

Trend of Degree of Collaboration of journals related to Humanities and Social Sciences published by Sri Lankan Universities

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Abstract

This study especially focuses on the degree of collaboration journals related to Humanities and Social Sciences published by Sri Lankan Universities. Degree of collaboration (DC) is defined as the ratio of the number of collaborative research papers to the total number of research papers in the discipline during a certain period of time. The main objective of this study is to identify DC of these journals and to rank them according to their DC. The research method of this study was Quantitative method. The authorship data collected from 1903 research articles of selected refereed journals related to Humanities and Social Sciences published by Sri Lankan universities during the period from 1968 to 2011, were analyzed in this study. Findings of this study illustrate that 'Open University of Sri Lanka Journal' was in the first rank with DC 0.536. It was also observed that DC was generally increased according to the origin and development of the journals. Ancient journals have low rate and the journals originated later have high rate of degree of collaboration. The reason for this variation is because of the fact that the growth of interdisciplinary nature of researches. (191 words)

Keywords: Bibliometrics; Sri Lanka; Humanities; Social sciences;
Degree of collaboration

Full Paper

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1. Introduction

Today, shared authorship is common in most academic disciplines, with the exception of the humanities, where sole authorship is still the predominant model. In particular types of research, including particle physics, genome sequencing and clinical trials, a paper's author list can run into the hundreds. A paper published in the *New England Journal of Medicine* in 1993 reported on a clinical trial conducted in 1,081 hospitals in 15 different countries, involving a total of 41,021 patients. There were 972 authors listed in an appendix and authorship was assigned to a group. In the *summer of 2008*, an article in high-energy physics was published. The article boasted 2,926 authors from 169 research institutions.

The increase in multi-authorship might be a consequence of the way scientists are evaluated. Multi disciplinary nature of current research trend is one of the reasons for this increase of multi authorship. When each author claims each paper and each citation as his/her own, papers and citations are multiplied by the number of authors. Furthermore, there is no cost to giving authorship to individuals who made partial contribution and there is an incentive to do so. It also reflects increased acknowledgment of the contributions of lower level workers, including graduate students and technicians, as well as honorary authorship. The credit of

authorship is accompanied by responsibility for the work being published.

In Library Science Authorship studies focused on author characteristics, authorship of articles and degree of collaboration of a specific group of authors. Authorship studies also descriptive bibliometric studies. This study especially focused on the Degree of collaboration of journals related to Humanities and Social Sciences published by Sri Lankan Universities.

2. Understanding Degree of Collaboration

Degree of collaboration (DC) is defined as the ratio of the number of collaborative research papers to the total number of research papers in the discipline during a certain period of time. The formula suggested by Subramanyam K (1983) express the calculation procedure of DC, which is used in this study. It is expressed as where;

$$C = \frac{N_m}{N_m + N_s}$$

C is the degree of collaboration in a discipline. N_m is the number of multi-authored research papers in the discipline published during a year. N_s is the number of single authored research papers in the discipline published during a year. DC can also be applied to the individual journals to identify multi disciplinary nature of research articles produced by a group of authors of that particular journal.

3. Objective of the study

The main objective of this study is to identify DC of these journals and to rank them according to their DC. The specific objectives of the study are:

- to identify the proportion of single vs. multi-authored papers
- to determine the growth trend of degree of collaboration of publications

4. Review of Literature

Various Bibliometric studies focused on authorship patterns were conducted to analyze the authorship characteristics of a group of authors. Selection of group of authors could be different in these studies. Some of them focused on group of authors of a specific country Basu & Vinu Kumar (2000); Ming Yu Cheng, Kai Wah Hen, Hoi Piew Tan, Kuk Fai Fok, (2013); Prakasan, E. R., Mohan, L., Girap, P., Surwase, G., Kademani, B. S., & Bhanumurthy, K. (2014); Sooryamoorthy, R. (2014); some others focused on a particular subject area Maheswarappa and Mathias (1987); Karisiddappa et al. (1990); Vanni, T., Mesa-Frias, M., Sanchez-Garcia, R., Roesler, R., Schwartzmann, G., Goldani, M. Z., & Foss, A. M. (2014); some more focused on a particular type of publication or Journals Raptis (1992); Haiqi (1996). Generally these kinds of studies contribute a useful basis for compiling a profile of the authors.

5. Research Methodology

The research method of this study was Quantitative method particularly Bibliometric analytical method. The formula suggested by Subramanyam K (1983) to calculate the Degree is used in this study. The required data for the analysis of this study was collected from 1903 records of the research articles authored by 1056 authors published in 21 refereed journals related to Humanities and Social Sciences published by Sri Lankan universities during the period from 1968 to 2011. Analytical findings in authorship patterns were explained with tabulated and graphical display.

