E L Services: Innovative Strategies for Central Libraries of IITs in India

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ABSTRACT

Embedded technology is implemented and used in the higher education system, which has changed the view of librarianship. Therefore, today's librarianship is moving towards an embedded librarianship. "Researcher traces the genesis and growth in the scholarly use of this "embedded Library and Information Services" by faculty, researchers and Students worldwide. Also traces an important role of Librarians in providing "embedded Library and Information Services" to students and researchers for their research work in global development. Due to the changing economic and political developments around the world, the quality of research is becoming an important focal point for every nation. Researchers review how to provide higher education to students via virtual classrooms; Librarians are making strong relationships with faculty, researchers, and students. To promote literacy, communication, and good participation in the 21st century, especially in research centers all over the world, "Indian Institutes of Technology" (IITs in India) have created collaborative opportunities for researchers using e-skills, internet and social media, embedded library information services. "In other words, technology is not enough to bridge this gap, instead, collaborative human partnerships are needed to harness the participatory power of this technology and provide context and learning spaces for people to enhance their digital and information literacy skills.

Embedded librarianship creates connections with the faculty & scientist community so that you can build a sense of trust and show faculty & scientists you are fully invested in enhancing their learning experiences. This chapter focuses on the changing and challenging role of embedded Information or embedded librarianship worldwide.

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KEYWORDS: Informationist, Embedded Librarianship, EL Services, Embedded Library and Information Services, Virtual Classroom, IITs in India, Embedded Librarian, IIT, Indian Institute of India

1. INTRODUCTION

'View of Librarianship' today, that's changing. Digital information is ubiquitous. Faculty, Scientists and students demand embedded librarian services wherever they are - in the hostels of IITs, in the canteens. They use desktops and laptops, smartphones and tablets. The difficulty Library Professionals encounter regarding their image. There is

a landfill of literature on the topic and out-of-date and sometimes offensive stereotypes. The misunderstood nature of what we do is stubbornly persistent, and we have long tired of trying to tell people what we do to faculty, students, and friends alike. Justification to others takes a lot of energy and, in the end, just does not make a difference. When we made the transition into embedded librarianship, we felt it was a great fit for us, personally, long before we believed it convinced others who simply did not understand.

We would turn up the corner of my lips in a strained Smile at the questions or the references to embedded journalists. In essence, we have always believed that the best advertisement for what we do is to do it, and engage in it the best way possible every single day. The years leading up to our role as an embedded librarian and the semesters spent doing it did not widely change the perception of librarians, particularly on campus, but it helped.

2. INTERNET FACILITY

Internet facility available at all Central libraries of IITs (old IITs 100% and new IITs 100%) in India for faculty, scientists, students and research scholars. As per represented in table No. 2.1.

Table: 2.1 Internet Facility

"Indian Institutes of Technology"		Faculty/Scientists		Students/Research Scholars	
		Yes	No	Yes	No
Old IITs (N=7)	IITKGP	√	---	√	---
	IITB	√	---	√	---
	IITK	√	---	√	---
	IITM	√	---	√	---
	IITD	√	---	√	---
	IITG	√	---	√	---
	IITR	√	---	√	---
Total=		7 (100 %)	0 (00 %)	7 (100 %)	0 (00 %)
New IITs (N=9)	IITBBS	√	---	√	---
	IITGN	√	---	√	---
	IITRPR	√	---	√	---
	IITI	√	---	√	---
	IITBHU	√	---	√	---
	IITPKD	√	---	√	---
	IITTP	√	---	√	---
	IITISM	√	---	√	---
	IITGOA	√	---	√	---
Total=		**9 (100 %)**	**0 (00 %)**	**9 (100 %)**	**0 (00 %)**

Source: Compile by Researcher

3. CAMPUS WIDE NETWORK

Table No. 3.1 reveals the Intranet facility available at Central libraries of IITs; where in old IITs, Intranet facility available at Central libraries of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur",

Table: 3.1 Facility of Intranet in IITs in India

"Indian Institutes of Technology"		Facility of Intranet in IITs in India			
		Yes	No	Nodes	Cluster Name
Old IITs (N=7)	IITKGP	√	---	442	PARAM Shakti
	IITB	√	---	5000	IITB INTRANET
	IITK	√	---	1365	HPC2010 + HPC2013
	IITM	√	---	315	IITM HPCE
	IITD	√	---	606	"IIT Delhi" PADUM
	IITG	√	---	10000	HPCC
	IITR	√	---	27000	PARAM 10000
Total=		7 (100 %)	---	---	---
New IITs (N=9)	IITBBS	√	---	10	HPC
	IITGN	√	---	916	IWS
	IITRPR	√	---	30	IITRPR Intranet
	IITI	√	---	30	IITI Intranet
	IITBHU	√	---	223	PARAM SHIVAY
	IITPKD	---	√	---	---
	IITTP	√	---	15	IITTP Intranet
	IITISM	√	---	7000	HPC
	IITGOA	√	---	19	HPC-IIT Goa
Total=		8 (88.89 %)	1 (11.11 %)	---	---

Source: Compile by Researcher

"IIT Madras", "IIT Delhi", "IIT Guwahati", and "IIT Roorkee" (7, 100%) and new IITs, Campus wide network (Intranet) facility is available at Central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", IIT Tirupati, "IIT (ISM) Dhanbad "and "IIT Goa"(8, 88.89 %) in India. Campus wide network (Intranet) facility is not available at "IIT Palakkad" (1, 11.11%).

