Minor Research Project

on

"Impact of Information Communication Technology (ICT) on Degree College Libraries affiliated to Tumkur University, Tumkur"

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Submitted by

Sumadevi S.
Principal Investigator
Assistant Librarian
University College of Arts
Tumkur-572103

FINAL REPORT OF A MINOR RESEARCH PROJECT

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"Impact of Information Communication Technology (ICT) on Degree College Libraries affiliated to Tumkur University, Tumkur"

Executive summary of the project

Introduction:

Information has become the commodity in today's context of information explosion where we are living in the information society. Information has emerged as the vital and indispensable tool of the 21st century. ICT has exerted a profound influence on traditional academic libraries. The prime objectives of the library is pooling information resources and information related infrastructure and sharing them. In this process, many libraries have re-examined their traditional methods and services to overcome inadequacies through automation and computerization. Rapid developments in information and communication technologies (ICT) and their wide applications in all aspects of everyday life have led to dramatic changes which have not been observed before. These changes are so forcible that it is not realistic to expect stability of the mankind life conditions (Webster, 2001). The academic library environment is in a state of transition in terms of resources and users; many information sources once available only in print are now available in print, CD-ROM, online and other sources; other sources may only be available in electronic form (Abels et at., 1996). The observed transition is apparently necessitated by the emergence of the modern information and communication technology (ICT) and its unprecedented impacts on the provision of library services. Therefore, the use of information technology (computers, telecommunication, reprography, etc.) has a special role in the modernization of library practices. Hence, with ICT, such things as electronic cataloguing, electronic online public access catalogues (OPACs), electronic acquisition and serials control, electronic circulation functions, electronic distribution of commercial publications, electronic availability of raw data, multimedia information delivery systems, digitized collections and online textbooks are all now practicable with a higher degree of user satisfaction (Ajayi, 2002; Abels et at., 1996). ICT has an impact on every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia, networking and ICT based services. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems,

develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users.

DEFINITIONS:

Definitions of important terms are as follows:

Oxford Dictionary and Thesaurus (2001) defines impact as immediate effect or influence, or consequence.

According to United Nations Development Programme (UNDP): 'ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the 'old' ICTs of radio, television and telephone, and the 'new' ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our' networked world' – a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe'.

1.4 OBJECTIVES OF THE STUDY

1. To ascertain the level of computerization/automation of Degree College Libraries.
2. To determine the usefulness of ICT resources in Degree College Libraries.
3. To determine the efficiency and effectiveness of ICT in Degree College Libraries.
4. To know the ICT skills in the use of E-resources by the staff.
5. To determine the challenges associated with the application of ICT in Degree College Libraries.

1.5 NEED FOR THE STUDY

Information technology (IT) has demonstrated its impact on the library resources, systems, services and operations. It is well acknowledged in the library literature that the application of information and communication technologies (ICT) have provided one of the best innovations in the history of libraries and it is changing the shape of libraries and role of librarians at an unprecedented pace (Lewis, 2007). The user information seeking behaviour is also changing at a fast rate. The library catalogue or portal is not the first choice for many of the faculty, students and researchers for information searching (Haglund and Olsson, 2008). Hence "Impact of ICT on College libraries affiliated to Tumkur University "is judiciously taken up for the study.

1.6 PURPOSE OF THE STUDY

The purpose of the study was to ascertain the level of computerization/automation in degree college libraries in Tumkur. The research work highlights the challenges associated with the

application of ICT in college libraries. Hence, it may be useful to study the use of information technologies in developing countries. Hopefully, uncovering and understanding some unknowns based on such investigations can help to address the digital divide within colleges. Consequently, the present research aims to investigate ICT skills among the Library professionals as well as determine the user rate and also the level of application of information technology in degree college libraries of Tumkur district (India) and thereby find the related difficulties.

1.7 SCOPE AND LIMITATIONS OF THE STUDY

The study is confined to First Grade Colleges affiliated to Tumkur University in general and users of libraries of these colleges. The scope of the study is limited to the jurisdiction of Tumkur University in Karnataka State. The colleges offering B.Ed and B.P.Ed. BFA Colleges were excluded from this study.

1.8 SIGNIFICANCE OF THE STUDY

The specific study is confined to college libraries affiliated to Tumkur University, Tumkur with special reference to Tumkur District of Karnataka State wherein the use of ICT is comparatively low. There was no study done hitherto in the region about the impact of ICT on college libraries. So the present study was undertaken with an aim to throw some light on the impact of ICT applications in the college libraries as well. The study signifies the importance of the advanced technologies in the perspective of quality service to provide quality services. The study mainly focuses on the application of ICT in the college libraries at present.

1. The study established the existing gaps in the adoption of information communication technology in the operations of college libraries in achieving their statutory functions.
2. The output of this study would serve as a blueprint for libraries, information managers/information scientists, researchers, lecturers, students, and teachers to chart the right course of action for the use of ICT in education through policy formulation and its effective implementation.

1.9 RESEARCH METHODOLOGY

Keeping in view the objectives of the study, a sincere effort was made to evolve a suitable methodology for the research. The methodology chosen for the study was the data obtained through questionnaire. The data collection is supplemented by interview technique wherever it was felt necessary. The various published and unpublished primary and secondary sources along with the sources available through internet was studied. The observation method was also adopted and used to supplement the data collected through questionnaire to enhance its reliability and relevance.

1.9.1 STUDY SAMPLE: POPULATION

Out of the total 70 degree colleges, 68 colleges are affiliated to Tumkur University, including two Constituent Colleges. Among the 70 degree colleges, 44 Degree College libraries were selected for the purpose of the study. The study covers Government, Aided and Private degree colleges selected on the basis of its existence of minimum 10 years or on the strength of its Resource Collection. The population of this study covers all the professional and para-professional staff of the selected colleges.

