

## Continent Wise Analysis of Mathematics Periodicals: A Scientometric Study

### Pranali S. Waghmare

Research Scholar

Dept. of Library & Information Science,  
Dr. Babasaheb Ambedkar Marathwada  
University, Aurangabad (MH) 431003

### Dr. Vaishali Khaparde

Associate Professor & Head

Dept. of Library & Information science,  
Dr. Babashaheb Ambedkar, Marathwada  
University, Aurangabad (MH) 431003

**Abstract** - *There are seven continents, but here the we has taken only six continents because the last continent of Antarctica does not have any contribution to the publications of this area. So for this part of analysis, researcher has selected continents of Europe, North America, Asia, Australia, South America and Africa. This analysis covers the Periodicals of Mathematics at continent level. The European continent stood in the first place with the highest publication i.e. 922 (42.41%) in Mathematics. UK published highest 163 (17.68 %), periodicals in European countries, in Asian continent, India has first rank .*

**Keywords:** *Periodicals, Bibliometrics, Mathematics*

## INTRODUCTION:

Bibliometrics is a set of techniques devoted to the quantitative analysis of scientific and technical activities. These techniques implement statistical and mathematical tools to measure the data that measure researcher's contributions to science and technical development. The data used for bibliometric studies mainly stem from information produced by the activity of researcher's communication. These quantitative studies of researcher's communication activities tend to have a better understanding of phenomena of construction, dissemination and use of scientific and technical knowledge. Bibliometrics is considered as a standard tool of science policy and research management in the last decades The aim of bibliometric studies was to measure national research performance in the international context or to describe the development of a science field with the help of bibliometric means. Today, bibliometrics is one of the rare truly interdisciplinary research fields extended to almost all scientific fields. Bibliometric methodology comprises components from mathematics, social sciences, natural sciences, engineering and even life sciences.

Periodicals are considered to be the most important medium in which the progress of science is regarded. Though information is available in a variety of forms, Periodicals are the main carriers of nascent information and play an important role in the dissemination of information. Scientists are interested in exhibiting their thought and ideas through articles in periodicals which act as the primary media of communication (**Gopikuttan & Hima, 2010**). The present study is to provide continent wise Mathematics periodicals published in Ulrich's Periodical Directory.

## **Periodicals**

The term periodical refers to publication such as magazines, involves, newspapers. Periodicals are usually published relatively frequently and in an ongoing manner year after year. Periodicals are not limited to the print format some periodicals are published as online, digitized information residing in a remote database or in CD-ROM or other optical disc format.

## **Bibliometrics**

Bibliometrics as a complex of mathematical and statistical methods used to analysis bibliographical characteristics of documents. Bibliometrics is a set of techniques devoted to the quantitative analysis of scientific and technical activities.

## **Mathematics**

Mathematics is the study of topics such as quantity (numbers), structure, space, and change. There is a range of views among mathematicians and philosophers as to the exact scope and definition of mathematics.

## **Review of Literature**

Khparde V S (2011) she studied the pattern of information use by researcher in the field of library and information science. It is based on the references appended to International Journal of "Library Hi Tech" during 2005-2009. The present study is based on 3876 references appended to 247 articles contributed by the authors Library Hi Tech. In Authorship pattern it was found that Solo Research is Predominant than Collaborative Research. The degree of research collaboration was calculated and it was found that the single authorship trend increased gradually in Library Hi Tech.

Khparde V S (2011) stated in study "Bibliometric Study of Electronic Journal of Academic and Special Librarianship." that single author contributions have dominated the journal with 47.95% of contributions, and in geographical based distribution of articles India have occupied the top position with 28.41% publications.

Khparde V S (2013) her paper conducted the Bibliometric Analysis of Research Publication of Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, from 1975 to 2012. 774 research publications were analysed from 144 journals. The study examines year-wise distribution of papers, authorship pattern, journal in which author published.

Khparde and Pawar (2013) studied the authorship pattern and author's collaborative research in Information Technology with a sample of 17917 articles collect from LISA during 2000-2009. The average number of authors per article is 1.80. In the study the degree of collaboration (C) during the overall 10 years (2000-2009) is 0.71, but the year wise degree of collaboration is almost same in all the years of mean value 0.49. According to 10 years of period, the multi- authored articles are higher and predominant than single author.