Population and sample of the study

In this study, the focused area is Humanities and Social Sciences. Therefore the population of the study covers the Humanities and Social Sciences research articles published in refereed journals of the Universities of Sri Lanka from 1942 -2011. Since this population covers most of the refereed journal articles in the field, the sample will be finite. It means that the sample is predetermined and complete. The finite sample of this study scientifically derived through the following steps based on the stipulated criteria.

Step I Selection criteria of University

1. Universities that under the purview of University Grants Commission of Sri Lanka
2. Universities that have Faculties and Departments for Humanities and Social Sciences
3. Universities that have journal publications at least of the Faculty level in the subject areas of Humanities or Social Sciences or of Multidisciplinary nature.

F-Fulfilled		NF-Not fulfilled		S- Selected for study		NS-Not	
S.N.	Name of the University	Criteria 1	Criteria 2	Criteria 3	Selection		
1	University of Colombo	F	F	F	S		
2	University of Peradeniya	F	F	F	S		
3	University of Kelaniya	F	F	F	S		
4	University of Jaffna	F	F	F	S		
5	University of Ruhuna	F	F	F	S		
6	University of Sri Jayewardenapura	F	F	F	S		

7	University of Moratuwa	F	NF	NF	NS
8	Open University of Sri Lanka	F	F	F	S
9	Eastern University, Sri Lanka	F	F	NF	NS
10	Sabaragamuwa University of Sri Lanka	F	F	F	S
11	South Eastern University of Sri Lanka	F	F	NF	NS
12	Rajarata University of Sri Lanka	F	F	NF	NS
13	Wayamba University of Sri Lanka	F	NF	NF	NS
14	University of Visual & Performing Arts	F	F	NF	NS
15	Uva Wellassa University	F	NF	NF	NS
16	Buddhist and Pali University of Sri Lanka	NF	NF	NF	NS
17	General Sir John Kotelawala Defence	NF	NF	NF	NS
18	University of Vocational Technology,	NF	NF	NF	NS
19	Buddhasravaka Bhiksu University	NF	NF	NF	NS

Step II Selection criteria of Journals

Among the selected eight Universities, journals were chosen with the following criteria

1. Journals that are published at least in Faculty level
2. Journals that are peer reviewed by review committee or scholars
3. Journals that have publications in the subject areas of Humanities or Social Sciences or of multidisciplinary nature.

Table 2- List of titles of selected journals

S.N	Name of the University	Journals fulfilling the above said 3 criteria
1	University of Colombo	1. University of Colombo Review 2. International Law Journal

2	University of Peradeniya	<ol style="list-style-type: none"> 1. Ceylon Journal of the Humanities 2. Sri Lanka Journal of the Humanities 3. Modern Ceylon Studies 4. Modern Sri Lanka Studies 5. Modern Sri Lanka Studies - A Journal of the Social Sciences
3	University of Kelaniya	<ol style="list-style-type: none"> 1. Kalyani 2. Studies in Social Sciences 3. Journal of Social sciences, Sri Lanka 4. Journal of the Faculty of Humanities
4	University of Jaffna	<ol style="list-style-type: none"> 1. Cintanai 2. The Sri Lanka Journal Of South Asian Studies
5	University of Ruhuna	<ol style="list-style-type: none"> 1. Rohana 2. Journal of the Faculty of Humanities and Social Sciences, University of Ruhuna
6	University of Sri Jayewardenapura	<ol style="list-style-type: none"> 1. Vidyodaya Journal of Arts Science and Letters 2. Vidyodaya Journal of Social Science 3. Vidyodaya Journal of Humanities and Social science
7	Open University of Sri Lanka	<ol style="list-style-type: none"> 1. Open University of Sri lanka Journal 2. Vistas
8	Sabaragamuwa University of Sri Lanka	<ol style="list-style-type: none"> 1. Sabaragamuwa University Journal

Step III Selection criteria of Articles

Among these selected journals of the eight Universities, articles were chosen with the following criteria

1. Articles that are related to in the subject area of the Humanities or Social Sciences or both
2. Articles that are peer reviewed by scholars
3. Articles that are not under the category of book reviews
4. Articles that were published between the years 1968 to 2011 (inclusive)

Table 3- Number of articles selected for analysis by fulfilling the above said four criteria