TABLE 1.0 COLLEGE LIBRARIES LISTED UNDER THE STUDY

SL NO	LIST OF COLLEGES	CODE
1	UNIVERSITY PCOLLEGE OF ARTS	Govt . A1
2	UNIVERSITY COLLEGE OF SCIENCE	A2
3	B.M.S. GOVERNMENT FIRST GRADE COLLEGE, HULIYAR	A3
4	GOVERNMENT FIRST GRADE COLLEGE, BADAVANAHALLI	A4
5	GOVERNMENT FIRST GRADE COLLEGE, BUKKAPATTANA	A5
6	GOVERNMENT FIRST GRADE COLLEGE, CHIKKANAYAKANAHALLI	A6
7	GOVERNMENT FIRST GRADE COLLEGE, DANDINSHUVRA	A7
8	GOVERNMENT FIRST GRADE COLLEGE, HEBBUR	A8
9	GOVERNMENT FIRST GRADE COLLEGE, KORATAGERE	A9
10	GOVERNMENT FIRST GRADE COLLEGE, KUNIGAL	A10
11	GOVERNMENT FIRST GRADE COLLEGE, MADHUGIRI	A11
12	GOVERNMENT FIRST GRADE COLLEGE, NONAVINAKERE	A12
13	GOVERNMENT FIRST GRADE COLLEGE, SIRA	A13
14	GOVERNMENT FIRST GRADE COLLEGE, TIPTUR	A14
15	GOVERNMENT FIRST GRADE COLLEGE, TUMKUR	A15
16	GOVERNMENT FIRST GRADE COLLEGE, TURUVEKERE	A16
17	Y.E.R GOVERNMENT FIRST GRADE COLLEGE, PAVAGADA	A17
18	GOVERNMENT FIRST GRADE COLLEGE, GUBBI	A18
19	KALPATHARU FIRST GRADE SCIENCE COLLEGE -TIPTUR	AIDED COLLEGES B1
20	PALLAGATTI ADAVAPPA ARTS AND COMMERCE FIRST GRADE COLLEGE-TIPTUR	B2
21	NAVODAYA FIRST GRADE COLLEGE CHIKKANAYAKANHALLI	B3
22	SRI VENKATESWARA FIRST CRADE COLLEGE MADUGIRI	B4
23	SRI UMA PRAGATHI F.G.C KYATHSANDRA,TUMKUR	B5
24	SREE SIDDAGANGA ARTS, SCIENCE AND COMMERCE FIRST GRADE COLLEGE,TUMKUR	B6
25	SREE SIDDAGANGA WOMEN'S ARTS, SCIENCE AND COMMERCE FIRST GRADE COLLEGE,TUMKUR	B7

26	SREE SIDDALINGESHWARA BA INTEGRATED KANNADA PANDIT COLLEGE,TUMKUR	B8
27	SRI SIDDARTHA ARTS, SCIENCE AND COMMERCE FIRST GRADE COLLEGE,TUMKUR	B9
28	UNION CHRISTIAN FIRST GRADE COLLEGE-TUMKUR	B10
29	VIDYAVAHINI FIRST GRADE COLLEGE -TUMKUR	Private colleges C1
30	SRIDEVI FIRST GRADE COLLEGE -TUMKUR	C2
31	BAPUJI FIRST GRADE COLLEGE -TUMKUR	C3
32	SVS FIRST GRADE COLLEGE -TUMKUR	C4
33	INDIRA FIRST GRADE COLLEGE -TUMKUR	C5
34	SACRED FIRST GRADE COLLEGE -TUMKUR	C6
35	VIDYODAYA FIRST GRADE COLLEGE -TUMKUR	C7
36	GURUSHRI FIRST GRADE COLLEGE -TUMKUR	C8
37	UDAYABHARTHI FIRST GRADE COLLEGE -TIPTUR	C9
38	GANGADARESHWARA FGC-THOVINKERE	C10
39	SIDDASHREE FIRST GRADE COLLEGE -NITTUR	C11
40	RANGANATHA FIRST GRADE COLLEGE -SIRA	C12
41	SMSFG FIRST GRADE COLLEGE -CN HALLI	C13
42	MANGALA FIRST GRADE COLLEGE -KODIGENAHALLI	C14
43	UDAYABHARTHI FIRST GRADE COLLEGE -TURVEKERE	C15
44	SWAMY VIVEKANANDA FIRST GRADE COLLEGE - PAVAGADA	C16

Source: (Tumkur University website www.tumkuruniversity.ac.in accessed on 30/06/2015)

1.9.2 DATA COLLECTION TOOLS

The questionnaire method was adopted for the collection of data, supplemented by interviews of Librarians/ Librarian in Charge of each Degree College, Faculty members and Students to gather additional information. A draft questionnaire was designed based on discussions with professional colleagues and related research studies. Two sets of structured questionnaires were prepared; one questionnaire to the Librarian or Librarian in Charge and another to the users The purpose of questionnaire to the librarian was to get data regarding the infrastructure of libraries, budget, total collection, membership details, ICT services, history of automation, networking facilities, databases created, staff strength, staff training details and problems of ICT application. The questionnaire meant for library professionals is divided into four sections 1.General information, 2. Information about the Library. 3. Library Automation, 4. ICT Resource and service 5. Effectiveness of ICT, 6. ICT skills and competencies, 7. Challenges, 8. Suggestions.

The questionnaire with a covering letter briefly explained the research topic and assured the respondents that the information provided would be confidential and used for research purpose only. 44 copies of the questionnaires were distributed to the respective librarians, 418

questionnaires were distributed to the students and the faculty members. All the questionnaires given to the librarians, students and the faculty members were duly filled and returned.

1.9.3 DATA ANALYSIS TECHNIQUES

Data collected from the respondents through questionnaires and interviews and observations was evaluated and analyzed to find the results. The data was processed using Microsoft Excel and Statistical Package for Social Sciences (SPSS).The comparative details of libraries were analyzed using simple percentage analysis. In this research the raw figures were converted to percentages and tabulated. The responses were analyzed according to their relevance to the research questions.

TABLE 1.1 DISTRIBUTIONS OF COLLEGES BY TYPE OF MANAGEMENT

Sl No.	Type of Management	No. of Colleges	Percentage
1	Government	18	40.90%
2	Aided	10	22.70%
3	Private	16	36.40%
4	Total	44	100.00%

The data analyzed in the above table 1.1 and pie-diagram 1.1 show that highest number of Degree Colleges are Government run i.e. 18 (40.90%), Private colleges 16(36.40%) Private aided is 10 (22.70%), It is a fact that private participation in Higher education is high compared to Government and Private Aided in Tumkur District. In this study, Researcher concentrated relatively more on Government colleges. Hence more number of government colleges have been taken for the study as compared to private and aided.

