in the conservation, preservation and development of knowledge. The role of libraries is to act as an input of knowledge canter for dissemination to users spread all over the globe, and librarians act as a matchmaker of the books and the reader. [2]

1.1. Role of College (Academic) Libraries

College Libraries offers the resources to faculty, students and many times researchers and persuades the thinking process, to develop creativity, inquisitiveness and creates the learning more useful. The utility of library is to supply

textbooks, references, periodicals, research conducted till date on various subjects to students, teachers and researchers. [7]

1.2. Research Problem Originality

Role of academic libraries has been changed accordingly the user's needs and demands. ICT has a great impact over on the library system. Using ICT, it is possible to serve users and provides literature and information published globally. The education and libraries are totally changing, and in the present era now libraries are giving more emphasis on electronic media rather than print.

1.3. Hypothesis

1) The urban (town/city) colleges have higher student ratio compared to rural colleges.
2) Students belonging to rural colleges are not having the sufficient scope for studies based on their preferences and also deprived of services.
3) Libraries lack quality ICT infrastructure.
4) No defined policy for Library automation.
5) Dearth of skilled manpower in libraries.
6) Depriving qualified position to the library people depress them to execute their usual works effectively and efficiently.

1.4. Relevance of Research Problem

The study of college libraries on the use of ICT is essential. In India there is no firm library policy to decide the various facilities and properties of library. The libraries in developing countries are far away from the developed countries, especially rural libraries. The assessments of rural college libraries in comparison of urban defiantly support College librarians and authorities, policy makers etc. Inadequate budget, manpower, trained staff and trainings are the main limitations for not automating library factions. There is a need of guidance for the library personnel for the direction of the direction towards use of ICT in libraries for better service. But a survey is essential to assess the present situation.

1.5. National and International Status

The today's world is technology using world, in this era it is necessary to evaluate the capability with the technical usage. ICT and Information Technology are the synonyms, and used new technologies for the betterment of libraries since eighties. During the passage of time the use of ICT, development of e-publications (e-books and e-journals), replacing the print media to electronic. The practices of libraries are changed subsequently due to enhanced use of ICT. Different types of communication network and use of World Wide Web, print information is transformed to electronic forms. E-media has many benefits as compared to print (availability of full time access, searching ability, space saving, customization according to the user's requirements, etc.). [14]

The e- resources are in electronic and machine readable form and easily available via network systems. E-collections are having OPAC, WEB-OPAC, offline and online databases available in the electronic media. All e- resource collection is available including Internet, the characteristics are: content, twenty-four hours use, no physical boundaries etc. The popular resources are: Elsevier Science Direct, ProQuest, EBSCO, Springer, etc. These resources are subscribed and have access after paying cost. These resources are accessible in many forms of packages and at different prices. In India, these resources area available at moderate prices through consortium, like INDEST-AICTE consortium and UGC-INFONET consortium. In the ICT environment e- resources are essential resources in all sectors including education. Hence many libraries attached to higher education, research etc. provides access to e-resources very effectively. Electronic resources use all the technologies from publishing, acquisition to dissemination. E-publishing has and ICT have impact on all library activities and services. Using internet one can self-publish his own publications on net.

ICT, and e-publishing are leading areas in information handling. The users, publishers and information aggregators prefer e-resources which are easy to publish, distribute and preserve. Implementation and use of e-resources are useful for library services and library users are fully satisfied because it saves the time. [12]

2. Significance of the Study

Library assets and its collection is to be used completely to grow knowledge. ICT has transformed the practices, functions, policies of libraries. Information is presently disseminated using technologies and as per needs of users. Information is now disseminated both the ways in print format as well as in electronic format. It is made available to clients as per their requests. It is crucial to analyze the use of ICT in libraries, for satisfying varying user's requirements. [10]

This study is undertaken to recognize the use of ICT in LIC and libraries at senior college level in urban and rural areas. This study will assess the status of use of ICT in senior college level. The survey finds the gap in usage and based on this few suggestions to improve use if ICT will be stated. There is need to assess the use of ICT in rural college areas and improve the usage systematically.

3. Objectives

1) To survey the ICT utility in academic libraries.
2) To study the utilization of printed and e-resources collection.
3) Budget allocation study in the college libraries.
4) To study the status of automation and related policies adopted in libraries.
5) To suggest measures for advancement in library automation and overall improvement using ICT.
6) To study ICT skillfulness required for the library staff to efficiently to do work in the profession.

4. Data Collection and Research Methodology

In the survey method, the data collection tool used is questionnaire, and investigator also conducted interviews of experts and personnel visit to the libraries and survey conducted for actual implementation of ICT in colleges. Investigator selected for this survey only aided Arts, Commerce & Science senior college libraries A suitable questionnaire is prepared and circulated.

The questions in the questionnaire cover:

A. general information about college and the libraries.

B. library collection and development

C. Provision for e-resources in Library budget

D. Library & Information services based on Electronic Media

E. ICT infrastructure & Facilities provided in college libraries.

F. Future plans in developing the ICT.

G. Expert opinion from the college librarians regarding the ICT use in senior colleges.

The data collected is tabulated using mathematical tools. All tabulated data is processed using SPSS software.

For the present study / project investigator has selected Pune metropolitan city and the rural colleges in Pune city affiliated to Savitribai Phule Pune University, Pune. Out of them only aided Arts, Commerce and Science College are selected for data collection and case study for present work.

In the Pune Metropolitan Region have two municipal corporations and three cantonment areas in metro city of Pune.

For Pune Metropolitan section, central counseling/authority body is called PMRDA

Consists following areas:

1) Two Municipal Corporations are:
   a) Municipal Corporation of Pune.
   b) Municipal Corporation of Pimpri-Chinchwad
2) Cantonment Boards:
   a) Pune Cantonment Board
   b) Khadki Cantonment Board
   c) Dehu Road Cantonment Board
3) Municipal Councils
   a) Alandi
   b) Chakan
   c) Lonavala
   d) Rajgurunagar (Khed)
   e) Saswad
   f) Shirur
   g) TalegaonDabhade

Savitribai Phule Pune University

Formerly known as Pune University, Now called as SPPU (Savitribai Phule Pune University) established on 10th February 1949. Total campus of the university is spared over 411 acres, university has 48 academic departments and 880 affiliated colleges and institutions. Savitribai Phule Pune University is A+ grade university, accredited by NAAC. According to Times Higher Education, Savitribai Phule Pune University is on 7th rank in universities in India. [7].

Table 1. List of colleges in Pune Metropolitan Area.

