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INFRASTRUCTURE AND FACILITY READINESS FOR PROVIDING E-LEARNING AND ALLIED SERVICES IN THE ENGINEERING COLLEGE LIBRARIES OF KERALA

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ABSTRACT

Over the last decade, rapid reforms have been undertaken in the higher education sector such as policy framing, pedagogical transformations, accreditations, faculty standardisations and, most importantly, e-learning. Institutions, especially engineering colleges were quick and steady to admit the concepts of e-learning and its applications in teaching and learning process. Online repositories and subscribed contents are no more an unfamiliar notion among the concerned users in engineering colleges. Though majority of colleges are willing to embrace the new changes, academic circles are quite sceptic on the adequacy and suitability of infrastructural facilities available in the respective colleges. Many are concerned about possible gap between the availability of e-resources and the mechanisms for effective accession and use of the e-contents; for the teaching and learning process. This paper discusses on, the study conducted among the librarians of engineering college libraries in Kerala state, about the infrastructural support available for the accession and usage of e-resources.

Keywords: *Library Resources, e-resources, e-journals, e-books, Engineering College Libraries, Resource Sharing, Information and communication Technology, Internet, Library Automation, Library Networking, Library Equipments, Infrastructure.*

INTRODUCTION

Twenty first century is marked with the victorious march of world from the triumph of industrial revolution to the possibilities of information revolution. Along with innovations in science and technology, many say, the fourth industrial revolution is predominantly driven by

data, information, its storage, communication, analysis and its interpretation. Therefore, data in terms on meaningful information is necessary and the mechanisms by which information generated at any one point needs to be structured, organized and disseminated expeditiously for its optimum use in human progress. Information must be made available at the right time without any barrier. Digitization of resources fuelled the way to this goal profoundly, and its presence is felt in all spheres of life; including education.

The present-day educational system, especially technical education, gives ambient importance on having accession of information from around the world, in terms of e-resources. Thanks to the progress in the field of information and communication technology, information can be amassed from any distance within seconds. Almost all school contents and publications are getting digitalised and made available through online. However, necessary infrastructure is a must to make use this ocean of knowledge effectively and efficiently.

Quality of the infrastructure and supporting services to access e-resources could be detrimental, as far as end users are concerned. It would be beneficial for policy makers, to have a thorough understanding about the status of infrastructural facilities, available in various Institutions, to access the e-resources.

This study is intended to have a statistical analysis of data concerned with the infrastructural facilities and support in engineering colleges to facilitate e-learning. Apart from being curios on the outcome of the analysis, the paper also discusses existing study in the field and proposes suggestive measures, to improve on the matters of concern. The geographical scope of the study is limited to the state of Kerala and the demographic ensemble the set as the professional librarians in the engineering colleges of Kerala.

REVIEW OF EXISTING STUDIES

Over the last decade, various researchers have studied and summarized certain conclusions about the automation, networking and other infrastructure available in academic institutions, in the country as well as worldwide.

Boriwal et al. (2018) conducted a study of e-resources & consortia pertaining to Madhya Pradesh state. Paper details basic and essential information about institutions, infrastructure available, library services, analyses and satisfaction level of librarians. The study concluded

that most of the librarians are satisfied with coverage & cost of e-resources in INDEST (now e-ShodhSindhu). They are also pleased with IT infrastructure available in their libraries. On conclusion they suggested that organizations needed to arrange orientation training programs on regular basis to promote use of e-resources.

Jestin and Sornam (2016) did a study on the awareness, availability and usage of e-resources by the faculty members of engineering colleges in Kerala. Study also examined the barriers the users were facing while using the e-resources and their level of satisfaction. The findings showed that most faculty members are well aware about the e-resources and most of them are using e-resources at least once in a week. And in general, availability of e-resources was good except for a few engineering e-packages. Majority of the staff members were accessing the e-resources via computers and they primarily used the e-contents for teaching. Security issues, poor connectivity, suitable library hours and copy right issues were some of the minor difficulties they faced. In general, almost all staff members were satisfied with the facilities available for accessing e-resources.

