

Resource procurement trend among leading university libraries in India: A study of ascribed and achieved ranking

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The study is based on the university-ranking list, released by the Ministry of Human Resource and Development, Government of India on April 04, 2016 and attempts to evaluate the ranking of university libraries on the basis of resources procured and the research output recorded by these institutions during the years 2012-13, 2013-14 & 2014-15. On an average, 44% of the library budget in the university libraries across India is being spent on the procurement of print resources and 56% towards the procurement of electronic resources. And again, on an average each university library in India spends Rs. 58.74 million on the procurement of library resources each year and spends Rs. 0.364 million on the resource procurement against each faculty member. Each faculty member during the period of study has on an average published 3.73 research articles. These and many more aspects have been studied and based on seven different identified parameters, variations were observed in the ascribed and achieved ranking of the university libraries.

Keywords: Higher education; Universities; Libraries; Research output; Library budget; E-resources

Introduction

Application of information and communication technology (ICT) in the libraries has given a face lift to the library services and their functioning, especially of those associated with the academic institutions in general and higher education in particular. In short, there is a paradigm shift in the functioning of libraries, be it on the part of the resource procurement, their organization or use.

The study is based on the data released by the Government of India on April 04, 2016, reflecting the ranking of Indian universities, based on the working efficiency of their various sub-institutions including libraries¹. The study includes the 20 leading universities chosen from the Ministry of Human Resource Development list and studies their fund spending pattern for the years 2012-13, 2013-14 & 2014-15 and the research output of each leading university for the same period. In all, seven different parameters related to the activities and services of the libraries aimed towards fulfilling the objectives of their parent institution have been identified and studied. The expenditures made by each library have been analysed to find out the difference in their

ascribed rank and their achieved rank in the light of the parameters of this study. It has been observed that any improvement or decline in the ranking of an institution has a considerable effect on the reputation of an institution both nationally and internationally². Hence, there is a need to understand that the parameters we choose for evaluation should be relevant and need-based and by no means should be manipulated to the suitability of the institutions to help inflate their ranking.

Review of literature

The University of Illinois at Urbana-Champaign (UIUC) developed Returns on Investment (ROI) model for their libraries. The basic aim of this model was to assess, what we invest in libraries and how far we benefit out of it. The model is a quantitative technique to assess the Returns on Investment an institution makes on the procurement of library resources and on the provision of services³. The model was devised with the view to help researchers and other faculty members of the institution to mobilize some research grants so as to help them increase research output and promote research

activities. The pilot study collected 10 years data related to library budgets, grants received, faculty members, etc. On the basis of UIUC model of ROI⁴, nine different university libraries across different regions of the world were studied and it was found how libraries play their part in mobilizing research grants. The researchers observed how local factors like subject focus, funding sources, etc., influences the funding of libraries and discussed about the value of library collections in supporting academic and research activities in an institution.

The University of Pittsburg Library⁵ spent US \$ 3.43 million in the collection development (both electronic and print) of documents other than journals and the purchase cost value of the these resources by the Pittsburg University faculty members, scholars and students was valued around \$13.48 million, which means the ROI remained \$ 10.05 million⁶. The eight parameters, which should be followed, while developing library collection and while allocating budget to an academic library include, students, faculty, credit hours materials, adequacy of material, research activities, previous spending and resource usage⁷.

Libraries grow in different spheres, but it is the collection which is generally evaluated. Kyrrillidou & Cook in their study on evaluation of libraries from the Lancaster's point of view, discussed that Ranganathan's Five Laws of library science offer perspectives in library evaluation, especially in the light of fifth law "Library is a growing organism" and termed five laws of Library Science, as key library values⁸. The Yale University employed evidence based librarianship practice to discontinue such print journal subscription, which were consulted by a very low percentage of readers⁹. Information technology however has offered promising opportunities in developing and distributing scholarly literature, which otherwise are missing in the print form¹⁰.

