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Usage and Performance of Various Library Software Modules in Engineering Colleges of Karnataka

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ABSTRACT

In India library automation began in the late 1970s in a 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. Many studies on library automation have been undertaken in the developed countries, but few have been undertaken in India. This study is a survey of engineering college libraries that have computerised their operations and services in Karnataka. The study is limited to the automated libraries of engineering college libraries 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.

Keywords: Library automation, serial control, Online Public Access Catalogue (OPAC), software modules, engineering college libraries, Karnataka.

1. INTRODUCTION

Library automation, which started in India in late 1970s in few special libraries, has now reached most of the academic libraries.[1] Computerisation was started in the libraries to increase the efficiency and effectiveness of the library operations and services. Development and use of information and communication technology (ICT) has enabled the libraries not only to offer their clientele the appropriate information available within their libraries but also provide access to information of other libraries, both local and outstations.[2] In the current scenario there is a greater responsibility on the libraries and information centres to provide the latest and timely information to their users to facilitate improvement in the quality of education in the country and this cannot be done until each institution has an efficient library and information management systems at its command.[3]

Library automation systems are elaborately designed and crafted computer applications that require considerable programming skills together with an extensive knowledge of the functional needs of libraries and the exacting standards that are applied in their libraries. Software technologies used in library automation systems include database management systems, client-server architecture, search engine technology, and, increasingly, software used in web-based applications.[4]

2. RELATED LITERATURE STUDY

Most of the literature in this area speculates on the integrated library software and their effective use in libraries. Design and development activities of library software packages began during the mid 1980s in India with the promotion of UNESCO's CDS/ISIS by the National Information System on Science and Technology (NISSAT). From the experience of its use, some libraries and information centres subsequently developed their own software. Selection of suitable package is now a problem due to lack of good, and up-to-date comparative studies. Saxena and Srivastava recommend Sanjay for smaller libraries, and Suchika, Granthalaya and Libsys for larger ones.[5] Another study provides an understanding of the challenges confronted by the National Informatics Centre (NIC) in the scale and scope of the deployment of e-Granthalaya. NIC proposed a web-based online library service connecting public libraries in India and integrating library services in a "single window access". There is a

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need of a model for the automation, networking, and federating of resources for other groups of libraries in India.[6] Yogendra Singh analysed the various factors that directly or indirectly affect the progress of library automation such as management issues, resources available with the libraries, level of skill of staff, availability of suitable software, geographic location, the areas in which automation has taken place and role played by the INFLIBNET, and found that things were changing for the better as library automation in academic libraries is now being regarded as an urgent need.[7]

Another study, carried out by Husain and Ansari, discussed the effectiveness of library services including efficient organisation and retrieval of information activities.[8] Since the application of information technology in libraries, one of the greatest challenges before the library managers has been the selection of a good library automation software, which can cater to the needs of a particular library. Authors found that though a number of Indian as well as foreign software companies had entered the market, only a couple of library automation software packages gained success in making their presence felt. Their study also discussed the salient features of cataloguing module of three such packages, namely, Alice for Windows, Libsys, and Virtua and their acceptability in a developing nation.[8] Harinarayana and Raghavan examined the comparative retrieval effectiveness of the two packages, viz., CDS/ISIS and LibSys. A set of eight well defined parameters were employed to compare the two packages. The result showed that neither of the two packages provides support for all the features expected of an ideal retrieval software. They found some significant difference between CDS/ISIS and LibSys in terms of their ability to provide desirable features; there was a difference of 9.34 per cent in the levels of performance of the two packages.[9]

Libraries, librarians, and college administrations must initiate automation to provide effective and efficient services to users. Library professionals must upgrade their skills to meet the growing expectations of users from libraries. Many studies on library automation have been undertaken in the west, but few have been undertaken in India. Bansode and Periera tried to identify the status of library automation in college libraries of Goa.[10] Another survey covered various aspects of library automation such as information technology infrastructure, in-house activities, information services and their usage. Suku and Mini briefly described the role of INFLIBNET Centre in accelerating the automation activities of university libraries, especially in the context of the recently introduced UGC-INFONET programme.[11] Mukhopadhyay discussed the development of library management software over the past decades, the characteristics and trends of software with special reference to packages available in Indian environment and compared services and facilities incorporated in library automation packages available in India against various checklists.[12] The developments of library management software over the years and availability of open source software for library management have emerged as viable alternative to commercial closed products. Mukhopadhyay found Koha as the most feature rich library automation software in the domain and report development of Unicode-complaint Bengali version of Koha for college libraries and public libraries in West Bengal.[13] There were many similar results in the other studies, however, differences in the direction of effects between different studies, attributed to different sampling methods or to the methodology adopted, should be kept in mind.

