5-4-2021

Impact of ICT in College Libraries in Karnataka: A Survey

Jayamma K V Dr
Government Science College, Bangalore, jayagsc@gmail.com

Madaiah Krishnamurthy
mkrishna_murthy@hotmail.com

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* Dr. Jayamma K.V
Librarian-Selection Grade
Nrupthunga University, Bangalore (Formerly Government Science College)
E-mail: jayagsc@gmail.com

*Dr.Krishnamurthy M
Professor
Documentation Research and Training Centre, Indian Statistical Institute, Bangalore.
Email: mkrishna_mruthy@hotmail.com

Abstract

Information Technology has created revolutionary in the field of Library and Information Science. Library housekeeping activities introduced many applications since 1980 onwards. Libraries are applying few techniques to introduce new services to its clients to access, search, and browse through computerized activities like acquisition, automation and OPAC so on. In this context implementation of Library Automation in Colleges particularly in Government First Grade colleges in Karnataka, India. This study shares some of the experiences and an attempt is made to survey and assess the library automation status, problems, prospects and procedures in various Government First Grade College libraries across Karnataka. There is need for finding out what are the enduring issues lingering in the minds of librarians and management to make library automation happen and derive the benefits of advanced information technology. The study has selected Survey Research method and the tools used are the questionnaire to collect the relevant data and the study has used simple Random Sampling method to select the population for this study which consist of 411 Government First Grade Colleges, in Karnataka and the questionnaires were distributed to all the colleges, the responses received comprised 315 colleges in all and the response rate is computed as 76.64%.

Key words: ICT Application, Government Colleges, Automation

Introduction

A well-equipped and well-maintained library is the foundation of modern education structure. The library plays vital role and which consists of knowing how and where to find information the art of selecting and processing these documents which are of maximum use and how to deliver it to users who need it. Computer application in library and information field has made phenomenal progress in industrialized countries where hardware, software and communications facilities are well developed. In view of technological advancement, they are able to computerize their entire library and information system in the country, with great success.

The libraries of Government First Grade Colleges in the State need to be automated for effective use of library facilities by college faculties and students. Computerization is not only simplification out the job of librarians who single handedly manage library activities without assistant librarians, it also helps library in providing better services to college faculties and students. It is also mandatory for any college for undergoing NAAC accreditation/ Re-accreditation.

2. Review of Literature

Lohar and Naik (2009) explain the step-by-step process of library automation in Kannada University, Hampi. This study attempts to understand the need for the library automation, requirements of hardware, and benefits of SOUL is given. Rajput and Gautam (2010) made a study on "the status of library automation and problems in their implementation in special libraries of Indore, Madhya Pradesh." The authors discuss the need for automation and its use in special libraries. "The study explains problems faced by authorities and the staff during the process of automation." The survey method adopted a well-structured questionnaire and it revealed the staff reluctance and lack of attitude towards automation and lack of library automation software as the major hindrances to speedy automation. Finally, it gives key "suggestions for better implementation of library automation and to overcome the hurdles faced during pre and post automation." Mulla et al (2010) state "library automation began in the late 1970s in few special libraries and has now reached most of the university libraries." It has yet to take off in college libraries in Karnataka owing to various problems. This study is a "survey of engineering college libraries that have computerized their operations and services in Karnataka." The study is limited to the automated libraries of engineering college in Karnataka. It gives a status on the software packages used by the various libraries, and opinions of the librarians about the performance of the different modules of the software they have used". Birjeet al (2011) implied that library automation is becoming a ubiquitous activity globally. The authors conclude "however when it comes to automation of the library of a traditional University in the backdrop of the rural ambience and with the weak IT base and lack of skilled human resource and services." The study "narrates the various dimensions of the implementation of the Library Automation project in university library in particular." Bachhav (2016) in his paper has been very critical about Library automation status and has highlighted major problems faced by librarians such as availability of suitable software for which libraries are to depend on commercial and local software which they also neatly explained. Further he stresses for

effective and efficient use of information and communication technology in college libraries for the purpose of library automation

3. Objectives

1. To study the status of ICT

2. To study how many libraries have undertaken automation.

3. To study the problems faced by librarians to automate the library.

4. To find out areas of automation

4. Methodology

To meet the specific objectives of the study questionnaire-based survey were employed. The questionnaire consists of both open ended and closed ended and also surface mail questionnaire method. Use an e-mail or face-to-face interviews method and Observation method. The descriptive statistics is employed to analyze the test and the present study uses percentage/ frequency or descriptive statistical tools. The responses were analyzed, tabulated and interpreted by using SPSS software and statistical results analysis of the data was conducted using Chi- Square Test.

