

## A Global Analysis of Open Access Books: A Study Based on Directory of Open Access Books

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### ARTICLE INFO

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*Article history:*

Received 22 October 2015

Revised 10 November 2015

Accepted 11 November 2015

*Keywords:*

Open Access,

Directory of Open Access Books,

Year of Publication,

Added on DOAB,

Licenses

### ABSTRACT

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The Directory of Open Access Books (DOAB) provides a searchable index peer-reviewed monographs and edited volumes published under an Open Access business model, with links to the full texts of the publications at the publisher's website or repository. This paper discusses a global analysis of open access books, which are available in the Directory of Open Access Books (DOAB). The data was collected from the open access directory at <http://www.doabooks.org/> on 20<sup>th</sup> October 2015. In total 3379 books are listed as available on the directory; the first and second books were published in 1866 and 1867 respectively. After 1962, the publication of books, increased gradually and the greatest number of books more than 300, was published in 2010, 2012, 2013 and 2014. Nearly 47 percent of the books (1584) were published in the English language only.

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## 1. Introduction

In the 20<sup>th</sup> century, the library was opened for public use. After the development of Information and Communication Technology, things changed; electronic documents were made available to everybody with the help of the Internet. The creation of the Internet meant accessing anything, anywhere without boundaries that could be stored in a network around the world. It allowed for the access to both public and private material with the help of technology. Nowadays, content from every known subject area and matter can be put on the Internet for the public to see.

The Directory of Open Access Books (DOAB) is a discovery service for Open Access monographs (Snijder, 2012). DOAB provides a searchable index for peer-reviewed monographs and edited volumes published under an Open Access business model, with links to the full texts of the publications at the publisher's website or repository. Academic publishers are invited to provide the metadata of their Open Access books to DOAB<sup>1</sup>. Metadata is harvestable in order to maximize dissemination, visibility and impact. Aggregators can integrate the records in their commercial services and libraries can integrate the directory into their online catalogues, thereby helping scholars, students and the general public to discover the books. DOAB is open to all academic publishers: The directory

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International Journal of Knowledge Content Development & Technology, 6(1): 85-103, 2016.  
<http://dx.doi.org/10.5865/IJKCT.2016.6.1.085>

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aims to cover all subject areas and all languages and attempts to contain as many books as possible.

The framed objectives are:

- (1) To know the Author Wise Distribution of Books Available in DOAB
- (2) To identify the Distribution of Publications Year Wise Books Available in DOAB
- (3) To find out the Year Wise Books Added in DOAB
- (4) To analyze the Language Wise Distribution of Open Access Books in DOAB
- (5) To identify the Publisher Wise Distribution of Books Available in DOAB
- (6) To analyze the Distribution of Publication Year Vs No.of Pages of Books in DOAB
- (7) To identify the License Wise Distribution of Books Available in DOAB
- (8) To assess the Year of publication of Books Vs Added Year in DOAB
- (9) To find out the Licenses Wise Distribution of Books in DOAB Vs Added Year

## 2. Literature Review

Harnad (2004) studied the research on the impact when problems arise because journal articles are not accessible to all of the would-be users, and if the articles are losing potential research impact. Open Access articles have significantly higher citation impact than non-OA articles. There are two roads to OA: the “golden” road and the “green” road. Only 5% of journals are gold, but over 90% are already green yet only about 20% of articles have been self-archived. To reach 100% OA, self-archiving needs to be mandated by researchers' employers and funders, as the United Kingdom and the United States have recently recommended, and universities need to implement that mandate.

Unofficially it has been operating since 2011 and its beta version was launched in 2012. The DOAB is a service of the Open Access Publishing in European Networks (OAPEN) Foundation. The OAPEN Foundation is an international initiative dedicated to open access monograph publishing, based at the National Library, The Hague (Ferwerda, Snijder, & Adema, 2013). The Directory of Open Access Books (DOAB) was officially launched in July 2013 at the Open Access Monographs in the Humanities and Social Sciences Conference at the British Library in London.

Singh (2014) studied the role of Brazil, Russia, India, China, and South Africa (BRICS) in the open access movement with respect to DOAJ and OpenDOAR. He analyses the contribution of BRICS to DOAJ and OpenDOAR by country, year, language, and subject. Brazil and India are the leading nations in BRICS in the open access movement in DOAJ. Similarly, these two Countries are ahead of the rest with respect to the contribution of open access repositories to OpenDOAR.

Loan (2015) found that 307 e-books are available on science and technology through DOAB falling in three categories—monographs (209, 68.08%), book series (93, 30.29%) and conference proceedings (5, 1.63%). These e-books deal with eight major subject areas of Science and Technology having 36 sub-fields.

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### 3. Methodology

This study discusses a global analysis of the Open Access Books which are available in the Directory Open Access Books (DOAB). The data was collected from the open access directory at <http://www.doabooks.org/> on 20<sup>th</sup> October 2015. It was analyzed by simple percentage and chi-square test using SPSS.



**Fig. 1.** Home Page of Directory of Open Access Books

### 4. Results

#### 4.1 Author Wise Distribution of Books Available in DOAB

Table 1 indicates the author wise distribution of open access books available in the Directory of Open Access Books. Based on the available data, in total 3379 books are available as of 20.10.2015. Among the 3379, 13 (0.38%) books were authored by Goebel, Hans and he is in the first position, 12 (0.36%) books were authored by Benchimol, Jaime Larry (org.) / SA Magali Romero (org.) and this in the second position and 10 (0.30%) books were authored by Lal V., Brij who occupies the third position. Further it is revealed from the table, equally four books were published by 28 authors, three books by 26, two by 141 authors and that single book were published by 2862 authors. It is concluded that out of 3379, 21 books did not mention their authors in the directory.