Concentration of resources boosts the research growth¹¹ and the resource concentration can be in the form of skilled human resources, funding, infrastructure, etc. Publishing a research article has become an expensive exercise. There are growing expenditures involved in producing a research article, which are both direct and indirect¹². There is a need to understand that the expenditures made by the libraries towards the procurement of documents and other information sources to supplement the academic and

research activities in an academic institution also includes the indirect expenditure involved in the research output of the institution.

The average annual research output remains almost same against each research scholar, but it is the increase in the number of scholars, which enhance the overall research output of an institution¹². The researchers observed that in 1975 in the US, 312200 research articles were published by as many as 2.64 million scholars and 577100 research articles were published by 5.74 million scientists.

Libraries are an integral part of any academic institution, playing a very significant role in the overall academic and research activities of an academic institution and help in improving the overall ranking of the academic institutions¹³. Providing & structuring instructional resources is the key activity of the academic libraries¹⁴. The researcher identified and discussed about the performance indicators of academic libraries, which help institutions in achieving their desired objectives. More than three-fourth of the library budget in libraries in India is being spent on the procurement of e-documents¹⁵.

From the reviewed studies, it is quite evident that because of undermining the need, importance and role of the libraries in general and those associated with academic institutions in particular the researchers were somewhere forced to identify the returns on investment in libraries, which the institutional administration and other stakeholders were so far not able to understand. Given the fact, in the present study attempt has been made to identify the different parameters, whereby investments of the library have been identified in correlation with its distribution in different aspects and the institutional output in the form of research output.

Objectives of the study

- To rank the libraries of the twenty leading universities of India on the basis of resource procurement in relation to their institutional research output;
- To evaluate how far the libraries associated with their respective institutions justify the rank of their parent institutions and the ranking difference thereof on the perceived ranking;

- To workout the correlation between the resource procurement and research output of an institution; and
- To understand the fund spending and resource procurement pattern of libraries associated with the universities in India.

Methodology

To undertake the study, data were retrieved from the official website of the Ministry of Human Resource and Development, Government of India on June 01, 2016, available at <https://www.nirfindia.org/univ> (National Institute Ranking Framework (NIRF), 2016)¹. The study has been undertaken on the basis of money spent by the 20 leading university libraries during the year 2012-13, 2013-14 & 2014-15 on the procurement of library resources and the research output of these universities during the same period published in the research journals indexed by the SCOUPS. The following seven different parameters related to library services and activities have been evaluated against each individual institutional library and score has been assigned to each individual library on the 20 point scale basis under each parameter on the basis of rank obtained.

- 1) Fund utilization on the procurement of print documents (Books & Journals)
- 2) Fund utilization on the procurement of e-documents (Books & Journals)
- 3) Overall fund utilization of print and electronic documents (Books & Journals)
- 4) Research output of parent institution
- 5) Average resource procurement against each research article
- 6) Average research articles published by each faculty member
- 7) Average resource procured against each faculty member

The library ranked first, it has been assigned a score of 20 points and the library ranked 20th has been assigned one point. The procedure has been repeated against each parameter and the final ranking has been assigned.

Table 1 gives the institutional rank (here the library ranking) as per the Ministry of Human Resource and Development (HRD), Government of India.

Table 1—All India rank of 20 leading universities under study

Sl. no.	State	University library	Year of estab.	Regular faculty members	Score	National Rank
1	Karnataka	Indian Institute of Science, Bangalore	1909	426	91.81	1
2	Maharashtra	Institute of Chemical Technology,	1983	98	87.58	2
3	Delhi	Jawaharlal Nehru University, New Delhi	1969	534	86.45	3
4	Telangana	University of Hyderabad, Hyderabad	1974	389	85.45	4
5	Assam	Tezpur University,	1994	227	84.31	5
6	Delhi	University of Delhi, New Delhi	1922	778	83.19	6
7	Uttar Pradesh	Banaras Hindu University	1916	1118	81.22	7
8	Kerala	Indian Institute of Space Science and Technology	2007	87	78.82	8
9	Rajasthan	Birla Institute of Technology & Science, Pilani	1964	535	76.85	9
10	Uttar Pradesh	Aligarh Muslim University	1875	740	76.62	10
11	West Bengal	Visva Bharati University	1921	483	76.11	11
12	Chandigarh	Punjab University, Chandigarh	1947	838	76.02	12
13	Pondicherry	Pondicherry University, Pondicherry	1985	359	74.44	13
14	Tamil Nadu	Bharathiar University, Coimbatore	1982	181	74.31	14
15	Meghalaya	North Eastern Hill University, Shillong	1973	291	72.41	15
16	Uttar Pradesh	King Georges Medical University, Lucknow	1911	328	72.24	16
17	Maharashtra	Homi Bhabha National Institute	2005	894	72.06	17
18	Delhi	Jamia Hamdard, New Delhi	1989	40	71.44	18
19	Tamil Nadu	Amrita Vishwa Vidyapeetham, Coimbatore	2003	1231	71.03	19
20	Goa	Goa University- Goa	1985	98	69.90	20