PIE DIAGRAM 1.1 DISTRIBUTION OF COLLEGES BY TYPE OF MANAGEMENT

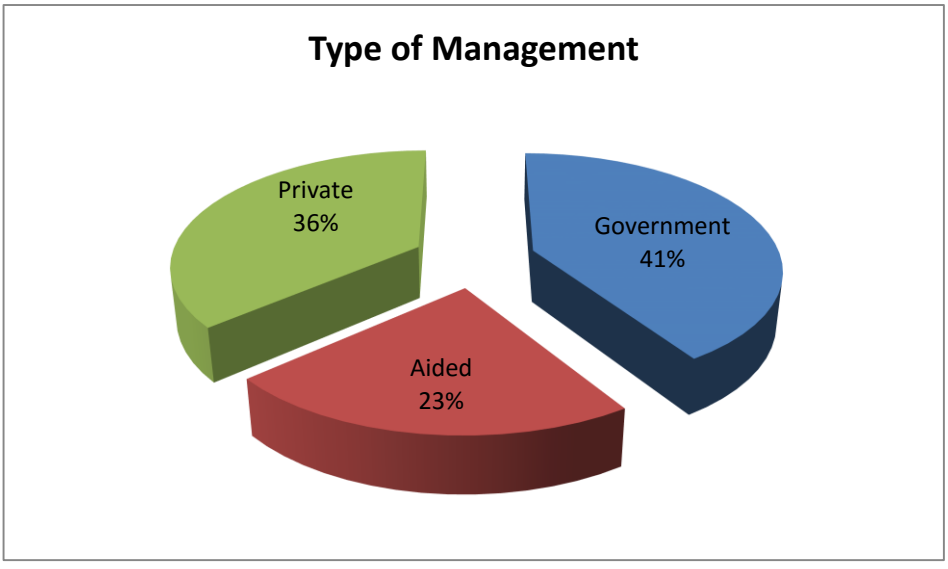


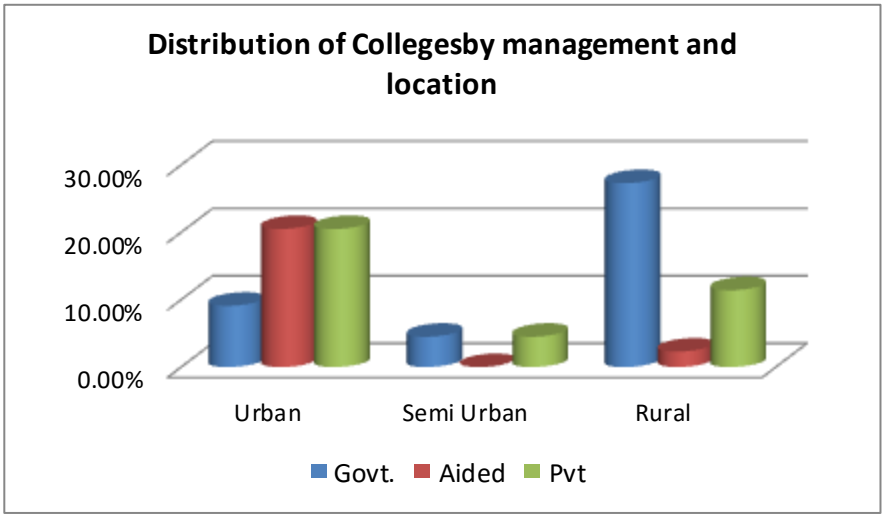
TABLE 1. 2 DISTRIBUTIONS OF COLLEGES BY MANAGEMENT AND LOCATION

Category	Location			
	Urban	Semi Urban	Rural	Total Colleges
Govt.	4 9.10%	2 4.50%	12 27.30%	18 40.90%
Aided	9 20.50%	0 0.00%	1 2.30%	10 22.70%
Private	9 20.50%	2 4.50%	5 11.40%	16 36.40%
Total	22 50.00%	4 9.10%	18 40.90%	44 100.00%

From the Table 1.2 and Graph 1.2 it has been inferred that, 12(27.30%) of the Government Colleges are located in rural areas whereas 4(9.30%) of the colleges are located in urban areas. Only 2(4.50 %) Colleges are located in semi urban areas. 9(20.50%) Aided and Private Colleges are mainly located in urban areas, whereas 1(2.30%) of the Aided Colleges are located in rural areas. 5(11.40%) Private Colleges are located in rural areas. Whereas 2 (4.50%) of the colleges are located in semi-urban areas. There are no Aided colleges in semi-urban areas.

Overall, out of 44 colleges under the study, maximum number colleges are located in urban areas 22(50%), 18(40.90%) are located in rural areas, 4(9.10%) are located in semi urban areas.

GRAPH- 1.2 DISTRIBUTIONS OF COLLEGES BY MANAGEMENT AND LOCATION



1.3 TABLE CATEGORYWISE DISTRIBUTION OF NAAC ACCREDITED COLLEGES

TYPE	NAAC Accredited Colleges		
	YES	NO	Total
Govt.	10(22.70%)	8 (18.20%)	18 (40.90%)
Aided	8 (18.20%)	2 (4.50%)	10 (22.70%)
Private	0 (0.00%)	16 (36.40%)	16 (36.40%)
% of Total	18 (40.90%)	26 (59.10%)	44(100.00%)