Hussain, Akhtar and Lavanya (2014) in their study showed that users expected well equipped compartments, with enough numbers of computers, for the accession of e-resources. They also felt the need of well-trained human resource, for assisting the users. Some expressed concerns about time schedules for the digital library usage. Everyone agreed that teacher's motivation as a critical factor in the adoption of e-resources. The study concluded that engineering college libraries must be well equipped with necessary and latest hardware and software facilities, along with up-to-date relevant collections of e-resources in order to provide better services to the users.

Saleem, Tabusum and Batcha (2013) in their paper have studied the application of Information and Communication Technology (ICT) and the uses of ICT tools in the academic libraries of India. They pointed out lack of up to date infrastructure and suggested additional ICT equipments and services to modernize the Libraries.

Mostofa (2013) examined the existence of various e-resources and services available in some selected private University libraries at Dhaka, in Bangladesh. The study enquired on different types of e-resources used by students, the purposes and frequency of using e-resources and the problems faced by the students while accessing and using the e-resources in the library.

Study showed the use of e-resources is very common among the university and most of the students were depending on e-resources to get the desired and relevant information. However, the practical use of e-resources was not up-to the value in comparison to investments made in acquiring these resources; secondly infrastructure and training programs are not up to the standards as per the requirements. It is observed that the availability of e-resources on the campus is almost enough for all the existing disciplines but the infrastructure were not adequate and could potentially obstruct the ability to meet the requirements of users.

Jacob, Ancy and Sornam, Ally (2011) developed a library consortium model for the fisheries institute in Kerela. While studying they found that due to insufficient funds and self-sufficiency of library would be a problem.

Haneefa (2007) presented the results of an investigation in the study "Use of ICT Based Resources and Services in Special Libraries in Kerala, India". Majority of the users were using email service for their communication. Internet to access web were used by 60 % of the library users. A good number of users was dissatisfied with the accession and availability of e-resources in the libraries; and indicated 'inadequate ICT infrastructure' as one of the major reasons for dissatisfaction. Users also suggested measures such as orientation and training in ICT based resources and services for the library human resource.

SCOPE OF THE PRESENT STUDY

There are around one hundred and sixty Engineering colleges present in the state of Kerala. The present investigation is limited to a descriptive study and the scope of the study is confined to the libraries of engineering colleges in Kerala.

OBJECTIVES OF THE STUDY

- To know the infrastructure and networking facilities available in the engineering college libraries of Kerala.
- To know the various equipments and facilities available for the usage and sharing of e-resources in the engineering college libraries of Kerala.
- To list the suggestions for improving the use of e-resources in the engineering college libraries of Kerala

METHODOLOGY

Keeping in view the objectives of study, the study adopted survey method, comprised of a well-structured questionnaire which was circulated among the librarians to collect the necessary primary data.

POPULATION & SAMPLE SIZE

The study encompassed the Librarians of the Engineering Colleges in Kerala State. The researcher collected data from the established colleges incepted before the year 2003. Out of 69 colleges, responses from 52 colleges were able to collect. Librarians of all the 52 colleges were also included for the study.

Respondents Surveyed

Regions of Kerala	Number of Engineering Colleges	Number of Librarians
North	**8**	**8**
Central	**16**	**16**
South	**28**	**28**
Total	**52**	**52**

*North Kerala districts (Malabar region): Kasaragod, Kannur, Wayanad, Kozhikode and Malappuram. Central Kerala districts (Kochi region): Palakkad, Thrissur and Ernakulam. South Kerala districts (Travancore region): Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, Kottayam and Idukki.

DATA ANALYSIS

The analysis and interpretations of the data collected through questionnaires are tabled below.