Source: - Ministry of HR& D GOI

Table 2—Procurement of physical/print resources (books & Journals)

Year of estab.	University Library	Amount in Rs. millions			Total Spending in Rs. Millions	Avg spending in Rs. Million	PR	PS1	All India Rank
		2012-13	2013-14	2014-15					
2005	Homi Bhabha National Institute	214.691	166.448	141.721	522.860	174.286	1	20	17
1922	University of Delhi	75.071	93.870	91.246	260.187	86.729	2	19	6
1947	Punjab University	35.911	35.254	46.352	117.517	39.172	3	18	12
1875	Aligarh Muslim University	7.324	38.871	54.766	100.961	33.653	4	17	10
2003	Amrita Vishwa Vidyapeetham- Coimbatore	18.714	27.285	23.898	69.897	23.299	5	16	19
1983	Institute of Chemical Technology	16.458	20.220	21.057	57.735	19.245	6	15	2
1973	North Eastern Hill University	13.943	16.786	19.300	50.029	16.676	7	14	15
1969	Jawaharlal Nehru university	12.700	16.400	12.600	41.700	13.900	8	13	3
1911	King Georges Medical University-Lucknow	6.548	0.000	32.994	39.542	13.180	9	12	16
1985	Pondicherry University	22.115	8.838	8.298	39.251	13.083	10	11	13
1974	University of Hyderabad - Hyderabad	9.068	16.392	13.522	38.982	12.994	11	10	4
2007	Indian institute of space science and techn	12.972	16.916	6.774	36.662	12.220	12	9	8
1985	Goa University- Goa	13.089	10.236	10.667	33.992	11.330	13	8	20
1982	Bharathiar University	6.138	15.371	11.013	32.522	10.840	14	7	14
1916	Banaras Hindu University	12.598	8.435	7.216	28.249	9.416	15	6	7
1964	Birla Institute of Tech & Science-Pilani	5.002	6.860	5.805	17.667	5.889	16	5	9
1994	Tezpur University	6.003	10.339	1.192	17.534	5.844	17	4	5
1921	Visva Bharati	2.136	11.561	2.970	16.667	5.555	18	3	11
1989	Jamia Hamdard-New Delhi	1.378	4.645	1.572	7.595	2.531	19	2	18
1909	Indian Institute of Science Bangalore	0.860	2.128	2.370	5.358	1.786	20	1	1
	Total & (Average)	492.719 (24.635)	526.855 (26.342)	515.333 (25.766)	1534.907 (76.745)	511.635 (25.581)			
			(6.92)*	(-2.18)*	(1.58)**				

* Corresponding growth ** average annual corresponding growth PR-Perceived Rank, PS-Perceived Score

Of the twenty leading universities across India, 3 each are in Delhi and Uttar Pradesh, 2 each are in Tamil Nadu, and Maharashtra and 1 each in Karnataka, Telengana, Assam, Kerala, Rajasthan, West Bengal, Chandigarh, Pondicherry, Meghalaya and Goa.

Analysis

Library spending on resource procurement

From Table 2, it is seen that print resources continue to be procured in libraries, although there is a considerable difference in the amount spent on the procurement of print documents across institutions. On average, each listed institution has spent

Rs. 25.581 million each year on the procurement of print documents at an average annual growth of 1.58%.