Similarly, Table No. 3.1 presented configuration of facility of Intranet in IITs in India, wherein old IITs, at Central library of "IIT Roorkee" 'PARAM 10000' configured with highest (27000) CPU+ GPU nodes;" IIT Guwahati" 'HPCC' configured with (10000) CPU+ GPU nodes, 'HPCC' is also connected to the GARUDA grid; "IIT Bombay" 'IITB INTRANET' configured with (5000) CPU+ GPU nodes;" IIT Kanpur" 'HPC2010 + HPC2013' configured with (1365) CPU + GPU nodes, 464 nodes of HPC2010 and 901 nodes of HPC2013 are interconnected in this parallel computing system; "IIT Delhi" '"IIT Delhi" PADUM' configured with (606) CPU + GPU nodes (382 CPU + 201 GPU + 23 Xeon Phi nodes),In addition, there are 2 GPU login nodes, 4 general login nodes, and 2 Xeon Phi Login nodes; "IIT Kharagpur" 'PARAM Shakti systems' configured with(442) CPU+ GPU nodes, In addition, there are 2 Master nodes, 8 Login nodes, 10 Service/Management nodes; and Central library of "IIT

Madras" 'IITM HPCE' configured with lowest (315) CPU+ GPU nodes, 298 nodes (292 Compute Nodes + 2 Master Nodes +4 Storage Nodes) of 'VIRGO Super Cluster' and 17 nodes (1 Head Node +16 compute nodes) of 'GNR Super Cluster' are interconnected in this parallel computing systems are available for access all e-resources facility for faculty, scientists, students and research scholars.

Where in new IITs, at Central library of "IIT (ISM) Dhanbad" 'HPC' configured with highest (7000) CPU + GPU nodes; "IIT Gandhinagar" 'IWS' configured with (916) CPU + GPU nodes; "IIT (BHU) Varanasi" 'PARAM SHIVAY' configured with (223) CPU+ GPU and High memory compute nodes; "IIT Ropar" 'IITRPR Intranet' and "IIT Indore" 'IITI Intranet' configured with (30) CPU+ GPU nodes; IIT Goa 'HPC-IIT Goa' configured with (19) CPU+ GPU nodes; "IIT Tirupati" 'IITTP Intranet' configured with (15) CPU+ GPU nodes; IIT Bhubaneswar 'HPC' configured with (10) CPU+ GPU, campus wide network systems nodes are available for access all e-resources facility for faculty, scientists, students and research scholars.

4. MODE OF INTERNET CONNECTIVITY

Table No. 4.1 shows that the mode of internet connectivity in the central libraries of IITs in India. Where in the old IITs, only1 (14.28 %)central library of IIT Bombay is using Leased Line,3 (42.85 %) central libraries of IIT are using Cable,2 (28.57 %) central libraries of IIT are using broad band, while 4 (57.14 %)libraries are using Fibre Optic and no one is using Dial Up internet connectivity.

Table: 4.1 Mode of Internet Connectivity in IITs in India

"Indian Institutes of Technology"		Mode of internet connectivity				
		Dial Up	Leased Line	Cable	Broad Band	Fibre Optic
Old IITs (N=7)	IITKGP	---	---	---	---	√
	IITB	---	√	---	---	---
	IITK	---	---	---	√	√
	IITM	---	---	√	---	√
	IITD	---	---	√	---	√
	IITG	---	---	---	√	---
	IITR	---	---	√	---	---
Total=		0 (00 %)	1 (14.28 %)	3 (42.85 %)	2 (28.57 %)	4 (57.14 %)
New IITs (N=9)	IITBBS	---	---	√	√	---
	IITGN	---	---	---	---	√
	IITRPR	---	---	√	---	√
	IITI	---	---	---	---	√
	IITBHU	---	---	---	√	---
	IITPKD	---	---	---	---	√
	IITTP	---	---	√	√	---
	IITISM	---	√	---	---	√
	IITGOA	---	√	---	---	---
Total=		---	2 (22.22 %)	3 (33.33 %)	3 (33.33 %)	5 (55.55 %)

Source: Compile by Researcher

In new IITs, 2 (22.22 %) central libraries of IITs are using Leased Line, 3 (33.33 %)central libraries of IIT are using Cable, 3 (33.33 %) central libraries of IIT are using broad band, while 5 (55.55 %) libraries are using Fibre Optic and no one is using Dial Up internet connectivity.

5. MEMBERSHIP OF ELECTRONIC JOURNALS

Table No. 5.1 shows that the membership of electronic journals subscribed by the central libraries of IITs in India. Where in the old IITs, 5 (71.42 %) central libraries of IITs are the subscribed membership or partnership with electronic journals initiatives, i.e., "IIT Kharagpur", "IIT Kanpur", "IIT Madras", "IIT Delhi" and "IIT Guwahati"; and 2 (28.58 %)central libraries of IITs are not subscribe membership or partnership with electronic journals initiatives, i.e., IIT Bombay and "IIT Roorkee".