TABLE 1: TABLE SHOWING LIBRARY AUTOMATION & NETWORKING

S.No	Library Automation & Networking	No of Respondents (n:52)	Percentage
1.	**Library Automated**		
	Yes	47	90.4
	No	5	9.6
2.	**Name of Library Software**		
	Nil	5	9.6
	KOHA	23	44.2

	Book Magic	4	7.7
	DEL plus	2	3.8
	Library soft	5	9.6
	Soul	5	9.6
	Others	8	15.4
3.	**Type of Software**		
	Nil	8	15.4
	Independent software	37	71.2
	A module in the campus solution software	7	13.5
4.	**Technology used for circulation control**		
	Nil	8	15.4
	Barcode	36	69.2
	RFID	4	7.7
	Card system	4	7.7
5.	**Library has Independent Network**		
	Yes	17	32.7
	No	35	67.3
6.	**Network access**		
	No Access	8	15.4
	LAN	42	80.8
	Wi-Fi	2	3.8
7.	**Library has a website**		
	Yes	10	19.2
	No	42	80.8
8.	**Mode of Internet connectivity**		
	Wired	26	50.0
	Wireless	14	26.9
	Both	12	23.1
9.	**Internet Service Provider**		
	No access	5	9.6
	BSNL	31	59.6
	Asianet	9	17.3
	Reliance	7	13.5
10.	**Library has Internet connectivity**		
	Yes	46	88.5
	No	6	11.5
11.	**Type of Internet connection**		
	Nil	6	11.5
	Broad band	25	48.1
	Cable network	5	9.6
	Leased line	16	30.8
12.	**Digital Library**		
	Yes	31	59.6
	No	21	40.4

13.	**Number of PCs in the library**		
	Nil	8	15.4
	Up to 10 PCs	7	13.5
	11 to 20 PCs	17	32.7
	21 to 30 PCs	11	21.2
	Above 30 PCs	9	17.3
14.	**Number of PCs in the library having Internet connection**		
	Nil	8	15.4
	Up to 10 PCs	15	28.8
	11 to 20 PCs	14	26.9
	21 to 30 PCs	9	17.3
	Above 30 PCs	6	11.5
15.	**Policy for developing e-resources in the library**		
	Yes	33	63.5
	No	19	36.5
16.	**Availability of Institutional Repository**		
	Yes	31	59.6
	No	21	40.4
17.	**Plan to shift library server to Cloud Technology**		
	Yes	18	34.6
	No	34	65.4
18.	**Member of other Library Consortium**		
	Yes	16	30.8
	No	36	69.2
19.	**Library Consortium**		
	Nil	36	69.2
	DELNET	14	26.9
	IEEE	2	3.8
20.	**Library is a member of regional library networks**		
	Yes	1	1.9
	No	51	98.1
21.	**Sufficient infrastructure to use web-based resources**		
	Yes	29	55.8
	No	23	44.2
22.	**Users prefer Electronic resources to Print resources**		
	Yes	35	67.3
	No	17	32.7

Source: *Primary Data*

It is revealed from table 1 that vast majority (i.e.) 90.4 percent of the respondents accepted that their library was automated and nearly half (i.e.) 44.2 percent of the respondents accepted that their library had KOHA software. Nearly three-fourth (i.e.) 71.2 percent of the respondents stated that their library had independent software and majority (i.e.) 69.2 percent of the respondents expressed that their library used Barcode technology for circulation control. 67.3 percent of the respondents did not agree that their library had independent network and a high majority (i.e.) 80.8 percent of the respondents stated that their library have LAN network access. Majority (i.e.) 80.8 percent of the respondents did not accept that their library maintained a website and exactly half (i.e.) 50.0 percent of the respondents agreed that their institute has wired internet connectivity. More than half (i.e.) 59.6 percent of the respondents believed that BSNL was the internet service provider for the institute and vast majority (i.e.) 88.5 percent of the respondents accepted that their library has internet connectivity. Nearly half (i.e.) 48.1 percent of the respondents expressed that their institute has Broad band internet connection and more than half (i.e.) 59.6 percent of the respondents accepted their library as digital library. One-third (i.e.) 32.7 percent of the respondents mentioned that 11 to 20 PCs are available in their library and nearly one fourth (i.e.) 28.8 percent of the respondents expressed that up to 10 PCs have internet connection in their library. Majority (i.e.) 63.5 percent of the respondents accepted that their library has a policy for developing e-resources and more than half (i.e.) 59.6 percent of the respondents agreed that Institutional Repository is available. 65.4 percent of the respondents did not have plan to shift their library server to cloud technology and 69.2 percent of the respondents were not members of other library consortium. One fourth (i.e.) 26.9 percent of the respondents stated DELNET as their library consortium and 98.1 percent of the respondents mentioned that their library is not a member of regional library networks. More than half (i.e.) 55.8 percent of the respondent's library had sufficient infrastructure to use e-resources and majority (i.e.) 67.3 percent of the respondents preferred electronic resources to print resources.