GRAPH 1.3 CATEGORYWISE DISTRIBUTION OF NAAC ACCREDITED COLLEGES

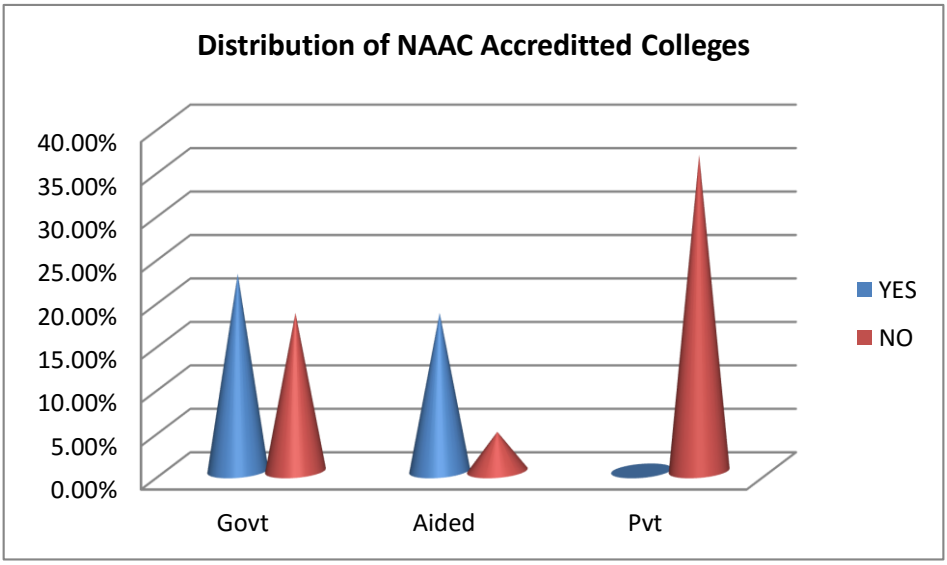


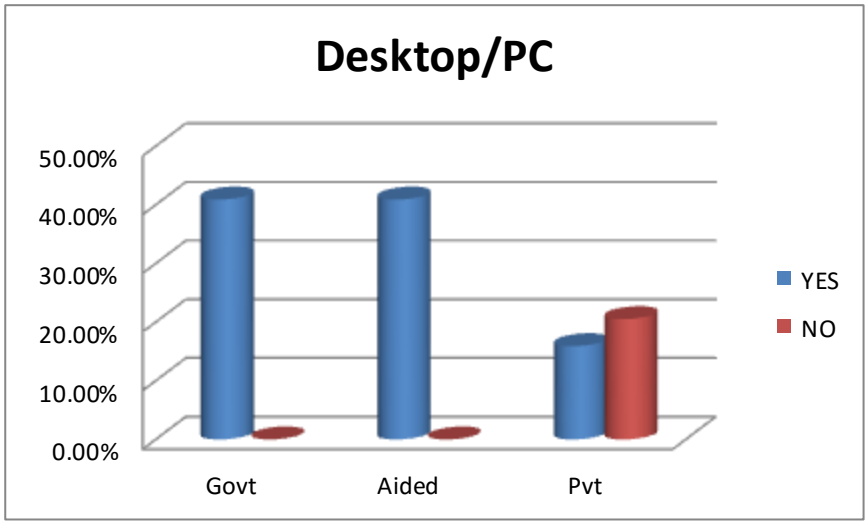
Table 1.3 and Graph 1.3 shows that, out of 18 NAAC Accredited Colleges, majority 10 (22.70%) are government, 8(18.20%) Aided Colleges, 16(36.40%) Private Colleges have not been NAAC Accredited.

TABLE 1.4 DISTRIBUTIONS OF DESKTOP/COMPUTERS IN THE LIBRARIES

Desktop/PC			
TYPE	YES	NO	Total
Govt.	18 (40.90%)	0(0.00%)	18(40.90%)
Aided	10 (22.70%)	0 (0.00%)	10(22.70%)
Private	7 (15.90%)	9 (20.50%)	16 (36.40%)
Total	35(79.50%)	9 (20.50%)	44 (100.00%)

Since the computer (PC) is considered the most important IT tool, respondents were asked to mention the number of desktop/PCs available in their libraries. From the Table 1.4 analysis of the data shows that overall, out of 44 respondents, majority of the libraries ie 35(79.50%) had Desktop and 9(20%) do not have even a single desktop in their libraries.

Fig 1.4 DISTRIBUTIONS OF DESKTOP/COMPUTERS IN THE LIBRARIES

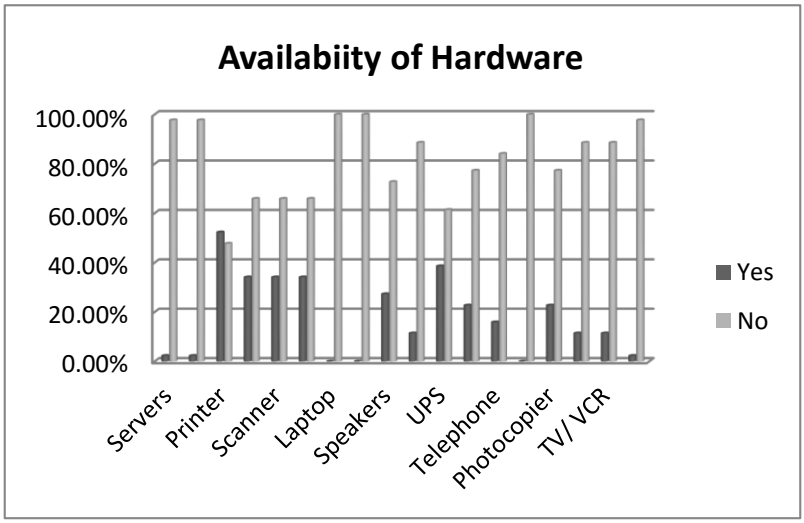


It was observed that all the Govt. College libraries under the study ie 18 (40.90%) had desktop, all the Aided college libraries under the study 10(22.70%) had desktop and 7(15.90%) Private college libraries had desktops. Table reflects that a mere 09 (20.50%) private college libraries did not have PCs However, it was found that all the Government and Aided college libraries had computer system in their libraries.

TABLE 1.5: AVAILABILITY OF ICT PERIPHERALS AND SECURITY SYSTEMS

Hardware	Yes	No	Total
Servers	1(2.3%)	43(97.7%)	44(100%)
Client workstations	1(2.3%)	43(97.7%)	44(100%)
Printer	23(52.3%)	21(47.7%)	44(100%)
Barcode Printer	15(34.1%)	29(65.9%)	44(100%)
Scanner	15(34.1%)	29(65.9%)	44(100%)
Barcode Reader	15(34.1%)	29(65.9%)	44(100%)
Laptop	0	44(100%)	44(100%)
CD server	0	44(100%)	44(100%)
Speakers	12(27.3%)	32(72.7%)	44(100%)
LCD projector	5(11.4%)	39(88.6%)	44(100%)
UPS	17(38.6%)	27(61.4%)	44(100%)
Modem	10(22.7%)	34(77.3%	44(100%)
Telephone	7(15.9%)	37(84.1%)	44(100%)
Fax	0	44(100%)	44(100%)
Photocopier	10(22.7%)	34(77.3%	44(100%)
CCTV Camera	5(11.4%)	39(88.6%)	44(100%)
TV/ VCR	5(11.4%)	39(88.6%)	44(100%)
Radio	1(2.3%)	43(97.7%)	44(100%)

FIG. 1.5 AVAILABILITY OF IT PERIPHERALS AND SECURITY SYSTEMS



Respondents were asked to check the hardware available in their libraries. Table 1.5 and Fig.1.5 reveals that all the degree college libraries in Tumkur possessed 23(52.3%) printers, 15(34.1%) of the libraries had Barcode Printer, Scanner, and Barcode Reader, in order to carry out their routine work. Unfortunately, just 17(38.6%) libraries got UPS installed in their libraries. 10(22.7%) Modem, 7(15.9%) Telephone 1(2.3%) Fax, 10(22.7%) Photocopier. However, 5 (11.4%) libraries got TV/ VCR, LCD projector and CCTV installed as security system for their libraries. 1(2.3%) a single college possessed Servers, Client workstations and Radio. However, none of the libraries had either Laptop, CD server, Electronic Surveillance System or RFID. There was a need to upgrade and acquire more IT peripherals in these libraries.

This indicates that the key hardware tools such as Server, Client work station, Radio, Speakers, TV/ VCR, LCD projector and telephone, CCTV, scanners and photocopying facilities were available only in a very small number. Less than 40 per cent respondents had backup drives, even a sizeable number of respondents 27(61.4%) and 27(61.4%) were without printers.