The Homi Bhabha National Institute has spent the maximum amount towards the procurement of e-resources, followed by Indian Institute of Sciences, Bangalore, Jawahar Lal Nehru University, and Banaras Hindu University. On average Rs. 33.160 million was spent by each institution each year towards the procurement of e-resources at an average annual growth of 1.55%. This reflects a considerable difference between the two forms of documents procured by the libraries, with a growing trend towards the procurement of electronic documents (Table 3).

A considerable difference can be observed in the overall library budget of each individual institution towards procurement of print and electronic resources (Table 4). The Homi Bhabha National Institute has on average spent Rs. 457.305 million each year on the procurement of library resources, on the other hand Jamia Hamdard, New Delhi has on average spent Rs. 2.587 million on the procurement library resources, constituting a huge difference in their budget. The Indian Institute of Sciences, Bangalore has spent 98.63% of its library budget on the procurement of e-resources and 1.37% on the procurement of print resources. The Jawaharlal Nehru University, Banaras Hindu University and Birla Institute of Technology are the other leading institutes to spend more on the procurement of e-resources,

whereas, Aligarh Muslim University, Jamia Hamdard and Goa University have spent over 95% of their library budget on the procurement of print resources. Nearly, 60% institutions under study have spent the major portion of their library budget on the procurement of print resources. However, on average, each institutional library has spent 56.46% of the library budget towards the procurement of e-resources and 43.54% funds on the procurement of print resources.

Institutional research output

In terms of research output, Indian Institute of Science, Bangalore leads with the maximum 7145 research articles, followed by University of Delhi with 3994 articles and Banaras Hindu University with

Table 3—Procurement of Electronic resources (books & Journals)

Year of Etab.	University Library	Amount in Rs. Millions			Total Spending in Rs. Millions	Avg spending in Rs. Millions	PR	PS2	All India Rank
		2012-13	2013-14	2014-15					
2005	Homi Bhabha National Institute	320.614	283.183	245.256	849.053	283.000	1	20	17
1909	Indian Institute of Science Bangalore	104.481	134.384	145.771	384.636	128.212	2	19	1
1969	Jawaharlal Nehru university	49.800	63.000	61.000	173.800	57.933	3	18	3
1916	Banaras Hindu University	40.851	53.712	42.308	136.871	45.623	4	17	7
1922	University of Delhi	37.603	37.608	36.881	112.092	37.364	5	16	6
2007	Indian Institute of Space Science and Technology	15.184	20.617	29.746	65.547	21.849	6	15	8
1974	University of Hyderabad - Hyderabad	18.759	21.279	18.425	58.463	19.487	7	14	4
1985	Pondicherry University	16.985	13.237	15.345	45.567	15.189	8	13	13
1964	Birla Institute of Tech & Science-Pilani	11.031	15.223	17.156	43.410	14.470	9	12	9
1947	Punjab University	10.800	10.800	17.425	39.025	13.008	10	11	12
2003	Amrita Vishwa Vidyapeetham- Coimbatore	2.060	11.721	11.902	25.683	8.561	11	10	19
1994	Tezpur University	6.791	4.187	5.308	16.286	5.428	12	9	5
1911	King Georges medical university- Lucknow	0.592	0.735	11.858	13.185	4.395	13	8	16
1983	Institute of Chemical Technology	1.647	6.674	1.647	9.968	3.322	14	7	2
1973	North Eastern Hill University	0.932	1.822	2.504	5.258	1.752	15	6	15
1921	Visva Bharati	0.000	0.067	4.268	4.335	1.445	16	5	11
1982	Bharathiar University	1.037	1.250	1.973	4.260	1.420	17	4	14
1985	Goa University- Goa	1.100	0.000	0.065	1.165	0.388	18	3	20
1875	Aligarh Muslim University	0.000	0.152	0.737	0.889	0.296	19	2	10
1989	Jamia Hamdard- New Delhi	0.098	0.057	0.011	0.166	0.055	20	1	18
	Total & (Average)	640.365 (32.018)	679.708 (33.985)	669.586 (33.479)	1989.659 (99.482)	663.219 (33.160)			
			(6.14)*	(-1.48)*	(1.55)**				