TABLE 2: TABLE SHOWING EQUIPMENTS AVAILABLE IN THE LIBRARY

S.No	Equipments available in the Library	No of Respondents (n:52)	Percentage
1.	**Server Class Machine**		
	Nil	20	38.5
	1 Machine	23	44.2
	2 Machines	7	13.5

	3 Machines	2	3.8
2.	**Laptop Computers**		
	Nil	38	73.1
	1 Laptop	9	17.3
	2 Laptops	2	3.8
	3 Laptops	3	5.8
3.	**Smart Card Reader**		
	Nil	47	90.4
	1 Smart Card Reader	4	7.7
	2 Smart Card Readers	1	1.9
4.	**Inkjet Printer**		
	Nil	24	46.2
	1 Inkjet Printer	24	46.2
	2 Inkjet Printers	4	7.7
5.	**Dot-matrix Printer**		
	Nil	43	82.7
	1 Dot-matrix Printer	8	15.4
	2 Dot-matrix Printers	1	1.9
6.	**Laser Printer**		
	Nil	43	82.7
	1 Laser Printer	6	11.5
	2 Laser Printers	2	3.8
	More than 2 Laser Printers	1	1.9
7.	**CD Server**	36	69.2
	LCD Projector	16	30.8
8.	Nil	19	36.5
	1 LCD Projector	24	46.2
	2 LCD Projector	9	17.3
	Web Camera		
9.	Nil	26	50.0
	1 Web Camera	19	36.5
	2 Web Camera	7	13.5
	UPS		
10.	Nil	10	19.3
	More than 2 UPS	17	32.7
	UPS More than 5 KVA	25	48.0

Source: *Primary Data*

As per the table 2, nearly half (i.e.) 44.2 percent of the respondents specified that 1 server class machine was available in the library and a small (i.e.) 17.3 percent of the respondents mentioned that 1 laptop was available in the library and 73.1 percent of the respondents did not mention. A small (i.e.) 7.7 percent of the respondents accepted that 1 **Smart** Card Reader

was available in the library and nearly half (i.e.) 46.2 percent of the respondents consented that 1 Inkjet Printer was available in the library. A small (i.e.) 15.4 percent of the respondents accepted that 1 Dot-matrix Printer was available in the library and a small (i.e.) 11.5 percent of the respondents agreed that 1 Laser Printer was available in the library. One-third (i.e.) 30.8 percent of the respondents accepted that 1 CD Server was available in the library. Nearly half (i.e.) 46.2 percent of the respondents specified that 1 LCD Projector was available in the library and One-third (i.e.) 36.5 percent of the respondents mentioned that 1 Web Camera was available in the library. Nearly half (i.e.) 49.0 percent of the respondents stated that UPS – capacity more than 5 KVA was available in the library.

MAJOR FINDINGS OF THE STUDY

1. Vast majority (i.e.) 90.4 percent of the respondents reported that their library is automated.
2. Nearly half (i.e.) 44.2 percent of the respondents accepted that their library has KOHA software.
3. High majority (i.e.) 80.8 percent of the respondents stated that their library has LAN network access.
4. Nearly one fifth (i.e.) 19.2 percent of the respondents accepted that their library maintains a website.
5. Exactly half (i.e.) 50.0 percent of the respondents reported that their institute has wired internet connectivity.
6. More than half (i.e.) 59.6 percent of the respondents responded that BSNL is the internet service provider for the institute
7. Vast majority (i.e.) 88.5 percent of the respondents accepted that their library has internet connectivity