Table: 5.1 Membership of Electronic Journals

"Indian Institutes of Technology"		Membership of e-Journals Initiatives/Projects	
		Yes	No
Old IITs (N=7)	IITKGP	√	---
	IITB	---	√
	IITK	√	---
	IITM	√	---
	IITD	√	---
	IITG	√	---
	IITR	---	√
Total=		5 (71.42 %)	2 (28.58 %)
New IITs (N=9)	IITBBS	---	√
	IITGN	---	√
	IITRPR	√	---
	IITI	√	---
	IITBHU	---	√
	IITPKD	√	---
	IITTP	√	---
	IITISM	√	---
	IITGOA	√	---
Total=		**6 (66.66 %)**	**3 (33.34 %)**

Source: Compile by Researcher

Central Library of "IIT Kharagpur" has initiative and co-ordinating National Digital Library of India, and subscribed to ACM Digital Library Journals, ACS, American Institute of Physics, Annual Reviews, ASCE, ASME Journals + Standards, ASTM, BEGELL, EBSCO, EPW, Emerald, Elsevier, GeoScience World, IEEE, India Stat, JSTOR, Wiley, Nature, OSA, OUP, One Petro, CRYSTAL IMPACT, PROJECT MUSE, APA PsycNet, ProQuest, SAGE,

SciFinder Scholar, Springer, tandfonline, World Scientific, RSC, SIAM, SAE, &, etc.; Central Library of "IIT Kanpur" has an initiative and subscribed NDLI, JSTOR, IEL, Springer, Elsevier, SAGE, Emerald, ACS, ACM, AIP, PAS, Wiley, Thomas Telford, OSA, Multi-Science Pub. & etc.; Central Library of "IIT Madras" has the initiative and subscribed NDLI, Nature, Now, OUP, Palgrave Macmillan, PDC, Project Euclid, RINA, RSC-Gold Package, Royal Society pub., SAGE, SIAM, Taylor & Francis, Wiley, World Scientific Publishing & etc.; Central Library of "IIT Delhi" has the initiative and subscribed NDLI, DELNET, IITD-IR; and Central Library of "IIT Guwahati" has initiative role as Co-ordinator of National Digital Library of India- North-East Regional Centre (NERC)and subscribed to many e-journals.

In new IITs, 6 (66.66 %)central libraries of IITs are the subscribed membership or partnership with electronic journals initiatives, i.e., "IIT Ropar", "IIT Indore", "IIT Palakkad", IIT Tirupati, "IIT (ISM) Dhanbad "and IIT Goa; and 3 (33.34 %)central libraries of IITs do not subscribe to membership or partnership with electronic journals initiatives, i.e., "IIT Bhubaneswar" and "IIT Gandhinagar".

Central Library of "IIT Ropar" has the initiative and subscribed NDLI, ASTM Compass, ASME, ASCE; Central Library of "IIT Indore" has the initiative and subscribed NDLI, World e-library, Wily Archives; Central Library of "IIT Palakkad" has initiative and subscribed NDLI, Science Direct; Central Library of "IIT Tirupati" has initiative and subscribed ACM, JSTOR, Wiley, EBSCO, EPW, Elsevier, ASCE, ASME & etc. Journals; Central Library of "IIT (ISM) Dhanbad "has initiative and subscribed JCCC, NDLI; Central Library of "IIT Goa" has initiative and subscribed ESS, DELNET.

6. SELECTION POLICIES FOR E-RESOURCES CONSORTIA

Table No. 6.1 shows that the selection policies for e-resources consortia by the central libraries of IITs in India. Where in the old IITs,5 (71.42 %) central libraries of IITs are adapted criteria 'Annual budget of the library' for selection of e-resources; i.e. central libraries of "IIT Kharagpur", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Roorkee".7 (100 %) central libraries of IITs are adapted criteria 'Recommendation by subject experts' for selection e-resources; i.e. central libraries of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", "IIT Guwahati", and "IIT Roorkee".6 (85.71 %) central libraries of IITs are adapted criteria 'Keeping user's demand in view' for selection of e-resources; i.e. central libraries of IIT Kharagpur, "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Roorkee".4 (57.14 %)central libraries of IITs are adapted criteria 'Recommendation by Negotiating Committee members' for selection e-resources; i.e. central libraries of IIT Kharagpur, "IIT Bombay", "IIT Madras", and "IIT Delhi".

In the new IITs,5 (55.55 %) central libraries of IITs are adapted criteria 'Annual budget of the library' for selection of e-resources; i.e. central libraries of IIT Gandhinagar, "IIT Ropar", "IIT (BHU) Varanasi", "IIT Palakkad", and IIT Goa.8 (88.88 %) central libraries of IITs are adapted criteria 'Recommendation by subject experts' for selection e-resources; i.e. central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", IIT Tirupati, IITIIT (ISM) Dhanbad, and IIT Goa.5 (55.55 %) central libraries of IITs are adapted criteria 'Keeping

Table: 6.1 Selection policies for e-resources consortia in Central Libraries of IITs