5. Scope and limitations of the study

Today higher education is big component in the total education system. During the last several years; there is rapid increase in the number of colleges in the country. Karnataka is a pioneering state having good number of Government first grade college's total 417.Further the scope of the present study is restricted to 315 Government First Grade College Libraries in Karnataka, but could not cover private degree colleges and university colleges in Karnataka.

6. Results and discussion of the study

Table 1. Total Number of Respondents

No. of questionnaires distributed	No. of responses received	Percentage of Response
411	315	76.64%

For obtaining accurate responses, the investigator had visited many libraries, sent questionnaires by post, telephonic interview, along with the web survey tool. The mode of collection of data, its representation, analysis and interpretation are presented in the form of tables and graphs.

6.1 Experience of Librarians

The professional experience is an essential part of every profession and it helps organization to grow better and stronger, and as effective entities and also it is matter of self-growth also. The professional experience gives individuals the valuable lessons to plan, design and execute ideas efficiently. In order to manage the library, the experience of librarians is essential. Hence, a distribution of experience of librarians is considered for this study and especially in the context of Library Automation experience is very crucial. The data are presented in Tables and Figures below.

Table 2.   Experience of Librarians

Experience	No. of Librarians (N=259)	Percentage
< 10 Years	150	57.91
11 - 20 Years	74	28.57
21 - 30 Years	29	11.20
> 30 Years	6	2.32

For the purpose of tabulation of the data, the experience started with < 10 years then in the block of 10 years each. So, the data is presented in Table-2

The librarians with an experience of 30 years or more are just 6 (2.32%), followed by 29 (11.2%) of those with experience between 21 – 30 years,74(28.57%) of them with 11 -20 years of experience, and a majority of 150(57.91%) of the librarians have an experience of less than 10 years in the domain of Library and Information Science. This shows that most of the librarians working in the Government First Grade Colleges in Karnataka are new recruits.

6.2 **Distribution of Hardware Infrastructure in Libraries**

Table 3. **Distribution of Hardware Infrastructure in Libraries**

Hardware Infrastructure	Numbers	Per-Head (Colleges)
Computers	774	2.46
Printers	257	0.82

Scanners	223	0.71
Bar Code Accessories	184	0.58
UPS	152	0.48
Photocopiers	75	0.24
LCD Projection	63	0.20
Servers	61	0.19
Others	24	0.076
OHP	12	0.076
RFID Facilities	0	0

The overall infrastructure available in 315 Government First Grade Colleges, show availability of Computer hardware on the basis of per capita hardware items per college. It shows on the whole the computers are available at 2.46 systems per college. It is less than one per college in case of other hardware facilities. It is possible that the availability of hardware depended on the implementation of the Library Automation in the libraries and therefore at present it cannot be assessed about the adequacy of Hardware for libraries.

6.3 Distribution of software

Table 4. **Distribution of software tools and facilities in libraries**

Software Tools and Facilities	Number	Per Capita (College)
Operating System 1	237	0.75
Acrobat Reader	143	0.45
Office Utilities	113	0.36
Audio, Video and Graphic	83	0.26
Digital Library SW	45	0.14
Operating System 2	38	0.12
E-Learning	26	0.082
Others	7	-
Content Management	5	-

Again, here also the per capita availability of software per college is considered. The software tools and facilities available in the 315 Government First Grade Colleges this cannot be assessed whether the software availability is adequate or not. It is possible that the software is generally acquired by the college for the use of all the departments for shared use.

However, some of the software facilities like Digital Library Software, Integrated Library Management Software are essential and exclusive for the library purposes. Their availability is profiled later when the data on library automation is examined.

The steps taken by libraries are assessed in this study to understand the extent of status of automation, in Government First Grade Colleges, Karnataka. Details of the library automation are presented below in a figure**.**
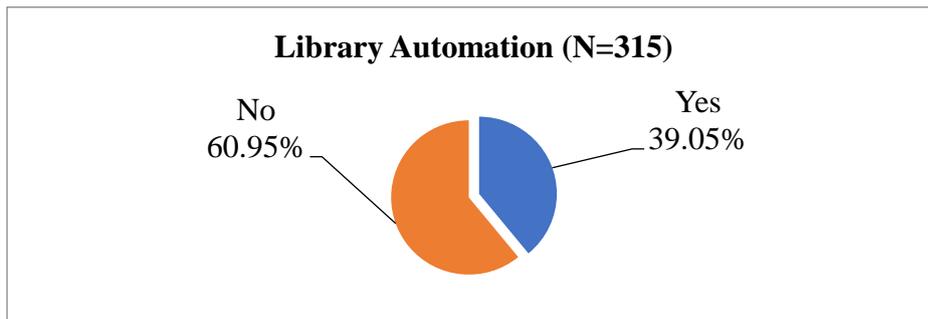

Figure 1 Library **Automation is done or not**

Above figure shows that only 123 (39.05%) of the Government First Grade Colleges in Karnataka have already initiated library automation, while the remaining 192 (60.95%) of the colleges are yet to begin the process of library automation. Though it is not a positive sign towards automation, it would be desirable to further explore the reasons and initiatives taken up towards automation in these libraries. It is quite discouraging to know that, despite all facilities, like availability of computer hardware and Software, ILMS package, and assistance from within and outside the country; the libraries have not initiated this process. It is also known from the previous section that 57.5% of libraries have received funding from INFLIBNET to automate. So, there is need for finding out the reasons and they might be many and some unknown for which yet solution is expected in the near future.

