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Dominance Factors of Prolific authors in Open Access Journals in Library and Information Science

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ABSTRACT

The paper defines the term Dominance in genetics, economics and research. Reviews some articles related to topic. Gives formula of dominance factor developed by Prof. Sudhir Kumar. Applies chai square test for the test of hypothesis. Paper first give selected lists of open access journals in library and information science published from India, USA and UK. Calculates average values of Degree of Collaboration(DC) and collaboration index(CI) of these journals. Analysis 2118 articles contribured by 3923 authors from India and calculated DF values of some prolific authors. For USA,the paper analysis articlews from 3402 authors contributed and prepares a list of prolific authors and their DF values. For UK the list contains 2445 authors and prepares a list of prolific authors and their DF values. In the end applies chai square test on the data collected for each journal by calculating DF values of authors with 4 or more articles and categorized as shown in 3 different tables of the paper. Result shows acceptance of hypothesis for India and rejection of hypothesis in USA and UK. Concluded that prolific authors in Library and Information Science are generally dominant ant their values of DF are high.

INTRODUCTION

Dominance is the word defined variously in different subjects. The evolution of dominance concerns the evolution of genetic dominance [(1)].In genetics, dominance describes the effect of the different versions of a particular gene on the phenotype of an organism. Dominance was discovered by G.J Mendal, who introduced the use of uppercase letters to denote dominant alleles and lowercase to denote recessive alleles. In economics ,it is a measure of the strength of a brand ,product ,service or firm ,relative to competitive offerings. Kwoka's dominance index, which is defined as the sum of the squared differences between each firms share and the next largest share in a market[(2)].Dominance profile is a

key factor in shaping the way a person think and act. Carla Hannaford(3) shows why, and reveals how knowing a person's profile will help himself, to learn in the way that suits him best, and perform at his highest level. In research dominance means author who manifest themselves as forst author while collaborating with authors.

Dominance factor formula in bibliometrics has been developed by Sudhir kumar(2008).Dominance factor is proportion of no. of multi- authored papers of an author as first author (Nmf) to total no. of multi-authored papers of the author(Nmt).

$$DF=Nmf/Nmt$$

High DF value shows more dominance of author as first author while low DF value shows low dominance of author as first author.

LITERATURE REVIEW

For the purpose of the study literature reviews on collaboration and dominance Factors have been made:

Thanuskodi (2010) [4] analyses 249 articles during 2005-2009 in JLPP**.** Authorship pattern shows 68.7% papers of joint authorship while single authorship are only 31.32%. Hussain, Fatima and Kumar (2011) [5] analyses 578 articles during 2000-2010 in ELJ. . Found 46.54% single authored papers while 32.87% papers are by two authors .Paper also analyses degree of collaboration and found 0.256. Warraich and Ahmad (2011) [6] made an exhaustive bibliometric study of PJLIS and finds author productivity and authorship collaboration. Verma Sonkar and Gupta (2015) [7] analyses 1177 articles from 2005- 2014 in LPP**.** Finds average 117 articles per year. Authorship pattern shows 568 articles contributed by single author. Year wise degree of collaboration found 0.21 to 0.5. Khaparde (2011) [8] studies 1147 articles in 180 issues of 5 important e journals in LIS such as Library Resources ,Library High Tech etc. from 2005-2009. . Authorship pattern shows 55% single author and 45 % of joint author articles. Finds Hans Jon Nielson as most productive author with 110 articles. Maity and Teli (2015) [9] analyses 13 selected LIS journals in DOAJ database in only English language during 2004-2014.There were 2115 articles out of which 1047 are of single authorship .Provides year wise productivity of articles.The Ph.d thesis of Surendra Kumar has applied the formula for the first time.His work is on Productometric study oilseed crops research institutes of Indian council agricultural research(ICAR)[10] The Ph.D thesis of Shilpa Dhoble

[11] and Kirti Bala Jain [12] have also applied formula for Dominance factor on Groundnut and mustered and Soyabeen research.

METHODOLOGY

The paper studies selected 10 journals from India, 7 journals from USA and 5 journals for UK for the years 2005-2014.The data have been collected from Directory of Open Access Journal. For data collection each paper has been opened online, downloaded as printed, if needed. Their authorship patterns have been analysed and ascertained. The data have been loaded on MS-Excel worksheet for further analysis.

Following bibliometric and statistical formulae have been used in this study.