Fawaz Alhamdi and Vaishali Khparde (2015) Analyzed Authorship pattern in cloud computing research in LISTA . They collect 108 articles during the year 2009 to 2013. In this study the number of contributions found to be the highest is 24 in the year of 2012. The rate of growth of publication highly decreased from the rate of 0.693 in 2010 to 0.193 .in 2013 whereas the corresponding the Doubling time for different years gradually increased from 1 in 2010 to 3.95 in 2013.

## **OBJECTIVE**

- To identify the continental with country wise distribution of publications.

## **SCOPE AND LIMITATION OF THE STUDY**

The present study is to provide a continental of Mathematics Periodicals Published all over the world represented in Ulrich's Periodical Directory. A total number of 2174 Periodicals were identified in the directory from the discipline of Mathematics

## **METHODOLOGY**

The lists of periodicals published in the fields of Mathematics were collected from the latest (48th) edition of Ulrich international periodical directory 2010. These have been classified grouped and analyzed to find the various dimensions of the study.

## **DATA ANALYSIS AND INTERPRETATIONS**

This analysis covers the Periodicals of Mathematics at continent level. There are seven continents, but here the researcher has taken only six continents because the last continent of Antarctica does not have any contribution to the publications of this area. So for this part of analysis, researcher has selected continents of Europe, North America, Asia, Australia, South America and Africa. The data will be analyzed using the descriptive statistics.

**Table No. 1 Continent wise Mathematics Periodicals**

Sr. No.	Continents	Contributing Countries	No. of Periodicals	%
1	Africa	10	31	1.43
2	Asia	28	514	23.64
3	Europe	33	922	42.41
4	North America	6	573	26.36
5	South America	8	59	2.71
6	Australia and Oceania	3	42	1.93
7	Not Mentioned		33	1.52
	<b>Total</b>		<b>2174</b>	<b>100</b>

Table No. 1 reveals the Continents wise analysis of Periodicals of different continents. At the comprehensive level, the European continent stood in the first place with the highest publication i.e. 42.41% (922) and another 56.07% Periodicals published in other five continents i.e. North American, Asian, South American, and Australian & African Continent. And 1.52% Periodicals countries are not mentioned. African continent stands at the last position.

**Table No. 2 European Continent-wise Distribution of Periodicals**

Sr. No	European Continent	No. of Periodicals	%				
				18	Slovakia	8	0.87
1	United Kingdom	163	17.68	19	Austria	7	0.76
2	Germany	158	17.14	20	Greece	7	0.76
3	Netherlands	148	16.05	21	Lithuania	5	0.54
4	Switzerland	56	6.07	22	Belarus	5	0.54
5	France	52	5.64	23	Moldova	4	0.43
6	Romania	44	4.77	24	Macedonia	4	0.43
7	Poland	43	4.66	25	Norway	4	0.43
8	Italy	41	4.45	26	Slovenia	4	0.43
9	Spain	37	4.01	27	Sweden	4	0.43
10	Bulgaria	21	2.28	28	Azerbaijan	4	0.43
11	Croatia	18	1.95	29	Belgium	4	0.43
12	Hungary	15	1.63	30	Bosnia & Herzegovina	4	0.43
13	Denmark	13	1.41	31	Ireland	2	0.22
14	Serbia	13	1.41	32	Kosovo	2	0.22
15	Czech Republic	12	1.3	33	Kazakhstan	1	0.11
16	Finland	10	1.08	34	Estonia	1	0.11
17	Portugal	8	0.87		<b>Total</b>	<b>922</b>	<b>100</b>

It is observed from the Table No. 2 that, out of 922 European periodicals, United Kingdom (U.K) has published highest periodicals i.e.163 (17.68%), Germany published 158 (17.14%) periodicals, Netherland published 148 (16.05%) periodicals, and each periodicals published by Kazakhstan & Estonia(0.44%)

**Table No. 3 North American Continent-wise Distribution of Periodicals**

Sr. No	North American Continent	No. of Periodicals	%
1	United States	515	89.88
2	Canada	38	6.63
3	Mexico	13	2.27
4	Cuba	4	0.70
5	Costa Rica	2	0.35
6	Barbados	1	0.17
	<b>Total</b>	<b>573</b>	<b>100</b>

It is observed from Table No.3 that 573 periodicals on Mathematics were published by North American Continent, Six North American countries published Mathematics periodicals .United States (USA) has published 515(89.88 ) periodicals, Canada 38 (6.63), Mexico 13 (2.27), and other 3 countries published 7 (1.22) periodicals.