The status and extent of the library automation indicates if the libraries are fully or partially automated, or even if the automation is currently in progress. Here the data on these aspects, to discuss about the progress and status of library automation in those libraries (N=123) which have already initiated the automation process are presented in Table-5

6.4 Status of Library Automation

Table 5. **Status of Library Automation**

Status of Library Automation	No. of Libraries	Percentage
Fully	44	35.77
Partially Automated	57	46.34
In Progress	22	17.89
Total	**123**	**100**

Among the 123 Government First Grade college libraries that have already initiated the automation process, only 44 (35.77%) of them are fully automated, while it is found 22(17.89%) of them are still in the progress of automation. The colleges which have partially automated show57 (46%) libraries.
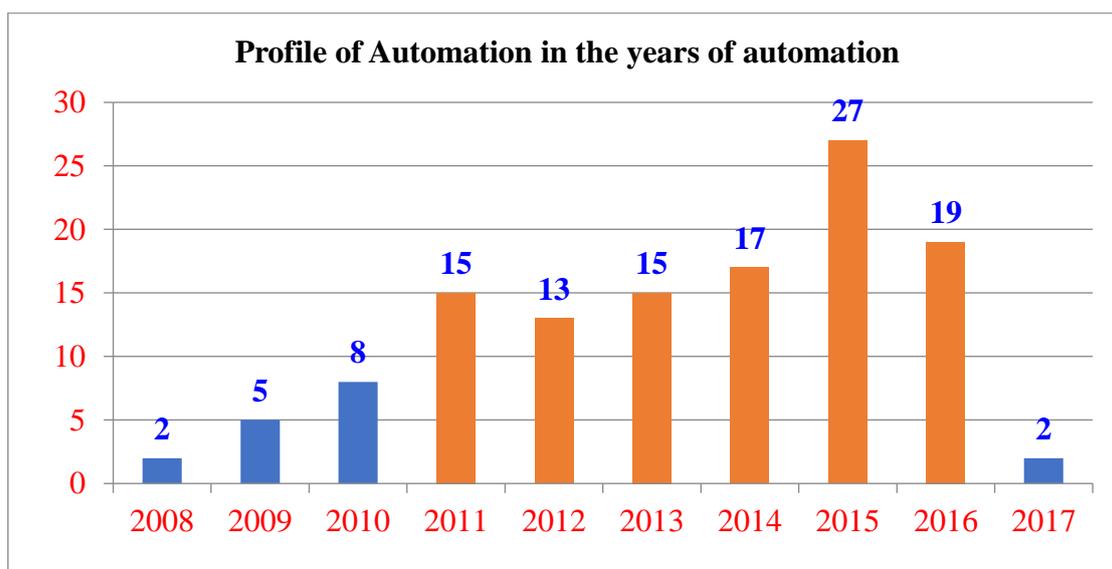

Figure 2 Year wise Automation

The Figure – 2 shows the numbers of libraries that were automated during the given year. It can be observed from the Table that 106 (86.18%) of the libraries have automated during the five years between 2011-2016, and highest in the year 2015. Among the 123 colleges that have initiated the automation, majority of them 27 colleges have started the process of automation during the year 2015. There is a gradual increase in the number of colleges being automated each passing year, and this is a positive indicator, though there is a slight decline after 2015. Even the year 2016 has shown 19 libraries are in the process of automation.

A comparison is also made between the urban, rural and semi-rural Regions of the Colleges and the status of Library Automation in them. Table-6 show the details of responses.

6.5 **Region-Wise**

Table 6 **Region-Wise Comparison of Automated College Libraries**

Rural		Urban		Semi-Rural	
Automation		Automation		Automation	
Y	N	Y	N	Y	N
56	107	44	63	23	21

It is interesting to know that more number of colleges 56, and 23 from rural and semi-rural Regions, have been automated , for urban region the figutes are 44 colleges libraries are automated that can be compared with Rural/Semi-Rural colleges. It is an interesting situation and needs further exploration by an intensive field study and also collecting views of the library professionals working in them.