(a**) Degree of Collaboration (DC)**:- Degree of collaboration is the proportion of joint authored publications to total publications [13] .The mathematical presentation of degree of collaboration (D.C.) is

D. $C. = \frac{Nm}{Nm+Ns} C. = \frac{Nm}{Nm+Ns}$ Where, Ns = Single authored publications

Nm = Multiple authored publications

(b) **Collaboration Index:** - Collaboration index is the mean number of authors per joint authored publications[14].The mathematical presentation of collaboration index (C.I.) is

$$C.I. = \frac{No.\ of\ authors\ of\ total\ joint\ publications}{Total\ joint\ publications}$$

(c) Dominance Factor:

Dominance factor formula in bibliometrics has been developed by Sudhir Kumar (2008).Dominance factor (DF) is proportion of number of joint–authored papers of an author as first author (Nmf) to total number of joint-authored papers of the author (Nmf)[15] Mathematically it is represented as:

$$\mathbf{DF} = \frac{\mathbf{Nmf}}{\mathbf{Nmt}}$$

where, Nmf = number of multi-authored papers of a author as first author

Nm**t** = number of multiple-authored papers of a author

The list of prolific authors up to 10 contributions have been given in this paper.to calculate DF authors with 4 or more publication have been analysed.The hypothesis has been tested with figures up to 4 or more articles so that batter results can be obtained.

(D) Chi square test:

Chi square test have been used which is suitable for such data. It is a non parametric test not based on any summary value of population .Mostly this test is used for data available in frequencies two are more categories .It can also be used with data reduced to proportions or percentages .Mathematically it is representing as :

$$\chi^2=\sum (O-E)^2/E$$

Where O is the observed frequency and

E is the expected frequency of the same event.

Values of Chi-Square at various levels of significance with various degrees of freedom are given in a standard table which is used to compare observed and tabulated value to reach inferences.

Observed values are these which are collected.

An expected value in a contingency table is calculated by the formula.

$$= \frac{1}{N^2}$$

Here 'n' is number of contributions such as 2 or 3 or 4 and so on.1 is denoted number of authors who contributed only one article each.

HYPOTHESIS:

1. Most of the prolific authors have high DF values.

DATA ANALYSIS:

Degree of collaboration (D.C.) and collaboration index (C.I.):

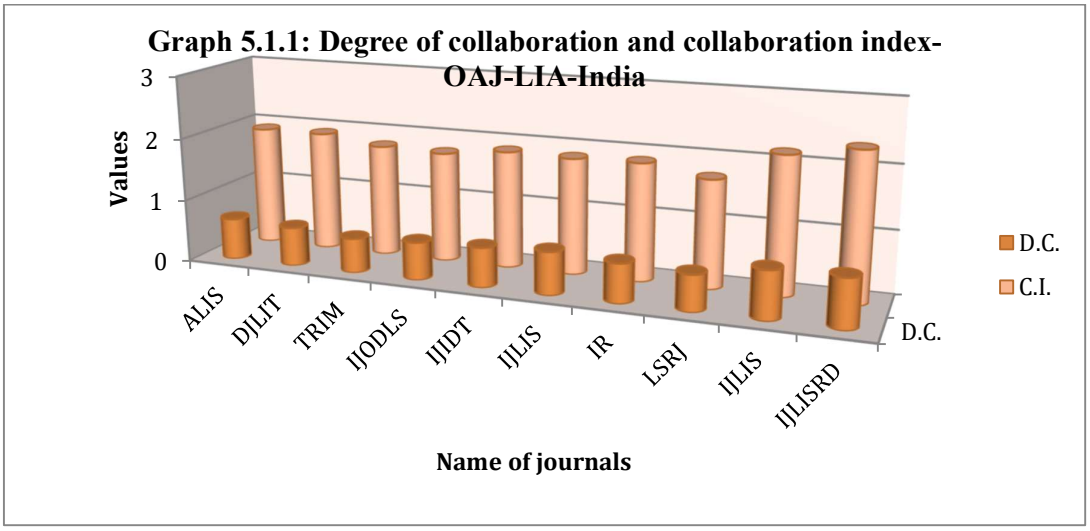
In this section values of D.C. and C.I. have been calculated.