TABLE 1.6 **AVAILABILITY OF SOFTWARE IN THE LIBRARIES**

Software	Yes	No	Total
Network operating system	8(18.2%)	36(81.8%)	44(100%)
Library management software	22(50%)	22(50%)	44(100%)
Digital library software	0	44(100%)	44(100%)
Antivirus software	13(29.5%)	31(70.5%)	44(100%)
Application software	35(79.5%)	9(20.5%)	44(100%)
Operating system	35(79.5%)	9(20.5%)	44(100%)
Content management software	1(2.3%)	43(97.7%)	44(100%)
Kannada softwares	32(72.7%)	12(27.3%)	44(100%)

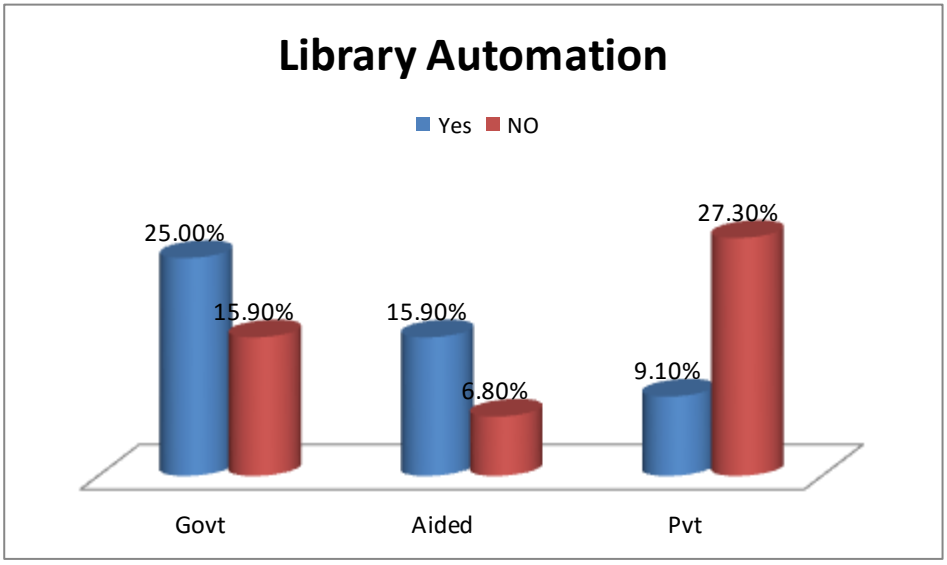
Table 1.6 reveals that degree college libraries possessed 22(50%) Library management software, 22(50%) do not use library software whereas 35(79.5%) library uses Windows Operating system and Application software such MS office 10, Excel, Power Point, 32(72.7%) use Kannada software ie., Nudi for their routine work. The study reveals that very less number of libraries use 13(29%) Antivirus software, 8(18%) uses windows NT Software, 1(2.3%) use Content management software. No Library used Digital Library software.

TABLE 1.7 LIBRARY AUTOMATION

	AUTOMATION		
TYPE	**YES**	**NO**	**Total**
Govt.	11 (25.00%)	7 (15.90%)	18 (40.90%)
Aided	7 (15.90%)	3 (6.80%)	10 (22.70%)
Private	4 (9.1%)	12 (27.3%)	16 (36.40%)
% of Total	22 (50%)	22 (50%)	44 (100.00%)

Regarding the extent of computerization of libraries, the results in Table 1.7 shows that, out of the 44 responded libraries, 22(50%) respondent libraries automated their library and 22(50%) respondent libraries had not yet started automation. (i.e. use of ICT to provide traditional library services). In terms of type of libraries, the data revealed that maximum number 11(25%) of the Government college libraries, 7(15.90%) aided college libraries and very less number 4(9.1%) private libraries under study are computerized/ automated.

FIG.1.7 LIBRARY AUTOMATION

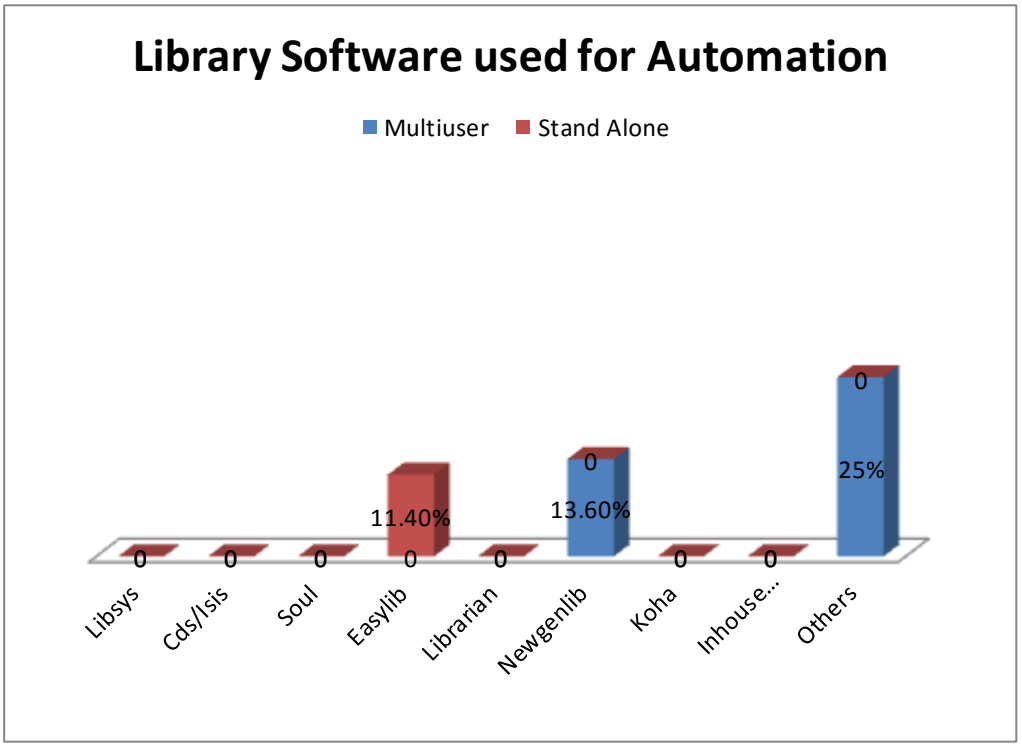


Government and Aided college libraries had achieved an automation level, 12(27.3%) Private college libraries had not yet started library automation. This data shows that 22(50%) of libraries have not yet started the library automation. Hence this proves that the level of automation is very low.