S. N.	Pune City	Address
	NowrosjeeWadia College, Pune	PMA
	Shri ShahuMandir College, Pune	PMA
	St. Vincent College, Pune-1	PMA
	St. Mira's College of Girls, Pune	PMA
	Fergusson College, Pune	PMA
	Sir Parshurambhau College, Pune	PMA
	AbasahebGarware College, Pune	PMA
	Garware Commerce College, Pune	PMA
	Poona College, Pune	PMA
	Modern College, Shivajinagar, Pune	PMA
	Ness WadiaComm. College, Pune	PMA
	BrihanMaha. Commerce College, Pune	PMA
	AnnasahebMagar College, Hadapsar	PMA
	YashwantraoMo. College, Paud- Road	PMA
	Mahatma Phule College, Pimpri	PMA
	TikaramJagnnath College, Khadki	PMA
	MaganmalUdharam College, Pimpri	PMA
	Bharatratna Dr. B. A. College, Aundhgaon	PMA
	Symbiosis College, Pune	PMA
	Vidyabhavan College of Comm. Pune	PMA
	AppasahebJedhe College, Pune	PMA
	H. V. Desai College, Pune-2	PMA
	Dr. Ambedkar College, Nanapeth	PMA
	S. M. Joshi College, Hadapsar.	PMA
	C. K. Goyal AC College, Dapodi.	PMA
	MarathwadaMitraMandalC. Pune	PMA
	Dr. Ambedkar College, Yerwada	PMA
	Siddhi Vinayak College, Karvenagar.	PMA
	AbedaInamdar College, Pune	PMA
	BaburaojiGholapMahav. Pune	PMA
	Modern College, Ganesh Khind,	PMA
	Prof. R. More ASC College, Akurdi	PMA
	MamasahebMohal College, Paud Rd.	PMA
	SaraswatiMandirRatraMaha. Pune	PMA
	I. L. S. Law College, Pune	PMA
	YashwantraoChavan Law College, Pune	PMA
	New Law College, Yerwandana, Pune	PMA
	Dr. A. B. Telang ASC College, Nigdi	PMA
	A. K. Khan Law College, Pune	PMA
	Dr. D. Y. Patil College, Pimpri, Pune	PMA
	Arts & Commerce College, WarjeMalwadi	PMA
	Dr. D. Y. Patil ASC College, Akurdi	PMA
	GenbaS. Moze College, Yerwada	PMA

(* PMA- Pune Metropolitan Area)

Table 2. List of colleges in Pune Rural Area.

S. N.	Name of the College
1	AnnasahebAwateCollege, Manchar
2	C. T. Bora College, Shirur
3	Indrayani College, Talegaon
4	AnnasahebWaghireCollege, Otur
5	Shri Chhatrapati College, Junnar
6	Waghire College, Saswad
7	T. C. College, Baramati
8	M. S. K. College, Someshwarnagar
9	H. Rajguru College, Rajgurunagar
10	AnantraoThopte College, Bhor
11	Arts, Sci.& Comm. College, Indapur
12	Arts & Sci. College, Lonawala
13	Daund College, Daund
14	Arts and Comm. College, Kalamb
15	S. G. K. College, Loni-Kalbhor

S. N.	Name of the College
16	Arts & Comm. College, Chakan
17	Shardabai P. M. College, Malegaon-
18	Arts & Comm. College, Nasarapur
19	Arts & Comm. College, Ghodegaon
20	Arts College, Jejuri
21	Amriteshwar Arts College, Vinzar
22	A & C College, Narayangaon
23	Arts College, Ale
24	EknathSitaramDivekarVarvand
25	Vidyaprathi. ASC College, Baramati
26	Bharatiya Jain Sanghatna, Wagholi
27	Arts College, Bhigwan
28	S. S. Dhamdhere A & C College, TalegaonDhamdhere
29	K. G. Katariya Science College, Daund
30	SubhashBaburaoKul Arts College, Kedgaon
31	Padmani Jain Arts College, Pabal
32	Arts, Sci. & Comm. College, Pirangut
33	V. P. Law College, Baramati

Table 3. *List of Selected colleges for study from Pune Metropolitan and Pune Rural Area (Arts, Commerce & Science Colleges only).*

S. N.	Name of the College
1	Nowrosjee Wadia College, Pune
2	Shri Shahu Mandir College, Pune
3	St. Vincent College, Pune-1
4	St. Mira's College of Girls, Pune
5	Fergusson College, Pune
6	Sir Parshurambhau College, Pune
7	AbasahebGarware College, Pune
8	Garware Commerce College, Pune
9	Poona College, Pune
10	Modern College, Shivajinagar, Pune
11	Ness WadiaComm. College, Pune
12	BrihanMaha. Commerce College, Pune
13	AnnasahebMagar College, Hadapsar
14	YashwantraoMo. College, Paud- Road
15	Mahatma Phule College, Pimpri
16	TikaramJagnnath College, Khadki
17	MaganmalUdharam College, Pimpri
18	Bharatratna Dr. B. A. College, Aundhgaon
19	Symbiosis College, Pune
20	Vidyabhavan College of Comm. Pune
21	AppasahebJedhe College, Pune
22	H. V. Desai College, Pune-2
23	Dr. Ambedkar College, Nanapeth
24	S. M. Joshi College, Hadapsar.
25	C. K. Goyal AC College, Dapodi.
26	MarathwadaMitraMandalC. Pune
27	Dr. Ambedkar College, Yerwada
28	Siddhi Vinayak College, Karvenagar.
29	AbedaInamdar College, Pune
30	BaburaojiGholapMahav. Pune
31	Modern College, Ganesh Khind,
32	Prof. R. More ASC College, Akurdi
33	MamasahebMohal College, Paud Rd.
34	Dr. A. B. Telang ASC College, Nigdi
35	Pimpri Dr. D. Y. Patil College, Pune
36	Arts & Commerce College, WarjeMalwadi
37	ASC College of Dr. D. Y. Patil, Akurdi
38	GenbaS. Moze College, Yerwada
39	AnnasahebAwateCollege, Manchar
40	C. T. Bora College, Shirur
41	Indrayani College, Talegaon
42	AnnasahebWaghireCollege, Otur
43	Shri Chhatrapati College, Junnar
44	Waghire College, Saswad

S. N.	Name of the College
45	T. C. College, Baramati
46	M. S. K. College, Someshwarnagar
47	H. Rajguru College, Rajgurunagar
48	AnantraoThopte College, Bhor
49	Arts, Sci.& Comm. College, Indapur
50	Arts & Sci. College, Lonawala
51	Daund College, Daund
52	Arts and Comm. College, Kalamb
53	S. G. K. College, Loni-Kalbhor
54	Arts & Comm. College, Chakan
55	Shardabai P. M. College, Malegaon
56	Arts & Comm. College, Nasarapur
57	Arts & Comm. College, Ghodegaon
58	Arts College, Jejuri
59	Amriteshwar Arts College, Vinzar
60	A & C College, Narayangaon
61	Arts College, Ale
62	EknathSitaramDivekar ASC Varvand
63	Vidyaprathi. ASC College, Baramati
64	Bharatiya Jain Sanghatna, Wagholi
65	Arts College, Bhigwan
67	S. S. Dhamdhere A & C College, TalegaonDhamdhere
68	K. G. Katariya Science College, Daund
69	SubhashBaburaoKul Arts College, Kedgaon
70	Padmani Jain Arts College, Pabal
71	Arts, Sci. & Comm. College, Pirangut

5. Review of Literature

Clyde (2000) discussed with the help of computers can make changes in the library services: as an administrative tool, as a resource for teaching information skill; and as part of the library collection in the form of software and databases" [4].

