



Awareness of Open Access Resources among Researchers and Faculty Members in Sciences in the Select Universities of Haryana and Punjab

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Abstract

The present study was conducted to know the awareness of open access resources among researchers and faculty members of science disciplines of 12 universities of Haryana and Punjab. The findings reveal that 364(44.4%) respondents were moderately aware and 287(35%) extremely aware of open access publishing. The respondents were moderately aware of 10 out of 14 types of open access resources. These include e-newspapers, e-books, e-journals, e-theses etc. 273(33.3%) respondents were moderately aware of Shodganga followed by World Wide Science. Org and Directory of Open Access Journals (DOAJ). The main sources of information about open access resources were: internet, colleagues/coworkers, institute website/announcement newsletters, library/information professionals and fellow/students.

Keywords: Awareness, Open Access Resources, Repositories, Researchers, Faculty Members

1. Introduction

Open access has emerged as a panacea for intellectual hurdles of distance caused by the COVID 19 pandemic. Although the open access as a concept can be traced to the emergence of internet and developments thereafter, it became a movement with the dawn of the present century. The Budapest Open Access Initiative (BOAI) was the first collective effort to deliberate on the issue and chalk out common strategy for success of the movement. "By "open access" to ... literature,



... mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited” (BOAI, 2002).The Bethesda Statement (2003) and Berlin Declaration (2003)followed in quick succession. The Berlin Declaration defined OA as the ability to “copy, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship”. Open access movement has significantly changed the scholarly communication system, by contributing in the bridging of digital divide in scholarly arena. Less resourceful institutions have been able to cater to the requirements of their patrons to a decent degree. Now after two decades, the spiraling effect of the movement is becoming visible in the scholarly communication process. According to Ho (2010), “Scholarly communication (SC) is a cyclical process in which content is generated, reviewed, disseminated, acquired, preserved, discovered, accessed, and assimilated for the advancement of scholarship. The assimilation can potentially lead to generation of new content and thus start a new iteration of the process (or life cycle)”. But the impact of OA is not uniform as a large section of academic and scholarly community has varying degree of awareness of these resources resulting in usage that falls far short of its optimum potential. A brief look at the literature shall highlight the issue more succinctly.

2. Literature review

The recent influx of vast amount of literature in all disciplines has dual impact on information communication scenario. On one side literature paucity has been addressed but at the same time emergence of predatory journals has brought quality issues to the mainstream of professional discussion. The problem has acquired new dimensions in India particularly after regulating agencies of education made publications mandatory for recruitment/promotion in higher education as well as for research degrees. Library and information science is not an exception to it.



Many authors have investigated the awareness of OA e-resources among different user groups. In an early study, Coonin and Younce (2009) investigated the authors contributing to social science journals covered in DOAJ and found that out of “325 respondents, 39.4% were “Very Aware”; 43.4% were “Somewhat Aware”; 17.2% were “Not at all Aware”” of open access publishing. This shows that publication in open access journals does not imply that the author is necessarily aware of this concept.

Palikiti, Chinna Balu and Narendra (2019) investigated the faculty members of Vardhman College of Engineering (Autonomous), Hyderabad and found that 93.22 percent respondents were aware of e-resources. Sumadevi and Sampath Kumar (2018) studied the science faculty members of Karnataka state universities, and found that 98.56 percent respondents were aware of open access scholarly publications. Among bibliographic forms, 71.58 percent were ‘Highly Aware’ of journals followed by 59.71 percent for books. Among characteristics of OA, 59.35 percent were ‘Highly Aware’ of the fact that “Open access is free online, digital form”. 50.90 percent respondents were ‘Highly Aware’ of “Open access journals Gateways (e.g. Open Science Journals, Indian Academy of Science etc.)”.

A large number of studies have been conducted on awareness of e-journals and other resources. Gupta and Ansari (2019) found that majority of the students and researchers of University of Delhi (79.78%) and BBAU, Lucknow (71.8%) were aware of e-journals. Thenmozhi and Gomathi (2019) in a study of M. Ed. Students of Salem Zone, Tamil Nadu, India, found that 78.91 percent respondents were aware of OA journals.