TABLE 1.8 DISTRIBUTION OF SOFTWARE USED FOR LIBRARY COMPUTERIZATION

Softwares	Multiuser	Stand Alone
Libsys	0	0
Cds/Isis	0	0
Soul	0	0
Easylib	0	5(11.4%)
Librarian	0	0
Newgenlib	6(13.6%)	0
Koha	0	0
Inhouse Software	0	0
Others	11(25%)	0

FIG.1.8 DISTRIBUTION OF SOFTWARE USED FOR LIBRARY COMPUTERIZATION



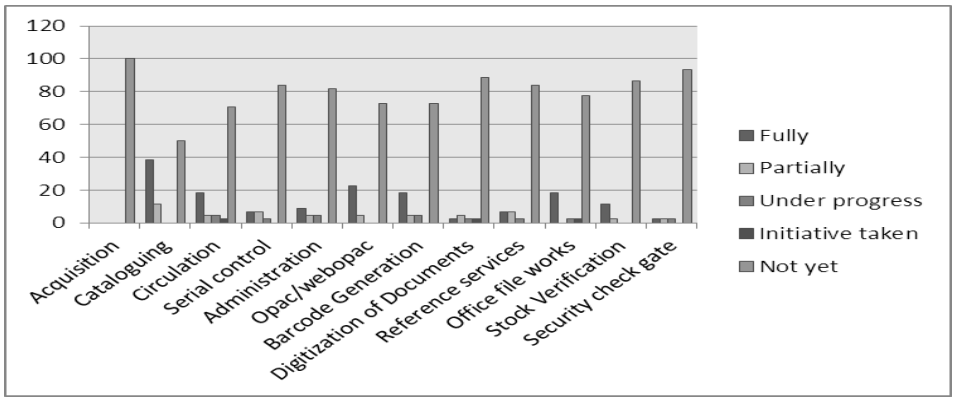
Library automation/management systems/software plays a pivotal role in information acquisition, organization, management, retrieval and dissemination. Table 1.8 data revealed that only 22 (50% per cent) respondent libraries were automated. The study reflects the fact that 6(13.6%) respondent libraries used multiuser OSS NEWGenlib software, 5(11.4%) respondent libraries used stand-alone Easylib library software, while 11(25%) respondent libraries used the other software's such as Libsoft. Egranthalaya, MS Excel. 11(25%) respondent libraries were still without a library management system. ie. 22(50%) per cent) respondents were without any level of automation at all.

TABLE 1.9 LEVEL OF LIBRARY AUTOMATION

	Fully	Partially	Under Progress	Initiative Taken	Not Yet	Total
Acquisition	0	0	0	0	44 (100%)	44 (100%)
Cataloguing	17 (38.6%)	5 (11.4%)	0	0	22 (50%)	44 (100%)
Circulation	8 (18.2%)	2 (4.5%)	2 (4.5%)	1 (2.3%)	31 (70.5%)	44 (100%)
Serial Control	0	0	0	0	44 (100%)	44 (100%)
Administration	0	0	0	0	44 (100%)	44 (100%)
Opac/Webopac	10 (22.7%)	2 (4.5%)	0	0	32 (72.7%)	44 (100%)
Barcode Generation	8 (18.2%)	2 (4.5%)	2 (4.5%)	0	32 (72.7%)	44 (100%)
Digitization Of Documents	1 (2.3%)	2 (4.5%)	0	0	41 (93.2%)	44 (100%)
Reference Services	3 (6.8%)	0	0	0	41 (93.2%)	44 (100%)
Office File Works	8 (18.2%)	0	0	0	34 (77.3%)	44 (100%)
Stock Verification	3 (6.8%)		0	0	41 (93.2%)	44 (100%)
Security Check Gate	0	0	0	0	41 (93.2%)	44 (100%)

Table 1.9 and graph 1.9 shows that 17(38.6%) of the libraries have fully implemented catalogue, 5(11.4%) partially, 8(18.2%) implemented the circulation, 2(4.5%) partially implemented 2(4.5%) under progress and 1(2.3%) initiative taken, only 10(22.7%) implemented the Opac. 2(4.5%) partially implemented. 8 (18.2%) implemented barcoding generation. 2 (4.5%) partially implemented and this under progress. 1(2.3%) only one library started the digitization of documents. 2(4.5%) partially implemented, only 3(6.8%) implemented the reference service and stock verification, 8 (18.2%) implemented Office File Works.

FIG 1.9 Bar chart shows the level of automation in the college libraries



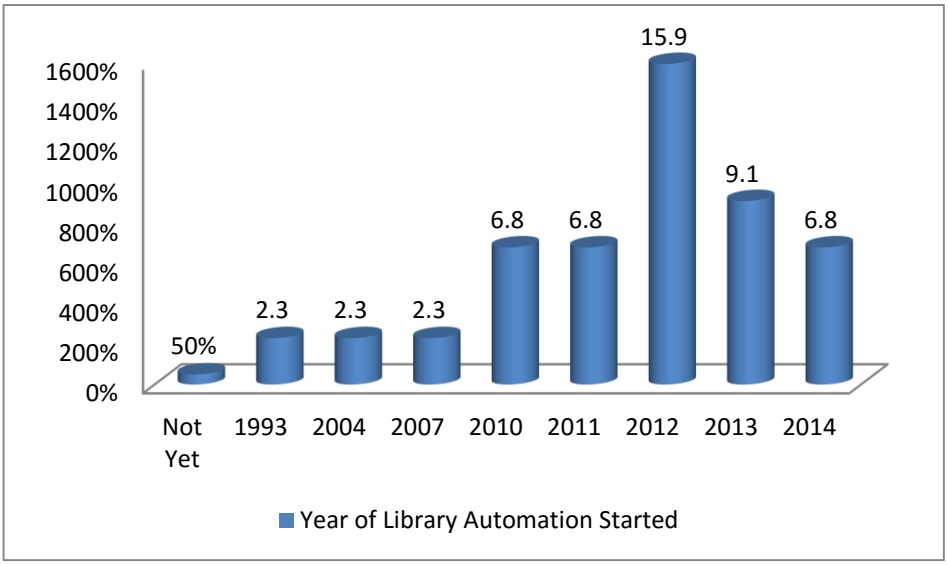
None of the libraries have initiated any steps to implement the acquisition module, Serial Control, Administration, security check. The results of the survey shows that cataloguing of library materials ranks first among computerized library tasks, with all computerized libraries practicing it. The observed results particularly emphasized the importance of cataloguing in the practice of librarianship. This shows that the overall level of Library automation is very poor in degree college libraries and has to go long way in implementing it. Hence, all the libraries have to take the initiative to effectively implement all the modules in their libraries, which is very much essential to provide ICT services to the user and the staff of the Library.

TABLE 1.10 INITIATION YEAR OF AUTOMATION

Initiation Year of Automation	Frequency	Percent
Not Yet	22	50%
1993	1	2.3
2004	1	2.3
2007	1	2.3
2010	3	6.8
2011	3	6.8
2012	7	15.9
2013	4	9.1
2014	3	6.8
Total	44	100

Table 1.10 and Fig.1.10 shows that the year of initiation of IT in the respective degree college libraries. It was found that out of 44 colleges; only 22(50%) degree college libraries in Tumkur have started using library automation for the library operations and services. Out of these 1(2.3%) degree colleges initiated library automation between 1993 and 2007. The remaining 3(6.8%) in 2010, 2011 and 2014 respectively.