"Indian Institutes of Technology"		Criteria of Selection Policies Adapted For E-Resources			
		Annual budget of the library	**Recommendation by subject experts**	**Keeping user's demand in view**	**Recommendation by Negotiating Committee members**
Old IITs (N=7)	IITKGP	√	√	√	√
	IITB	---	√	√	√
	IITK	√	√	√	---
	IITM	√	√	√	√
	IITD	√	√	√	√
	IITG	---	√	---	---
	IITR	√	√	√	---
Total=		5 (71.42 %)	7 (100 %)	6 (85.71 %)	4 (57.14 %)
New IITs (N=9)	IITBBS	---	√	√	---
	IITGN	√	√	√	√
	IITRPR	√	√	---	---
	IITI	---	√	√	---
	IITBHU	√	√	√	√
	IITPKD	√	---	---	---
	IITTP	---	√	---	---
	IITISM	---	√	√	√
	IITGOA	√	√	---	---
Total=		**5 (55.55 %)**	**8 (88.88 %)**	**5 (55.55 %)**	**3 (33.33 %)**

Source: Compile by Researcher

user's demand in view 'for selection e-resources; i.e., central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.3 (33.33 %) central libraries of IITs are adapted criteria 'Recommendation by Negotiating Committee members' for selection e-resources; i.e., central libraries of IIT Gandhinagar, "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.

It is thus concluded that:

a)   71.43 % Central Libraries of old IITs adapted criteria 'Annual budget of the library.' In total, 10 (62.50%) out of 16 Central Libraries of IITs adapted above criteria; except CLIITB, CLIITG, CLIITBBS, CLIITI, CLIITTP and CLIITISM.

b)   100 % Central Libraries of old IITs adapted criteria 'Recommendation by subject experts.' In total, 15 (93.75 %) out of 16 Central Libraries of IITs adapted above criteria; except only CLIITPKD.

c)   85.71% Central Libraries of old IITs adapted criteria 'Keeping user's demand in view'. In total, 11 (68.75%) out of 16 Central Libraries of IITs adapted above criteria; except CLIITG, CLIITRPR, CLIITPKD and CLIITGOA.

d)   57.14Central Libraries of old IITs adapted criteria 'Recommendation by Negotiating Committee members.' 7 (43.75%) out of 16Central Libraries of IITs adapted above criteria; i.e., CLIITKGP, CLIITB, CLIITM and CLIITD, CLIITGN, CLIITBHU and CLIITISM.

7. Reasons to acquire e-resources consortia in Central Libraries of IITs

Table No. 7.1 shows the reasons for acquiring e-resources consortia by the central libraries of IITs in India. Where in the old IITs, 'Economical to acquire' is a common reason for (100%) central libraries of IITs are reason to acquire e-resources; i.e., central libraries of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", "IIT Guwahati", and "IIT Roorkee". 'Solve the problems of theft' is a reason of one (14.28%)central library of "IIT Delhi". 'Easy to maintain' is a common reason of 4 (57.14%) central libraries of IITs are reason to acquire e-resources; i.e., central libraries of "IIT Bombay", "IIT Madras", "IIT Delhi" and "IIT Guwahati". 'Easy to search' is a common reason of 4 (57.14%) central libraries of IITs are reason to acquire e-resources; i.e., central libraries of "IIT Madras", "IIT Delhi", "IIT Guwahati" and "IIT Roorkee".

In new IITs, 'Economical to acquire' is a common reason for 5 (55.55%) central libraries of IITs are reason to acquire e-resources; i.e., central libraries of "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT Palakkad" and IIT (ISM) Dhanbad. 'Easy to maintain' is a common reason of3 (33.33 %) central libraries of IITs are reason to acquire e-resources; i.e., central libraries of "IIT Indore", "IIT (BHU) Varanasi" and IIT Tirupati. 'Easy to search' is a common reason of3 (33.33 %) central libraries of IITs are reason to acquire e-resources; i.e., central libraries of "IIT (BHU) Varanasi", IIT Tirupati and IIT (ISM) Dhanbad.

It is observed that:

Table 7.1 Reasons to acquire e-resources consortia in Central Libraries of IITs

"Indian Institutes of Technology"		Various Reasons to Acquire E-Resources Consortia			
		Economical to acquire	Solve the problems of theft	Easy to maintain	Easy to search
Old IITs (N=7)	IITKGP	√	---	---	---
	IITB	√	---	√	---
	IITK	√	---	---	---
	IITM	√	---	√	√
	IITD	√	√	√	√
	IITG	√	---	√	√
	IITR	√	---	---	√
Total=		7 (100 %)	1 (14.28%)	4 (57.14%)	4 (57.14%)
New IITs (N=9)	IITBBS	---	---	---	---
	IITGN	√	---	---	---
	IITRPR	√	---	---	---
	IITI	√	---	√	---
	IITBHU	---	---	√	√
	IITPKD	√	---	---	---
	IITTP	---	---	√	√
	IITISM	√	---	---	√

	IITGOA	---	---	---	---
Total=		**5 (55.55%)**	**---**	**3 (33.33 %)**	**3 (33.33 %)**

Source: Compile by Researcher

to acquire e-resources.

a) 75.00% (12) central libraries of IITs out of 16 responded reason are 'Economical to acquire'

b) 6.25% (1) central library of "IIT Delhi" out of 16 IITs responded reason is 'Solve the problems of theft 'to acquire e-resources.

c) 43.75% (7) central libraries of IITs out of 16 responded reason are 'Easy to maintain' to acquire e-resources.

d) 43.75% (7) central libraries of IITs out of 16 responded reason are 'Easy to search' to acquire e-resources.