Mamta Chopra and Y. L. Chopra, (2001), "Challenges before library & Information science in New Millennium" It is the collection of research article written by various well-known in the field of LIS, published Ess. Ess. Publication New Delhi, in this book 16 articles contributed by various academicians from all over India. This publication has tied to update library professionals to face the challenges in new millennium. All 16 articles cover various technical aspects and applications of Information Technology regarding library science". [3]

Rockman (2001) emphasizes on the "how the role of a librarian in e-library situation has changed due to the Information and technology in the educational organization". [16]

RamanaVenkata P. (2006) in this study he revealed that the how the old roll of a librarian is changed in this challenging web environment also discussed about the various skills to acquire in this modern age. [19]

Keisham Sangeeta and L. Sarika (2008a) has evaluated the academic library services which are ICT based services. And because of Information Communication Technology there are many changes in society as well as to human life. Like other field the library is also changed with new techniques and to cope with the new technology started providing the ICT based services to the users and also discussed on different aspects of ICT" [9].

Xiao (2008) prepared a helpful attempt to create usage of

Web 2.0 Serives in the library functions and daily serives to provide the better services with the help of this types of tools like preparing the library blogs, Social media, Library portals even the video of YouTube to help the users as early as possible within time and without physical barriers, online services. [20]

López, Peón, &Ordás, (2009) Examined the with the help of ICT one can provide the facility of searching for pinpointed information. With the help of ICT one can develop the efficiency. [13]

Kumar et al. (2010) examined how the traditional libraries are converted into the new form of networked services. And with the help of this new technology library offers various special services through the blogs. studied the future library Technology as LIS field is having the importance and since from last decades in the field of LIS there is drastic changes sue the technology and because of this the expectations of the library users are also increased so now the role of a librarian is also changed with the help of Internet he can provide the better services as compared to traditional ways. [11]

Raval (2013) examined in his study that now a day's how the concept of modern techniques is take place since for the few decades with the help of It the field of LIS is became more strong and very much popular also got the importance like other field with the development of ICT one can provide the prompt and pinpoint information to the users and also those who needs the information with the help of technology they get fraction of second ant any place any time. [18]

Kumar, Deepak (2014) "Future library technology in this book clear and comprehensive introduction to the future of library technology vision 2020 and plan for library technology and services by using cloud based computing and discussed about the future role of the academic librarian." [6]

Bhoi Naredra Kumar (2017) in this paper he studied "Use of Information Communication Technology and library operations and various aspects of ICT and also given the attentiveness of technology in the library and how it became essential in a today's world. To use of ICT for representation better library services to the users. With the help of various new techniques like Library automation, RFID Technology, QR Codes one can provide services as early as possible." [1]

Bezwada Ravi Kumar (2017) "Role of library resources in Education this book covered the various topics, User education in academic library as well as Human resource Management also discussed about the collection development policies and the role of library resources in the Education." [15]

Purushotham Tiwar (2019) opined on Information technology and Library Evolution in his book and explained the libraries place in the past and according to today's age its position. The potential challenges in the present, challenges imposed by new technologies are discussed. The adaptations taking place in the libraries are also highlighted in brief. [17]

6. Data Analysis and Presentation

The current research study is based on the prime data which is gathered from the survey of college libraries from Prune zone with the help of questionnaire as an implement for data collection. [19].

6.1. Population and Sample

The investigator has selected College Libraries affiliated to SPPU (Savitribai Phule Pune University) from Pune Zone (SPPU divided colleges in 3 zones, Pune, Ahmednagar and Nasik). In Pune zone there are 70 Colleges, the investigator has selected 70 colleges from the Pune zone for the survey. Thus Population and sample for the survey is 70. Out of 70 colleges from the Pune Zone 32 colleges are from the rural area and 38 colleges are in city area. Investigator prepared questionnaire and circulated to all 70 college librarian to collect the data of their libraries and analyzed the data.

Thus 32 rural and 38 urban colleges are reviewed and analyzed, which are using ICT application in their libraries. These colleges are purely aided or granted senior Arts, Commerce and Science colleges affiliated to SPPU Pune Zone. The investigator planned to review the status of these colleges using ICT for library functions.

The questionnaires are prepared and circulated among them. The tabulation and graphical presentation of the data is mentioned this chapter. Collected data by principal investigator under the survey.

6.1.1. Response to Survey

The response to the survey conducted is 100% i.e. all the college librarians responded to the survey. (70 colleges responded out of selected 70 purely aided or granted senior Arts, Commerce and Science colleges affiliated to SPPU Pune Zone).

6.1.2. Location of Colleges

Table 4. Location / distribution of senior college in study area.

Sr. no.	No. of colleges form Pune rural area	No. of colleges from Pune metropolitan area	Total no. of colleges
1	32 (45.7%)	38 (54.3%)	70 (100%)
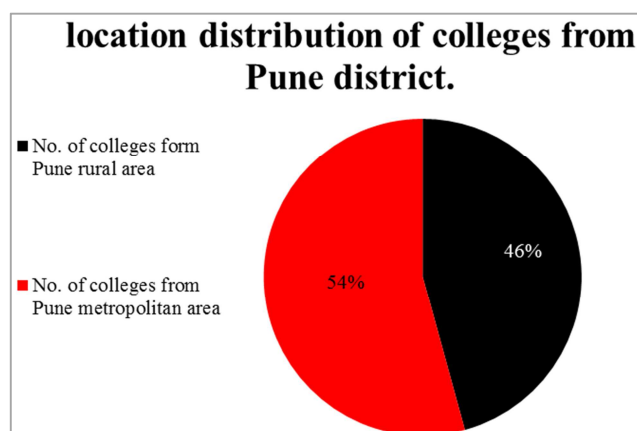
Figure 1. Location distribution of senior colleges in Pune district.

For the present study investigator identified the colleges in

Pune, and have selected 70 senior colleges from Pune district. These colleges are divided into rural and metropolitan area region. 32 rural and 38 metropolitan colleges' arts, commerce and science (granted) are selected for taking into consideration, which uses of ICT in the library functions and operations. The purpose is to analyze the impact of applications of ICT in libraries supporting to higher education institutes where the students as learners, faculty and teaching faculty and researchers who conduct research study for academic degrees' acquisition, especially in colleges.

Observation

In Pune Zone there are 46% colleges in rural area and 54% from urban area. Hardly 8% colleges in urban area are more.

Accreditation status of the Colleges:

Table 5. Accreditation statuses of colleges.

Group	Grade Awarded by NAAC						
	A+	A	B++	B+	B	C	Total
Rural Colleges	2	6	3	2	18	1	32
Urban College	5	23	2	3	5	0	38
	7	29	5	5	23	1	70
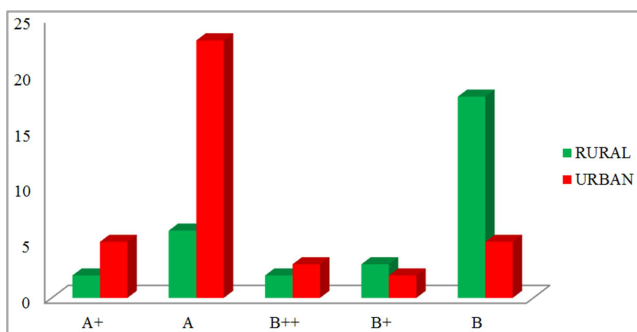
Figure 2. Accreditation by NAAC and status of senior colleges in Pune district.