**Table 1.** Author Wise Distribution of Books Available in DOAB

Sl.No.	Name of Authors	No.of Books	Percentage
1	Not Mentioned	21	0.62
2	Goebel, Hans	13	0.38
3	Benchimol, Jaime Larry (org.); SÃ Magali Romero (org.)	12	0.36
4	Lal V., Brij	10	0.30
5	Leopold Lambert	8	0.24
6	Claudine Tiercelin	7	0.21

Sl.No.	Name of Authors	No.of Books	Percentage
7	Rodrigues, LeÃncio Martins	7	0.21
8	aa.vv	6	0.18
9	Coester-Waltjen, Dagmar; Lipp, Volker; Schumann, Eva; Veit, Barbara	6	0.18
10	Garnaut, Ross; Song, Ligang	6	0.18
11	Grau, Luis	6	0.18
12	Jacques Bouveresse	6	0.18
13	Sorj, Bernardo	6	0.18
14	Fundacao Oswaldo Cruz	5	0.15
15	Lopes, Juarez Rubens BrandÃo	5	0.15
16	Zorzi, Andrea	5	0.15
17	Equally Four books by 7 Authors	28	0.84
18	Equally Three books by 26 Authors	78	2.31
19	Equally Two books by 141 Authors	282	8.35
20	Each Single Books by 2862 Authors	2862	84.70
	Total	3379	100

#### 4.2 Distribution of Publications Year Wise Books Available in DOAB

Table 2 indicates the publication year wise distribution of books available in the Directory of Open Access Books. During the period of 1866 to 2015 in total 3379 books are listed as available on the directory; the first and second books were published in 1866 and 1867 respectively. During the years 1867 to 1927 the publishers no books published were made available in open access. After the year 1962 there is a gradual increase in the publication of books. From the year 2006, more than 100 books were published every year. The maximum number of books i.e., more than 300 were published in 2010, 2012, 2013 and 2014. It is evident from the table that, the maximum number of books, 394 was published in 2014.

**Table 2.** Distribution of Publications Year Wise Books Available in DOAB

Sl.No.	Year	No.of Books	Percentage	Cumulative Percentage
1	1866	1	0.03	0.03
2	1867	1	0.03	0.06
3	1927	1	0.03	0.09
4	1931	1	0.03	0.12
5	1932	1	0.03	0.15
6	1940	1	0.03	0.18
7	1950	1	0.03	0.21
8	1952	1	0.03	0.24
9	1956	1	0.03	0.27
10	1962	1	0.03	0.3
11	1963	1	0.03	0.33
12	1964	1	0.03	0.36

Sl.No.	Year	No.of Books	Percentage	Cumulative Percentage
13	1965	2	0.06	0.42
14	1967	3	0.09	0.51
15	1968	1	0.03	0.54
16	1972	1	0.03	0.57
17	1973	4	0.12	0.69
18	1974	2	0.06	0.75
19	1975	1	0.03	0.78
20	1976	2	0.06	0.84
21	1977	3	0.09	0.93
22	1978	3	0.09	1.02
23	1979	1	0.03	1.05
24	1981	1	0.03	1.08
25	1982	2	0.06	1.14
26	1983	1	0.03	1.17
27	1984	1	0.03	1.2
28	1985	6	0.18	1.38
29	1986	4	0.12	1.5
30	1987	2	0.06	1.56
31	1988	1	0.03	1.59
32	1989	4	0.12	1.71
33	1991	2	0.06	1.77
34	1992	6	0.18	1.95
35	1993	9	0.27	2.22
36	1994	13	0.38	2.6
37	1995	19	0.56	3.16
38	1996	16	0.47	3.63
39	1997	24	0.71	4.34
40	1998	20	0.59	4.93
41	1999	27	0.80	5.73
42	2000	25	0.74	6.47
43	2001	43	1.27	7.74
44	2002	57	1.69	9.43
45	2003	123	3.64	13.07
46	2004	90	2.66	15.73
47	2005	86	2.55	18.28
48	2006	148	4.38	22.66
49	2007	125	3.70	26.36
50	2008	246	7.28	33.64
51	2009	298	8.82	42.46
52	2010	309	9.14	51.6
53	2011	273	8.08	59.68
54	2012	362	10.71	70.39
55	2013	381	11.28	81.67
56	2014	394	11.66	93.33
57	2015	211	6.24	99.57
58	Not Mentioned	15	0.43	100.00
	Total	3379	100.00	

### 4.3 Year Wise Books Added in DOAB

Table 3 shows the year wise books added in open access books in the Directory of Open Access Books. During the period of 1866 to 2015 totally 3379 books were published, the books were added in the Directory from 2011 onwards. Out of 3379, 487 (14.41%) books were added in November 2011, but after March 2012 every month the minimum number of books were added regularly. The reason behind that is the awareness of open access among the users community. It is revealed from the table that, more than 200 books were added the following years April 2012, June 2012 and May 2015.

**Table 3.** Year Wise Books Added in DOAB

Sl.No.	Added on DOAB	No.of Books	Percentage	Cumulative Percentage
1	2015 October	11	0.33	0.33
2	2015 September	82	2.43	2.75
3	2015 August	38	1.12	3.88
4	2015 July	53	1.57	5.45
5	2015 June	107	3.17	8.61
6	2015 May	278	8.23	16.84
7	2015 April	35	1.04	17.88
8	2015 March	25	0.74	18.61
9	2015 February	29	0.86	19.47
10	2015 January	247	7.31	26.78
11	2014 December	55	1.63	28.41
12	2014 November	41	1.21	29.62
13	2014 October	126	3.73	33.35
14	2014 September	29	0.86	34.21
15	2014 August	81	2.40	36.61
16	2014 July	62	1.83	38.44
17	2014 June	115	3.40	41.85
18	2014 May	38	1.12	42.97
19	2014 April	22	0.65	43.62
20	2014 March	106	3.14	46.76
21	2014 February	164	4.85	51.61
22	2014 January	81	2.40	54.01
23	2013 December	14	0.41	54.42
24	2013 November	20	0.59	55.02
25	2013 October	21	0.62	55.64
26	2013 September	93	2.75	58.39
27	2013 August	8	0.24	58.63
28	2013 July	16	0.47	59.10
29	2013 June	7	0.21	59.31
30	2013 May	34	1.01	60.31