**Table No. 4: Asian Continent-wise Distribution of Periodicals**

Sr. No	Asian Continent	No.of Periodicals	%		Sr. No	Asian Continent	No.of Periodicals	%
1	India	98	19.07		15	Israel	4	0.78
2	Japan	84	16.34		16	Hong Kong	3	0.58
3	Singapore	81	15.76		17	Armenia	3	0.58
4	Russian Federation	80	15.56		18	Mongolia	2	0.39
5	China	68	13.23		19	Philippines	2	0.39
6	Korea	14	2.72		20	Thailand	2	0.39
7	Turkey	12	2.33		21	Lebanon	2	0.39
8	Georgia	10	1.95		22	Saudi Arabia	2	0.39
9	Pakistan	9	1.75		23	Tajikistan	1	0.19
10	Malaysia	9	1.75		24	Vietnam	1	0.19
11	Taiwan	8	1.56		25	Indonesia	1	0.19
12	Iran	7	1.36		26	Comoros	1	0.19
13	Jordan	5	0.97		27	Mongolia	1	0.19
14	Uzbekistan	4	0.78			<b>Total</b>	<b>514</b>	<b>100</b>

It is observed from Table No.4 that, 27 Asian Countries published 514 periodicals in the subject Mathematics, India has ranked first with 98(19.07%) periodicals, Japan goes to second rank i.e. 84 (16.34%) periodicals, Singapore goes to third rank i.e. 81 (15.76%) periodicals and single periodicals were published by Tajikistan, Vietnam, Indonesia, Comoros, Mongolia.

**Table No. 5: South American Continent-wise Distribution of Periodicals**

Sr. No	South American Continent	No. of Periodicals	%
1	Argentina	20	33.90
2	Brazil	15	25.42
3	Chile	9	15.25
4	Colombia	7	11.86
5	Venezuela	4	6.78

6	Uruguay	2	3.39
7	Peru	1	1.69
8	Ecuador	1	1.69
	<b>Total</b>	<b>59</b>	<b>100</b>

It is observed from Table No.5 out of 8 South American Countries, Argentina has published highest periodicals i.e.20 (33.90%), Brazil published 15(25.42%) periodicals, and Chile published 9 (15.25%) periodical Peru and Ecuador published 1(1.69) periodicals each.

**Table No. 6 Australian Continent -wise Distribution of Periodicals**

Sr. No	Australian Continent	No.of Periodicals	%
1	Australia	30	71.43
2	New Zealand	11	26.19
3	Papua New Guinea	1	2.38
	<b>Total</b>	<b>42</b>	<b>100</b>

It is observed from the Table No. 6 that in Australian Continent -wise Distribution of Periodicals, Three countries published Mathematics periodicals i.e. Australia, New Zealand and Papua New Guinea Australia has published highest periodicals i.e. 30 (71.43 %), New Zealand published 11(26.19 %) and one periodical Published 1 (2.38) respectively.

**Table No. 7 African Continent -wise Distribution of Periodicals**

Sr. No	African Continent	No. of Periodicals	%
1	Egypt	9	29.03
2	South Africa	7	22.58
3	Algeria	4	12.90
4	Nigeria	4	12.90
5	Cabo Verde	2	6.45
6	Botswana	1	3.23
7	Madagascar	1	3.23
8	Lesotho	1	3.23
9	Ghana	1	3.23
10	Tanzania	1	3.23
	<b>Total</b>	<b>31</b>	<b>100</b>

It was seen from the Table No.7 periodicals on Mathematics were published by African Continent, 10 African countries published Mathematics periodicals . Egypt has published 9(29.03) periodicals, South africa 7 (22.58), Algeria and Nigeria published 4 (12.90)periodicals each, Cabo Verde 2 (6.45), and Botswana, Madagascar, Lesotho, Ghana, Tanzania published 1(3.23) periodicals each.

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