However, the rural region has double the number of libraries which are not automated compared to the automated ones. The semi-urban region has more automated libraries, compared to the non-automated libraries; however, the difference between them is very miniscule. It is also true that there are a greater number of colleges in Rural areas, and the funding will also be more, hence a greater number of colleges have been automated too. This can be further ascertained by observing the budgetary allocation to the colleges in rural areas.

6.6 Automated Libraries by Year of Establishment: Compared

The Department of Collegiate Education (DCE), with its inception in the year 1960, has been striving to make quality higher education affordable and accessible to all sections of students across Karnataka through the Government First Grade Colleges. The Department has been taking keen interest to see that students belonging to the most backward class and areas, women and rural students are not deprived of the accessibility to tertiary education. For this purpose, in this study we have considered the colleges established by the DCE after its inception as the new colleges and those before it as old. The data are presented in Figure – 3 below. The reasons for this distribution can be further studied.
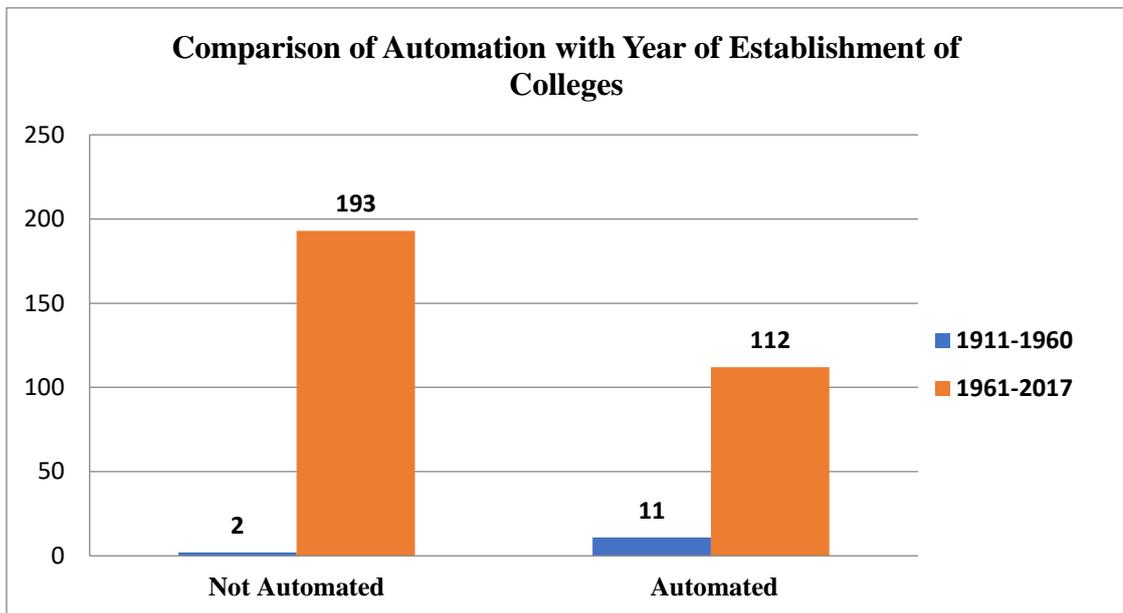
Figure 3

The work load of the libraries depends on the strength of collection of books a library contains. Automating such libraries with higher collection of books would decrease the manual operations of library in handling such large volume of books, and keeps a better track of all the books which have been stored in automated database say a library catalogue.

6.7 Automated Libraries and Book Collection

Table 7 **Automated Libraries and Book Collection per College**

Collection of books per college	Automated Libraries	Non-Automated Libraries	Percentage of Automated Libraries
Less than 20000 (N=212)	61	151	28.77
More than 20000 (N=103)	62	41	60.19

To explain this fact further the convincing par to this investigation is of defining larger collections, an aggregate of all the collection in the libraries of 315 Government First

Grade Colleges in Karnataka is considered and it is found to be close to 20000. The responded data are presented in Table – 7 There are 61 (28.77%) automated libraries in colleges with a total book collection of 20000 or less 212. The colleges with a higher book collection of 20000 and above103colleges have 62 (60.19%) of automated libraries in their colleges. It may be presumed that; the library professionals could consider the smaller collection is easily searchable and automation is not desirable in this context. This can be compared with the student strength and the magnitude of circulation of books. This would bring forth the reasons for not automating as both collection and circulation is smaller and may not be cost-effective.