Christopher and Young (2015) investigated the veterinary and medical professionals and found that 23.9 percent respondents were aware of DOAJ, followed by 23.0 percent showing awareness of the term ‘predatory journal’ and only 4.8 % were aware of Beall’s list.

Sellan and Sornam (2017) studied the theological faculty members in 15 colleges of Karnataka and found that the respondents were most aware of ‘Biblical Studies (www.biblicalstudies.org.uk)’ (mean score 2.04 on a 1-3 point scale); followed by Society for



Biblical Studies and Google search engine for theological journals (both, mean score 1.89); and they were at least partially aware of all the 15 OA resources mentioned in the study.

Manchu and Vasudevan (2018) found that 83.2 percent researchers in Calicut University were aware of the concept of institutional repositories and open access publishing. A study of the researchers in Raman Research Institute, Bangalore, India showed that 86.27 percent respondents were aware of “Self-archiving on personal webpage”, distantly followed by awareness of hybrid mode of open access (40.19%) (Nagaraj and Bhandi, 2016).

The findings of the study of University of Zululand (Munikwa, 2018) show that 52 percent respondents including academic staff, PhD candidates, master’s students and honours students were not familiar with scholarly open access resources. The low response of awareness may be due to inclusion of masters and honours students in the study.

Like awareness, the channels or sources of being aware of various open access resources vary. Suniti Bala, Bansal and Sharma (2018) found that the main source of awareness of OAR among researchers in Punjab Agricultural University, Ludhiana was the ‘Library Course (PGS-501)’ (42.17 %) distantly followed by internet (25.30%). In Vardhman College of Engineering (Autonomous), Hyderabad, 73.96 percent responding faculty members came to know about e-resources through library staff or circulars issued by the college library for this purpose (Palikiti, Chinna Balu and Narendra, 2019).

In the study of science faculty members of Karnataka State universities, 54.32 percent respondents became aware of open access scholarly publications ‘To great extent’ through “Browsing web”(Sumadevi and Sampath Kumar, 2018). For theological faculty members in colleges of Karnataka, Google (mean score 4.29 on a 1-5 scale) was found the most helpful source for knowing OA scholarly publications (Sellan and Sornam, 2017).



The students and researchers of University of Delhi and BBAU, Lucknow mainly became aware of e-journals through their colleagues (University of Delhi 78.65% and BBAU, Lucknow 75.64%) and teachers/research supervisors/ colleagues (University of Delhi 62.92% and BBAU, Lucknow 56.41%) (Gupta and Ansari, 2019). 61.5 percent researchers in Calicut University became aware of the concept of institutional repositories through their colleagues/friends (Manchu and Vasudevan, 2018). 43.4 percent authors of DOAJ covered journals became aware of open access publishing from colleagues while 39.3 percent became aware from internet during their search for publication of the paper (Coonin and Younce, 2009).

Thus, it is evident from above studies that majority of various user groups of open access resources are quite aware of these resources but the extent and awareness of specific resources varies and efforts need to be done to improve the situation. The sources of awareness among different user groups also vary from internet, Google, browsing web, teachers/supervisors/colleagues/friends, to library staff and library course offered by the agricultural universities.

3. Objectives of the Study

The specific objectives of the study with respect to researchers and faculty members of the universities of Haryana and Panjab are to:

1. Know the awareness of open access publishing;
2. Assess the level of awareness of different types and specific open access resources;
3. Know the awareness of institutional repositories; and
4. Identify the channels of awareness of open access resources.

4. Scope of the Study

The present study covers the faculty members and PhD scholars of science disciplines of the six universities of Haryana and six universities of Punjab. The universities are: Kurukshetra University Kurukshetra (KUK); Maharshi Dayanand University (MDU), Rohtak; Choudhary Charan Singh Haryana Agriculture University (HAU), Hisar; Lala Lajpat Rai University of Veterinary and Animal Science, Hisar; J.C. Bose University of Science and Technology (JCBUST), YMCA, Faridabad; Deenbandhu Chhotu Ram University of Science and



Technology(DCRUST), Murthal, Sonapat; Punjab Agriculture University (PAU), Ludhiana; Punjabi University (PbiU), Patiala; Guru Nanak Dev University(GNDU), Amritsar;Guru Angad DevVeterinary and Animal Sciences University (GADVASU), Ludhiana; Sant Longowal Institute of Engineering and Technology (SLIET), Sangrur; and Thapar Institute of Engineering and Technology (TIET), Patiala.

