Lotka' las applied to the scientific production of library and information science in Maharashtra

SONALI A. DESHMUKH

Dr. Panjabrao Deshmukh Memorial Medical College, AMRAVATI (M.S.) INDIA
(Email : dsonali14@rediffmail.com)

ABSTRACT

Various eminent professionals have made attempt to study the growth and development of literature in the library and information science. In the present study an attempt was made to satisfy the Lotka's law, authorship pattern, decade wise, rank list in the field of library and information science in Maharashtra is changed with time.

Key Words : Bibliometrics, Authorshop pattern, Lotka's law

View point paper : Deshmukh, Sonali A. (2012). Lotka' las applied to the scientific production of library and information science in Maharashtra. *Asian Sci.*, **7**(2): 150-154.

Information is the product of the human brain in action. It may be abstract or concrete. When an individual begins to think, a variety of images and sensations flash across his mind. This makes some information to accumulate in his mind and his memory retains some pieces of knowledge. Library professionals act as mediator between the generator of information and users of it. Selection, collection, organization and finally dissemination of the required information to the needy users without wasting their valuable time are the basic responsibilities of the library professionals. Librarianship is a profession and it is necessary for the members of any profession to involve in different activities of professional development such as keeping abreast of the latest development in the profession by reading professional literature; participating in seminars, conferences, workshops; and contributing to professional knowledge in the form of books, articles, theses etc. in order to become successful practitioners and thereby raising the status of the profession in the society.

Various eminent professionals have made attempt to study the growth and development of literature in the library and information science. Krishna Kumar (1971), Chla Delia Cava (1988), . Parasher and Rani (1988), Chatterji (1995), Singh and Panda (2003) are some personalities who have studied in this direction.

Objective:

The following objectives are set up for the present study.
– To examine the nature of authorship pattern in the field of Library and Information Science.
– To study the author productivity
– To identify the major contributors in the field of library and information science.

Scope:

The title of the present work itself is self explanatory. It is cleared that the study is confined to the professionals working in the field of library and information science in Maharashtra one of the biggest states in India. The contributions of these professionals in terms of publication in the selected documentary sources library catalogue taken into consideration for the study. Further the researcher has considered only the contributions of the professionals which are concerned with the field of library and published in India

upto December 2008.

RESEARCH METHODOLOGY

In the present work, the researcher has studied about the contribution of library professionals in Maharashtra, in terms of publication of information in the field of library and information science. Basically, the study is based on the primary data, collected through the selected available documentary sources *i.e.* books, journals and conference proceedings published in library and information sciences, as well as, directly from the library professionals through well structured and designed questionnaire.

At the very first step the researcher has visited to the library of Sant Gadge Baba Amravati University, Amravati; Panjabrao Deshmukh Krushi Vidyapith Akola; Mastoshri Vimalabai Deshmukh Mahavidyalay Amravati; R.S.T.M. Nagpur University, Nagpur and Jaykar Library Pune University, Pune and scanned the selected documentary sources, that are available in these libraries to achieve the first objective of the study *i.e.* to identify the library professionals from the Maharashtra, who have contributed their thoughts on library and information science in the form of the documentary sources. During the process of scanning the researcher has identified 97 library professionals from Maharashtra who were contributed their thoughts, ideas through books. Thereafter, the list of such contributors along with their contributions was prepared. Subsequently, the addresses of the identified contributors were collected from the Directory of College Librarians, edited by P.G. Karmarkar database developed by library and information sciences study circle, Amravati and also from the web site *i.e. www. Infolibrarian.com*. The data were noted down after- each arrangement. The noted data were then analysed and tabulated. On the interpretation, the conclusion have been drawn, which is given in the last.

Hypothesis :

In the present study the hypothesis is that "the trend of authorship pattern in the field of library and information science is changed with time".

Alfred Lotka's described a measures of the productivity of authors within the subject field of chemistry. He found that once he knew the number of authors writing one paper only then he could predict the number of authors writing two, three or more. In chemistry the factors was $1/n^2$ where n is the number of papers. Thus if want to find the number of authors writing two papers.

$2^2 = 4$, and we divided the number of authors writing one paper by four to find the number writing two. Similarly we can find the number of authors contributed 3, 4, 5….. papers and the result of it is given below if the number of authors contributed single paper is 100.

Authors	Papers
100	1
25	2
11	3
6	4
4	5

This particular distribution seems to emerge with an amazing regularity when applied to the field to the hard sciences. The law needs to be modified for high a scorer, that is authors who have written a large number of papers, for the law suggest a far greater number of papers than in fact they could ever hope to produce.

Present study is related to the study of authors and their pattern. In the objective of this work study of scientific productivity of authors is also to be carried out and accordingly the researcher has tried to satisfy the Lotka's inverse square law.

Through these sources the researcher has identified 276 books which have been published by 97 authors in Maharashtra during 1939-2008 on library and information science in Marathi and English language.