From the Pune district 32 colleges from rural area and 38 colleges from the urban area are selected. NAAC Bangalore accredited these colleges and awarded them the grade ranks.

Observation:

A+ and A ranked colleges are more in urban areas (77.8%) than the than the rural area colleges (22.2%). From the rural area it is noticed that the "B++, B+ and B" Grade colleges are more (69.7%) than the urban area (30.3%). Generally, it is noticed that the NAAC committee while accreditation process gives weightage to library and ICT applications in libraries plays the important role. It is due to lack of the ICT based services or lack of awareness of ICT use the impact is visualized on the grade system.

6.2. Location of Library

Table 6. Library Building Separate/Part of main building.

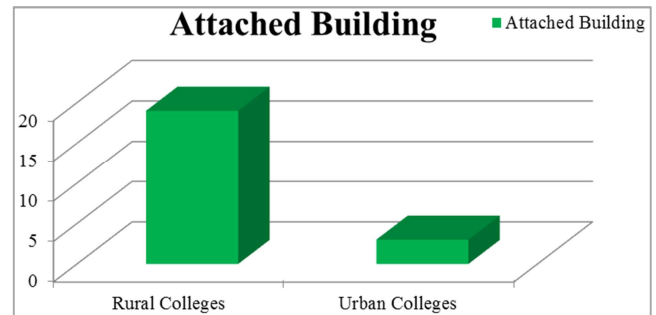| Library Building	Rural Colleges	Urban Colleges	Total
Separate Building	13 (27.1%)	35 (72.9%)	48 (100%)
Part of main Building area	19 (86.3%)	03 (13.7%)	22 (100%)
Total	32 (45.7%)	38 (54.3%)	70 (100%)

Figure 3. Separate library buildings in colleges of rural and urban area of Pune district.

The location and space given for the library is analyzed and it is noticed that, the library premises are planned in separate building or managed in the main building campus.

Observation:

It is noticed that 27% rural colleges library have separate building and college libraries in urban areas 72.9% have separate building for Library. It shows that majority of urban colleges library have separate buildings.

6.3. Analysis of Library Collections

Table7. Library Collection.

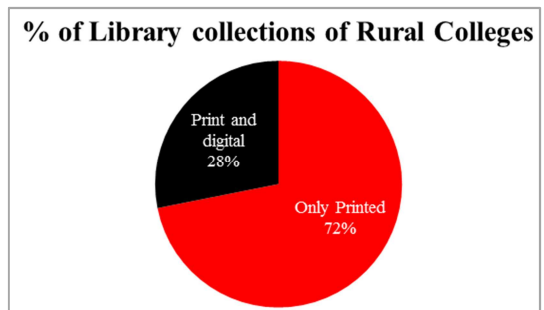| Library Collection	Rural Colleges	Urban Colleges	Total
Only Printed	23 (67.4%)	11 (32.4%)	34 (100%)
Print and digital	09 (25%)	27 (75%)	36 (100%)
Total	32	38	70

Source -Calculated by Investigator

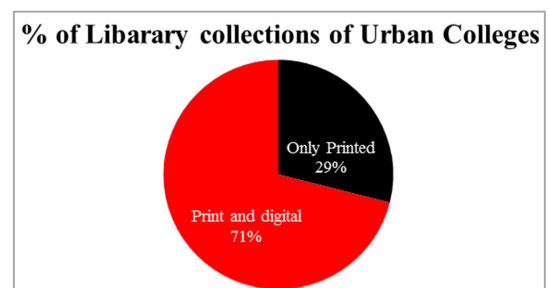*Figure 4. Library collection of rural colleges.*

Figure 5. Library collections of Urban Colleges.

The collection of print media is extra in rural area (67%) as evaluated to Urban (32%). The print and digital collection is rural areas is also less?

6.4. E-Resources in Senior College Libraries

Table 8. *Provision in library budget for E resources.*

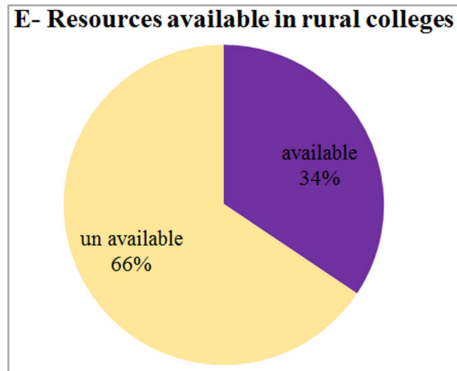| Provision of Budget for E- Resources	Rural Colleges	Urban Colleges	Total
Yes	11 (25%)	33 (75%)	44 (100%)
No	21 (80.7%)	05 (19.3%)	26 (100%)
Total	33	38	70

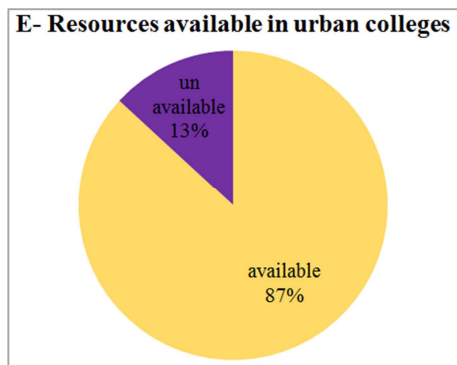**Figure 6.** *E- Resources available in rural colleges.*

Figure 7. *E- Resources available in Urban Colleges.*

Observation:

Observed that 75% senior urban college's library have e-

resource their collection along with print collection and also made provision in budget for their acquisition. However, in the rural colleges about 25% resources are being acquired and this is a good sign.

All the colleges from rural or urban purchase N-LIST database. Besides this there are few e-resources available in library, but more budgetary provision is required.
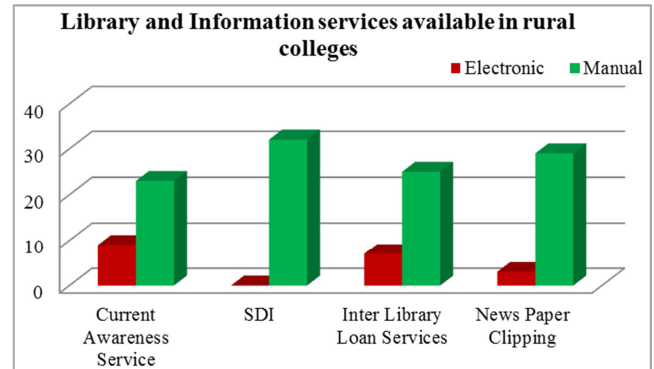
6.5. Library and Information Services

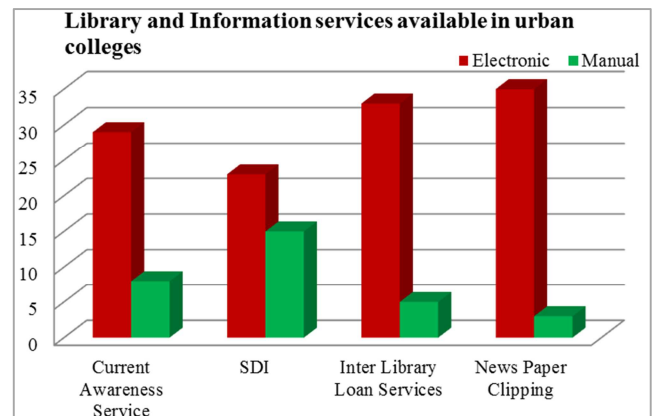**Figure 8.** *LIS services available in rural colleges.*

Figure 9. *LIS available in urban colleges.*

Table 9. *LIS services provided in rural and urban colleges.*

SN	Library and information services	Rural colleges		Urban colleges	
		Electronic	Manual	Electronic	Manual
1	Current Awareness Service	09	23	29	8
2	SDI	00	32	23	15
3	Inter Library Loan Services	07	25	33	5
4	News Paper Clipping	03	29	35	3

Observation:

It is observed that library services are provided to users using technologies and manual system. In urban colleges more ICT is used as compared to urban. But in rural colleges manual services are still more popular.