Sl.No.	Added on DOAB	No.of Books	Percentage	Cumulative Percentage
31	2013 April	18	0.53	60.85
32	2013 March	122	3.61	64.46
33	2013 February	11	0.33	64.78
34	2013 January	1	0.03	64.81
35	2012 December	4	0.12	64.93
36	2012 November	36	1.07	66.00
37	2012 October	5	0.15	66.14
38	2012 September	34	1.01	67.15
39	2012 August	40	1.18	68.33
40	2012 July	34	1.01	69.34
41	2012 June	202	5.98	75.32
42	2012 May	26	0.77	76.09
43	2012 April	223	6.60	82.69
44	2012 March	98	2.90	85.59
45	2011 November	487	14.41	100.00
	Total	3379	100.00	

#### 4.4 Language Wise Distribution of Open Access Books in DOAB

Table 4 indicates the language wise distribution of open access books available in the Directory of Open Access Books. Among the 3379, 1584 (46.88%) books were published in English, 387 (11.45%) in Portuguese and 337 (9.67%) books were published in French, but 321 (9.50%) books did not mention the language of publication in the respective sources. It is revealed from the table, single books only were published in the following languages like Welsh, Swedish, Russian and Espanola.

**Table 4.** Language Wise Distribution of Open Access Books in DOAB

Sl.No.	Languages	No.of Books	Percentage	Cumulative Percentage
1	English	1584	46.88	46.88
2	Portuguese	387	11.45	58.33
3	French	337	9.97	68.30
4	Not Mentioned	321	9.50	77.80
5	Dutch	269	7.96	85.77
6	German	221	6.54	92.31
7	Italian	105	3.11	95.41
8	Spanish	96	2.84	98.25
9	Dutch/English	13	0.38	98.64
10	Dutch/Italian/rm	13	0.38	99.02
11	English/French	4	0.12	99.14
12	Czech	3	0.09	99.23

Sl.No.	Languages	No.of Books	Percentage	Cumulative Percentage
13	Dutch/Latin/English	2	0.06	99.29
14	German/English	2	0.06	99.35
15	Italian/English	2	0.06	99.41
16	Spagnolo	2	0.06	99.47
17	ar	1	0.03	99.50
18	Dutch/English/French/Italian	1	0.03	99.53
19	Dutch/Latin	1	0.03	99.56
20	English/Cree	1	0.03	99.59
21	English/Dutch	1	0.03	99.62
22	English/Arabic	1	0.03	99.64
23	English/Czech	1	0.03	99.67
24	English/Italian	1	0.03	99.70
25	English/French/Czech /Michif/Chinese	1	0.03	99.73
26	Espanol	1	0.03	99.76
27	French/Spanish	1	0.03	99.79
28	German/English	1	0.03	99.82
29	Leopold Lambert	1	0.03	99.85
30	Russian	1	0.03	99.88
31	Spanish/Italian	1	0.03	99.91
32	Spanish/English	1	0.03	99.94
33	Swedish	1	0.03	99.97
34	Welsh	1	0.03	100.00
	Total	3379	100.00	

#### 4.5 Publisher Wise Distribution of Books Available in DOAB

Table 5 shows the publishers wise distribution of open access books available in the Directory of Open Access Books. Among the 3379, 368 (1089%) books were by ANU Press which is in the first position, 230 (6.81%) books were by Amsterdam University Press, which is in the second position, 209 (6.19%) were by UniversitÄtsverlag GÄttingen, which is in the third position, and 165 (4.88%) books were by BÄhlau which is in the fourth position. But many of the publishers have published the open access books in single digits only. These are listed at the bottom of the Table 5 and designated as follows: Equally Nine Books by Two Publishers, Eight Books by Four Publishers, Six Books by Two Publishers, Five Books by Five Publishers, Four Books by six Publishers, Three Books by Nine Publishers, Two Books by 12 Publishers and Single Book by 33 Publishers.



**Table 5.** Publisher Wise Distribution of Books Available in DOAB

Sl. No.	Name of Publishers	No.of Books	Percentage	Cumulative Percentage
1	ANU Press	368	10.89	10.89
2	Amsterdam University Press	230	6.81	17.70
3	Universit�tsverlag G�ttingen	209	6.19	23.88
4	B�hlau	165	4.88	28.77
5	Bloomsbury Academic	129	3.82	32.58
6	Presses de l�lfpo	123	3.64	36.22
7	De Gruyter	114	3.37	39.60
8	SciELO Books - Centro Edelstein	113	3.34	42.94
9	Coll�ge de France	102	3.02	45.96
10	SciELO Books - Editora UNESP	97	2.87	48.83
11	Utah State University, University Libraries	97	2.87	51.70
12	Manchester University Press	94	2.78	54.48
13	Athabasca University Press	93	2.75	57.24
14	Firenze University Press	89	2.63	59.87
15	SciELO Books - Editora FIOCRUZ	88	2.60	62.47
16	Universidad Carlos III de Madrid. Figuerola Institute of Social Science History	78	2.31	64.78
17	Springer-Verlag GmbH	76	2.25	67.03
18	Punctum Books	68	2.01	69.04
19	Open Book Publishers	63	1.86	70.91
20	University of Calgary Press	63	1.86	72.77
21	SciELO Books - EDUFBA	59	1.75	74.52
22	Ledizioni - LediPublishing	55	1.63	76.15
23	Brill	50	1.48	77.63
24	University of Adelaide Press	50	1.48	79.11
25	CNRS �ditions	47	1.39	80.50
26	ENS �ditions	46	1.36	81.86
27	Newfound Press	45	1.33	83.19
28	Central European University Press	38	1.12	84.31
29	University of Michigan Press	30	0.89	85.20
30	Academia Press	26	0.77	85.97
31	EDP SCIENCES	25	0.74	86.71
32	Open Humanities Press	22	0.65	87.36
33	Verlag der �sterreichischen Akademie der Wissensch	21	0.62	87.98
34	Oxford University Press	20	0.59	88.58
35	SciELO Books - EDUEPB	20	0.59	89.17
36	KIT Scientific Publishing	19	0.56	89.73
37	Universidad Nacional de La Plata. Facultad de Humanidadesy Ciencias de la Educaci	19	0.56	90.29
38	University of Tartu Press	17	0.50	90.80
39	MDPI AG - Multidisciplinary Digital Publishing Institute	16	0.47	91.27
40	Ubiquity Press	16	0.47	91.74