RESULTS AND REMONSTRATION

From Table 1 and Fig. 1 it is observed that number of publication in terns of books was continuously increasing during 1929-1968. However in 1969 the number suddenly dropped up to 16 which again increased up to 30 ,72,121 in next subsequent decade *i.e.* 1979-1988 to 1999-2008.

Table 1 : Decadewise distribution of books publishing during 1929 to 2008

Sr. No.	Decade	Category of documents	
		Books	
		No. of books	Percentage
1.	1929-1938	3	1.09%
2.	1939-1948	7	2.53%
3.	1949-1958	9	3.26%
4.	1959-1968	18	6.52%
5.	1969-1978	16	5.80%
6.	1979-1988	30	10.87%
7.	1989-1998	72	26.09%
8.	1999-2008	121	43.84%
	Total	276	100%

Table 2 reflects the authorship pattern of the contributions done by LIS professionals from Maharashtra in terms of books during the period under study. It is significant to note that, a maximum number of books were contributed individually. During the study it is observed that 252 books (91.31%) were single authored. It further shows that 18 (6.52%) books were two authored, whereas only 6 (2.17%) books were in three authors, It means that the collaborative authorship
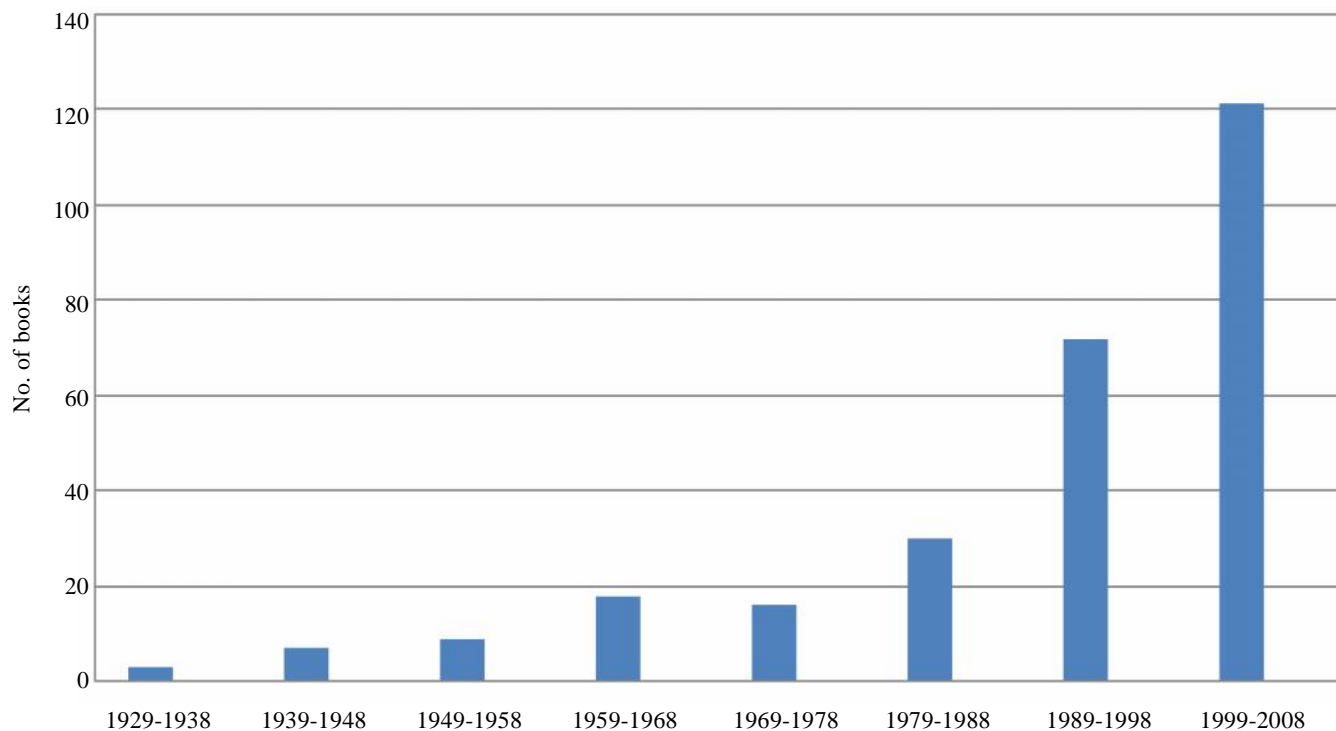
Fig. 1 : Decadewise distribution of books publishing during 1929 to 2008

pattern is not much popular in the field of library and information science as far as Maharashtra state is concerned.

Author productivity:

According to Alfred Lotka, the proportion of all contributors who make a single contribution is about 60 per cent Table 2 indicates that there were 252 authors who have, contributed a single book during 1932 to 2008 and the percentage of it was 91.31 per cent which satisfied the second part of Lotka's inverse square law.