8.1 Embedded Library Services offered by The Central Libraries of IITs

Table No. 8.1 shows that the Embedded Library Services offered by the central libraries of IITs in India. Where in the old IITs, all 7 (100 %) central libraries of old IITs are offered Embedded

Table: 8.1 Embedded Library Services offered by The Central Libraries of IITs

"Indian Institutes of Technology"		Embedded Library Services offered	
		Yes	**No**
Old IITs (N=7)	IITKGP	√	---
	IITB	√	---
	IITK	√	---
	IITM	√	---
	IITD	√	---
	IITG	√	---
	IITR	√	---
Total=		7 (100 %)	0 (00 %)
New IITs (N=9)	IITBBS	√	---
	IITGN	√	---
	IITRPR	√	---
	IITI	√	---
	IITBHU	√	---
	IITPKD	---	√
	IITTP	---	√
	IITISM	√	---
	IITGOA	---	√
Total=		**6 (66.67 %)**	**3 (33.33%)**

Source: Compile by Researcher

Library Services to his customer group (faculty, Scientists and Students Scholars etc.).

In new IITs, 6 (66.67 %) central libraries of new IITs are offered Embedded Library Services to his customer group (faculty, Scientists and Students Scholars etc.); i.e. central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.

It is thus concluded that:

a) 81.25% (13) central libraries of IITs out of 16 offered Embedded Library Services to his customer or customer groups.

b) 18.75% (3) central libraries of IITs out of 16 not offer Embedded Library Services to his customer or customer groups.

c) 100% central libraries of old IITs offered Embedded Library Services to his customer or customer groups.

d) 33.33% central libraries of new IITs not offer Embedded Library Services to his customer or customer groups; i.e., Central libraries of "IIT Palakkad", "IIT Tirupati "and IIT Goa.

9. INFRASTRUCTURE FOR EMBEDDED LIBRARY SERVICES

Table No. 9.2 shows that the availability of infrastructure facility for Embedded Library Services offered by the central libraries of IITs in India. Where in the old IITs,6 (85.72%)central libraries of old IITs in India have proper infrastructure facility for Embedded Library Services; i.e., Central Libraries of "IIT Kharagpur", "IIT Kanpur", "IIT Madras", "IIT Delhi", "IIT Guwahati" and "IIT Roorkee".

In new IITs, 5 (55.56 %) central libraries of IITs in India have proper infrastructure facility for Embedded Library Services; i.e., Central Libraries of IIT Bhubaneswar, "IIT Gandhinagar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.

It is thus observed that:

a) 68.75% (11) central libraries of IITs out of 16 have proper infrastructure facility for Embedded Library Services to his customer or customer groups.

b) 31.25% (5)central libraries of IITs out of 16 not have proper infrastructure facility for Embedded Library Services to his customer or customer groups.

c) 15.38% (2) central libraries of IITs out of '13 (100%) IITs' who 'offered Embedded Library Services' to his customer or customer groups; but not have proper infrastructure facility for Embedded Library Services to his customer or customer groups; i.e., CLIITB, and CLIIT RPR.

d) 85.72% central libraries of old IITs in India have proper infrastructure facility for Embedded Library Services; except, CLIITB.

Table: 9.2 Availability of Infrastructure for Embedded Library Services

"Indian Institutes of Technology"		Availability of Infrastructure for EL Services	
		Yes	No
Old IITs (N=7)	IITKGP	√	---
	IITB	---	√
	IITK	√	---
	IITM	√	---
	IITD	√	---
	IITG	√	---
	IITR	√	---
Total=		6 (85.72%)	1 (14.28 %)
New IITs (N=9)	IITBBS	√	---
	IITGN	√	---
	IITRPR	---	√
	IITI	√	---
	IITBHU	√	---
	IITPKD	---	√
	IITTP	---	√
	IITISM	√	---
	IITGOA	---	√
Total=		**5 (55.56 %)**	**4 (44.44%)**

Source: Compile by Researcher

10. Details of Infrastructure for Embedded Library Services

Table No. 10.1 shows that the Details of Infrastructure facilities for Embedded Library Services available at central libraries of IITs in India. Where in the old IITs, 'Computers (Computer Labs)' provided at 7 (100%) central libraries of IITs for Embedded Library Services to customer (faculty, Scientists and Students Scholars etc); i.e., central libraries of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", "IIT Guwahati", and "IIT Roorkee". 'Printers' provided at6 (85.72%)central library of IITs; i.e., central libraries of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Roorkee". 'Systems with Internet facilities' provided at 7 (100%) central libraries of IITs; i.e., central libraries of IIT Kharagpur, "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", "IIT Guwahati", and "IIT Roorkee". 'U.P.S. (Back up facility)' provided at 7 (100%) central libraries of IITs; i.e. central libraries of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", "IIT Guwahati", and "IIT Roorkee".