Even though the library automation software packages provide for automating all library operations, from acquisition to library circulation and others, many libraries automated only those which are more or less required as essential and functions. For example, college library acquisition and management of serials and periodicals is very minimal and therefore they will not automate the Serials Control modules are automated. In this context the distribution data on modules is presented here. Library Automation is expected in the academic libraries to ensure library services to the satisfaction to the users and expedite information service. The regular housekeeping operations in the libraries include acquisition, cataloguing, circulation, serial control, OPAC, micro documents, and union catalogue creation and so on. Hence these modules of operations need to be automated for a swift functioning of library. The automation with respect to these modules in the libraries is presented in Figure- 4
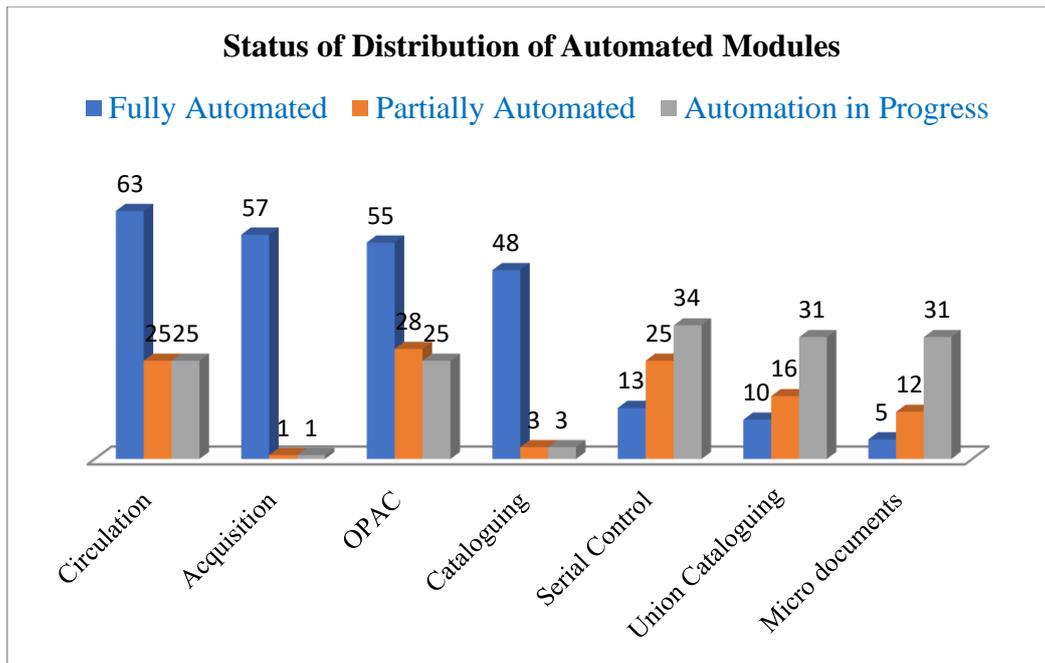
Figure 4 **Automated Library Modules**

Among the libraries that are already automated, it is noted that the Circulation module of most libraries 63 is fully automated, with 25 colleges each that are partially automated and automation in progress. Yet it is noticed that Acquisition 57 and Cataloguing 48 modules are those, which all the colleges have reported to be Fully Automated, with only 1 and 3 colleges each, that are Partially Automated and Automation in progress respectively. The module which is the lowest in fully automated section is Micro Documents with only 5 colleges taking it up and interestingly Union Catalogue preparation is better than this.

It can be noted from the Table that many libraries are not subscribing to periodicals; however, the Serials Control module is also automated in good number of libraries under fully, partially and in process libraries. OPAC is also provided by the libraries in good number, yet that depends on the availability of LAN or Intranet for the colleges or in-house OPAC facility. Any-how cataloguing and OPAC if combined show better results and responses.

6.8 Priority of Library Automation Modules

When colleges begin to automate their libraries, initial priority is given to few modules of automation, so as not to disturb the regular operations of the library, and to help in the smooth transition from the manual to automated operation. The priority of automation for various modules is presented below in Figure – 5
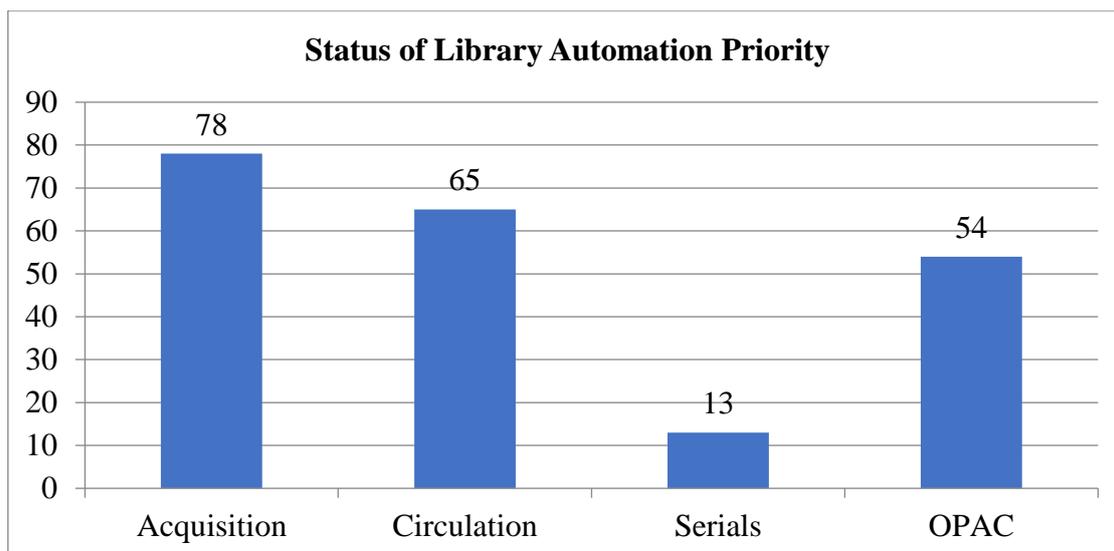
Figure 5