* Corresponding growth ** average annual corresponding growth PR-Perceived Rank, PS-Perceived Score

Table 4—Fund spending percentage on procurement of Print and E-documents

Year of estab.	University Library	Amount in Rs. millions		Total Amount in Rs. millions	Avg spending each year in Rs. millions	PR	PS3	All India Rank
		2012-13 through 2014-15						
		Print (% share)	E-documents (% share)					
2005	Homi Bhabha National Institute	522.860 (38.11)	849.053 (61.89)	1371.913	457.304	1	20	17
1909	Indian Institute of Science Bangalore	5.358 (1.37)	384.636 (98.63)	389.994	129.998	2	19	1
1922	University of Delhi	260.187 (69.89)	112.092 (30.11)	372.279	124.093	3	18	6
1969	Jawaharlal Nehru university	41.700 (19.35)	173.800 (80.65)	215.500	71.833	4	17	3
1916	Banaras Hindu University	28.249 (17.10)	136.871 (82.90)	165.120	55.040	5	16	7
1947	Punjab University	117.517 (75.07)	39.025 (24.93)	156.542	52.180	6	15	12
2007	Indian Institute of Space Science and Tech.	36.662 (35.86)	65.547 (64.14)	102.209	34.069	7	14	8
1875	Aligarh Muslim University	100.961 (99.12)	0.889 (0.88)	101.850	33.950	8	13	10
1974	University of Hyderabad - Hyderabad	38.982 (40.00)	58.463 (60.00)	97.445	32.481	9	12	4
2003	Amrita Vishwa Vidyapeetham-Coimbatore	69.897 (73.12)	25.683 (26.88)	95.580	31.860	10	11	19
1985	Pondicherry University	39.251 (46.27)	45.567 (53.73)	84.818	28.272	11	10	13
1983	Institute of Chemical Technology	57.735 (85.27)	9.968 (14.73)	67.703	22.567	12	9	2
1964	Birla Institute of Tech. & Science-Pilani	17.667 (28.92)	43.410 (71.08)	61.077	20.359	13	8	9
1973	North Eastern Hill University	50.029 (90.48)	5.258 (9.52)	55.287	18.429	14	7	15
1911	King Georges Medical University-Lucknow	39.542 (74.99)	13.185 (25.01)	52.727	17.575	15	6	16
1982	Bharathiar University	32.522 (88.41)	4.260 (11.59)	36.782	12.260	16	5	14
1985	Goa University- Goa	33.992 (96.68)	1.165 (3.32)	35.157	11.719	17	4	20
1994	Tezpur University	17.534 (51.84)	16.286 (48.16)	33.820	11.273	18	3	5
1921	Visva Bharati	16.667 (79.35)	4.335 (20.65)	21.002	7.000	19	2	11
1989	Jamia Hamdard-New Delhi	7.595 (97.86)	0.166 (2.14)	7.761	2.587	20	1	18
	Total (Average)*	1534.907 (43.54)	1989.659 (56.46)	3524.566 (176.228)*	1174.849 (58.740)*			

PR-Perceived Rank, PS-Perceived Score

3379 research articles. Homi Bhabha National Institute, Indian Institute of Space Science & Technology and Goa University reported lower research output (Table 5).

On average, Rs. 0.097 million has been spent by each institutional library on the procurement of resources against each published research article. The Jamia Hamdard, New Delhi has spent the lowest