S.N.	Title of the Journal	Selected No. of Articles
1	Sri Lanka Journal of the Humanities	301
2	International Law Journal	284
3	Journal of the Faculty of Humanities	217
4	Cintanai	213
5	Vidyodaya Journal of Arts Science and Letters	140
6	Kalyani	134
7	The Sri Lanka Journal Of South Asian Studies	117
8	University of Colombo Review	83
9	Vidyodaya Journal of Social Science	78
10	Modern Ceylon Studies	60
11	Sabaragamuwa University Journal	47
12	Modern Sri Lanka Studies	36
13	Vistas	30

14	Open University of Sri Lanka Journal	28
15	Journal of the Faculty of Humanities and Social Sciences, University of Ruhuna	27
16	Rohana	24
17	Ceylon Journal of the Humanities	19
18	Modern Sri Lanka Studies - A Journal of the Social Sciences	18
19	Studies in Social Sciences	18
20	Journal of Social sciences, Sri Lanka	15
21	Vidyodaya Journal of Humanities and Social sciences	14
	Total	1903

The required data for the analysis of this study was collected according to this process and collected data was exported in RIS format with complete authorship records for analysis using bibexcel soft ware.

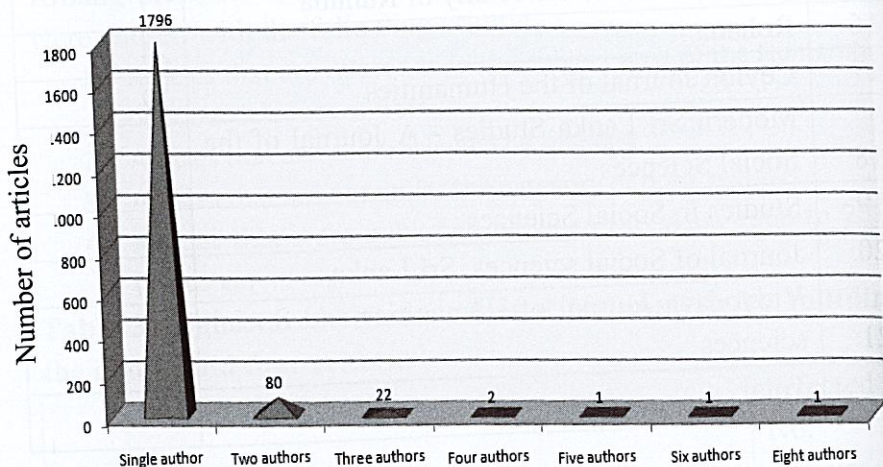
Findings

Analysis of authorship patterns of the research articles and degree of collaboration of entire research output and journal wise degree of collaboration are explained subsequently.

Distribution of co-authorship of the research articles

Fig 1 shows the authorship pattern of the research articles. It could be noted that Single authored papers rank first in order sharing 94.5%. The next place is recorded by two authored papers sharing 4.2% of the total research contributions. Three authored contributions take that third position in order occupying 1.2% of the total publication output during the study period. It indicates

that the multi authored work is less than that of the single authored contributions.



Authorship

Fig. 1 – Distribution of authorship pattern of the research articles Commonly majority of the early research articles are contributed by single author and multi authored work was recorded since 1970 only. Range of number of authors were one to eight and highest number of collaborative authors for a single publication was observed during the year 2009 (eight authors). (Table 4)

Table 4 - Year-wise display of authorship patterns

Year	Grand Total	Single author	Two	Three	Four	Five	Six	Eight	Multi authors
1968	14	14							0
1969	11	11							0
1970	32	30	2						2
1971	27	26	1						1
1972	7	7							0
1973	8	8							0
1974	9	9							0
1975	15	15							0
1976	56	56							0
1977	8	8							0
1978	20	20							0
1979	18	15	2	1					3
1980	16	16							0
1981	21	19	2						2
1982	36	36							0
1983	66	65	1						1
1984	64	63	1						1
1985	64	64							0
1986	44	42	2						2
1987	71	71							0
1988	31	27	3	1					4
1989	52	51	1						1
1990	31	28	2	1					3
1991	46	46							0
1992	39	39							0
1993	55	53	1	1					2
1994	74	74							0
1995	34	34							0
1996	54	50	3	1					4
1997	54	49	3	2					5
1998	33	31	2						2
1999	64	58	5		1				6
2000	44	42	2						2
2001	59	54	1	3			1		5
2002	49	43	3	3					6
2003	27	24	1	2					3
2004	72	67	5						5
2005	70	67	2	1					3
2006	43	36	6	1					7
2007	55	45	7	2	1				10
2008	131	120	9	2					11
2009	104	94	7	1		1		1	10
2010	60	54	6						6
2011	15	15							0
Grand Total	1903	1796	80	22	2	1	1	1	107

Trend of Degree of collaboration

Table 5 reveals that the value of the Degree of Collaboration was 0.0 in the year 1968 and the highest (0.182) was recorded in the year 2007. Even though there were fluctuations in degree of collaboration, in recent times it was progressively increased during the years 2004 to 2007 and 2008 to 2010.