FIG.1.10 YEAR-WISE DIDTRIBUTION OF LIBRARY AUTOMATION



7(15.9%) libraries have taken initiative in 2012, 4(9.1%) in 2013. Study shows that maximum number of libraries has taken initiative to automate their libraries during the 2013, 2012, 2011 and 2010. 22 (50%) of the libraries have not yet initiated library automation.

MAJOR FINDINGS OF THE STUDY

1. Study revealed that 35(79.50%) had Desktop and 9(20%) do not have even a single desktop in their libraries. It was observed that all the Govt. College libraries under the study ie 18 (40.90%) had desktop, all the Aided college libraries under the study 10(22.70%) had desktop and 7(15.90%) Private college libraries had desktops. Table reflects that a mere 09 (20.50%) private college libraries under the study did not have PCs However, it was found that all the Government and Aided college libraries had minimum one computer system in their libraries.
2. Regarding the extent of computerization of libraries, the results shows that, out of the 44 responded libraries, 22(50%) respondent libraries automated their library and 22(50%) respondent libraries had not yet started automation. (i.e. use of ICT to provide traditional library services). In terms of type of libraries, the data revealed that maximum number 11(25%) of the Government college libraries, 7(15.90%) aided college libraries and very less number 4(9.1%) private libraries under study are computerized/ automated. Government and Aided college libraries had achieved an automation level, 12(27.3%) Private college libraries had not yet started library automation. This data shows that 22(50%) of libraries have not yet started the library automation. Hence this proves that the level of automation is very low.
3. Level of Automation in degree college libraries, Investigator found that 17(38.6%) of the libraries have fully implemented catalogue, 5(11.4%) partially, 8(18.2%) implemented the circulation, 2(4.5%) partially implemented 2(4.5%) under progress and 1(2.3%) initiative taken, only 10(22.7%) implemented the OPAC. 2(4.5%) partially implemented. 8(18.2%) implemented barcoding generation. 2(4.5%) partially implemented and this under progress. 1(2.3%) only one library started the digitization of documents. 2(4.5%) partially implemented, only 3(6.8%) implemented the reference service and stock verification, 8(18.2%) implemented Office File Works. None of the libraries have initiated any steps to implement the acquisition module, Serial Control, Administration, security check. The results of the survey shows that cataloguing of library materials ranks first among computerized library tasks, with all computerized libraries practicing it.
4. It has been inferred that 9(20.50%) of government college libraries have created book database, 2(4.50%) partially created. 7(15.90%) Aided college libraries fully created the book data base. 1(2.30%) only one private library has created the book database.

20(45.40%) created the book database, 2(4.50%) partially created the book database. Result shows that all categories of libraries have initiated database creation. Hence all categories of the libraries have to take initiative to create book database.

5. Overall, out of 44 libraries 3(6.8%) of the libraries started the digitization of the documents. 41(93.2%) majority of the libraries has not taken the initiative to digitize the documents.
6. Knowledge of ICT Skills among the degree college librarians, The Study revealed that 36 (18.2%) majority of the respondents have knowledge of ICT Skills, 8(81.8%) respondent do not have Knowledge of ICT Skills. These analyses showed that majority of the librarians are very poor in the area of information/ICT literacy/skills. To run the ICT based libraries one must have the ICT skills to provide effective services to the user. Knowledge of ICT is in disposable for all the librarians the level of ICT skills to manage the automated libraries. It is evident that librarians are very poor in the area of information/ICT literacy/skills. The analysis of data reveals that majority of the LIS professionals are excellent in the use of internet12 (27.3%) followed by CD writing skills, 10(22.7%) Image Scanner. The above table shows that respondents had below average skills of Wifi, Cloud Tech, LCD Projector /Multimedia, Digital Tech, RFID Tech, Barcode Tech, E- Book Reader. The above table indicates that each of the librarians had moderate and low level of information/ ICT literacy/skills. Library automation has become the bare necessity for every library; hence all LIS professionals need to have basic knowledge of ICT Skills. These have affected the type of services they are giving to patron/user over the past years.
7. Networking of libraries in degree colleges the study found that, 25(56.80%) has internet connection 19(43.20%) do not have internet connection. Majority of the aided colleges out of 10 libraries 9(20.50%) had internet connection, followed by the government degree colleges. Out of 18 colleges12 (27.30%) Govt. college had internet connection, 4(9.10%) in private colleges, Data reveals that internet connectivity is poor in private college libraries followed by the government.
8. Study revealed that the challenges associated with Library Computerization in degree college libraries. 22(50%) libraries are automated. The most serious problems faced by the colleges were inadequate funding by the government and some of the parents organizations of the private colleges. It is found that 32 (72.7%) majority of the librarians say insufficient funds, 33(75%) librarians say inadequate ICT infrastructure and inadequate trained staff respectively.31(70.5%) inadequate power supply, 30(68.2%) librarians say lack of support from authorities, 27(61.4%) librarians say lack of ICT skill on the part of users, 8(18.2%) librarians say lack of initiative from the library staff.

9. Study revealed the suggestions from the librarians, that the majority of the librarians 36(81.8%) suggested that provide adequate funding. adequate trained, initiative on the part of authority and provision for attending the relevant conferences/workshop is the main suggestion to improve the ICT application in their libraries. Whereas 34 (77.3%) of respondents suggest for the training programmes of staff development. 33(75%) suggested to provide adequate ICT infrastructure adequate supply of electricity. 28(63.6%) responded suggest the library professionals should possess mind-set willingness to achieve. Respondents opined that adequate training by management of the college libraries and skilled professionals to embark on automation of all library management activities and application of ICT in Libraries in order to render effective services to their patrons/clientele without relying heavily on a particular staff having competent skills or knowledge in the operations of ICT resources. System up gradation is vital for enabling them to meet up with current trend in this techno savvy age.

RECOMMENDATIONS FOR THE FUTURE DEVELOPMENTS

Researcher emphasize on the following recommendations to adopt ICT at a proper and accepted level by the college libraries of Tumkur, Karnataka, India:

- First priority for the Government and Aided colleges should get 12B, 2F recognition by the UGC
- All types of colleges should undergo NAAC accreditation.
- The study revealed that total 99% of the government and private degree colleges do not have separate library building. This shows that less importance has been given to a Library Building. Libraries were housed in the class rooms, where there is no sufficient space for stack or further accommodation of learning materials, no provision for seating area for reading, no separate reference section. Students come for the library only for issue/ return books in majority of the colleges. This type of situation may lead to lack of better usage of Library resources by the users.
- The Government of Karnataka as well as other Private/parental organization should give due importance for a separate independent library building. Every college should have a separate “Library Building, where the students-teacher spends quality time in the learning and teaching process. Library should be given equal importance to supplement class room teaching where the students gain more knowledge for their development in all spheres.

Importance should be given to basic infrastructure of the libraries such as provision for seating space, stack area, separate room for ICT/ digital library, reprographic service room etc.