Table 5—Year-wise research output of universities as reported in SCOPUS

Year of estab.	University Library	Research publications			Total	Avg publications each year	PR	PS4	All India Rank
		2012	2013	2014					
1909	Indian Institute of Sciences, Bangalore	2274	2337	2534	7145	2381	1	20	1
1922	University of Delhi,	1295	1267	1432	3994	1331	2	19	6
1916	Banaras Hindu University	958	1168	1253	3379	1126	3	18	7
1875	Aligarh Muslim University	910	810	808	2528	842	4	17	10
1947	Punjab University	724	785	939	2448	816	5	16	12
1983	Institute of Chemical Technology	679	635	856	2170	723	6	15	2
1974	University of Hyderabad -Hyderabad	704	663	736	2103	701	7	14	4
1969	Jawaharlal Nehru university	616	555	687	1858	619	8	13	3
1911	King Georges Medical University- Lucknow	537	639	445	1621	540	9	12	16
1982	Bharathiar University	415	470	611	1496	498	10	11	14
1985	Pondicherry University	361	426	506	1293	431	11	10	13
1964	Birla Institute of Tech. & Science- Pilani	333	436	487	1256	418	12	9	9
1994	Tezpur University	270	336	426	1032	344	13	8	5
2003	Amrita Vishwa Vidyapeetham- Coimbatore	260	270	402	932	310	14	7	19
1921	Visva Bharati	280	273	321	874	291	15	6	11
1989	Jamia Hamdard-New Delhi	187	229	217	633	211	16	5	18
1973	North Eastern Hill University	176	201	207	584	194	17	4	15
1985	Goa University- Goa	100	109	112	321	107	18	3	20
2007	Indian Institute of Space Science and Tech.	62	78	116	256	85	19	2	8
2005	Homi Bhabha National Institute	48	55	74	177	59	20	1	17
	Total & (Average)	11189 (559.45)	11742 (587.10)	13169 (658.45)	36100 (1805)	12027			
			(4.94)*	(12.15)*	(5.69)**				

* Corresponding growth ** average annual corresponding growth PR-Perceived Rank, PS-Perceived Score

Rs. 0.012 million on the resource procurement against each research article published, whereas, Homi Bhabha National Institute has spent the highest Rs. 7.750 million against the resource procurement against each research article (Table 6).

On an average, about 4 research papers were published by each faculty member during the period of study from each listed institution. However, about 22 research articles on an average were published by each faculty member of the Institute of Chemical Technology, while as less than one research article was published by each faculty member of the Amrita Vishwa Vidyapeetham-Coimbatore. The average amount spent on the resource procurement against each faculty member of the Homi Bhabha National Institute is Rs. 1.534 million. Similarly, Indian Institute of Space Science & Technology and Indian Institute of Science, Bangalore have on average spent

Rs. 1.174 and 0.915 million respectively against each faculty member on the resource procurement (Table 7).

Faculty Members

On average Rs. 0.364 million has been spent against each faculty member of the institutions under study, with an average research output of 3.73 research articles published by each faculty member. The libraries associated with the Amrita Vishwa Vidyapeetham and the Vishwa Bharati have on average spent less than Rs. 0.1 million on the resource procurement against each faculty member. No direct correlation can be found between the amount spent against each faculty member and the average research articles produced by each faculty member. Only 30% institutes under study have spent more than average amount against each faculty member, Table 8.

Table 6—Expenditure incurred on publication of each research article

Year of estab.	University library	Total library spending in millions	Total research output	Avg. exp. on each publication in millions	PR	PS5	All India Rank
1989	Jamia Hamdard-New Delhi	7.761	633	0.012	1	20	18
1982	Bharathiar University	36.782	1496	0.024	2	19	14
1921	Visva Bharati	21.002	874	0.024	2	19	11
1983	Institute of Chemical Technology	67.703	2170	0.031	4	17	2
1911	King Georges Medical University-Lucknow	52.727	1621	0.032	5	16	16
1994	Tezpur University	33.820	1032	0.032	5	16	5
1875	Aligarh Muslim University	101.850	2528	0.040	7	14	10
1974	University of Hyderabad -Hyderabad	97.445	2103	0.046	8	13	4
1964	Birla Institute of Tech. & Science-Pilani	61.077	1256	0.048	09	12	9
1916	Banaras Hindu University	165.120	3379	0.048	09	12	7
1909	Indian Institute of Science Bangalore	389.994	7145	0.054	11	10	1
1947	Punjab University	156.542	2448	0.063	12	9	12
1985	Pondicherry University	84.818	1293	0.065	13	8	13
1922	University of Delhi	372.279	3994	0.093	14	7	6
1973	North Eastern Hill University	55.287	584	0.094	15	6	15
2003	Amrita Vishwa Vidyapeetham- Coimbatore	95.580	932	0.102	16	5	19
1985	Goa University- Goa	35.157	321	0.109	17	4	20
1969	Jawaharlal Nehru university	215.500	1858	0.115	18	3	3
2007	Indian Institute of Space Science and Tech.	102.209	256	0.399	19	2	8
2005	Homi Bhabha National Institute	1371.913	177	7.750	20	1	17
	Total (Average)	3524.566 (176.228)	36100 (1805)	0.097			