Among the colleges that have opted for Library Automation, most of them 78 (63.41%), have prioritized Acquisition among other tasks as it is the first step in automation which involves data entry of the library collection. This is followed by Circulation 65(52.85%) which involves issues and returns of books to the library users. The third priority is for the OPAC module 54(43.9%), which is Online Public Access Catalogue which allows the library users to directly and efficiently search for and retrieve bibliographic records without the assistance of human intermediary. And the last priority is given to serials 13(10.57%) which is the entry of journal issues and transaction details.

But surprisingly, a greater number of libraries have automated the Serials control, and it is the last preference here, and therefore there is some miss of information. It is very apt that college libraries prefer mostly cataloguing and circulation modules, the probability of Acquisition coming first would be that it involves creation of machine-readable database for later use, with comprehensive bibliographic details, so that the functions of catalogue records and circulation will not be hindered.

It is important that when circulating a book, the full bibliographic details are necessary, in the cases of loss of books, and if the book is not returned by the user and also instances of recovery of cost of lost items. It is understood that NAAC and AICTE have been approving the Machine generated accession listing for the purpose of taking stock of the collection of the libraries.

These are some of the presumable reasons as to why the libraries are given priority to the Acquisition section automation. Of course, Circulation and OPAC have got obviously the next priorities in this context.

6.9 Usefulness of Library Automation in Operations

Library Automation has transformed the way daily library operations are conducted. The daily operations of most automated libraries include Acquisition, Circulation, Cataloging, Serial control, Holdings Information, Administration, Report Generation, Vendor Support, Support catalogue Standards, Information Retrieval, Web OPAC, Stock Verification, Bar Code Enabled, RFID Support, Vendor Support, e-Mail Notification, Network Support, Mobile/WhatsApp enabling. In this study, they are looked at the usefulness of operations with the aid of library automation. A percentage of usefulness for each operation is presented below. The operations are divided as Functions and Services and in each of them the responses are presented in Table – 8

**Table 8 Library operation and Usefulness**

Library Operation	Percentage of usefulness
Functions	
Acquisition	92.4
Circulation	95
Cataloging	90.6
Serial control	66.6
Report Generation	85.2
Vendor Support	66
Stock Verification	79.8
Bar Code Enabled	83.2
RFID Support	38.8
Network Support	62
Services	
Holdings Information	79.8
Administration	79.8

Support catalogue Standards	66.4
Information Retrieval	74.8
Web OPAC	77
e-Mail Notification	63.2
Mobile/WhatsApp enabled	47.4

Among the functions the circulation function is rated as most useful with 95% responses. It is quite true as the circulation is the most visible function in the libraries where the most users come in contact with it. The next is the Acquisition and followed by Cataloguing. It is already mentioned that; Report generation is one of the preferred benefits and so here also the next usefulness of automation is Report Generation with 85.2 % responses and the next is the Bar Code use which has enabled libraries to lend and return the books easily.