Alfred Lotka's summarized his inverse square law of

scientific productivity as number of authors making 'n' contributions is about $1/n^2$ of those making one and the proportion of all contributors who make a single contribution is about 60 per cent. Mathematically it can be written as

$$a(n) = a(1)n2 \qquad \qquad \qquad ……(1)$$

where a(n) is the number of authors contributed n books and n is the number of books

In present study a (1) *i.e.* number of authors contributing single author was 57 which is shown in Table 3 a considering this value and equation no.(1), the researcher has tried to calculate the expected number of authors for corresponding

Table 2 : Decade wise distribution of authorship pattern					
Sr. No.	Decade	Authorship pattern for the category of documents			
		Books			
		Single	Two	Three	Total
1.	1929-1938	3	-	-	3
2.	1939-1948	7	-	-	7
3.	1949-1958	9	-	-	9
4.	1959-1968	18	-	-	18
5.	1969-1978	16	-	-	16
6.	1979-1988	30	-	-	30
7.	1989-1998	63	7	3	72
8.	1999-2008	106	11	4	121
	Total	252	18	6	276
		91.31	6.25	2.17	

Table 3 a : Number of expected authors derived from Lotka's equation

Sr. No.	No. of times (Contributed)	No. of authors	Percentage
1.	One	57	55.88%
2.	Two	19	18.63%
3.	Three	11	10.79%
4.	Four	5	4.90%
5.	Five	3	2.94%
6.	Six	1	0.98%
7.	Seven	-	0%
8.	Eight	2	1.96%
9.	Nine and more than nine	4	3.92%
	Total	102	100%

Table 3b : Contribution of authors in the production of books

Sr. No.	No. of times (Contributed)	No. of authors (Observed)	No. of authors (Expected)
1.	One	57	57
2.	Two	19	14
3.	Three	11	11
4.	Four	5	6
5.	Five	3	4
6.	Six more than six	7	2
	Total	102	100 %

Table 4 : Ranking list of authors in the field of library and information science

Rank	Name of author	Individual	Incorporate with other authors	Total
1.	Kumar, P.S.G	42	-	42
2.	Mahajan, S.G.	32	-	32
3.	Ujambalkar K.M.	20	-	20
4.	Kumbhar Rajendra	14	-	14
5.	Kulkarni, V.V.	9	-	9
6.	Phadke, D.N	8	-	8
7.	Kolhatkar, V.P.	8	-	8
8.	Satarkar, S.P.	6	-	6
9.	Riswadkar, M.R.	4	2	6
10.	Veer, D.K.	5	-	5

number of books and presented it in table

It is observed from Table 3 b that the expected values were closer to the values as number of authors (observed) in Table 3 a. It means that the Lotka's law is satisfied in the present study expect at the stage where number of authors who have contributed two books.

Major contributions:

During the present study it was found that Kumar P.S.G from Nagpur has contributed highest number of books in the field of library and information science and therefore secured the top rank in the most prolific authors (Table 4). He has contributed 42 books on various facts of library and information science. Mahajan S.G. (32) from Pune and Ujambalkar K.M. (20) from pune have secured second and third position in the list of most productive authors in the field of library and information science, respectively.

Conclusion:

During the study researcher has identified 276 books published on library and information scienec in English and Marathi Language. From this study it was found that 97 authors have shared their views in these books. 1999-2008 were the most productive decade regarding the publication of books. 106 books were published during these years, respectively.

It is found that authors were much interested to share their views individually rather then in collaboration with others.

Out of 276 ,57 authors have published only one book each and the contribution of these authors was 55.88 per cent. Alfered Lotka's summarized his inverse squre law of scientific productivity as the making one and the proportion of all contributions who make a single contribution was about 60 per cent. The data collected during this study satisfied this law at each step. The rank list of authors was prepared during the study and was found that P.S.G.Kumar has secured the top position by contributing 42 books during 1929 to 2008.

In present study the hypothesis is that the trend of authorship pattern in the field of library and information science is changed with time. On the basis of the data analysed during the study and conclusion drawn, it is clear that the trend of authorship pattern is changed with time.

REFERENCES

Birader, B.S. and Premlatha, R. (1998). Bibliometrics study psychiatric (Alchoholism) literature. *IASLIC Bulletin,* **43** (4) : 163-170.

Dalai, B.K. and Ramesh, D.B. (1995). Publication Pattern in Scientific and Industrial Research in India. A Bibliometric Study, *Ann. Library Sci. & Documentation,* **42** (1) : 35-38.

Devrajan, G. (1987). Library Science Literature in Malayalam: A Survey. *Herald of Library Science*. 26 (1-2), Jan.-Feb. 1987.

Hazra, S.K. (1969). Library Literature in Bengali. *Herald of Library Sci.,* **8** (3) :182-191.

Dhamani, A.K. (2000). Ethno botany Journal: A ten year Bibliometric study. IASLIC Bulletin, **41** (4) 2000 December.

Ijari, S.R. and Kannappanavar, B.U. (1990). Growth of Periodicals in the field of Library and Information Science 1876. *IASLIC Bulletin*. **35** (3) : 97-103.

Potter, W.G. (1981). Introduction to Bibliometrics. *Library Trend.,* **30** : 5-6.