Sl. No.	Name of Publishers	No.of Books	Percentage	Cumulative Percentage
41	Presses Agronomiques de Gembloux (Liege University)	14	0.41	92.16
42	Editions de Linguistique et de Philologie	13	0.38	92.54
43	Leiden University Press	13	0.38	92.93
44	Studien Verlag	13	0.38	93.31
45	OpenEdition Press	11	0.33	93.64
46	Language Science Press	10	0.30	93.93
47	Palgrave Macmillan	10	0.30	94.23
48	<i>Equally Nine Books by Two Publishers</i>	18	0.53	94.76
49	<i>Equally Eight Books by Four Publishers</i>	32	0.95	95.71
50	<i>Equally Six Books by Two Publishers</i>	12	0.36	96.06
51	<i>Equally Five Books by Five Publishers</i>	25	0.74	96.80
52	<i>Equally Four Books by six Publishers</i>	24	0.71	97.51
53	<i>Equally Three Books by Nine Publishers</i>	27	0.80	98.31
54	<i>Equally Two Books by 12 Publishers</i>	24	0.71	99.02
55	<i>Equally Single Book by 33 Publishers</i>	33	0.98	100.00
Total		3379	100.00	

#### 4.6 Distribution of Publication Year Vs No.of Pages of Books in DOAB

Table 6 shows the year wise distribution of open access books based on the category of the number of pages in the publication. They were categorized based on the number of pages such as: not mentioned, 1 - 100, 101 - 200, 201 - 300, 301 - 400 and above 400. Among the 3379, 125 (37.0%) books were below 100 pages, 528 (15.63%) books were in more than 100 but below 200 pages, 683 (20.21%) books were in more than 200 but below 300 pages, 387 (11.45%) books were in the category of 300 to 400 pages, 151 (4.47%) books are more than 400 pages and 1505 (44.53%) books did not mentioned the number of pages in the directory. It is concluded from the table, that nearly 45 percent of the books did not mention the page number details.

	Chi-Square Tests		
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	438.689	285	.000
Likelihood Ratio	482.560	285	.000
Linear-by-Linear Association	87.755	1	.000
N of Valid Cases	3379		

The Chi-square test is applied for further discussion about the publication year of open access books with respect their page numbers. The computed Chi-square value is 438.689 which is higher than its tabulated value at 5 percent level of significance. Hence, the difference among the year of publication is statistically identified as highly significant with respect to number of pages of open access books.

**Table 6.** Distribution of Publication Year Vs No.of Pages of Books in DOAB

Sl. No.	Year	Classification of Pages						Total
		Not mentioned	1-100	101-200	201-300	301-400	Above 400	
1	Not Mentioned	13 (0.38)	0	0	1 (0.03)	0	1 (0.03)	15 (0.44)
2	1866	0	0	0	1 (0.03)	0	0	1 (0.03)
3	1867	0	0	1 (0.03)	0	0	0	1 (0.03)
4	1927	1 (0.03)	0	0	0	0	0	1 (0.03)
5	1931	1 (0.03)	0	0	0	0	0	1 (0.03)
6	1932	1 (0.03)	0	0	0	0	0	1 (0.03)
7	1940	1 (0.03)	0	0	0	0	0	1 (0.03)
8	1950	1 (0.03)	0	0	0	0	0	1 (0.03)
9	1952	1 (0.03)	0	0	0	0	0	1 (0.03)
10	1956	1 (0.03)	0	0	0	0	0	1 (0.03)
11	1962	1 (0.03)	0	0	0	0	0	1 (0.03)
12	1963	1 (0.03)	0	0	0	0	0	1 (0.03)
13	1964	1 (0.03)	0	0	0	0	0	1 (0.03)
14	1965	2 (0.06)	0	0	0	0	0	2 (0.06)
15	1967	3 (0.09)	0	0	0	0	0	3 (0.09)
16	1968	0	0	0	1 (0.03)	0	0	1 (0.03)
17	1972	1 (0.03)	0	0	0	0	0	1 (0.03)
18	1973	4 (0.12)	0	0	0	0	0	4 (0.12)
19	1974	2 (0.06)	0	0	0	0	0	2 (0.06)
20	1975	1 (0.03)	0	0	0	0	0	1 (0.03)
21	1976	2 (0.06)	0	0	0	0	0	2 (0.06)
22	1977	2 (0.06)	0	1 (0.03)	0	0	0	3 (0.09)
23	1978	3 (0.09)	0	0	0	0	0	3 (0.09)
24	1979	1 (0.03)	0	0	0	0	0	1 (0.03)
25	1981	1 (0.03)	0	0	0	0	0	1 (0.03)
26	1982	2 (0.06)	0	0	0	0	0	2 (0.06)
27	1983	1 (0.03)	0	0	0	0	0	1 (0.03)
28	1984	1 (0.03)	0	0	0	0	0	1 (0.03)
29	1985	6 (0.18)	0	0	0	0	0	6 (0.18)
30	1986	4 (0.12)	0	0	0	0	0	4 (0.12)
31	1987	2 (0.06)	0	0	0	0	0	2 (0.06)
32	1988	1 (0.03)	0	0	0	0	0	1 (0.03)
33	1989	4 (0.12)	0	0	0	0	0	4 (0.12)
34	1991	2 (0.06)	0	0	0	0	0	2 (0.06)
35	1992	4 (0.12)	0	1 (0.03)	1 (0.03)	0	0	6 (0.18)
36	1993	6 (0.18)	0	0	0	1 (0.03)	2 (0.06)	9 (0.27)
37	1994	6 (0.18)	0	1 (0.03)	6 (0.18)	0	0	13 (0.38)
38	1995	11 (0.33)	1 (0.03)	4 (0.12)	2 (0.06)	1 (0.03)	0	19 (0.56)
39	1996	10 (0.30)	0	1 (0.03)	2 (0.06)	2 (0.06)	1 (0.03)	16 (0.47)
40	1997	11 (0.33)	1 (0.03)	4 (0.12)	5 (0.15)	1 (0.03)	2 (0.06)	24 (0.71)