PR-Perceived Rank, PS-Perceived Score

Table 7—Average articles published by each faculty member

Year of estab.	University library	Total research output	Total faculty members	Avg articles published by each faculty member during three years	PR	PS6	All India Rank
1983	Institute of Chemical Technology	2170	98	22.14	1	20	2
1909	Indian Institute of Science Bangalore	7145	426	16.77	2	19	1
1989	Jamia Hamdard-New Delhi	633	40	15.82	3	18	18
1982	Bharathiar University	1496	181	8.26	4	17	14
1974	University of Hyderabad - Hyderabad	2103	389	5.40	5	16	4
1922	University of Delhi	3994	778	5.13	6	15	6
1911	King Georges Medical University-Lucknow	1621	328	4.94	7	14	16
1994	Tezpur University	1032	227	4.54	8	13	5
1985	Pondicherry University	1293	359	3.60	9	12	13
1969	Jawaharlal Nehru university	1858	534	3.47	10	11	3
1875	Aligarh Muslim University	2528	740	3.41	11	10	10
1985	Goa University- Goa	321	98	3.27	12	9	20

Contd—

Table 7—Average articles published by each faculty member

Year of estab.	University library	Total research output	Total faculty members	Avg articles published by each faculty member during three years	PR	PS6	—Contd
							All India Rank
1916	Banaras Hindu University	3379	1118	3.02	13	8	7
2007	Indian Institute of Space Science and Tech.	256	87	2.94	14	7	8
1947	Punjab University	2448	838	2.92	15	6	12
1964	Birla Institute of Tech. & Science-Pilani	1256	535	2.34	16	5	9
1973	North Eastern Hill University	584	291	2.00	17	4	15
1921	Visva Bharati	874	483	1.80	18	3	11
2003	Amrita Vishwa Vidyapeetham-Coimbatore	932	1231	0.75	19	2	19
2005	Homi Bhabha National Institute	177	894	0.19	20	1	17
	Total (Average)	36100 (1805)	9675 (483.75)	3.73			

PR-Perceived Rank, PS-Perceived Score

Table 8—Average spending made against each faculty member

Year of Estab.	University Library	Total Spending in Millions	Total faculty members	Avg articles published by each faculty member during three years	Expenditure incurred on each faculty member in Millions	PR	PS7	All India Rank
2005	Homi Bhabha National Institute	1371.913	894	0.19	1.534	1	20	17
2007	Indian Institute of Space Science and Tech.	102.209	87	2.94	1.174	2	19	8
1909	Indian Institute of Science, Bangalore	389.994	426	16.77	0.915	3	18	1
1983	Institute of Chemical Technology	67.703	98	22.14	0.690	4	17	2
1922	University of Delhi	372.279	778	5.13	0.478	5	16	6
1969	Jawaharlal Nehru university	215.500	534	3.47	0.403	6	15	3
1985	Goa University- Goa	35.157	98	3.27	0.358	7	14	20
1974	University of Hyderabad -Hyderabad	97.445	389	5.40	0.250	8	13	4
1985	Pondicherry University	84.818	359	3.60	0.236	9	12	13
1982	Bharathiar University	36.782	181	8.26	0.203	10	11	14
1989	Jamia Hamdard-New Delhi	7.761	40	15.82	0.194	11	10	18
1973	North Eastern Hill University	55.287	291	2.00	0.189	12	9	15
1947	Punjab University	156.542	838	2.92	0.186	13	8	12
1911	King Georges Medical University-Lucknow	52.727	328	4.94	0.160	14	7	16
1994	Tezpur University	33.820	227	4.54	0.148	15	6	5
1916	Banaras Hindu University	165.120	1118	3.02	0.147	16	5	7