3. NEED AND OBJECTIVES OF THE STUDY

Literature survey showed that there is no detailed study carried out on the library software packages in engineering college libraries. It was also observed that some of the engineering college libraries in Karnataka are well equipped and providing better library services to the users by using modern library software packages. The study was undertaken to collect first-hand data from all engineering colleges in Karnataka and present the status of their library automation. The study focuses on adequacy of library management softwares and brings out the inadequacies if any.

The main aim of the study was to explore the problems faced by engineering college libraries in using integrated library software packages for automating various operations. The specific objectives were:

- To know the supportive infrastructure facilities available for library automation in engineering college libraries.
- To know which library software was being used by the libraries of engineering colleges in Karnataka.
- To examine the extent of usage and performance of various modules of library software in engineering colleges of Karnataka.
- To record the experiences of librarians and library staff in accessing these integrated library software.

4. METHODOLOGY

The opinions of librarians regarding library softwares were elicited using a structured questionnaire followed with interviews. Opinions on different issues pertaining to the library housekeeping operations were sought from the respondent libraries. The questionnaires were mailed to 128 engineering college librarians in the Karnataka. Out of these, 102 (79.69 per cent) were received duly filled with all the relevant information requested in the questionnaire. However, geographically the scope of the study is limited to colleges located in the state of Karnataka only.

Table 1 gives the list of all engineering colleges covered under the study. A five-point scale was used to measure the opinions of the respondent librarians. Hierarchical cluster for variables-cluster method-Ward's method, dendogram were also used for analysing the data. The SPSS 15.0 for Windows evaluation version was used for statistical analysis.

5. ANALYSIS OF DATA AND DISCUSSION

5.1 Details of Questionnaires Distributed to Librarians and Responses Received

The study received 102 (79.69 per cent) completed responses from librarians of engineering college libraries

Table 1. List of engineering colleges under study

Acharya Institute of Technology	SJB Institute of Technology
Atria Institute of Technology	SJC Institute of Technology
Acharya Patasala College of Engineering	Sambhrama Institute of Technology
Alpha College of Engineering	Saptagiri College of Engineering
AMC Engineering College	Siddaganga Institute of Technology
Amritha School of Engineering	Sir MV Institute of Technology
BMS College of Engineering	Sri Channabasveswara Institute of Technology
BMS Institute of Technology	Sri Krishna Institute of Technology
BNM Institute of Technology	Sri Siddhartha Institute of Technology
BTL Institute of Technology	Sri Venkateshwara College of Engineering
Bangalore Institute of Technology	Sridevi Institute of Engg. & Technology
Basava Academy of Engineering	The Oxford College of Engineering
C M R Institute of Technology	UV College of Engineering
City Engineering College	Vemana Institute of Technology
Dayanada Sagar College of Engineering	Vivekananda Institute of Technology
Don Bosco Institute of Technology	Yellamma Dasappa Institute of Technology
Dr Ambedkar Institute of Technology	Anjuman Engg. College for Men
East Point College of Engineering	BLDEA's College of Engg. & Technology
East-West Institute of Technology	BVB College of Engg. & Technology
Global Academy of Technology	Gogte Institute of Technology
Golden Valley Institute of Technology	Hirasugar Institute of Technology
HKBK College of Engineering	KLE Society's College of Engineering
HMS Institute of Technology	K Law Society's VD Rural Int. of Technology
Impact College of Engineering & Applied Science	SDM College of Engg. & Technology
JSS Academy of Technical Education	SECAB Institute of Engineering & Technology
K N S Institute of Technology	Smt KSVM Agadi College of Engg & Technology
KS Institute of Technology	Sri Tontadarya College of Engineering
Kalpataru Institute of Technology	Sri BVVS's Basaveshwar Engg. College
MS Engineering College	PDA College of Engineering
MS Ramaiah Institute of Technology	Appa Institute of Engg. & Technology
MVJ College of Engineering	Basava Kalyan Engg. College
Nagarjuna College of Engineering & Technology	Bellary Engineering College
New Horizon College of Engineering	Guru Nanak Dev Engineering College
NITTE Meenakshi Institute of Technology	KBN College of Engineering
PES Institute of Technology	KCT Engineering College
PES School of Engineering	Proudadevaraya Institute of Technology
RLJ Institute of Technology	Rural Engineering College
RNS Institute of Technology	National Institute of Engineering
RV College of Engineering	Adichunchanagiri Institute of Technology
Rajeev Gandhi Institute of Technology	Bahubali College of Engineering
Reva Institute of Engineering & Technology	Bapuji Institute of Engg. & Technology
Revana Sidd. Institute of Technology	BGS Institute of Techology
SB Mahavir Jain College of Engineering	Coorg Institute of Technology