Sl. No.	Year	Classification of Pages					Total	
		Not mentioned	1-100	101-200	201-300	301-400		Above 400
41	1998	10 (0.30)	0	5 (0.15)	5 (0.15)	0	0	20 (0.59)
42	1999	14 (0.41)	1 (0.03)	4 (0.12)	6 (0.18)	1 (0.03)	1 (0.03)	27 (0.8)
43	2000	16 (0.47)	1 (0.03)	2 (0.06)	4 (0.12)	2 (0.06)	0	25 (0.74)
44	2001	36 (1.07)	0	1 (0.03)	2 (0.06)	3 (0.09)	1 (0.03)	43 (1.27)
45	2002	45 (1.33)	0	2 (0.06)	4 (0.12)	5 (0.15)	1 (0.03)	57 (1.69)
46	2003	102 (3.02)	0	4 (0.12)	9 (0.27)	5 (0.15)	3 (0.09)	123 (3.64)
47	2004	64 (1.89)	1 (0.03)	7 (0.21)	8 (0.24)	5 (0.15)	5 (0.15)	90 (2.66)
48	2005	60 (1.78)	1 (0.03)	4 (0.12)	9 (0.27)	9 (0.27)	3 (0.09)	86 (2.55)
49	2006	68 (2.01)	3 (0.09)	24 (0.71)	29 (0.86)	16 (0.47)	8 (0.24)	148 (4.38)
50	2007	61 (1.81)	1 (0.03)	16 (0.47)	32 (0.95)	12 (0.36)	3 (0.09)	125 (3.7)
51	2008	9 (2.66)	16 (0.47)	51 (1.51)	48 (1.42)	31 (0.92)	1 (0.3)	246 (7.28)
52	2009	9 (2.66)	18 (0.53)	54 (1.6)	70 (2.07)	51 (1.51)	15 (0.44)	298 (8.82)
53	2010	101 (2.99)	24 (0.71)	65 (1.92)	73 (2.16)	41 (1.21)	5 (0.15)	309 (9.14)
54	2011	101 (2.99)	9 (0.27)	46 (1.36)	63 (1.86)	34 (1.01)	20 (0.59)	273 (8.08)
55	2012	149 (4.41)	13 (0.38)	46 (1.36)	88 (2.6)	48 (1.42)	18 (0.53)	362 (10.71)
56	2013	146 (4.32)	12 (0.36)	79 (2.34)	79 (2.34)	51 (1.51)	14 (0.41)	381 (11.28)
57	2014	161 (4.76)	16 (0.47)	67 (1.98)	87 (2.57)	41 (1.21)	22 (0.65)	394 (11.66)
58	2015	75 (2.22)	7 (0.21)	38 (1.12)	48 (1.42)	27 (0.8)	16 (0.47)	211 (6.24)
Total		1505 (44.53)	125 (3.70)	528 (15.63)	683 (20.21)	387 (11.45)	151 (4.47)	3379 (100)

(Figures in Parenthesis denote percentage)

#### 4.7 License Wise Distribution of Books Available in DOAB

Table 7 shows the language wise distribution of open access books available in the Directory of Open Access Books, which are categories based on their licenses. The open access books are categorized based on the licenses as follows: no licenses, CC-BY, CC-BY-NC, CC-BY-NC-ND, CC-BY-NC-SA, CC-BY-ND and CC-BY-SA. Among the 3379, 807 (23.88%) books were found as having no licenses, 97 (2.87%) books had CC-BY, 351 (10.391%) books had CC-BY-NC, 1438 (42.56%) books were in the category of CC-BY-NC-ND, 464 (13.73%) books were in CC-BY-NC-SA, 175 (5.18%) books were in CC-BY-ND and 47 (1.39%) books were in CC-BY-SA as per the directory. It is concluded from the table that, nearly 25 percent of the books had no licenses.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6042.093	198	.000
Likelihood Ratio	4100.933	198	.000
N of Valid Cases	3379		

A Chi-square test is applied for further discussion about the languages of open access books with respect their licenses. The computed Chi-square value is 6042.093 which is higher than its

tabulated value at 5 percent level of significance. Hence, the difference among the languages wise publication is statistically identified as highly significant with respect to type of licenses of open access books.