India

The study has analysed 2118 articles and 3923 authors published during 2005-2014. Table 5.1.1 calculates values of Degree of collaborations and collaboration indexes**.** The CC ranges between 0.55 to 0.77 with an average 0.62.The C.I.also ranges between 1.71 to 2.33with an average 1.85. These figures are very low as compared to other bibliometric studies especially in sciences.

Table 5.1.1 : Degree of collaboration and collaboration index-OAJ-LIS-India

S.N.	Name of journals	D.C.	C.I.
1	Annals of Library and Information Science (ALIS)	0.66	1.92
2	Desidoc Journal of Library and Information Technology (DJLIT)	0.62	1.92
3	Trends in Information Management (TRIM)	0.55	1.79
4	International Journal of Digital library Services (IJODLS)	0.6	1.76
5	International Journal of Information Dissemination and Technology (IJIDT)	0.63	1.87
6	International Journal of Library and Information Studies (IJLIS)	0.68	1.85
7	International Research (IR)	0.62	1.87
8	E-Library Science Research Journal (ELSRJ)	0.57	1.71
9	International Journal of Library and Information Science (IJLIS)	0.76	2.17
10	International Journal of Library and Information Science Research Development (IJLISRD)	0.77	2.33
	Average	**0.62**	**1.85**



USA

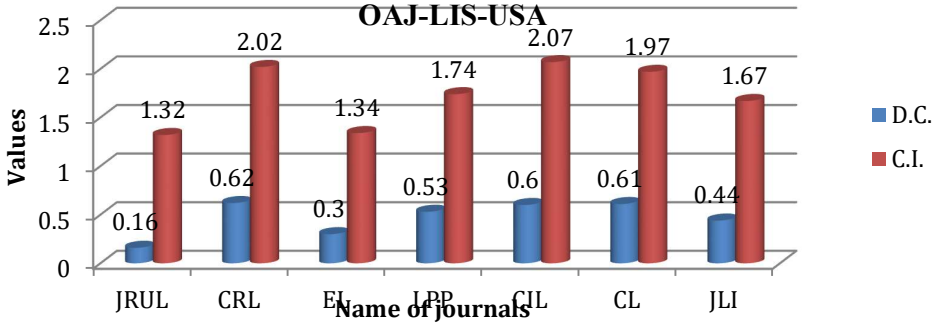
The study has analysed 1901 articles and 3402 authors published during 2005-2014.Table 5.1.2 calculates Degree of collaboration and collaboration index**.** The CC ranges between 0.16 to 0.62 with an average 0.54.The C.I .Also ranges

between 1.32 to 2.07 with an average 1.79. These figures are very low as compared to earlier bibliometric studies especially in sciences.

Table 5.1.2 :Degree of collaboration and collaboration index-OAJ-LIS-USA

S.N.	Name of journals	D.C.	C.I.
1	Journal of the Rutgers University Libraries (JRUL)	0.16	1.32
2	College and Research Libraries (CRL)	0.62	2.02
3	Education Libraries (EL)	0.3	1.34
4	Library Philosophy and Practice (LPP)	0.53	1.74
5	Communication in Information Literacy (CIL)	0.6	2.07
6	Collaborative Librarianship (CL)	0.61	1.97
7	Journal of Library Innovation (JLI)	0.44	1.67
	Average	0.54	1.79

Graph 5.1.2:Degree of collaboration and collaboration index-OAJ-LIS-USA



UK

The study has analysed 1277 articles and 2445 authors published during 2005-2014.Table 3 calculates Degree of Collaboration and collaboration index**.** The CC ranges between 0.41 to 0.66 with an average 0.53.The C.I .also ranges between 1.64 to 2.11 with an average 1.91.

Table 5.1.3 : Degree of Collaboration and collaboration index-OAJ-LIS-UK

S.N.	Name of journals	D.C.	C.I.
1	Library & Information Research(LIR)	0.42	1.72
2	Information Research (IR)	0.6	2.11
3	Ariadne	0.41	1.79
4	Electronic Journal of Knowledge Management(EJKM)	0.66	1.99
5	Journal of Information Literacy(JIL)	0.41	1.64
	Average	**0.53**	**1.91**

Prolific authors and their Dominance factors

In this section values for Dominance Factor of prolific authors have been calculated in various tables.

India

The table 4 shows a list of 19 top authors in all OA journals from India in the study. In India in all 2118 articles have been contributed by 3923 authors in the journals during period of study .Out of them 5+ articles have been contributed by 79 authors. Out of them 30 authors (36%) have high/maximum DF values and 41 (52%) authors have low/mild DF values. In India B.M. Gupta have contributed highest 27 articles followed by B.K. Sen and Thanuskodi ,S The list include other 79 authors.