6.10 Experience of Library Staff in Automation

The familiarity and the experience of library staff in library automation in general and software in particular is examined. The library professionals experience plays an important role in the implementation and the maintenance of automation process.
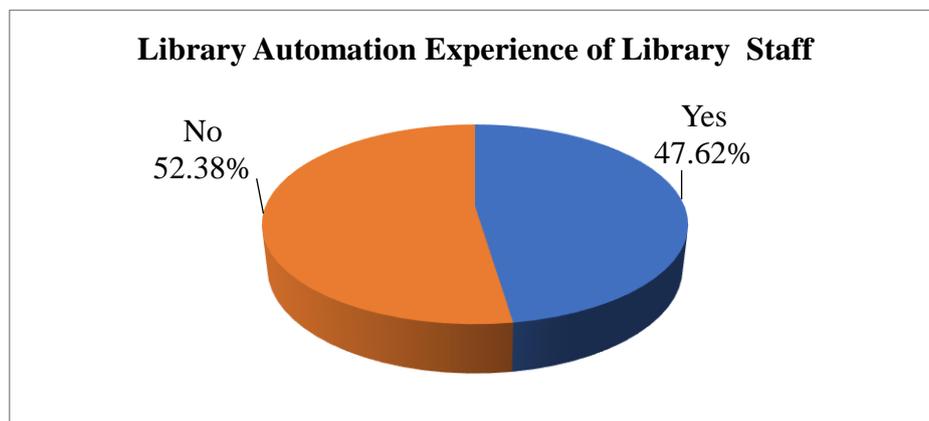
Figure 6

The data shows that among the 315 Government First Grade College Libraries in Karnataka considered for study, it is found that 150(47.62%) of the colleges have librarians with experience in the library automation and use of software in the context. It is found that in the rest of the cases 165(52.38%) college library staff have no the experience in automating the library and also in the library automation software.

6.11 Problems Faced in Library Automation

This study looks into the issues or problems faced by the libraries during their automation process. The problems that library staff generally face while automating their libraries are the lack of knowledge of benefits of library automation, the lack of funds to libraries, the lack of management support, the lack of ICT knowledge and skills of library staff, lack of interest to automate, lack of adequate staff to handle automation process, and the opinion that manual or non-automated systems are better than automated systems. Below is a summary of percentages of their agreeableness in terms to the issues faced during automation by the libraries of Government First Grade Colleges, Karnataka. The data on the responses to these questions is presented in Figure – 7
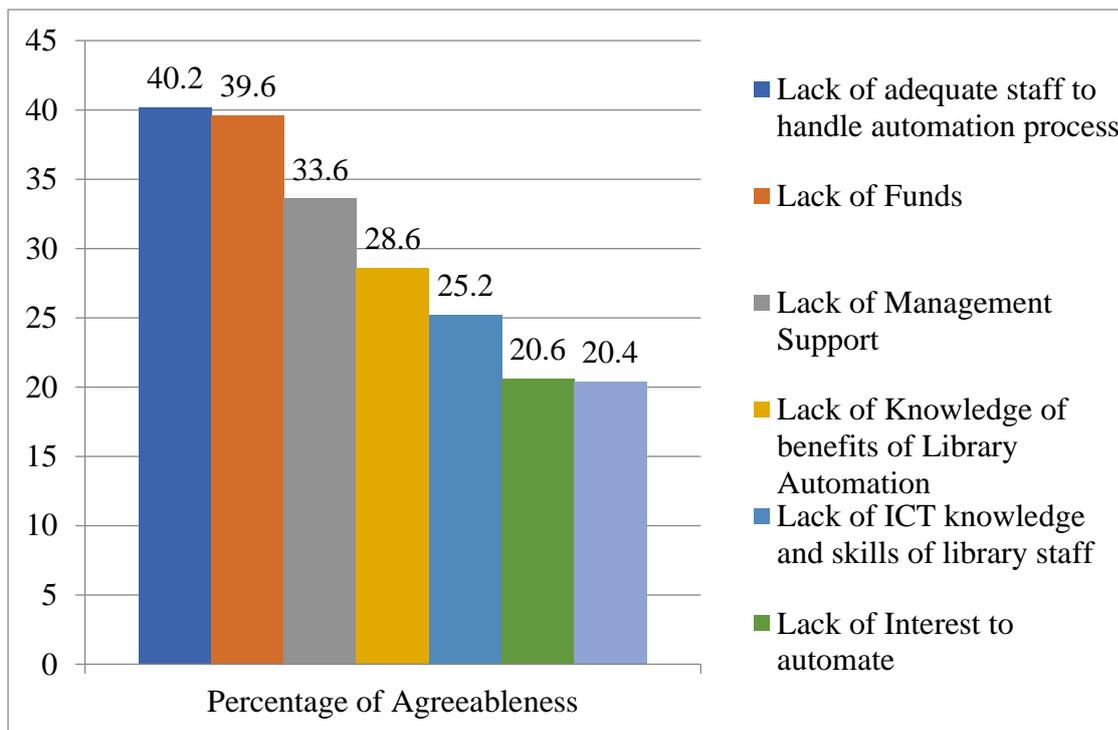

Figure 7

It can be inferred from the above Figure that most libraries are satisfied with the library automation software and the operations carried out with it. However, there are still considerable numbers of problems that are faced by the library staff due to library automation at the beginning and after automation. So first it can be eliminated if proper implementation of library automation project is carried out.