GSSS Institute of Engg. & Tech. for Women
GM Institute of Technology
JNN College of Engineering
K VG College of Engineering
Malnad College of Engineering
Manipal Institute of Technology
Moodalkatte Institute of Technology
NMAM Institute of Technology
PA College of Engineering
PES College of Engineering
SJ College of Engineering
St. Joseph Engineering College
UBDT College of Engineering
Vidya Vikas Institute of Technology
Vidyavardhaka College of Engineering
Vivekanand College of Engg. & Technology

in Karnataka, which constitutes primary data for analysis and interpretation of 128 mailed questionnaires. The distribution of responses is shown in Table 2.

Table 2 shows that 78 responses out of 102 are from private colleges, 11 from minority institutions, nine from private aided colleges, and four from university constituent colleges. These represent 76.47 per cent, 10.79 per cent, 3.92 per cent and 8.82 per cent of the total respondents, respectively.

Table 2. Details of questionnaires distributed

Types of college	No. of questionnaire distributed	No. of questionnaire received	Percentage of responses
Government Colleges	2	0	0.00
Private-aided Colleges	11	9	8.82
Private Unaided Colleges	97	78	76.47
University Constituent Colleges	5	4	3.92
Minority Institution	13	11	10.79
Total	**128**	**102**	**100.00**

5.2 Availability of Electronic Gadgets and other Accessories in Libraries

Both harware and software are essential along with some basic component without which it can not function smoothly. Keeping in mind the first objective of this study the researcher wanted to know the infrastructural facilities available for automation at the surveyed colleges. Table 3 shows electronic gadgets and other accessories available at the different libraries under the study.

Table 3. Electronic gadgets and other accessories in libraries

Description	No. of college libraries	Percentage n=102
Computers		
Pentium-IV	78	76.47
Pentium-III	24	23.53
Pentium-II	10	9.81
Printers		
Inkjet printer	43	42.16
DeskJet printer	33	32.35
Dot matrix printer	29	28.43
Laser printer	17	16.67
Barcode Reader/Printers		
Barcode reader	80	78.43
Barcode printer	53	51.96
Scanners		
Document scanner	52	50.98
Scanner (OCR)	49	48.04
Others		
CD NET (CD-ROM Tower)	79	77.45
CD-ROM/DVD drives	79	77.45
UPS (online/Offline)	88	86.27
Operating system		
Windows 2000/ Professional	46	45.10
Windows XP	22	21.57
Windows 2003	15	14.71
Windows 98	7	6.86
Linux	7	6.86

Note: Total percentage will not be hundred because responses are more than one.

5.3 Technology-based Infrastructure

Table 4 shows the network status, types of networks, and different consortia available at the engineering colleges under survey.

5.4 Status of Library Automation in Engineering College Libraries

Automation provides the means to offer new improved services to its patrons. The automated library functions are acquisition, cataloguing, classification, circulation, serials control, bill payment, budgeting, reminders and reference services.

The status of library automation in engineering colleges of Karnataka is shown in Fig. 1. Out of 102 respondent libraries, 88 (86.27 per cent) libraries were automated.

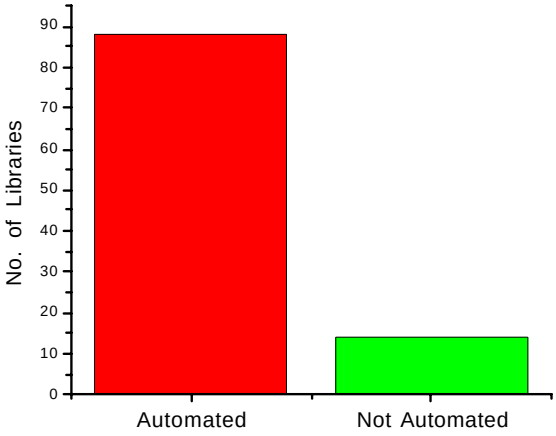

Figure 1. Status of library automation in engineering colleges.