6.6. Computerized Information Services Based on Electronic Media in Senior Colleges

Table 10. *Library services based on electronic media in rural college.*

SN	Services	Rural colleges	
		Available colleges	Unavailable colleges
1	Internet Facility	20	12
2	Library Blog	5	27

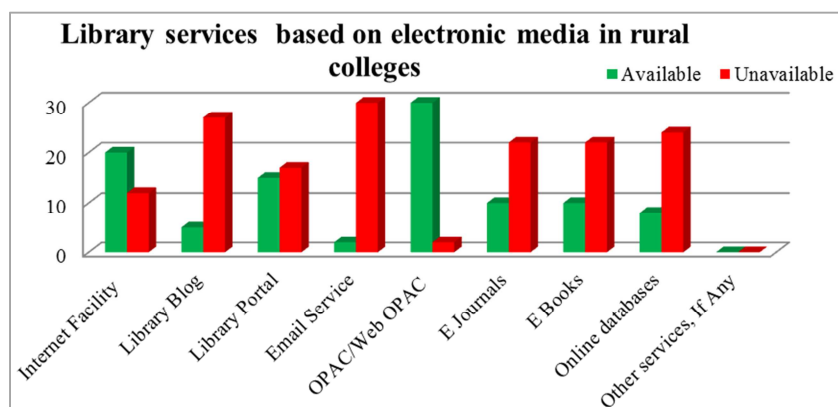| SN	Services	Rural colleges	
		Available colleges	Unavailable colleges
3	Library Portal	15	17
4	Email Service	2	30
5	OPAC/Web OPAC	30	2
6	E Journals	10	22
7	E Books	10	22
8	Online databases	8	24
9	Other services, If Any	0	0

Figure 10. *Library services based on electronic media in rural colleges.*

Observation:

93.75% rural college libraries have prepared OPAC, 62.5% rural colleges provide internet facilities to users, 47% rural libraries have developed library portal, and 45% libraries are procuring e-books and e-journals in libraries.

Table 11. *Library services based on electronic media in urban college.*

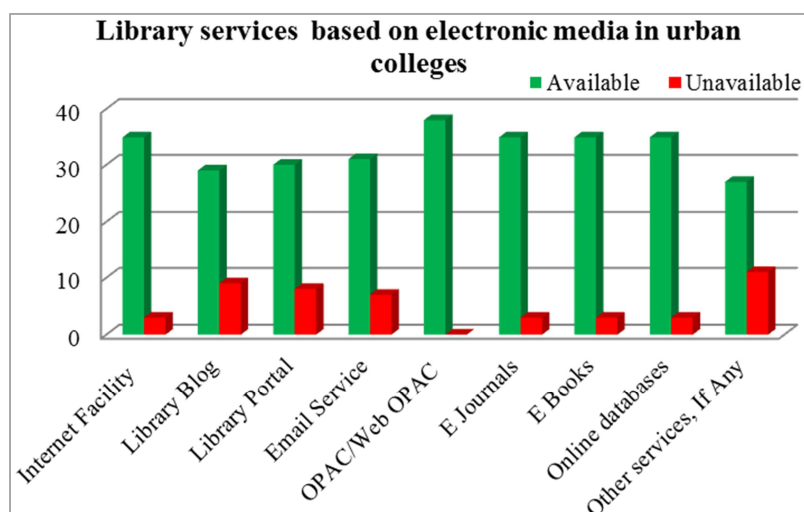| SN	Services	Rural colleges	
		Available colleges	Unavailable colleges
1	Internet Facility	35	3
2	Library Blog	29	9
3	Library Portal	30	8
4	Email Service	31	7
5	OPAC/Web OPAC	38	0
6	E Journals	35	3
7	E Books	35	3
8	Online databases	35	3
9	Other services, If Any	27	11

Figure 11. *Library services based on electronic media in urban colleges.*
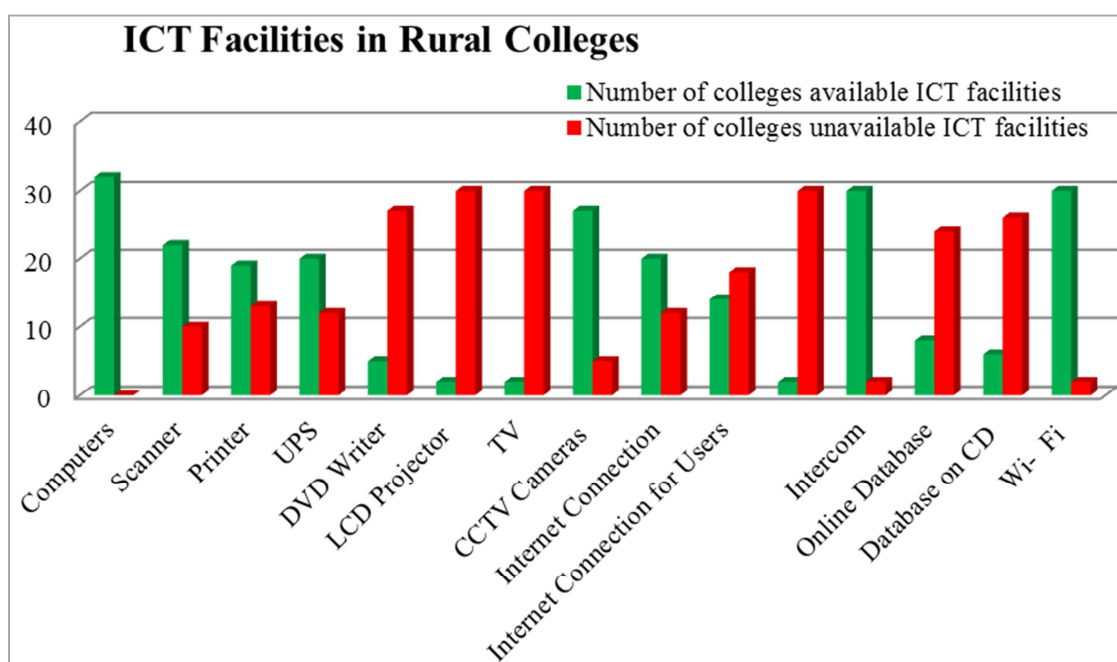
Observation:

It is been observed more ICT use is visualized Urban college libraries than rural colleges.