It is found from this study that 40.2% of them agree that the "lack of adequate staff" to handle automation process is the primary problem in automating the library. Next, 39.6% of them agree that the 'lack of funds to libraries' is the secondary reason, followed by 33.6% of them agreeing on the problem associated with 'lack of management support'. Besides these, 28.6% of them feel the 'lack of knowledge of benefits of library automation by the library staff', and that 25.2% of the staff feel the 'lack of ICT knowledge and skills' by them is another reason. The problems which the library staff did agree less are 20.6% of agree that 'lack of interest to automate by the staff' as the reason and 20.4% of them agree that 'library staff feel manual or non-automated systems are good and that is the key reason mentioned by the library staff in general. These numbers indicate a positive sign and attitude towards library automation by the library staff in the colleges under study.

6.12 Reasons for Not Automating Library

So far good reasons, benefits and usefulness of library automation are examined in which the library have automated. However, only about40% of the college libraries are automated. So, the study has reviewed the progress and the problems faced by the libraries that have already been automated. Here the study reflects upon on the rest of the colleges 192 that have not yet initiated the process of automation in their libraries, and examines the reasons behind not automating their libraries.

The below table depicts the percentage of reasons that could be a contributing factor why majority of libraries are not automated in Government First Grade Colleges, Karnataka. The least of the reasons why libraries have not yet taken up the automation are: library professionals are not interested in IT adoption in the library (7.29%); a fear of modern IT techniques could reduce/replace the library professionals (4.68%), lack of professional recognition by the authorities of the library (7.81%), inaccurate expectations of information technology (10.93%). This shows a very positive attitude by the library professionals towards library automation problems, which indicates that the problem lies not in the professional's enthusiasm and knowledge but elsewhere.

Table 9 Reason for not automating

Reasons for No Automation	Number	Percentage
The library has insufficient funds	162	84.38

Lack of adequate trained staff in IT application	125	65.10
Lack of coordination in the Authorities of the Institution	118	61.46
Lack of cooperation and coordination among the staff	95	49.48
No full support from higher authorities for IT application in Library	60	31.25
Inaccurate expectations of Information Technology	21	10.94
Lack of Professional recognition by the Authority of the Library	15	7.81
Library professionals are not interested in IT adoption to the Library	14	7.29
A fear of modern IT Techniques could reduce/replace the Library Professionals	9	4.69

The reason with highest percentage indicating towards no automation is lack of sufficient funds for libraries 162 (84.37%), followed by lack of adequately trained staff in IT applications 125 (65.10%), lack of coordination within the authorities of the institution to initiate automation process, lack of cooperation and coordination among the staff 95 (49.47%), and no full support from higher authorities for IT application in library 60 (31.25%).

7. Findings

It is found that only 39.05% (N=123) of the Government First Grade Colleges in Karnataka have already initiated library automation, while the majority 60.95% (N=192) of the colleges are yet to begin the process of library automation which is implying very important finding of this study as still more than 60% of the Colleges have not automated their libraries.

1. Among the 123 college libraries that have already initiated the automation process, only 36% (N = 44) of them are fully automated, while 18% (N = 22) of them are still in the progress of automation. Majority of the colleges 46% (N = 57) are partially automated. This again an important finding as with all the facilities available now why Government Colleges have failed to automate their libraries.

2. Among the 123 colleges that have initiated the automation, 27 of them which is highest number among other have started the process of automation during the year 2015. The

process of library automation in Government First Grade Colleges in Karnataka was started in the year 2008 and only between 2011 and 2016 most libraries have taken up the automation with a maximum number of libraries come to 106 libraries out of 123 which are in the process of Automation.

3. Across the urban (N=108) and rural (N=163) regions in Karnataka there are more libraries which are not automated compared to those that are automated

4. Among the 13 colleges established between 1911 – 1960, 84.62% (N=11) of the libraries have already been automated compared to the 37.09% (N=112) of the libraries of the colleges which were established between 1961 – 2017.

5. There are 28.77% (N=61) automated libraries in colleges with a total book collection of 20000 or less (N=212). The colleges with a higher book collection of 20000 and above (N=103) have 60.19% (N=62) of automated libraries in their colleges.

Among the libraries that are already automated, it is noted that the Circulation module of most libraries (N=63) is fully automated, with 25 colleges each that are partially automated and automation in progress. Yet it is noticed that Acquisition (N=57) and Cataloguing(N=48) modules are those, which all the colleges have reported to be Fully Automated, with only 1 and 3 colleges each, that are Partially Automated and Automation in progress respectively

8.Conclusion

The study has brought out many issues through its limited coverage of Government First Grade Colleges. More and more such studies be undertaken to encounter the library automation lacunas from this country. In fact, the library automation is now taken a back seat as more and more researches are concentrating on digital libraries and electronic resources and e-learning initiatives.

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