Table 4. IT-based equipment and facilities

Networking status		Types of networking		Status of consortia	
Yes	No	LAN	WAN	Yes	No
88 (86.27)	14 (13.73)	21 (20.59)	67 (65.69)	88 (86.27)	14 (13.73)
102 (100.00)		**102 (100.00)**		**102 (100.00)**	

Note: Figures given in parentheses indicate percentage

5.5 Reasons for Not Automating the Library

Library automation is an important step for giving better services to the users. Table 5 shows the reasons for delay in starting automation in 14 libraries.

Table 5. Reasons for delay in starting automation

Reasons	No. of library	Percentage n=14
Lack of computer facilities	14	100.00
Inadequate finance	9	64.29
Management is not interested	6	42.86
Lack of trained manpower	2	14.29
Library collection is very less	2	14.29

5.6 Various Library Software Used for Library Automation

Table 6 shows various library software used at the engineering college libraries in Karnataka. It is observed from the Table 6 that a large majority of respondents are using Libsoft for library automation.

5.7 Status of Functioning Software Modules

Library automation means not only entering and reading the data onto computer, but also automation of different functional areas of library. Table 7 exhibits that the Administrative module, cataloguing and circulation

Table 6. Library software used at the engineering college libraries in Karnataka

Name of the software	No. of libraries	Percentage
Libsoft	32	36.36
EasyLib	20	22.72
In-house	8	9.09
Nettlib	5	5.68
Smart Campus	5	5.68
LiMS	3	3.40
e-Lib	2	2.27
e-Granthalaya	2	2.27
SOUL	2	2.27
Libsuite	1	1.14
SLIM ++	1	1.14
Chancellor	1	1.14
Pal Pup	1	1.14
NewGenlib	1	1.14
Libsys	1	1.14
YLAS	1	1.14
IOZEN	1	1.14
Lib-Manager	1	1.14
Total	**88**	**100.00**

Table 7. Status of functioning software modules

Modules	No. of libraries	Percentage n=88
Administrative module	88	100.00
Catalogue module	88	100.00
Circulation module	88	100.00
OPAC module	80	90.91
Acquisition module	22	25.00
Serials control module	19	21.59

module are functioning 100 per cent in respondent libraries, 90.91 per cent of libraries are using OPAC module functions. Twenty-two libraries are using automated module functions like acquisition, 22 (25.00 per cent) and 19 (21.59 per cent) libraries are using serials control module. The reasons could be attributed to different practices followed by respondent libraries.

5.8 Opinions About the Usage and Performance of Software Modules

Opinions of the respondents about the different areas of usage and performance of modules, i.e., administrative, catalogue, circulation, OPAC, acquisition and serials control were weighted based on the scale for usage, like 5 = 30 (high usage), 4 = 25 (good use), 3 = 20 (fair use), 2 = 15 (average use), and 1 = 10 (least usage). Scale for performance, i.e., 5 = 30 (excellent), 4 = 25 (very good), 3 = 20 (good), 2 = 15 (average), and 1 = 10

(below average) and calculated scales equally distributed to calculate weight. Further, these weights were subjected to cluster (C1, C2, C3, C4) analysis (Ward's method with Interval Squared Euclidian method) to draw Dendograms for the modules. The Dendograms are:

5.8.1 Administrative Module

Different clusters among the respondents were rated for usage and performance of administrative modules (Fig. 2). Fourth cluster (C4) parameter was rated stand independent against usage and performance of administrative module. More parameters clustered in third (C3) group signifies the usage and performance of administrative module among the respondents.

5.8.2 Catalogue Module

Different clusters rated for usage and performance of catalogue modules are shown in Fig. 3. In the fourth cluster, only one parameter supports the complex documents that stand independent against usage and the performance of a catalogue module. More parameters clustered in the second (C2) group signifies the usage and performance of a catalogue module among the librarians.

5.8.3 Circulation Module

Different clusters rated are shown in usage and performance of circulation modules in Fig. 4. In the first and fourth clusters (C1, C4), two parameters; issue of no-due certificate and reporting lost items stand independent against usage and performance of circulation module. More parameters clustered in the second (C2) group signifies the usage and performance of library software's circulation modules among the librarians.