5. Methodology

The study was conducted during 2019, using a structured questionnaire designed for the purpose. The questionnaire was administered by the first author by personally visiting different universities. The personal visits provided an opportunity to interact with the respondents and understand their views. The data thus, collected was subjected to statistical analysis using SPSS. The results are presented in tabular as well as graphic form in the following part of the paper.

6. Analysis and Interpretation of data

Total 820 usable responses were received from 12 universities of Haryana and Punjab. Four of these universities are general having all three streams- arts, science and social sciences; four are of agricultural sciences; and remaining four belong to engineering and technology. In order to have a group of respondents having similar characteristics, the respondents of only science faculty were included in the study. The response received during the conduct of the study has been analysed and presented in the following sections.

Table-1 Total number of respondents from different universities

State	University	Respondents	Percentage
Haryana n=418 (50.98%)	DCRUST	98	11.9
	HAU	76	9.3
	KUK	81	9.9
	LUVAS	43	5.2



	MDU	69	8.4
	YMCA	51	6.2
Punjab n=402 (49.02%)	GADVASU	35	4.3
	GNDU	96	11.7
	PAU	54	6.6
	Punjabi University	81	9.9
	SLIET	42	5.1
	TIET	94	11.5
Total		820	100

Total number of respondents participating from different universities, have been shown in Table-1. The table shows that 418 (50.98%) respondents belonged to the universities of Haryana state and 402 (49.02%) respondents were from universities of Punjab state. Highest response was received from DCRUST (98 nos.), followed by GNDU (96 nos.) and TIET (94 nos.). Both the veterinary science universities viz. LUVAS (43 nos.) and GADVASU (35 nos.) had minimum respondents. It may be because of small number of researchers in their doctoral programmes.

Table-2 Gender-wise distribution of the participants

Gender	Respondents	Percentage
Female	449	54.8
Male	371	45.2



With the spread of education in Indian society gender disparity in higher education is no longer an issue. In recent years female participation in higher education and research has significantly increased. The statistics in Table-2 show that female respondents in the study were 54.8% and the male participation was 45.2%.

Table-3 Status of the respondents

Status	Respondents	Percentage
Ph. D. Scholar	611	74.5
Assistant Professor	145	17.7
Associate Professor	29	3.5
Professor	35	4.3
Total	820	100.0

Senior faculty members are difficult to access for response due to their multiple engagements. The number of associate professors is generally very small in any university due to the fact that only a small 3-year period is spent by a faculty member in this position before the person is eligible for professor. These facts are reflected in Table-3 that shows 611(74.5%) respondents were PhD scholars, followed by 145(17.7%) assistant professors and only 35(4.3%) professors, and 29(3.5%) associate professors.

Table-4 Awareness about the open access publishing

Level of Awareness	Response	Percentage
Extremely Aware	287	35.0
Moderately Aware	364	44.4
Somewhat Aware	92	11.2
Slightly Aware	64	7.8
Not Aware	13	1.6
Total	820	100.0



Table-4 presents response on awareness of open access publishing. More than every third respondent was extremely aware of these resources while 44.4 percent were moderately aware. Interestingly only 1.6 percent were not aware of the concept of open access publishing. This high level of awareness is due to the respondents being researchers and faculty members of science disciplines where most of the nascent literature is available online. Quite a sizeable portion of it is also available on open access, that can be accessed and used without any mediation.