- Libraries need a suitable location with sufficient space for collections and services. To this end, government must create an information infrastructure for the country.

A long-term vision is an essential component of long-term ICT implementation in libraries of Karnataka.

- Libraries need funds to initiate the implementation of ICT. Networking of libraries, majority of the libraries do not have internet connection. Initiation to LAN and WIFI Connectivity.
- The Government of Karnataka as well as other government's agencies or parental organizations should make a provision of a special budget for development of information technology in the Libraries. These can play a vital role by allocation of sufficient funds for purchasing and maintaining ICT in libraries, wherein academic libraries will be equipped with more information technology facilities.
- The researcher observed that degree colleges, especially Private colleges though they impart PG and UG courses, have given marginal importance to collection development, such as books and journals, e-resources, where these resources are the backbone of education. If any education organization wants to bring out knowledgeable and competent students to the world, the authorities have to give paramount importance for library development in all aspects in this present digital era.
- The data revealed that degree colleges that come under UGC, subscribed to E-resources through NLIST and other libraries do not have e-resources in their collection. All libraries should develop e-resources in their respective libraries.
- Study reveals that majority of the libraries do not possess basic internet facility. Authorities should give due importance to internet connectivity. Networking is one of the most effective ways of serving users' needs comprehensively. Networked access to databases would help to get newly-published information to the library users.
- Well-trained and skilled personnel are essential ingredients for implementing ICT in libraries. Steps should be taken to develop well trained and competent personnel.
- The respondent of the study reveals that librarian is the only skilled person in the libraries to implement ICT. It is very difficult to work in a situation where the librarian is expected to multi- task, such as office work, examination work, NCC, NSS ect.,where there is an acute shortage of support staff along with students strength of above 2000-3000.
- Role of Librarian has changed drastically in this digital era. Librarian has to play a dynamic role in the routine affaires of the library. Hence the Government of Karnataka has to give paramount importance to staff pattern of the library and appoint support staff according to their collection and student's strength, where more work is involved. This is

also one of the main reasons for poor level of adoption/application of ICT in the degree college libraries.

- Study reveals that ICT skills of Librarians were very low.
- Universities and other professional organizations should organize different types of short-term training programmes for unskilled library professionals. The training programs should include basics such as cataloging (both manual and electronic), classification, bibliography, indexing and abstracting, electronic information delivery, public relation, so that the unskilled library professional can handle information efficiently.
- The government's administrative complexity should be reduced to help create awareness of the importance of ICT in libraries. Government and concerned authority should co-operate with each other in order to develop ICT competencies of information professionals.
- The study reveals that there is a lack of support from the authorities. The library authority should be aware of the changes in ICT and encourage adapting to their libraries.
- The academic libraries should organize short computer training and retraining programs from time to time to assist librarians who do not have knowledge and computer skill, thereby promoting computer awareness of computer potentials and capabilities.
- Orientation programs on the use of computer for information retrieval should be conducted and made compulsory for new entrants into the profession so as to cope with the current trend or the new technological revolution.
- The College libraries should develop a centralized database and establish a digital library/institutional repositories in their Institutions that include all documents and sources of information available in the country, in order to support academicians, scientific research and to provide decision-makers easy access to information.
- Promotion and introduction of various academic library services through compiling, publishing manuals and guides should be practiced.
- Library professionals should be very eager to adapt to new changes in the world and compete with them. In this age of ICT, the college library services should be redesigned to meet the users' needs and to provide modern information services facilitated by ICT.
- To solve the staff problem in degree college libraries, Govt. of Karnataka has to make a provision for appointment of professionally qualified Library trainees for a period of one year with stipend, so that it may resolve severe staff problem of the degree college libraries in application of any technology in their Libraries.

- The Government may recruit new ICT professionals to support in application/adoption of ICT and long term maintenance of ICT in College libraries.
- Study reveals that due to erratic power supply, non-availability of heavy-duty UPS and Generators in many libraries leads to poor ICT application in College Libraries.
- The librarians should seek for effective and efficient power supply supplemented with standby generators so to check the menace of frequent electricity power failure with this library and information.

Conclusion:

This study has sincerely attempted to evaluate the implementation and impact of ICT on degree college libraries. The College libraries of the twenty-first century are challenged to be digitized through the application of ICT facilities in their libraries. This is aimed at ensuring quick and easy access of the large numbers of library users to provide relevant accurate and current information from both remote and immediate databases to facilitate learning and teaching in the colleges. The availability and use of IT infrastructure in degree college libraries in Tumkur district has become a necessary in meeting their day to day requirements of their users. Most of these libraries have developed minimum IT infrastructure over a period of time. But still many libraries do not have even desktop in their libraries; however, the IT applications could not be expanded beyond local networking within the library or the campus. This study reveals that still degree college libraries are far behind in application of ICT in their libraries. Most of these colleges pointed out that the shortage of staff and lack of trained staff hindered the expansion of IT applications and to keep pace with the current developments in IT to move with the times. Include policies that facilitate and guide, sustained funding, appropriate equipment, networking of degree college libraries, improved expertise and management to deliver adequate ICT accessibility for academic purposes. In order to reach out ICT applications, Degree college libraries affiliated to Tumkur University, Tumkur should strive hard for getting ICT infrastructure, making use of the existing ICT infrastructure and update with newer technologies to provide value added information services to their clientele.

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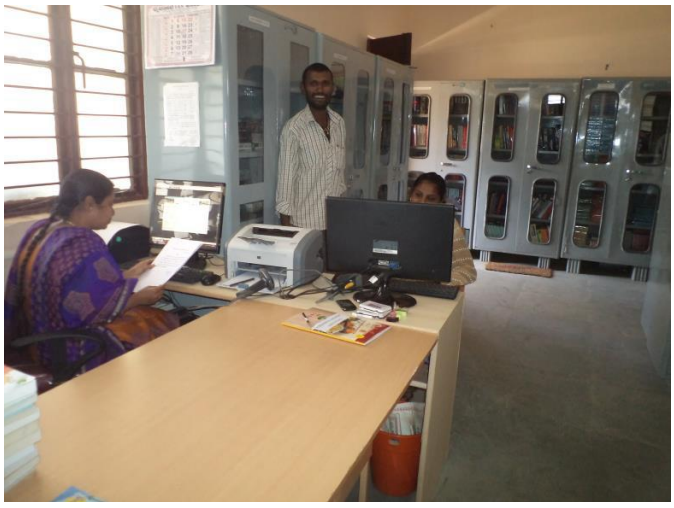
Photos of the Libraries under the study

GFGC, Koratagere, Library Library having Single computer for the Librarian

GFGC Library , Madhugiri ,only library having independent Library Building



GFGC Library, Tipatur Limited number of ICT Infrastructure in library

Project Investigator/Librarian conducted Orientation programme for Students,
University College of Arts, Tumkur,