100% libraries have prepared OPAC, 92% libraries are procuring and having e-resources in the form of electronic books and electronic journals, online databases etc. and additionally provided internet facilities to users, 76% libraries are using blogs. It is observed that urban college libraries are more advanced than rural.

6.7. General ICT Facilities in Rural and Urban Colleges

Table 12. ICT Facilities in Rural Colleges.

Particulars	Number of colleges available ICT facilities	Number of colleges unavailable ICT facilities
Computers	32	0
Scanner	22	10
Printer	19	13
UPS	20	12
DVD Writer	5	27
LCD Projector	2	30
TV	2	30
CCTV Cameras	27	5
Internet Connection	20	12
Internet Connection for Users	14	18
Are You Participating in Networking	2	30
Telephone	30	2
Intercom	8	24
Online Database	6	26
Database on CD	32	0
Wi- Fi	30	2

Figure 12. ICT Facilities in Rural Colleges.

Observation:

In this study it is observed that in rural college libraries ICT infrastructure growing slowly. At present computers and CD Databases (offline) (100%), scanners (68%), UPS, printers, Internet connectivity (62%) are available.

Table 13. ICT Facilities in Urban Colleges.

Particulars	Number of colleges available ICT facilities	Number of colleges unavailable ICT facilities
Computers	38	0
Scanner	35	3
Printer	36	2
UPS	35	3

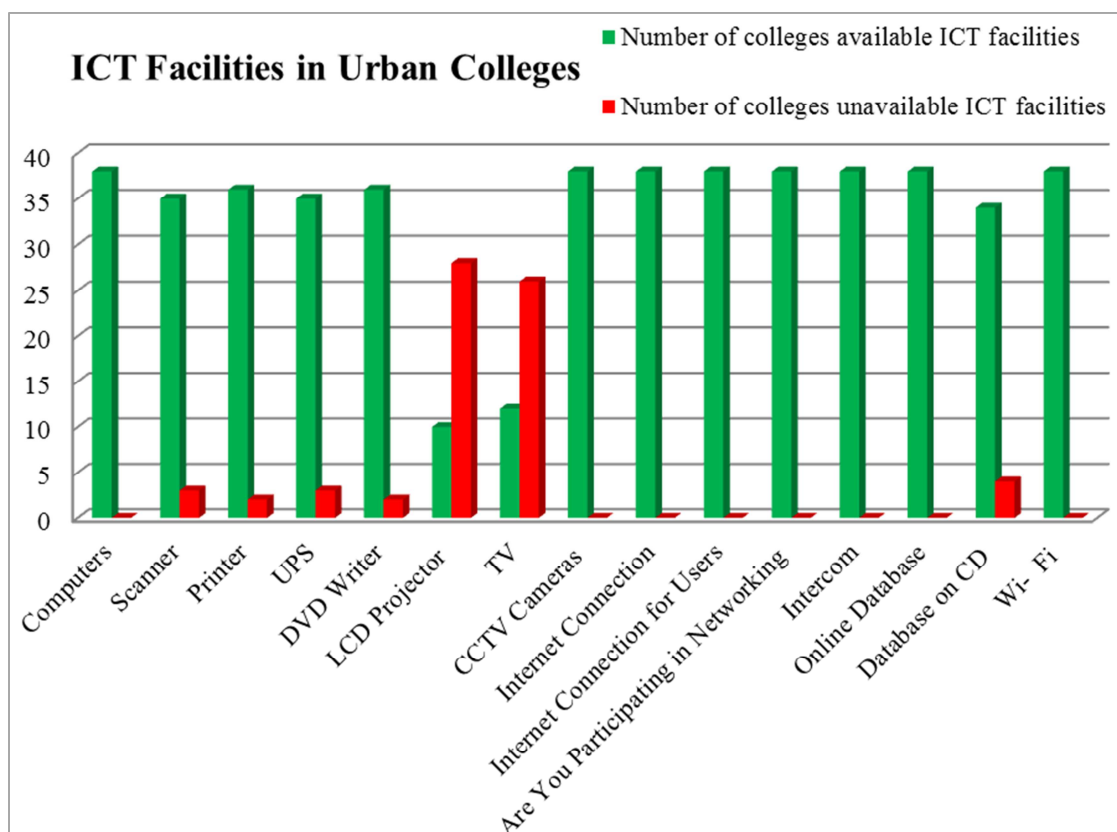| Particulars	Number of colleges available ICT facilities	Number of colleges unavailable ICT facilities
DVD Writer	36	2
LCD Projector	10	28
TV	12	26
CCTV Cameras	38	0
Internet Connection	38	0
Internet Connection for Users	38	0
Networking	38	0
Telephone	38	0
Intercom	38	0
Online Database	34	4
Database on CD	38	0
Wi- Fi	38	0

Figure 13. *ICT Facilities in Urban Colleges.*

Observation:

In urban colleges ICT infrastructure is sufficiently available as compared to Rural. In urban college's computers, CCTV, Internet connectivity, networking, CD rom Offline databases are 100% available. Followed to this printer, UPS, DVD writers, are 94%, online databases are 89% accessible. The ICT resources are sufficiently available in urban colleges.

6.8. Study Material Downloading Facilities

Table 14. *Availability of study material downloading facilities in library.*

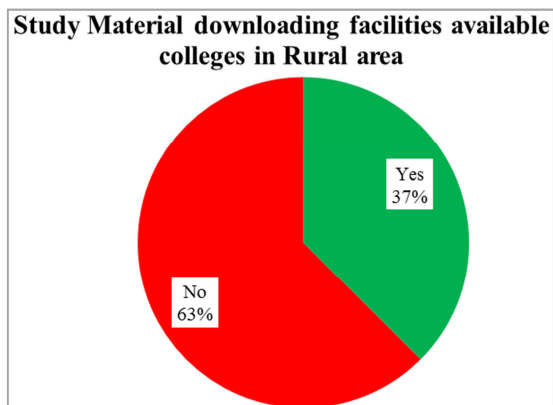| Sr. No.	Area	Yes	No
1	Rural	12	20
2	Urban	34	04

Figure 14. *Study Material downloading facilities available colleges in rural area.*
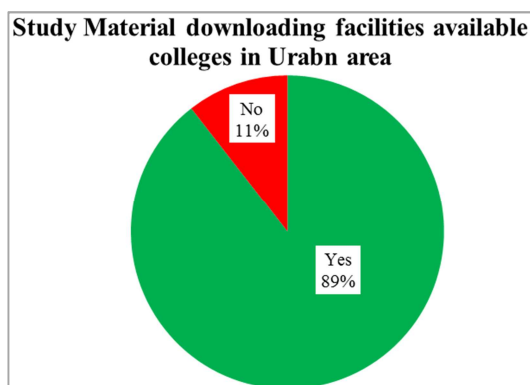
Figure 15. *Study Material downloading facilities available colleges in urban area.*

Observation:

Information resources download facilities are made available in urban colleges is more (89%) than rural colleges (37%).