Table-5 Awareness of different types of open access resources

Collection N=820		NA	SA	SWA	MA	EA	Total	Mean	Std. Deviation	Rank
E-Newspapers	N	16	37	85	254	428	820	4.27	0.95	1
	%	2.0	4.5	10.4	31.0	52.2	100			
E-books	N	6	42	88	324	360	820	4.21	0.88	2
	%	.7	5.1	10.7	39.5	43.9	100			
E-Journals	N	15	37	114	271	383	820	4.18	0.96	3
	%	1.8	4.5	13.9	33.0	44.7	100			
E- Theses	N	51	52	137	288	292	820	3.88	1.15	4
	%	4.2	4.3	14.7	35.1	35.6	100			
E- Dictionaries	N	27	72	141	322	258	820	3.87	1.06	5
	%	3.3	8.8	17.2	39.3	31.5	100			
E-Magazines	N	44	70	140	308	258	820	3.81	1.13	6
	%	5.4	8.5	17.1	37.6	31.5	100			
Databases	N	53	74	142	308	243	820	3.75	1.16	7
	%	4.5	9.0	17.3	37.6	29.6	100			



E- Encyclopedias	N	43	77	151	326	223	820	3.74	1.11	8
	%	5.2	9.4	18.4	39.8	27.2	100			
E- Conference Proceedings	N	74	67	142	287	250	820	3.70	1.24	9
	%	9.0	8.2	17.3	35.0	30.5	100			
E- Manuals and Guides	N	69	81	144	310	216	820	3.64	1.21	10
	%	8.4	9.9	17.6	37.8	24.3	100			
E- Technical Reports	N	67	106	173	302	172	820	3.50	1.19	11
	%	8.2	12.9	21.1	34.8	21.0	100			
E- Handbooks	N	68	110	159	321	162	820	3.49	1.19	12
	%	8.3	13.4	19.4	39.1	19.8	100			
E- Patents	N	74	102	171	295	178	820	3.49	1.21	13
	%	9.0	12.4	20.9	34.0	21.7	100			
E- Directories	N	89	103	177	303	148	820	3.39	1.23	14
	%	10.9	12.6	21.6	37.0	18.0	100			

(Not Aware=NA: Slightly Aware=SA; Somewhat Aware=SWA; Moderately Aware: MA; Extremely Aware=EA)

Table-5 presents the data regarding extent of respondents' awareness of different types of open access resources. On this issue, the response was requested on a five-point scale from Extremely Aware to Not Aware and each category was given a numeric value from 5 to 1(i.e. Extremely Aware-5 and Not Aware -1). Out of 14 type of resources, the respondents were Moderately Aware of 11 resources with varying degree while response of 3 resources was in Somewhat Aware category. E-newspapers were ranked 1st with a mean value 4.27(with $\sigma \pm 0.95$), E-book ranked 2nd with mean value 4.21 (with $\sigma = \pm .88$), E-Journals ranked 3rd with mean value 4.18 (with $\sigma = \pm .96$), E- theses ranked 4th with a mean 3.88(with $\sigma = \pm .1.15$) respectively. However, E- Dictionaries, E-Magazines, Databases, E- Encyclopedias and E- Conference Proceedings had been ranked 5th, 6th, 7th, 8th and 9th with mean values 3.87(with $\sigma = \pm 1.06$), 3.81(with $\sigma = \pm 1.13$), 3.75(with $\sigma = \pm 1.16$), 3.74(with $\sigma = \pm 1.11$) and 3.70(with $\sigma = \pm 1.11$) respectively.



Similarly, E- Manuals and Guides, E- Technical Reports, E- Handbooks, E- Patents and E- Directories had been ranked 10th, 11th, 12th, 13th and 14th respectively. The top three ranked resources had low value of standard deviation, implying a high degree of similarity in the response.

Table-6 Awareness of various open access resources

Open access resources	N=820	NA	SA	SWA	MA	EA	Total	Mean	Std. Deviation	Rank
Shodhganga	N	119	99	182	273	147	820	3.51	1.46	1
	%	14.5	12.1	22.2	33.3	17.9	100			
World Wide Science. Org	N	99	110	216	228	167	820	3.31	1.27	2
	%	12.1	13.4	24.3	27.8	20.4	100			
DOAJ	N	119	99	182	273	147	820	3.28	1.29	3
	%	14.5	12.1	22.2	33.3	17.9	100			
PubMed	N	147	114	163	175	221	820	3.25	1.44	4
	%	17.9	13.9	19.9	21.3	27.0	100			
DOAB	N	134	104	210	249	123	820	3.15	1.29	5
	%	14.3	12.7	25.6	30.4	15.0	100			
PLOS	N	141	123	204	202	150	820	3.12	1.34	6
	%	17.2	15.0	24.9	24.6	18.3	100			