8. More than half (i.e.) 59.6 percent of the respondents reported that their libraries are digital type of library
9. One-third (i.e.) 32.7 percent of the respondents mentioned that 11 to 20 PCs are available in their library
10. One-third (i.e.) 30.8 percent of the respondents were member of other library consortium
11. More than half (i.e.) 55.8 percent of the respondents' library has sufficient infrastructure to use web-based resources
12. Nearly half (i.e.) 44.2 percent of the respondents specified that one server class machine is available in their library
13. A small (i.e.) 11.5 percent of the respondents agreed that one Laser Printer is available in the library
14. One-third (i.e.) 30.8 percent of the respondents accepted that one CD Server is available in the library
15. Nearly half (i.e.) 46.2 percent of the respondents specified that one LCD Projector is available in the library
16. Nearly half (i.e.) 49.0 percent of the respondents stated that UPS capacity more than 5 KVA is available in their library

SUGGESTIONS

1. The speed of the Internet in libraries should be increased to speed up information search and retrieval process.
2. Librarian should contribute necessary tips to the website developers to make the library website more informative, user friendly and well organized, which makes easy access to the electronic information resources offered by the library.

3. Take initiative and motivate the users to use social networks such as Facebook, WhatsApp, e-mail, discussion groups, blogs, etc. to interact with friends, colleagues, etc. for learning how to use e-resources and use it to intimate them as soon as new resources is available or subscribed.
4. Librarians must be aware about the latest resources available and update their technical knowledge, ICT skills and soft skills.
5. Librarians should organize seminars, workshops and orientation programs for faculty members at regular interval of time to keep them in phase with latest technologies and train them using advance search options for retrieval of relevant information.
6. The government should extent financial support to private engineering colleges for purchasing e-resources, computers and for maintaining internet connectivity.

CONCLUSION

As per the study it is clear that developments in ICT enabled the library professionals to introduce new services and augment the understanding and usage of library resources, especially e-resources. Although most of the colleges surveyed have well equipped libraries with enough e-resources, the infrastructure and allied services, to effectively tap the services requires attention. It is also important that the library professionals to be aware of the new technology and librarians must ensure that periodic refresher and training programs are arranged for staff. In general, the availability infrastructure to support e-learning, in the engineering college libraries of Kerala, seems quite satisfactory.

REFERENCES

1. Jestin, Joseph & Sornam, S Ally. (2016). Use of e-resources by the faculty members of engineering colleges in Kerala: a survey. *IJODLS*, 6(3), 31-38.
2. Hussain, Akhtar& N, Lavanya. (2014). The impact of ICTs in library and information services at Indus Business Academy, Bangalore. *Indian Journal of Knowledge Management*, 1(3).
3. Saleem, Tabusum, &Batcha. (2013). Application and uses of Information Communication Technology (ICT) in academic libraries: an overview. *International Journal of Library Science*, 2(3),49-52

4. Mostofa (2013). Use and Impact of E-Resources at Some Selected Private Universities in Bangladesh. *Research Journal of Library Sciences*, 1(1), 10-13.
5. Jacob, Ancy&Sornam, S. Ally (2011). Consortium of Fishery Institute Libraries in Kerala: a proposal. *Library Progress International*, 31(1), 19-26.
6. Haneefa, Mohamed. (2007). Application of Information and Communication Technologies in Special Libraries in Kerala (India). *Library Review*,56(7), 603 – 620.
7. Boriwal, Chetna (2018). Mapping satisfaction Level of Librarians of Engineering Institutions towards E-resources – a survey. *International Journal of Library Information Network and Knowledge,* 3(2), 134-146.
8. Baskaran, Chinnasamy. (2018). Electronic Resources and Services in Kerala State University Libraries: A Study of Users' Satisfaction. *IJLSIM*, 3(3), 1-7.
9. Cholin, Veernna S. (2005). Study of the Application of Information Technology for Effective Access to Resources in Indian University Libraries. *The International Information and Library Review,* 37(3).
10. Javed Khan, (2016). Impact of information communication technology on library and its services. *International Journal of Research - Granthaalayah*, 4(9), 97-100.
11. Prasanth, M K. (2012). The changing face of engineering education in Kerala: An empirical study at engineering colleges in Kerala, *International Journal of Engineering Research & Technology* (IJERT), 1(10)
12. Sinha, Manoj Kumar. (2004). Scenario of Automation and Networking of Library and Information Centres (LICs) of North Eastern Region of India: An Evaluative Study. *2nd International CALIBER-2004*, New Delhi, 11-13 February, 86-99.