Table 5.2.1 : Prolific authors and their Dominance factors-OAJ-LIS-India

S.N.	Prolific authors	N. of articles	Single author	Joint authors	First author	D.F.	Ranges
1	Gupta ,B.M.	27	10	17	11	0.65	D
2	Sen, B K	20	7	13	0	0	A
3	Tamilselvan,N	20	0	20	6	0.3	B
4	Thanuskodi , S.	19	10	9	2	0.22	B
5	Kumar,Ashok	18	0	18	3	0.17	A
6	Sivaraman,P.	18	0	18	3	0.17	A
7	Sevukan, R.	17	1	16	2	0.13	A
8	Sivakumar, N.	17	0	17	9	0.53	C
9	Bansode,Sadanand Y.	16	8	8	5	0.63	D
10	Dhanavandan S.	16	2	14	5	0.36	B
11	Garg ,K.C.	15	3	12	9	0.75	D
12	Maharana,Rabindra,K.	15	4	11	8	0.73	D
13	Nikam , Khaiser	15	0	15	5	0.33	B
14	Jeyshankar R	14	3	11	8	0.73	D
15	Khaparde ,Vaishali	14	0	14	0	0	A
16	Mahajan, Preeti	14	2	12	2	0.17	A
17	Dutt, B;	12	0	12	9	0.75	D

18	Jeyapragash	11	0	11	0	0	A
19	Kademani a, B.S.	11	0	11	4	0.36	B
20	Velmurugan ,C.	10	4	6	5	0.83	E
21	Padma ,P.	9	1	8	6	0.75	D
22	Sridhar, .K.	9	2	7	2	0.29	B
23	Kumar, Suresh	8	2	6	0	0	A
24	Rajendiran ,P. ,	8	0	8	6	0.75	D
25	Ramasamy K	8	0	8	4	0.5	C
26	velmurugan ,V. Senthur	8	6	2	2	1	E
27	Baskaran, C.	7	3	4	0	0	A
28	Chikkamanju	7	1	6	2	0.33	B
29	Ganaie ,Shabir Ahmad	7	5	2	2	1	E
30	Jeyaprakash, B	7	0	7	0	0	A
31	Kalbande, D.T	7	0	7	6	0.86	E
32	Kumbar,B.D.	7	1	6	2	0.33	B
33	lal, Payare	7	0	7	4	0.57	C
34	Loan, Fayaz Ahmad	7	2	5	2	0.4	B
35	Mudho, Mahesh V.	7	0	7	0	0	A
36	Mukherjee ,Bhaskar	7	4	3	2	0.67	D
37	Pandita,Ramesh	7	5	2	2	1	E
38	Pujar, Shamprasad M	7	1	6	4	0.67	D
39	Sarasvathy , P.	7	0	7	3	0.43	C
40	Sivakumaren, K.S.	7	0	7	6	0.86	E
41	Biradar ,B.S	6	2	4	3	0.75	D
42	Gul,. Sumeer	6	0	6	3	0.5	C
43	Hasan ,Nabi	6	1	5	2	0.4	B
44	Madhusudhan, Margam	6	0	6	2	0.33	B
45	Maharana ,Rabindra K.	6	0	6	6	1	E
46	Paul, Prantosh Kumar	6	3	3	3	1	E
47	Reddy, V. Pulla	6	0	6	1	0.17	A
48	Shafi ,S.M.	7	3	4	4	1	E
49	Swain, Dillip K	6	2	4	0	0	A
50	Thavaman,K.	6	3	3	2	0.67	D
51	Alhamdi , Fawaz Abdullah	5	0	5	4	0.8	D
52	Babu, B. Rames	5	0	5	0	0	A
53	Babu, K. Surendra	5	1	4	0	0	A
54	Bhat, Mohammad Hanief;	5	3	2	1	0.5	C
55	Chandrashekara ,M	5	0	5	0	0	A
56	Chinnadurai,D.	5	1	4	3	0.75	D
57	Gautam, J N;	5	0	5	0	0	A
58	Gupta, Dinesh K	5	2	3	2	0.67	D
59	Kamble,V.T.	5	1	4	0	0	A
60	Kannapanavar BU	5	1	4	0	0	A
61	Kumar,Rajinder	5	3	2	1	0.5	C
62	Kumbar, Mallinath;	5	0	5	0	0	A
63	Mahapatra,Rabindra K.	5	1	4	3	0.75	D
64	Mallaiah, T Y	5	1	4	0	0	A