**Table 7.** License Wise Distribution of Books Available in DOAB

Sl. No.	Languages	NO LICESES	CC BY	CC BY-NC	CC BY-NC-ND	CC BY-NC-SA	CC BY-ND	CC BY-SA	TOTAL
1	Not Mentioned	62 (1.83)	5 (0.15)	123 (3.64)	120 (3.55)	11 (0.33)	0	0	321 (9.5)
2	ar	1 (0.03)	0	0	0	0	0	0	1 (0.03)
3	Czech	0	1 (0.03)	0	2 (0.06)	0	0	0	3 (0.09)
4	Dutch	1 (0.03)	2 (0.06)	44 (1.3)	218 (6.45)	0	4 (0.12)	0	269 (7.96)
5	Dutch; English	0	0	3 (0.09)	10 (0.3)	0	0	0	13 (0.38)
6	Dutch; English; French; Italian	0	0	1 (0.03)	0	0	0	0	1 (0.03)
7	Dutch; Italian; rm	0	0	0	13 (0.38)	0	0	0	13 (0.38)
8	Dutch^la	0	0	0	1 (0.03)	0	0	0	1 (0.03)
9	Dutch^la^el	0	0	2 (0.06)	0	0	0	0	2 (0.06)
10	English	445 (13.17)	83 (2.46)	153 (4.53)	814 (24.09)	36 (1.07)	24 (0.71)	29 (0.86)	1584 (46.88)
11	English; Cree	0	0	0	1 (0.03)	0	0	0	1 (0.03)
12	English; Dutch	0	0	1 (0.03)	0	0	0	0	1 (0.03)
13	English, Arabic	0	0	0	1 (0.03)	0	0	0	1 (0.03)
14	English; Czech	0	0	0	1 (0.03)	0	0	0	1 (0.03)
15	English; Italian	0	0	0	1 (0.03)	0	0	0	1 (0.03)
16	English; French	0	0	0	2 (0.06)	2 (0.06)	0	0	4 (0.12)
17	English; French; Cree; Michif; Chinese	0	0	0	1 (0.03)	0	0	0	1 (0.03)
18	Espanola	0	0	0	0	1 (0.03)	0	0	1 (0.03)
19	French; Spanish	0	0	0	1 (0.03)	0	0	0	1 (0.03)
20	French	292 (8.64)	1 (0.03)	20 (0.59)	19 (0.56)	5 (0.15)	0	0	337 (9.97)
21	German	0	4 (0.12)	2 (0.06)	50 (1.48)	0	147 (4.35)	18 (0.53)	221 (6.54)
22	German; English	0	0	0	2 (0.06)	0	0	0	2 (0.06)
23	German; English	0	0	0	1 (0.03)	0	0	0	1 (0.03)
24	Italian	3 (0.09)	1 (0.03)	2 (0.06)	79 (2.34)	20 (0.59)	0	0	105 (3.11)
25	Italian; English	0	0	0	0	2 (0.06)	0	0	2 (0.06)
26	Leopold Lambert	0	0	0	1 (0.03)	0	0	0	1 (0.03)
27	Portuguese	0	0	0	2 (0.06)	385 (11.39)	0	0	387 (11.45)
28	Russian	0	0	0	1 (0.03)	0	0	0	1 (0.03)
29	Spanish; Italian	0	0	0	1 (0.03)	0	0	0	1 (0.03)
30	Spanish; English	0	0	0	1 (0.03)	0	0	0	1 (0.03)
31	Spagnolo	0	0	0	0	2 (0.06)	0	0	2 (0.06)
32	Spanish	2 (0.06)	0	0	94 (2.78)	0	0	0	96 (2.84)
33	Swedish	1 (0.03)	0	0	0	0	0	0	1 (0.03)
34	Welsh	0	0	0	1 (0.03)	0	0	0	1 (0.03)
	Total	807 (23.88)	97 (2.87)	351 (10.39)	1438 (42.56)	464 (13.73)	175 (5.18)	47 (1.39)	3379 (100)

*(Figures in Parenthesis denote percentage)*

#### 4.8 Year of publication Vs Added Year in DOAB

Table 8 shows the year wise publication and added on open access books in the Directory of Open Access Books. During the period of 1866 to 2015 totally 3379 books were published, but from the year 2011 only books were added in the Directory. Out of 3379 the numbers added were as follows: 487 (14.41%) books in 2011, 702 (20.77%) books in 2012, 365 (10.8%) books in 2013, 920 (27.22%) books in 2014 and 905 (26.78%) books in 2015. It is revealed from the table, that more than fifty percent of the books were added in 2014 and 2015, but 15 (0.44%) books did not mention their year of publication.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2761.227	228	.00
Likelihood Ratio	2809.863	228	.00
Linear-by-Linear Association	10.776	1	.01
N of Valid Cases	3379		

A Chi-square test is applied for further discussion about the publication year of open access books with respect to the year added on DOAB. The computed Chi-square value is 2761.227 which is higher than its tabulated value at 5 percent level of significance. Hence the difference among year wise publication is statistically identified as highly significant with respect to added year of open access books in DOAB.