Contd—

Table 8—Average spending made against each faculty member

Year of Estab.	University Library	Total Spending in Millions	Total faculty members	Avg articles published by each faculty member during three years	Expenditure incurred on each faculty member in Millions	PR	PS7	All India Rank
1875	Aligarh Muslim University	101.850	740	3.41	0.137	17	4	10
1964	Birla Institute of Tech. & Science-Pilani	61.077	535	2.34	0.114	18	3	9
2003	Amrita Vishwa Vidyapeetham-Coimbatore	95.580	1231	0.75	0.077	19	2	19
1921	Visva Bharati	21.002	483	1.80	0.043	20	1	11
	Total (average)	3524.566 (176.228)	9675 (483.75)	3.73	0.364			

—Contd

PR-Perceived Rank, PS-Perceived Score

Table 9—Perceived ranking of university libraries on the basis of above seven parameters discussed

Year of Estab.	University Library	PS1	PS2	PS3	PS4	PS5	PS6	PS7	Total PS	PR	National Rank
1922	University of Delhi	19	16	18	19	7	15	16	110	1	6
1909	Indian Institute of Science, Bangalore	1	19	19	20	11	19	18	107	2	1
1983	Institute of Chemical Technology	15	7	9	15	17	20	17	100	3	2
1974	University of Hyderabad -Hyderabad	10	14	12	14	13	16	13	92	4	4
1916	Jawaharlal Nehru university	13	18	17	13	3	11	15	90	5	3
1947	Punjab University	18	11	15	16	9	6	8	83	6	12
2005	Homi Bhabha National Institute	20	20	20	1	1	1	20	83	7	17
1916	Banaras Hindu University	6	17	16	18	12	8	5	82	8	7
1875	Aligarh Muslim University	17	2	13	17	14	10	4	77	9	10
1985	Pondicherry University	11	13	10	10	8	12	12	76	10	13
1982	Bharathiar University	7	4	5	11	19	17	11	74	11	14
1911	King Georges Medical University-Lucknow	12	7	6	12	16	14	7	74	12	16
2007	Indian Institute of Space Science and Technology	9	15	14	2	2	7	19	68	13	8
1994	Tezpur University	4	9	3	8	15	13	6	59	14	5
1989	Jamia Hamdard-New Delhi	2	1	1	5	20	18	10	57	15	18
1964	Birla Institute of Technology & Science-Pilani	5	12	8	9	12	5	3	54	16	9
2003	Amrita Vishwa Vidyapeetham-Coimbatore	16	10	11	7	5	2	2	53	17	19
1973	North Eastern Hill University	14	6	7	4	6	4	9	50	18	15
1985	Goa University- Goa	8	3	4	3	4	9	14	45	19	20
1921	Visva Bharati	3	5	2	6	19	3	1	39	20	11

PR-Perceived Rank, PS-Perceived Score

Perceived Ranking

Keeping in view the ascribed rank of each individual library and the achieved rank, assigned to each individual library on the basis of aggregate score earned against each individual parameter, a

considerable change can be observed in the ascribed and achieved rank of each individual library.

It is evident from the Table 9, that in all, 95% institutional libraries faced change in their rankings, 50% institutions improved their ranking, while as

45% institutes slipped in their rank, 5% institutes did not face any change. Library of the University of Delhi improved by five ranks and moved from Rank 6 to Rank 1, whereas the library of the Vishwa Bharati slipped from 11th rank to 20th rank.

Conclusion

The study reflects a growing trend among the academic libraries in India towards procurement of e-resources. But the exponential growth in the procurement of e-resources in libraries has not yet completely eroded the print readership. Libraries play their part in earning the overall rankings for their parent institution and in its image makeover. The importance of libraries cannot be undermined and no academic institution can afford to survive and thrive in the absence of a rich and a resourceful library. The individual faculty members enhance the research output of an institution rather considering the weight and support of resources alone as a reason for better research productivity.

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