5.8.4 OPAC Module

Different clusters for usage and performance of OPAC modules are shown in Fig. 5. In fourth cluster (C4), two parameters are standing independent against usage and performance of OPAC module. More parameters

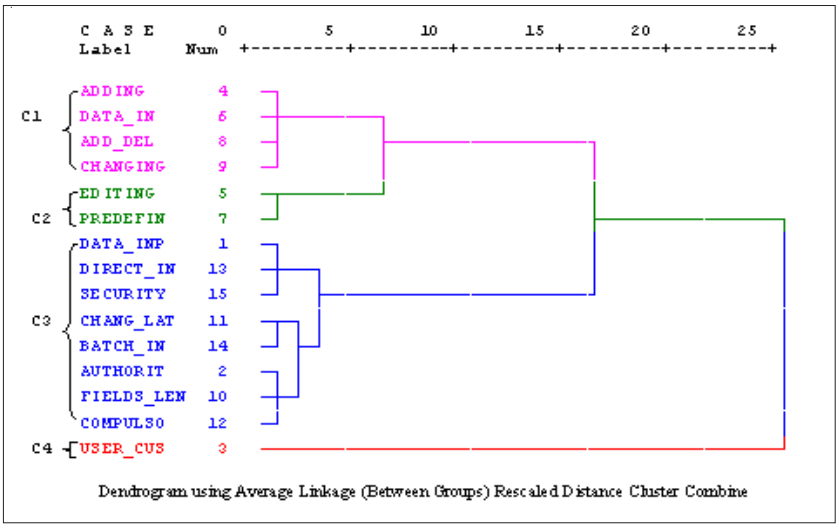

Figure 2. Administrative module: Usage and performance.

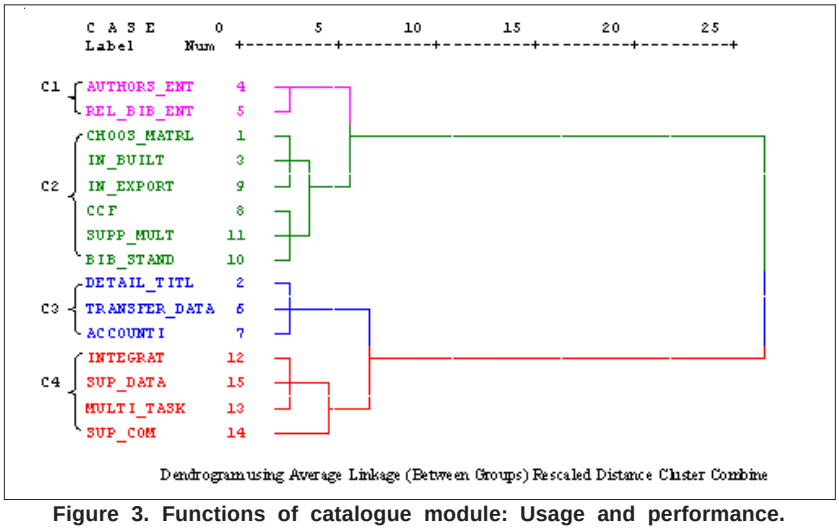

Figure 3. Functions of catalogue module: Usage and performance.