**Table 8.** Year of publication Vs Added Year in DOAB

Sl. No.	Year of Publication	2011	2012	2013	2014	2015	Total
1	Not Mentioned	2 (0.06)	1 (0.03)	0	8 (0.24)	4 (0.12)	15 (0.44)
2	1866	0	0	0	0	1 (0.03)	1 (0.03)
3	1867	0	0	0	0	1 (0.03)	1 (0.03)
4	1927	0	0	0	0	1 (0.03)	1 (0.03)
5	1931	0	0	0	0	1 (0.03)	1 (0.03)
6	1932	0	0	0	1 (0.03)	0	1 (0.03)
7	1940	0	0	0	0	1 (0.03)	1 (0.03)
8	1950	0	0	0	1 (0.03)	0	1 (0.03)
9	1952	0	0	0	1 (0.03)	0	1 (0.03)
10	1956	0	0	0	0	1 (0.03)	1 (0.03)
11	1962	0	0	0	0	1 (0.03)	1 (0.03)
12	1963	0	0	0	0	1 (0.03)	1 (0.03)
13	1964	0	0	0	0	1 (0.03)	1 (0.03)
14	1965	0	0	0	1 (0.03)	1 (0.03)	2 (0.06)
15	1967	0	0	0	0	3 (0.09)	3 (0.09)
16	1968	0	0	0	1 (0.03)	0	1 (0.03)
17	1972	0	0	0	0	1 (0.03)	1 (0.03)

Sl. No.	Year of Publication	2011	2012	2013	2014	2015	Total
18	1973	0	0	0	0	4 (0.12)	4 (0.12)
19	1974	0	0	0	2 (0.06)	0	2 (0.06)
20	1975	0	0	0	0	1 (0.03)	1 (0.03)
21	1976	0	0	0	2 (0.06)	0	2 (0.06)
22	1977	0	1 (0.03)	0	1 (0.03)	1 (0.03)	3 (0.09)
23	1978	0	0	0	0	3 (0.09)	3 (0.09)
24	1979	0	0	0	0	1 (0.03)	1 (0.03)
25	1981	0	0	0	0	1 (0.03)	1 (0.03)
26	1982	0	0	0	0	2 (0.06)	2 (0.06)
27	1983	0	0	0	0	1 (0.03)	1 (0.03)
28	1984	0	0	0	0	1 (0.03)	1 (0.03)
29	1985	0	1 (0.03)	0	3 (0.09)	2 (0.06)	6 (0.18)
30	1986	0	0	0	1 (0.03)	3 (0.09)	4 (0.12)
31	1987	0	1 (0.03)	0	0	1 (0.03)	2 (0.06)
32	1988	0	0	0	0	1 (0.03)	1 (0.03)
33	1989	0	0	1 (0.03)	0	3 (0.09)	4 (0.12)
34	1991	0	0	0	0	2 (0.06)	2 (0.06)
35	1992	0	0	1 (0.03)	2 (0.06)	3 (0.09)	6 (0.18)
36	1993	1 (0.03)	0	0	2 (0.06)	6 (0.18)	9 (0.27)
37	1994	1 (0.03)	1 (0.03)	1 (0.03)	6 (0.18)	4 (0.12)	13 (0.38)
38	1995	0	5 (0.15)	0	10 (0.3)	4 (0.12)	19 (0.56)
39	1996	1 (0.03)	2 (0.06)	0	11 (0.33)	2 (0.06)	16 (0.47)
40	1997	1 (0.03)	4 (0.12)	0	12 (0.36)	7 (0.21)	24 (0.71)
41	1998	0	3 (0.09)	0	11 (0.33)	6 (0.18)	20 (0.59)
42	1999	1 (0.03)	5 (0.15)	2 (0.06)	15 (0.44)	4 (0.12)	27 (0.8)
43	2000	2 (0.06)	4 (0.12)	0	11 (0.33)	8 (0.24)	25 (0.74)
44	2001	3 (0.09)	8 (0.24)	4 (0.12)	14 (0.41)	14 (0.41)	43 (1.27)
45	2002	23 (0.68)	4 (0.12)	3 (0.09)	11 (0.33)	16 (0.47)	57 (1.69)
46	2003	77 (2.28)	12 (0.36)	7 (0.21)	12 (0.36)	15 (0.44)	123 (3.64)
47	2004	31 (0.92)	7 (0.21)	5 (0.15)	26 (0.77)	21 (0.62)	90 (2.66)
48	2005	26 (0.77)	19 (0.56)	3 (0.09)	18 (0.53)	20 (0.59)	86 (2.55)
49	2006	55 (1.63)	22 (0.65)	14 (0.41)	45 (1.33)	12 (0.36)	148 (4.38)
50	2007	35 (1.04)	47 (1.39)	10 (0.3)	13 (0.38)	20 (0.59)	125 (3.7)
51	2008	69 (2.04)	83 (2.46)	12 (0.36)	17 (0.5)	65 (1.92)	246 (7.28)
52	2009	75 (2.22)	85 (2.52)	11 (0.33)	22 (0.65)	105 (3.11)	298 (8.82)
53	2010	48 (1.42)	120 (3.55)	21 (0.62)	29 (0.86)	91 (2.69)	309 (9.14)
54	2011	36 (1.07)	143 (4.23)	24 (0.71)	46 (1.36)	24 (0.71)	273 (8.08)
55	2012	0	121 (3.58)	104 (3.08)	112 (3.31)	25 (0.74)	362 (10.71)
56	2013	0	3 (0.09)	138 (4.08)	200 (5.92)	40 (1.18)	381 (11.28)
57	2014	0	0	4 (0.12)	249 (7.37)	141 (4.17)	394 (11.66)
58	2015	0	0	0	4 (0.12)	207 (6.13)	211 (6.24)
	Total	487 (14.41)	702 (20.77)	365 (10.8)	920 (27.22)	905 (26.78)	3379 (100)