Table: 10.1 Infrastructure facilities for EL Services of the Libraries of IITs in India

"Indian Institutes of Technology"		Infrastructure facilities for EL Services			
		Computers (Computer Labs)	Printers	Systems with Internet facilities	U.P.S. (Back up facility)
Old IITs (N=7)	IITKGP	√	√	√	√
	IITB	√	√	√	√
	IITK	√	√	√	√
	IITM	√	√	√	√
	IITD	√	√	√	√
	IITG	√	---	√	√
	IITR	√	√	√	√
Total=		7 (100 %)	6 (85.72%)	7 (100 %)	7 (100 %)
New IITs (N=9)	IITBBS	√	√	√	√
	IITGN	√	√	√	√
	IITRPR	√	√	√	√
	IITI	√	√	√	√
	IITBHU	√	√	√	√
	IITPKD	---	---	---	---
	IITTP	---	---	---	---
	IITISM	√	√	√	√
	IITGOA	---	---	---	---
Total=		**6 (66.67%)**	**6 (66.67%)**	**6 (66.67%)**	**6 (66.67%)**

Source: Compile by Researcher

In new IITs, 'Computers (Computer Labs)' provided at 6 (66.67%)central libraries of IITs for Embedded Library Services to customer (faculty, Scientists and Students Scholars etc); i.e., central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad. 'Printers' provided at 6 (66.67%) central libraries of IITs; i.e., central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad. 'Systems with Internet facilities' provided at 6 (66.67%) central libraries of IITs; i.e., central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad. 'U.P.S. (Back up facility)' provided at 6 (66.67%) central libraries of IITs; i.e., central libraries of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.

It is thus concluded that:

a) 81.25% (13) central libraries of IITs out of 16 provided infrastructure facility for Embedded Library Services to his customer or customer groups; i.e., Computers (Computer Labs), Printers (except, CLIITB),Systems with Internet facilities, and U.P.S. (Back up facility).

b) 18.75% (3) central libraries of IITs out of 16 not provide infrastructure facility for Embedded Library Services to his customer or customer groups; i.e., CLIITPKD, CLIITTP and CLIITGOA.

11. HANDLING AND DELIVERED EMBEDDED LIBRARY SERVICES

Table No. 11.1 reveals that, who are handling and delivered Embedded Library Services at central libraries of IITs in India. Where in the old IITs, at6 (85.72%)central libraries of old IITs 'Librarian-Library and Information Science Qualified Staff' are handling and delivered Embedded Library Services; i.e., Central Library of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Roorkee".At2 (28.58%)central libraries of old IITs 'Webmaster' are handling and delivered Embedded Library Services; i.e., Central Library of "IIT Kharagpur" and "IIT Roorkee". At 6 (85.72%)central libraries of old IITs 'Library Support Staff' are handling and delivered Embedded Library Services; i.e., Central Library of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Guwahati".

In new IITs, at 6 (66.67%)central libraries of new IITs 'Librarian-Library and Information Science Qualified Staff' are handling and delivered Embedded Library Services; i.e., Central Library of IIT Bhubaneswar, "IIT Gandhinagar", "IIT Ropar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad. At one (11.12%)central library of new IIT 'Webmaster' are handling and delivered Embedded Library Services; i.e., Central Library of "IIT Bhubaneswar". At 4 (44.45%)central libraries of new IITs 'Library Support Staff' are handling and delivered Embedded Library Services; i.e., Central Library of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Indore", and IIT (ISM) Dhanbad.

Thus, such a conclusion is:

a) At 75% (12) central libraries of IITs out of 16 IITs 'Librarian-Library and Information Science Qualified Staff' are handling and delivered Embedded Library Services.

b) At 62.5% (10) central libraries of IITs out of 16 IITs 'Library Support Staff' are handling and delivered Embedded Library Services.

c) At 18.75% (3) central libraries of IITs out of 16 IITs 'Webmaster' are also support to Library and Information Science Qualified Staff for handling and delivered Embedded Library Services.

Table: 11.1 Handling and Delivered Embedded Library Services

"Indian Institutes of Technology"		Handling and Delivered Embedded Library Services		
		1	2	3
		Librarian-LIS Qualified Staff	Webmaster	Library Support Staff
Old IITs (N=7)	IITKGP	√	√	√
	IITB	√	---	√
	IITK	√	---	√
	IITM	√	---	√
	IITD	√	---	√
	IITG	---	---	√
	IITR	√	√	---
Total=		6 (85.72%)	2 (28.58%)	6 (85.72%)
New IITs	IITBBS	√	√	√

IITGN	√	---	√	
IITRPR	√	---	---	
IITI	√	---	√	
IITBHU	√	---	---	
IITPKD	---	---	---	
IITTP	---	---	---	
IITISM	√	---	√	
IITGOA	---	---	---	
Total=	**6 (66.67%)**	**1 (11.12%)**	**4 (44.45%)**	

Source: Compile by Researcher

    d) It means, 'Librarian or Library and Information Science Qualified Staff' or 'Library Support Staff' are embedded with customer or customer groups and handling and delivered Embedded Library Services at IITs in India.