6.9. Library Automation Systems

Table 15. *Library Computerization.*

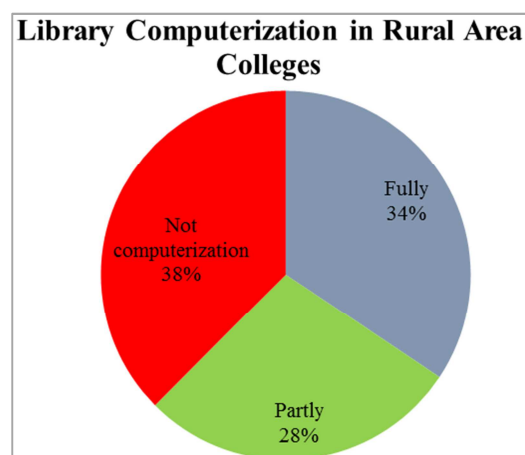| Sr. no.	Area	Fully	Partly	Not computerization
1.	Rural	11	09	12
2.	Urban	38	0	0

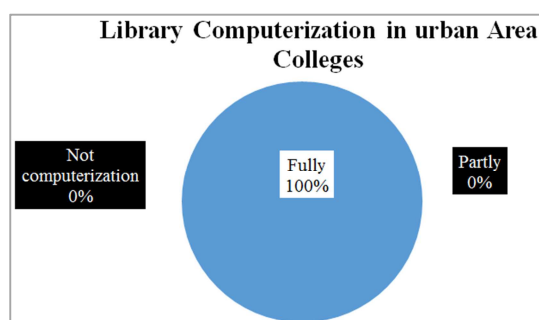**Figure 16.** *Library Computerization in Rural Area Colleges.*

Figure 17. *Library Computerization in urban Area Colleges.*

Observation:

It is observed that Library automation status is also more

in urban colleges than rural colleges. Automation is fully completed in all the urban colleges (100%). But in rural colleges only 34% colleges are fully automated and 28% colleges have partially completed automation. Whereas 37% libraries are not yet automated.

6.9.1. Software Modules Available

Table 16. *Various software modules use for students in senior colleges.*

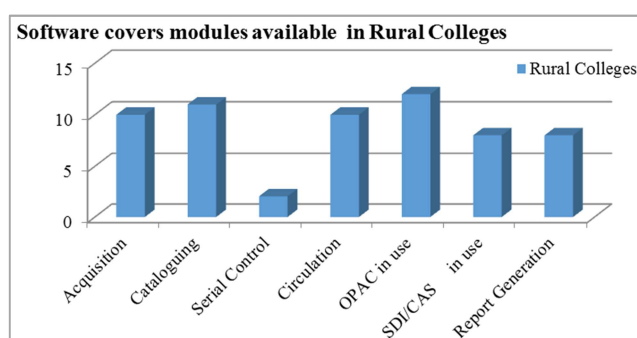| Sr. no.	Modules	Rural Colleges	Urban colleges
	Acquisition	10	38
	Cataloguing	11	36
	Serial Control	02	30
	Circulation	10	35
	OPAC in use	12	38
	SDI/CAS in use	08	30
	Report Generation	08	28

Figure 18. *Software covers modules available in Rural Colleges.*
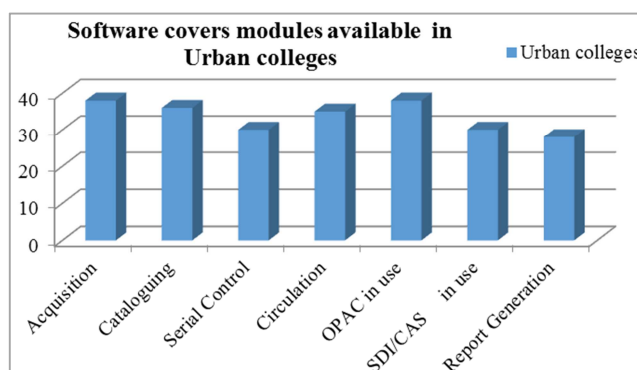
Figure 19. *Software covers modules available in Urban Colleges.*

Observation:

The LMS packages all the modules are used in urban college libraries, where as in rural college areas OPAC is prominently used.

6.9.2. Problems Faced by Librarians in Application of ICT

Table 17. *% of Librarian faced Problems in the application of ICT in senior colleges.*

Sr. No.	Particulars	% in Rural area	% in Urban area
	AMC	70	12
	Budget	92	05
	Manpower	91	06
	Lack of Awareness	25	02

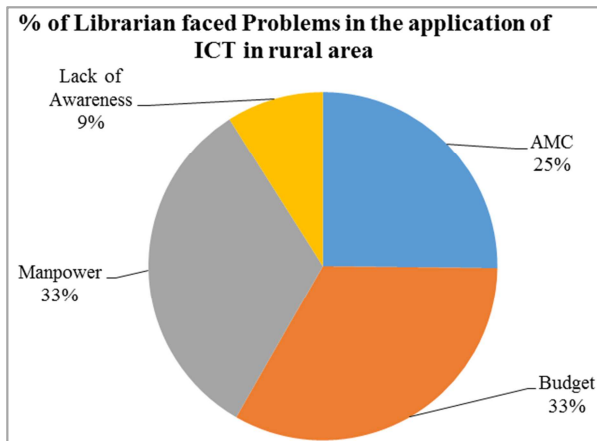**Figure 20.** *% of Librarian faced difficulties in the application of ICT in rural area.*
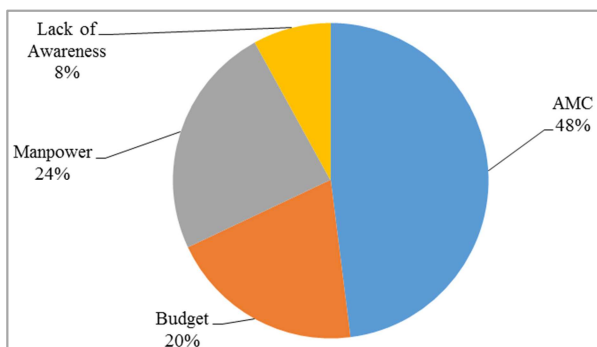

Figure 21. *% of Librarian faced difficulties in the application of ICT in urban area.*

Observation:

In rural colleges almost all the problems like budget, AMC, manpower, lack of ICT awareness are the major problems. Whereas these entire problem are less faced by urban college libraries.

Summary:

It is observed that urban colleges are more progressive than rural colleges. More ICT infrastructure, collection and e-resources are available in urban colleges than rural.

7. Findings and Suggestions

College library has acquired a unique place in education system and these libraries are supplying a variety of library facilities to users. Due to Information explosion, technological advances it is expected for college libraries to use the applications of ICT for the collection of library resources and organize them for the preservation and distribution of information to the users as per their needs. However, in today's electronic and digital age there is no distinction between education in rural area and urban area. To develop learned and educated society librarians have to adapt new technologies and skills to manage advancement in the profession. Now, the library functions and services are transformed using electronic library services. Investigator has attempted to discover the status of rural & urban college libraries in providing services and managing functions of libraries in ICT environment. There is a need to reduce the digital divide and hence the analysis is presented.