65	Manjunath, M.	5	1	4	0	0	A
66	Maurya,Shyam Lal	5	2	3	1	0.33	B
67	Natarajan, M.	5	3	2	0	0	A
68	Nazim, Mohammad	5	0	5	4	0.8	D
69	Ram ,Shri	5	3	2	0	0	A
70	Ray, Partha Pratim	5	2	3	3	1	E
71	Satija ,M.P	5	2	3	2	0.67	D
72	Selvan, R.Saravana Subbu	5	2	3	1	0.33	B
73	Shah ,Tariq Ahmad	5	1	4	0	0	A
74	Somashekara , Y. L.	5	1	4	4	1	E
75	Sujatha, H R	5	1	4	3	0.75	D
76	Tamizhchelvan ,M	5	0	5	3	0.6	C
77	Ugwu ,Cyprian I	5	0	5	2	0.4	B
78	Vasishta, Seema	5	4	1	0	0	A
79	Vishwakarm,Mohanlal	5	0	5	1	0.2	B
	50 authors	4	-	-	-	-	-
	126 authors	3	-	-	-	-	-
	328 authrors	2	-	-	-	-	-
	2016 authors	1	-	-	-	-	-
	Total authors	3923	-	-	-	-	-

SN.	Symbol	Range	Category	Number	%
1	A	0.00-0.20	Negligible	26	32.91%
2	B	0.21-0.40	Mild	15	18.99%
3	C	0.41-0.60	Moderate	8	10.13%
4	D	0.61-0.80	High	19	24.05%
5	E	0.81-1.00	Maximum	11	13.92%
	Total	-	-	79	100.00%

USA

In the list authors have been listed with five or more articles in OA journals from USA. The list contains 33 names out of total 3402 authors in all.In USA there are 32 authors with 5+ articles .Bhati is on top with 27 articles.Followed by Mahmood (19)and Ugah (13).The DF values are given against each author in the table.Over all 15 authors (out of32) have H/M DF values and 13 have L/M values.

Table 5.2.2: Prolific authors and their Dominance factors –OAJ-LIS-USA

S.N.	Prolific authors	N. of articles	Single author	Joint authors	First author	D.F.	Ranges
1	Bhatti, Rubina	27	5	22	13	0.59	C
2	Mahmood , Khalid	19	2	17	1	0.06	A
3	Ugah, Akobundu Dike	13	8	5	5	1	E
4	Shafique, Farzana	11	2	9	3	0.33	B
5	Thanuskodi, S	10	7	3	2	0.67	D
6	Cargill,Mary	9	0	9	0	0	A

7	Popoola,Sunday Olanrewaju	8	1	7	0	0	A
8	Witte,Sarah	8	0	8	8	1	E
9	Gupta,B. M.	7	1	6	6	1	E
10	Okello-Obura, C.	7	1	6	2	0.33	B
11	Okoye, Michael Onuchukwu	7	6	1	1	1	E
12	Ameen, Kanwal	6	2	4	0	0	A
13	Esmail, S. Mohamed	6	0	6	0	0	A
14	Horton, Valerie	6	1	5	2	0.4	B
15	Lee, Janet	6	1	5	0	0	A
16	Mahajan, Preeti	6	4	2	1	0.5	C
17	Maharana,Rabindra K.	6	1	5	4	0.8	D
18	Saleh, Adam Gambo	6	4	2	2	1	E
19	Sethi,Bipin Bihari	6	0	6	4	0.67	D
20	Smale, Maura A	6	4	2	1	0.5	C
21	Uzuebgu,Chimezie Patrick	6	1	5	4	0.8	D
22	Adekunjo,Olalekan A.	5	0	5	2	0.4	B
23	Anyira, Isaac Echezonam	5	4	1	1	1	E
24	CannCasciato, Daniel	5	4	1	1	1	E
25	Dhanavandan, S.	5	0	5	4	0.8	D
26	Eke , Helen N.	5	0	5	5	1	E
27	Flatley ,Robert	5	0	5	3	0.6	C
28	Gaetz, Ivan	5	1	4	1	0.25	B
29	Gavgani, Vahideh Zarea	5	0	5	4	0.8	D
30	Nweze, Chinwe M.T.	5	4	1	1	1	E
31	Ogbomo, Esoswo F.	5	0	5	2	0.4	B
32	Tucker, Cory	5	0	5	0	0	A
	four articles	36					
	three articles	102					
	two articles	396					
	single article	1919					
	Total authors	3402					