12. TRAINING RELATED HANDLING AND DELIVERED EL SERVICES

Figure: 12.1 and Table No. 12.1 shows that, training completed by Embedded Librarian/Library staff related handling and delivered Embedded Library Services at central libraries of IITs in India. Where in the old IITs,at6 (85.72%) central libraries of IITs training attend by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Roorkee".

Only, one (14.28%) central library of "IIT Guwahati" training not attended by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services.

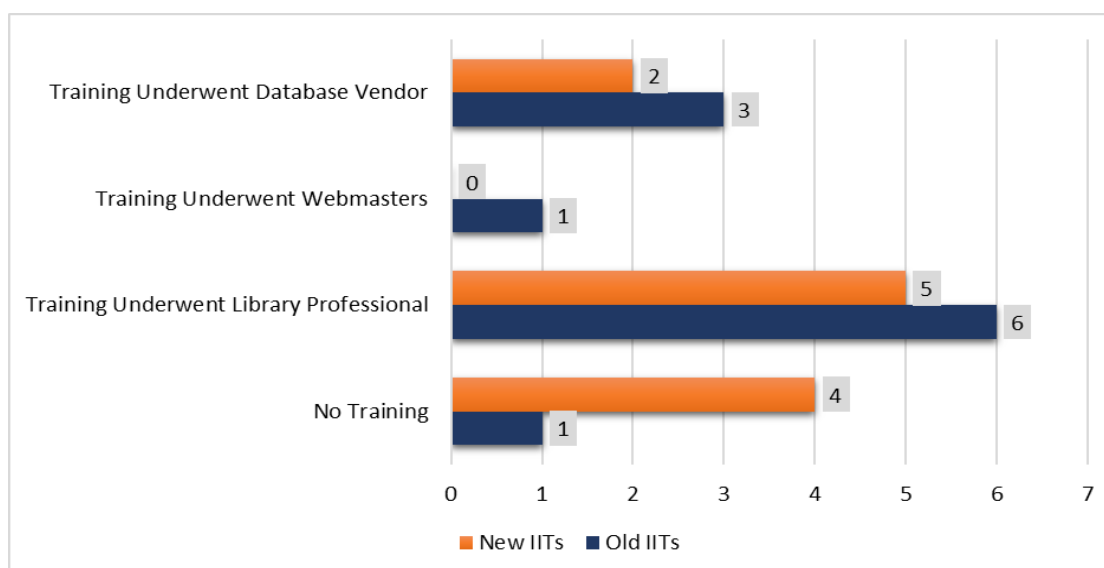**Table: 12.1 Training Related Handling and Delivered EL Services**

"Indian Institutes of Technology"		Training Completed by "Embedded Librarian" Related Handling and Delivered EL Services				
		Attendance		Training Underwent		
		Yes	No	Library Professional	Webmasters	Database Vendor
Old IITs (N=7)	IITKGP	√	---	√	---	√
	IITB	√	---	√	√	√
	IITK	√	---	√	---	---
	IITM	√	---	√	---	---
	IITD	√	---	√	---	---
	IITG	---	√	---	---	---

	IITR	√	---	√	---	√
	Total=	6 (85.72%)	1 (14.28%)	6 (85.72%)	1 (14.28%)	3 (42.86%)
New IITs (N=9)	IITBBS	√	---	√	---	√
	IITGN	√	---	√	---	---
	IITRPR	---	√	---	---	---
	IITI	√	---	√	---	---
	IITBHU	√	---	√	---	√
	IITPKD	---	√	---	---	---
	IITTP	---	√	---	---	---
	IITISM	√	---	√	---	---
	IITGOA	---	√	---	---	---
	Total=	5 (55.56%)	4 (44.44%)	5 (55.56%)	0 (00 %)	2 (22.23%)

Source: Compile by Researcher

Figure: 12.1 Simple bar diagram showing Training Related Handling and Delivered EL Services

Training underwent by 'Library Professional' at 6 (85.72%) central libraries of IITs by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", "IIT Delhi", and "IIT Roorkee".

Training underwent by 'Webmasters' at 'one' (14.28%) central library of "IIT Bombay" "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services.
Training underwent by 'Database Vendor' at 3 (42.86%) central libraries of IITs by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of "IIT Kharagpur", "IIT Bombay", and "IIT Roorkee".

In new IITs, at 5 (55.56%) central libraries of IITs training attend by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.

At4 (44.44%) central libraries of IITs training not attended by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of "IIT Ropar", IIT "IIT Palakkad", "IIT Tirupati "and IIT Goa.

Training underwent by 'Library Professional' at 5 (55.56%) central libraries of IITs by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of "IIT Bhubaneswar", "IIT Gandhinagar", "IIT Indore", "IIT (BHU) Varanasi", and IIT (ISM) Dhanbad.

Training underwent by 'Database Vendor' at 2 (22.23%) central libraries of IITs by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services; i.e., Central Library of IIT Bhubaneswar and "IIT (BHU) Varanasi".

It is observed as follows:

a) 68.75% (11) central libraries of IITs out of 16 IITs training completed by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services.

b) 31.25%(5) central libraries of IITs out of 16 IITs training not attend by "Embedded Librarian"/Library staff related handling and delivered Embedded Library Services.

c) 68.75% Training underwent by 'Library Professional' by eleven central libraries of IITs out of 16 IITs "Embedded Librarian"/Library staff.

d) 6.25% Training underwent by 'Webmasters' by only "Embedded Librarian"/Library staff of central library of "IIT Bombay".

e) 31.25% Training underwent by 'Database Vendor' by five central libraries of IITs out of 16 IITs "Embedded Librarian"/Library staff.