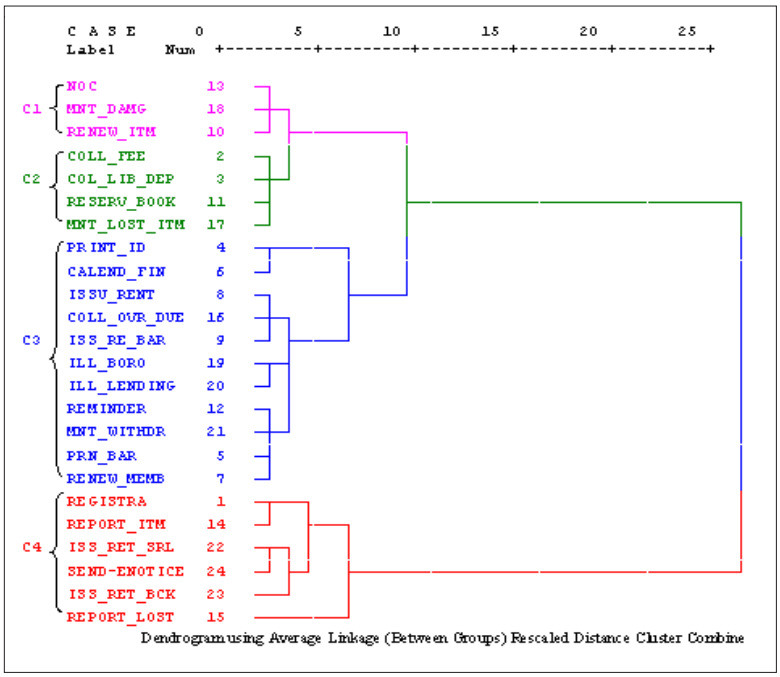

Figure 4. Functions of circulation module: Usage and performance.

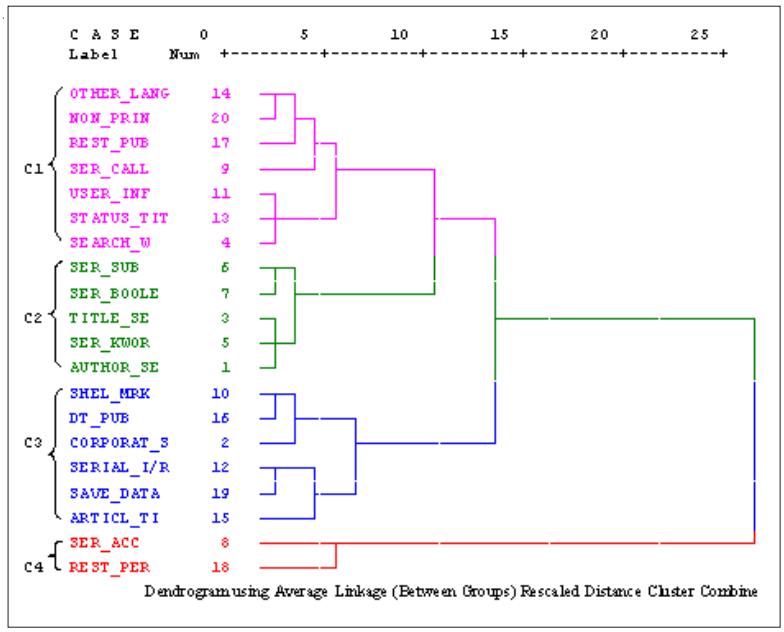

Figure 5. Functions of OPAC module: Usage and performance.

clustered in the second group signifies the usage and performance of OPAC modules among the librarians.

5.8.5 Acquisition Module

Different clusters rated for usage and performance of acquisition modules are shown in Fig. 6. In the fourth cluster, only one parameter routing and bindery preparation, stands independent against usage and performance of acquisition module. More parameters clustered in first group signifies the usage and performance of acquisition modules among the respondent librarians.

5.8.6 Serial Control Module

Different clusters rated for usage and performance of serial control modules are shown in Fig. 7. It is observed from the Fig. 7 that the first cluster parameters stand independent against usage and performance of serial control module. More parameters clustered in second group signifies the usage and performance of serial control modules among the respondents.

5.8.7 Impact of Automation on Library Development

The responses of the respondents on the impact of automation on a library's development have been

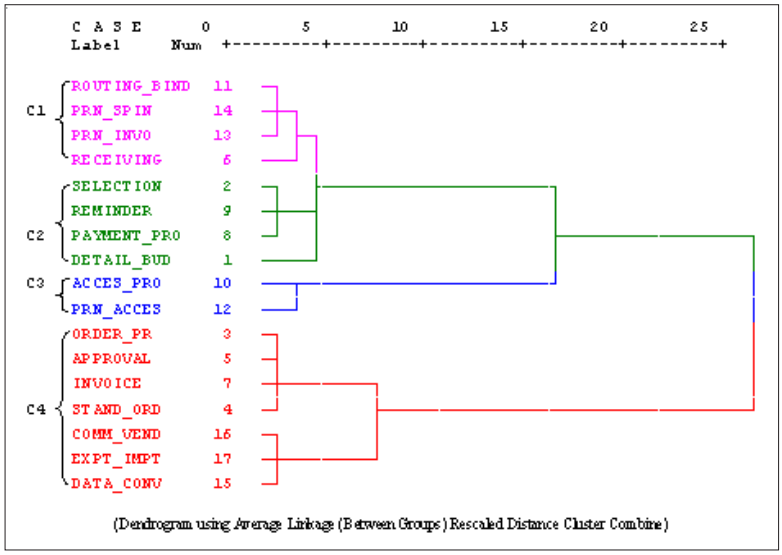

Figure 6. Functions of acquisition module: Usage and performance.