Open J Gate	N	174	100	222	177	147	820	3.03	1.38	7
	%	21.2	12.2	27.1	21.6	17.9	100			
DOAR	N	154	127	224	232	83	820	2.95	1.26	8
	%	18.8	15.5	27.3	28.3	10.1	100			
NISCAIR Publications	N	174	127	203	202	114	820	2.95	1.34	9
	%	21.2	15.5	24.8	24.6	13.9	100			

Table-6 shows the respondents awareness of different open access resources. Among 9 resources, respondents were Somewhat Aware of only one resource i.e. Shodhganga, the response of rest 8 resources was in Slightly Aware category with varying degree.

Thus, Shodhanga was ranked 1st with highest mean value 3.51(with $\sigma = \pm 1.462$) followed by World Wide Science. Org with second highest mean value 3.31(with $\sigma = \pm 1.462$), DOAJ ranked 3rd with mean value 3.28(with $\sigma = \pm 1.294$). However, PubMed, DOAB, PLOS, Open J Gate, DOAR and NISCAIR Publications secured rank 4th, 5th, 6th, 7th, 8th and 9th respectively with their mean value 3.25(with $\sigma = \pm 1.444$), 3.15(with $\sigma = \pm 1.289$), 3.12(with $\sigma = \pm 1.343$), 3.03(with $\sigma = \pm 1.380$), 2.95(with $\sigma = \pm 1.26$) and 2.95(with $\sigma = \pm 1.343$) respectively.

Table-7 Awareness of respondents regarding open access repositories

Awareness	Respondents	Percentage
Extremely Aware	120	14.6
Moderately Aware	391	47.7
Somewhat Aware	217	24.5
Slightly Aware	3	0.4



Not Aware	89	10.9
Total	820	100.0

Open access repositories have now become quite common feature among higher education and research organisations. It was intended to know the awareness of respondents of these repositories. Almost half of the respondents (47.7 %) were moderately aware of open access repositories while 14.6 percent were extremely aware; a sizeable number of respondents (10.9%) were not aware of the concept.

Table-8 Sources of information about open access resources

Source of Information		Yes	No	Total	Rank
		N	No	Total	
Through the Internet	N	345	475	820	1
	%	42.1	57.9	100	
Colleagues/ co-workers	N	113	707	820	2
	%	13.8	84.2	100	
Institute website/announcements newsletters	N	100	720	820	3
	%	12.2	87.8	100	
Librarians/information professionals	N	91	729	820	4
	%	11.1	88.9	100	
Fellow/Students	N	83	737	820	5
	%	10.1	89.9	100	



Workshop/ Seminars/Meetings	N	65	755	820	6
	%	7.9	92.1	100	
Printed Books	N	39	781	820	7
	%	4.8	95.2	100	
Printed Journals/ Magazines	N	33	787	820	8
	%	4.0	94.0	100	
Through WhatsApp	N	15	805	820	9
	%	1.8	98.2	100	

Table-8 presents the sources of awareness of open access resources. Internet with 42.1 percent response was the 1st ranked source to make the respondents aware of open access resources. Other sources with more than 10 percent response were: colleagues/ coworkers (13.8 %), institute website/announcements newsletters (12.2 %), librarians/information professionals (11.1 %), and fellow students (10.1 %).

7. Results and Conclusion

The study was conducted in 12 universities of Haryana and Punjab. The sample size of faculty and researchers of each university varied between 4 and 12 percent of total sample. On the basis of findings of the study the following conclusions may be drawn.

The faculty and researchers of the universities of Haryana and Punjab are moderately aware of open access publishing. They are also moderately aware of, in the decreasing order of awareness: e-newspapers, e-books, e-journals, e-theses, e-dictionaries, e-magazines, databases, e-encyclopedias, e-conference proceedings, e-manuals and guides and e-technical reposts. Among specific resources, they are moderately aware of only Shodhganga while somewhat aware of rest all the significant resources. The faculty and researchers of these universities are moderately



aware of open access repositories while the modal source of information about open access resources is internet.

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