13. Training Programs and Conferences Organised

Figure: 13.1 and Table No. 13.1 shows that, training programs and conferences organised for staff on handling and delivered better Embedded Library Services by central libraries of IITs in India. Where in the old IITs, 5 (71.43%) central libraries of IITs training programs and conferences organised for staff on handling and delivered better Embedded Library Services; i.e., Central Library of "IIT Kharagpur", "IIT Bombay", "IIT Kanpur", "IIT Madras", and "IIT Delhi".

Two (28.57%) central libraries of IITs not organised any training programs and conferences for staff on handling and delivered better Embedded Library Services; i.e., Central Library of "IIT Guwahati" and "IIT Roorkee".
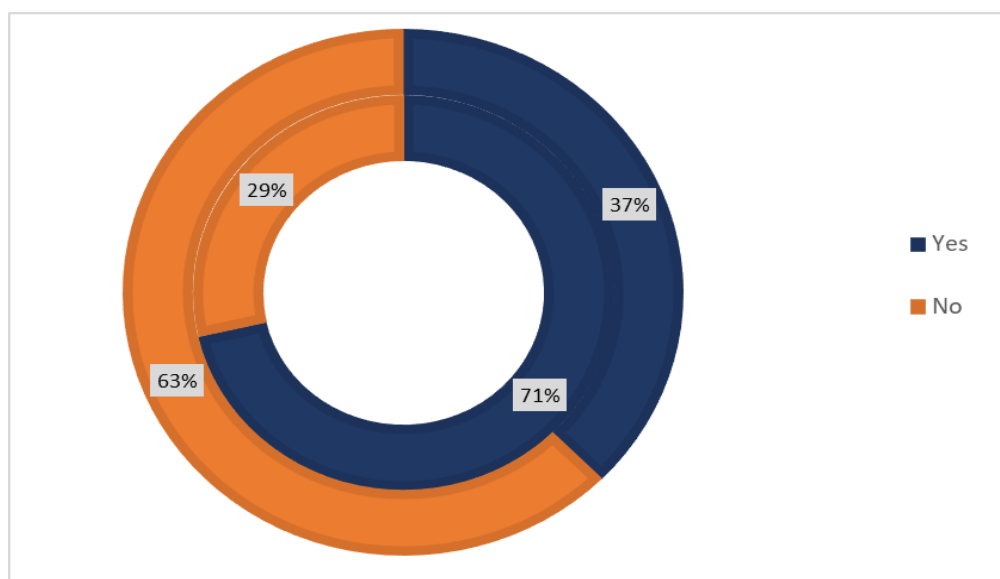
In new IITs, 3 (33.34%) central libraries of IITs training programs and conferences organised for staff on handling and delivered better Embedded Library Services; i.e., Central Library of IIT Gandhinagar, "IIT (BHU) Varanasi" and IIT (ISM) Dhanbad.

Table: 13.1 Training Programs and Conferences Organised

"Indian Institutes of Technology"		Training Programs Organised	
		Yes	No
Old IITs (N=7)	IITKGP	√	---
	IITB	√	---
	IITK	√	---
	IITM	√	---
	IITD	√	---
	IITG	---	√
	IITR	---	√
Total=		5 (71.43%)	2 (28.57%)
New IITs (N=9)	IITBBS	---	√
	IITGN	√	---
	IITRPR	---	√
	IITI	---	√
	IITBHU	√	---
	IITPKD	---	√
	IITTP	---	√
	IITISM	√	---
	IITGOA	---	√
Total=		3 (33.34%)	5 (55.56%)

Source: Compile by Researcher

Figure: 13.1 Doughnut chart showing the Training Programs and Conferences Organised (Inner Layer - Old IITs, Outer Layer - New IITs)

Five (55.56%) central libraries of IITs not organised any training programs and conferences for staff on handling and delivered better Embedded Library Services; i.e., Central Library of IIT Bhubaneswar, "IIT Ropar", "IIT Indore", "IIT Palakkad", "IIT Tirupati" and IIT Goa.

CONCLUSION

The study was conducted to find the Embedded Librarianship in the central libraries of Indian Institutes of Technologies (IITs) in India. This Research explains the findings of the study concerning the objectives of the study with testing of hypothesis, conclusions and suggestions that can be drawn from the analysis and interpretation of data. It also presents a real picture of the central libraries of the Indian Institutes of Technology. This Research concludes with suggestions and recommendations based on users' feedback for further research in the context of central libraries of IITs. The following findings are purely based on data collected through a questionnaire and observations from the librarian/Chief Library Officer/library in charge of Indian Institutes of Technology.

We would turn up the corner of our lips in a strained Smile at the questions or the references to embedded journalists. In essence, we have always believed that the best advertisement for what we do is to do it and engage in it the best way possible every single day. The years leading up to our role as an embedded librarian and the semesters spent doing it did not widely change the perception of librarians, particularly on campus, but it helped.

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