SN.	**Symbol**	**Range**	**Category**	**Number**	**%**
1	A	0.00-0.20	Negligible	7	21.88%
2	B	0.21-0.40	Mild	6	18.75%
3	C	0.41-0.60	Moderate	4	12.50%
4	D	0.61-0.80	High	6	18.75%
5	E	0.81-1.00	Maximum	9	28.13%
	Total	-	-	32	100.00%

UK:

In the list authors have been listed with five or more articles in OA journals from UK. The list contains 12 names out of total 2445 authors in all .

Table 5.2.3 : Prolific authors and their dominance factor (OAJ-LIS) UK

S. N.	Prolific authors	N. of articles	Single author	Joint authors	First author	D.F.	Ranges
1	Bradley ,Phil	10	10	0	0	0	A
2	Savolainen,Reijo	9	7	2	0	0	A
3	Wilson, T.D.	9	7	2	0	0	A
4	Andrew Kenneth Shenton	7	6	6	0	0	A
5	Guy , Marieke	6	5	1	1	1	E
6	Oppenheim ,Charles	6	0	6	0	0	A
7	Tonkin ,Emma	6	2	4	1	0.25	B
8	Bechina, Aurelie Arntzen	5	0	5	2	0.4	B
9	Erickson, Scott	5	0	5	4	0.8	D
10	Fisher, Karen	5	0	5	3	0.6	C
11	Maceviciute ,Elena	5	1	4	3	0.75	D
12	Pálsdóttir,Ágústa	5	5	0	0	0	A
13	Four articles	17					
	Three articles	55					
	Two articles	215					
	Single articles	1704					
	Total articles	2445					

SN.	Symbol	Range	Category	Number	%
1	A	0.00-0.20	Negligible	6	50%
2	B	0.21-0.40	Mild	2	16.67%
3	C	0.41-0.60	Moderate	1	8.33%
4	D	0.61-0.80	High	2	16.67%
5	E	0.81-1.00	Maximum	1	8.33%
	Total	-	-	12	100%

Hypothesis:

In this section hypothesis has been tested for data from India, USA and UK.

Hypothesis is:

Most of the prolific authors have high DF values.

Mathematically:

H_0: $X_c < X_t$

H_1: $X_c \geq Xt$

For analysis purpose number of prolific authors categorised in 5 categories in each journal have been takes into consideration as shown in the tables 5.3.Authors with 4 publication or more have been considered for calculations of DF values.

India

The table shows number of prolific authors in each category in 10 journals published from India.

Categorisation of DF values of prolific authors-India

S.N.	Category	1	2	3	4	5	6	7	8	9	10	Total
1	**A**-negligible	5	7	3	2	3	2	-	9	-	2	33
2	**B**-Mild	4	4	1	-	1	1	-	5	3	2	21
3	**C**-Moderate	-	2	1	-	1	-	-	5	1	1	11
4	**D**-High	4	3	-	-	1	-	-	5	1	-	14
5	**E**-Maximum	6	1	-	-	2	-	-	5	-	-	14
	Total	19	17	5	2	8	3	-	22	5	5	93

1=ALIS,2=DJLIT,3=TRIM,4=IJODLS,5=IJIDT,6=IJLIS,7=IR,8=ELSRJ,9=IJLIS,10=IJLISRD

The study revealed that as per table 6.2.8 only 28 authors out of 93 authors are highly dominating with category D&E. Other 65 authors are least dominating (category A+B).

To test this hypothesis chi square test has applied.

Table 5.3.1: Chi square test

S.N.	Category	Observed	Expected	o-e	$(o-e)^2$	$(o-e)^2/e$
1	A	33	18.6	14.4	207.36	11.15
2	B	21	18.6	2.4	5.76	0.31
3	C	11	18.6	-7.6	57.76	3.11
4	D	14	18.6	-4.6	21.16	1.14
5	E	14	18.6	-4.6	21.16	1.14
	Total	93	18.6	74.4	5535.36	16.84

Here

χ^2 (calculated value) =16.84

χ^2 (tabulated value) =9.48

The calculated Chi-square value (16.84) is more than the table Chi-square value (9.48) at a degree of freedom of 4, level of significance, a=0.05) (table 6.2.9) the difference in values is highly significant so the hypothesis not applicable to the data for India.