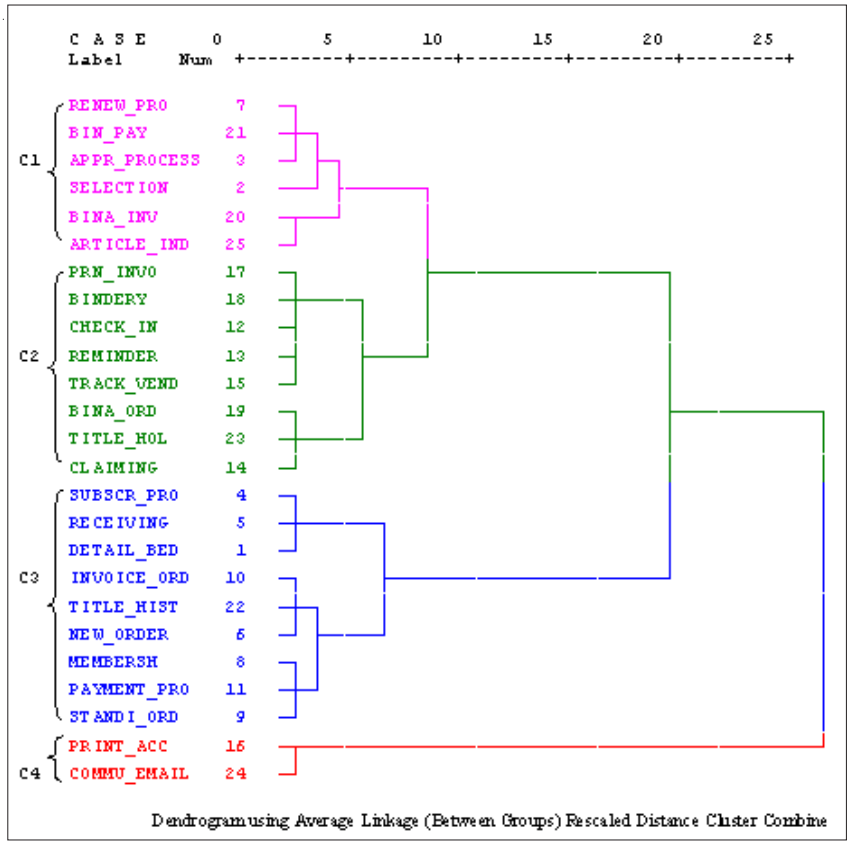

Figure 7. Serial control modules: Usage and performance.

summarised and presented in the Table 8. Out of 88 respondents, 79 (89.77 per cent) librarians have an opinion on the increase in number of ILL requests because of library automation, whereas 74 (84.09 per cent) librarians have expressed that they have increased the number of library users followed by 73 (82.95 per cent) librarians who have opinions on an increasing number of circulation transactions, and 69 (78.41 per cent) librarians stated that it was helpful for building an appropriate collection because of the library automation system.

Table 8. Impact of automation on library development

Impact of automation	No. of libraries	Percentage n=88
Increasing no. of ILL requests	79	89.77
Increasing no. of users	74	84.09
Increasing no. of circulation transactions at the desk	73	82.95
Helpful to building appropriate collection	69	78.41

6. FINDINGS AND SUGGESTION

- It was observed that 14 libraries lack computer facilities. However, six libraries' management is not interested to spend amount for automation. Only two libraries are suffering from lack of trained manpower.
- It was observed that serial control and acquisition modules were being used by less librarians because acquisition process was different from software to software and from library to library.
- Most of the libraries were having good IT infrastructure and other accessories.
- To be the part and parcel of library information system development process, library staff should respond to the developments in technology; they must keep up-to-date with technologies available, they must evaluate technologies, so that they can make informed decisions about using these technologies, and are able to develop practical plans for implementing these technologies.
- Upgrading the core competencies of staff, alongside library's automation system not only enhances the professional competencies of the staff, but also thwarts the intrusion of alternative information providers into the information profession, and
- The impact of library automation on services of responded libraries has increased in terms of ILL, users visit to library, circulation, and will be helpful in building the appropriate collection.

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