7.1. Findings

1) In SPPU Pune Zone there are in all 70 aided or grantable senior arts, commerce and science colleges. Out of 70 colleges 32 (45.7%) colleges are from the rural area and 38 (54.3%) colleges are from urban area.

2) In Pune zone hardly 9% more colleges in urban area than the rural area colleges.

3) All the 70 colleges are accredited by NAAC. But A+ and A grade colleges are more in urban area (77.8%) whereas rural area has (22.2%) less as compared to urban, but B++, B+ and B grade college are additional in rural areas (69.7%) as evaluated to urban has only 30.3%

4) Generally, it is noticed that the NAAC committee while accreditation process gives weightage towards modernization of libraries and ICT use in library. The rural areas might be lack the ICT usage as compared to urban.

5) It shows that bulk of urban colleges library have their own buildings. It is noticed that 27% rural college libraries have own building and 72.9% college libraries in urban areas have separate building for Library.

6) The collection of print media is extra in rural areas (67%) as evaluated to Urban (32%). The print and digital collection is rural areas is also less?

7) Observed that 75% senior urban college's library have e-resource in their collection along with print collection and also made provision in budget for their acquisition. However, in the rural colleges about 25% resources are being acquired and this is a good sign.

8) It is observed that library services are provided to users using technologies and manual system. In urban colleges more ICT is used as compared to urban. But in rural colleges manual services are still more popular.

9) 93.75% rural college libraries have prepared OPAC, 62.5% rural colleges provide internet facilities to users, 47% rural libraries have developed library portal, and 45% libraries are procuring electronic resources in libraries.

10) It is observed additional ICT use is visualized in urban college libraries than rural colleges.

11) 100% libraries have prepared OPAC, 92% libraries are procuring and having e-resources in the form of e-books and e-journals, online databases etc. and also provided internet facilities to users, 76% libraries are using blogs. It is observed that urban college libraries are more advanced than rural.

12) It has been observed that in rural college libraries ICT infrastructure is growing slowly. At present computers and CD Databases (offline) (100%), scanners (68%),

UPS, printers, Internet connectivity (62%) are available.

13) In urban colleges ICT infrastructure is sufficiently available as compared to Rural. In urban colleges' computers, CCTV, Internet connectivity, networking, CD rom Offline databases are 100% available. Followed to this printer, UPS, DVD writers, are 94%, online databases are 89% accessible. The ICT resources are sufficiently available in urban colleges.

14) Information resources download facilities are made available in urban colleges is more (89%) than rural colleges (37%).

15) It is observed that Library automation status is also more in urban colleges than rural colleges. Automation is fully completed in all the urban colleges (100%). But in rural colleges only 34% colleges are fully automated and 28% colleges have partially completed automation. Whereas 37% libraries are not yet automated.

16) The LMS packages all the modules are used in urban college libraries, where as in rural college areas OPAC is prominently used.

17) In rural colleges almost all the problems like budget, AMC, manpower, lack of ICT awareness are the major problems. Whereas all these problem are less faced by urban college libraries.

From the overall findings it is noticed that the rural college libraries have problems like, budget, manpower, skillful staff, place, facilities, ICT infrastructure, power supply etc. Hence, rural colleges cannot use more ICT in libraries like urban areas.

1) The majority of the college libraries are good textbooks collection, but they are lacking in the reference collection. The collection in the form of e-resources is just initiated in rural and urban areas.

2) There is no sound strategy for allocation of the fund. And also there is no adequate space (in some college) in the library as well and system for collection development and use of ICT.

3) In many colleges the supportive personnel of the library is not competent or skilled.

4) Academic library network databases are only available i.e. DELNET, UGC Infonet, etc. but majority of the colleges in urban areas have subscribed databases of INFLIBNET, N- list, but the use is very low since there is no awareness of availability to users.

5) Many college libraries are not even fully computerized from the rural areas.

6) Even though library professionals from the rural colleges have shown a positive attitude towards the use of ICT applications and library automation, they need extensive training to use of ICT tools.

7) There are no firm library policies and taking decision is also difficult.

7.2. Suggestions

1) The Government / UGC/ Funding bodies need to use e-resources and ICT for the progress of colleges, so that students may gain highest opportunities in education sector at the college level.

2) Orientation need to be strengthened so that users can get awareness of library's collection, different methods to be used including hands on practices for use of ICT and software. Information literacy program for the academic library users should be arranged at a regular interval.

3) Users are to be trained for the collection of literature from the open sources and internet resource to use more resources for the projects.

4) Different policies are to be developed to manage qualitative collection, resource sharing projects, ICT usage, manpower development, library automation etc.

5) Appropriate and regular allocation of budget should be made available to the libraries by the funding agencies and University Grant Commission. The funding authority to meet the cost of the ICT infrastructure special extra grants may be provided to college libraries. Major allocation of the library fund should be applied for the growth of the ICT infrastructure and e-resource collection.

6) ICT based services to be provided for users in colleges using campus-wide LAN.

7) UGC INFONET membership is to be taken by the colleges mandatory.

8) Facilities providing by the Network Resource Center (NRC) of searching Internet, emails, social websites is to be make available to the students either free of cost or if it is essential to charge nominal fee.

9) The Library Committee must be formed and its meeting to be held 3 times in a year.

10) On priority basis the vacant post of library personnel to be filled with well skilled manpower having the sound knowledge of library science profession as well as Information and Technology also.

11) Training courses should be organized for the awareness and use of e-resources for information professionals as well as users.

8. Recommendations

1) The library Management need to take automation project on top priority basis using even open source LMS like KOHA, D-Space etc. available free. Only staff training is required. These LMS helps in building networked OPAC also which is useful for resource sharing at local and branch libraries level.

2) Library user need to be oriented properly or instruct for the use of library collection and e-resources using internet and open source literature, use of search engines etc. Continuous orientation or information literacy programs to be conducted and the inclusion of such courses like Use of computer for information retrieval, Use of Internet/world wide web and IT applications are to be introduced.

3) A Library network may be failed in the early stages because there was no proper planning or adequate funds. Moreover a common agreement signed by the participating libraries and information network center at the institutional level is necessary for the accomplishment of a network. At practical level for networking catalogue must be in a standard, machine readable form and to be shared and exchanged with other libraries. Finally, a continuous flow of external support is essential for the network's continued existence. Proper Power back system to be installed for continuous services.

4) Many of the library association like ILA - Indian Library association IASLIC etc. are working together to help out the academic libraries in the conversion of electronic libraries they help them in selecting the library automation software and hardware, even in training to library personnel. INFLIBNET (Information and Library Network) is playing the major role in academic library services. Government of India should grant more funds for the faster network in academic libraries.

5) In the rural part, library services are provided to the students and users at the maximum level.

9. Conclusion

There is a need to develop college libraries, in the advanced education system, e-learning concepts are becoming more powerful as many e-resources are developed in education system. If colleges are not ICT savvy, then the facilities cannot be adapted and it may be a loss to information society. The funding agencies have to provide more finance for ICT, automation and procurement of qualitative e-resources for education purpose. Many agencies like PG-Pathshala, Swayam, Educational institutes are preparing educational course material and made it available online, if colleges are not ICT compatible then the resources cannot be of any use to users of libraries and education system.

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