The reason for this increase is because of the fact that single authored papers have liberated over the period and increase of interdisciplinary nature of research, which needs collaborative efforts.

Table 5 Growth trend of degree of collaboration of research articles

Year	Total	Single authored	Multi authored	Degree of Collaboration
1968	14	14	0	0.000
1969	11	11	0	0.000
1970	32	30	2	0.063
1971	27	26	1	0.037
1972	7	7	0	0.000
1973	8	8	0	0.000
1974	9	9	0	0.000
1975	15	15	0	0.000
1976	56	56	0	0.000
1977	8	8	0	0.000
1978	20	20	0	0.000
1979	18	15	3	0.167
1980	16	16	0	0.000
1981	21	19	2	0.095
1982	36	36	0	0.000
1983	66	65	1	0.015
1984	64	63	1	0.016
1985	64	64	0	0.000
1986	44	42	2	0.045
1987	71	71	0	0.000
1988	31	27	4	0.129
1989	52	51	1	0.019
1990	31	28	3	0.097
1991	46	46	0	0.000
1992	39	39	0	0.000
1993	55	53	2	0.036
1994	74	74	0	0.000
1995	34	34	0	0.000
1996	54	50	4	0.074
1997	54	49	5	0.093
1998	33	31	2	0.061
1999	64	58	6	0.094
2000	44	42	2	0.045
2001	59	54	5	0.085
2002	49	43	6	0.122
2003	27	24	3	0.111
2004	72	67	5	0.069
2005	70	67	3	0.043
2006	43	36	7	0.163
2007	55	45	10	0.182
2008	131	120	11	0.084
2009	104	94	10	0.096
2010	60	54	6	0.100
2011	15	15	0	0.000

Journal wise degree of collaboration

The Degree of Collaboration can also be applied to the journals to identify the author collaborations and multi disciplinary nature of research articles produced by a group of authors of a particular journal or publications. Table 6 indicates the ranked list of the journals along with their Degree of Collaboration. It was observed that 'Open University of Sri Lanka Journal' was in the first rank with degree of collaboration 0.536. The second position is taken by 'Vidyodaya Journal of HSS' with 0.286. 'Sabaragamuwa University Journal' was recorded in third rank with 0.277.

It was also observed that degree of collaboration was generally increased according to the origin and development of the journals. In another view ancient journals have low rate and the journals originated later have high rate degree of collaboration. The reason for this variation is because of the fact that the growth of interdisciplinary nature of researches.

Table 6 - Ranked list of Journals based on degree of collaborations

S. No.	Journal Title	Grand Total	Single authored	Multi authored	Degree of Collaboration
1	Open University of Sri Lanka Journal	28	13	15	0.536
2	Vidyodaya Journal of Humanities and Social sciences	14	10	4	0.286
3	Sabaragamuwa University Journal	47	34	13	0.277
4	Vistas	30	23	7	0.233
5	Journal of Social Sciences Sri Lanka	15	12	3	0.200
6	Modern Sri Lanka Studies	36	32	4	0.111
7	Modern Sri Lanka Studies - A Journal of the Social Sciences	18	16	2	0.111
8	International Law Journal	284	257	27	0.095
9	University of Colombo Review	83	77	6	0.072
10	Journal of the Faculty of Humanities & Social Sciences, UOR	27	26	1	0.037
11	Vidyodaya Journal of Arts Science and Letters	140	135	5	0.036
12	The Sri Lanka Journal of South Asian Studies	117	113	4	0.034
13	Modern Ceylon Studies	60	58	2	0.033
14	Kalyani	134	131	3	0.022
15	Sri Lanka Journal of the Humanities	301	295	6	0.020
16	Cintanai	213	209	4	0.019
17	Vidyodaya Journal of Social Science	78	77	1	0.013
18	Ceylon Journal of the Humanities	19	19	0	0.000
19	Journal of the Faculty of Humanities	217	217	0	0.000
20	Rohana	24	24	0	0.000
21	Studies in Social Sciences	18	18	0	0.000
	Grand Total	1903	1796	107	0.056

Conclusions and Recommendations

Overview of important findings of the analysis revealed that 'Open University of Sri Lanka Journal' was in the first rank with DC 0.536. It was also observed that DC was generally increased according to the origin and development of the journals. Ancient journals have low rate and the journals originated later have high rate of degree of collaboration. The reason for this variation is because of the fact that the growth of interdisciplinary nature of researches.

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