So, 18.78 > 9.48

$\chi^2_{cal} > \chi^2_{tab}$

So, the null hypothesis is not accepted for India.

USA

The table shows number of prolific authors in each category in 7 OA journals from USA.

Categorisation of DF values of prolific authors-USA

S.N.	Category	JRUL	CRL	EL	LPP	CIL	CL	JLI	Total
1	A	2	1	2	14	-	3	-	22
2	B	-	0	-	8	-	1	-	9
3	C	-	1	-	10	-	-	-	11
4	D	-	2	-	14	-	-	-	16
5	E	-	1	-	12	-	-	-	13
	Total	2	5	2	58		4	-	71

The study revealed that 29 authors are highly dominating out of 71 authors with category D&E.42 authors are least dominating.

To test this hypothesis chi square test has applied.

Table 5.3.2: Chi square test

S.N.	Category	Observed	Expected	o-e	$(o-e)^2$	$(o-e)^2/e$
1	A	22	14.2	7.8	60.84	4.28
2	B	9	14.2	-5.2	27.04	1.9
3	C	11	14.2	-3.2	10.24	0.72
4	D	16	14.2	1.8	3.24	0.23
5	E	13	14.2	-1.2	1.44	0.1
	Total	71				7.23

Here

χ^2 (calculated value) =7.23

χ^2 (tabulated value) =9.48

The calculated Chi-square value (7.23) is less than the table Chi-square value (9.48) at a degree of freedom of 4, level of significance, a=0.05) the difference in values is highly significant so the hypothesis applicable to the data for USA.

So, 7.23 < 9.48

$\chi^2_{cal} < \chi^2_{tab}$

So, the null hypothesis is accepted for USA.

UK

The table shows number of prolific authors in each category in 7 OA journals from USA.

Categorisation of DF values of prolific authors--UK

S.N.	Category	LIR	IR	Ariadne	EJKM	JIL	Total
1	A	1	4	2	3	-	10
2	B	-	-	2	2	-	4
3	C	-	1	-	3	1	5
4	D	-	1	-	3	-	4
5	E	1	1	1	5	-	8
	Total	2	7	5	16	1	31

The study revealed that as per table 6.2.12 authors are high dominated out of 31 authors with category D&E while 19 authors are less dominated .To test this hypothesis chi square test has applied.

Table 5.3.3 : Chi square test

S.N.	Category	Observed	Expected	o-e	$(o-e)^2$	$(o-e)^2/e$
1	A	10	6.2	3.8	14.44	2.33
2	B	4	6.2	-2.2	4.84	0.78
3	C	5	6.2	-1.2	1.44	0.23
4	D	4	6.2	-2.2	4.84	0.78
5	E	8	6.2	1.8	3.24	0.52
	Total	31	6.2		28.8	4.65

Here

χ^2 (calculated value) =4.65

χ^2 (tabulated value) =9.48

The calculated Chi-square value (4.65) is less than the table Chi-square value (9.48) at a degree of freedom of 4, level of significance, a=0.05) the difference in values is highly significant so the hypothesis is applicable to the data for UK.

So, $4.65 < 9.48$

$\chi^2_{cal} < \chi^2_{tab}$

So the null hypothesis is accepted for UK

Overall the null hypothesis is partially rejected.

CONCLUSION

The study shows low value of Degree of Collaboration (DC) and Collaboration Index. For India values are 0.62 and 1.85, for USA the values are 0.54 and 1.79 and for UK values are 0.53 and 1.91 respectively. It means approx 56% paper are collaborated paper with only 1.7 authors per paper. The values for Dominance Factor are equally distributed In OA journals from India 30 % authors have high and maximum DF values 54% have low negligible or mild DF values.In OA journals from USA 40% have high and maximum DF values. Similarly in OA journals from UK the 39% have high and maximum DF values while 45% have low or negligible dominance values.

On test of hypothesis "Most of the prolific authors have high DF values" the null hypothesis has been rejected for India but have been accepted for USA and UK. Conclusively in library and information science prolific authors are more dominant and their levels of dominance factors are high.

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