*(Figures in Parenthesis denote percentage)*

#### 4.9 Licenses Wise Distribution of Books in DOAB Vs Added Year

Table 9 shows the license wise distribution of open access books available in the Directory Open Access Books, which are categories based on added years. Among the 3379, 807 (23.88%) books had no licenses, 97 (2.87%) books had CC-BY, 351 (10.39%) books had CC-BY-NC, 1438 (42.56%) books had CC-BY-NC-ND, 464 (13.73%) book had CC-BY-NC-SA, 175 (5.18%) books had CC-BY-ND and 47 (1.39%) of books had CC-BY-SA licenses. Out of 3379, 487 (14.41%) books were added in 2011, 702 (20.77%) books in 2012, 365 (10.8%) books in 2013, 920 (27.22%) books in 2014 and 905 (26.78%) books were added in 2015 with DOAB. Among the 905 books added in 2015, which includes 295 books with no licenses, 39 book had CC-BY, 78 books had CC-BY-NC, 193 books had CC-BY-NC-ND, 289 books had CC-BY-NC-SA, four books has CC-BY-ND and seven books has CC-BY-SA licenses. It is revealed from the table, that more than fifty percent of the books were added in 2014 and 2015, but 15 (0.44%) books did not mention their year of publications. It is concluded from the table that, nearly 25 percent of the books had no licenses.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1407.314	24	.00
Likelihood Ratio	1610.671	24	.00
N of Valid Cases	3379		

A Chi-square test is applied for further discussion about the licenses of open access books with respect to the year added on DOAB. The computed Chi-square value is 1407.314 which is higher than its tabulated value at 5 percent level of significance. Hence, the difference among licenses wise publication is statistically identified as highly significant with respect to added year of open access books in DOAB.

**Table 9.** Licenses Wise Distribution of Books in DOAB Vs Added Year

Sl.No.	Licenses	2011	2012	2013	2014	2015	Total
1	No licenses	1 (0.03)	217 (6.42)	1 (0.03)	293 (8.67)	295 (8.73)	807 (23.88)
2	CC-BY	2 (0.06)	8 (0.24)	23 (0.68)	25 (0.74)	39 (1.15)	97 (2.87)
3	CC-BY-NC	137 (4.05)	37 (1.09)	26 (0.77)	73 (2.16)	78 (2.31)	351 (10.39)
4	CC-BY-NC-ND	247 (7.31)	398 (11.78)	253 (7.49)	347 (10.27)	193 (5.71)	1438 (42.56)
5	CC-BY-NC-SA	0	0	29 (0.86)	146 (4.32)	289 (8.55)	464 (13.73)
6	CC-BY-ND	100 (2.96)	34 (1.01)	29 (0.86)	8 (0.24)	4 (0.12)	175 (5.18)
7	CC-BY-SA	0	8 (0.24)	4 (0.12)	28 (0.83)	7 (0.21)	47 (1.39)
	Total	487 (14.41)	702 (20.78)	365 (10.8)	920 (27.23)	905 (26.78)	3379 (100)

*(Figures in Parenthesis denote percentage)*



## 5. Findings

- During the period of 1866 to 2015 in total 3379 books are listed as available on the directory; Among the 3379, 13 (0.38%) books were authored by Goebel, Hans and he is in the first position, 12 (0.36%) books were authored by Benchimol, Jaime Larry (org.) / SA Magali Romero (org.) and they are in the second position, and 10 (0.30%) books were authored by Lal V., Brij, which occupies the third position.
  - The first and second books were published in 1866 and 1867 respectively. During the year 1867 to 1927 the publishers did not make any books published available in open access form.
  - Out of 3379, 487 (14.41%) books were added in November 2011. After March 2012, every month a minimum number of books were added regularly, with the reason behind this being that the awareness of open access among the user community increased.
  - 1584 (46.88%) books were published in English, 387 (11.45%) in Portuguese and 337 (9.67%) books published in French, but 321 (9.50%) books do not mentioned their language of publication.
  - Among the total books, 368 (10.89%) books were by ANU Press which is in the first position, 230 (6.81%) books were by Amsterdam University Press, which is in the second position, 209 (6.19%) were by UniversitÄtsverlag GÄttingen, which is in the third and 165 (4.88%) books were by BÄhlau which is in the fourth position. Many of the others publishers have published the open access books in single digits only.
  - Among the 3379, 125 (3.70%) books were below 100 pages, 528 (15.63%) books were more than 100 but below 200 pages, 683 (20.21%) books were more than 200 but below 300 pages, 387 (11.45%) books were in the category of 300 to 400 pages, 151 (4.47%) books were more than 400 pages, and 1505 (44.53%) books did not mentioned the number of pages in the directory. It is concluded from the table that nearly 45 percent of the books did not mention page number details.
  - 807 (23.88%) books had no licenses, 97 (2.87%) books had CC-BY, 351 (10.391%) books had CC-BY-NC, 1438 (42.56%) books had CC-BY-NC-ND, 464 (13.73%) books had CC-BY-NC-SA, 175 (5.18%) books had CC-BY-ND, and 47 (1.39%) books had CC-BY-SA licenses.
  - Out of 3379, 487 (14.41%) books were added in 2011, 702 (20.77%) books in 2012, 365 (10.8%) books in 2013, 920 (27.22%) books in 2014 and 905 (26.78%) books were added in 2015. It is revealed from the table that, more than fifty percent of books were added in 2014 and 2015.
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- Totally 905 books were added in 2015 which includes 295 books that had no licenses, 39 books with CC-BY, 78 books with CC-BY-NC, 193 books has CC-BY-NC-ND, 289 books with CC-BY-NC-SA, 4 books with CC-BY-ND and 7 books with CC-BY-SA licenses.

## 6. Conclusion

During the period of 1866 to 2015, in total 3379 are listed in DOAB with 487 books added in 2011, 702 books in 2012, 365 books in 2013, 920 books in 2014, and 905 books added in 2015, but more than fifty percent of the books were added in 2014 and 2015. The library professionals need to direct the user communities towards open access resources. The academic librarians have an important role to complete promotion and publicity of the benefits of open access. The Directory of Open Access Books creates the visibility for open access books and it is a platform for end users. A maximum of the libraries as well as publishers are contributing to the open access products like DOAJ and DOAR. Similarly the academic publishers also are taking the initiative to share the books through the DOAB. Library professionals can integrate the directory into their online catalogues, helping scholars and students to discover and utilize the books.

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