

Research Productivity of Faculty Members in Urumu Dhanalakshmi College: A Scientometric Study

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Abstract

The bibliometric and scientometric studies are frequently used to assess research publications and to generate information that could be used by policy makers and experts. This study has proven to be a useful tool in the assessment of research publication of faculty. Taking into account the Scientist's participation in scientific collaboration, publication and productivity pattern have been calculated. The present study aims to analyze the research productivity of faculty in the Urumu Dhanalakshmi College, Trichy, India from 1994 to 2016 indexed by Google Scholar. The study has examined 106 publications during the study period. The aim of this study was to provide a profile of our college. This analysis also found the year-wise distribution of publication, most prolific author, journal-wise distribution and gender-wise distribution of authors.

Keywords: Bibliometrics, scientometrics, collaboration

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INTRODUCTION

In academic and scientific work, publication is the chief means of communicating research, a primary means of recognition and reward and hence a central social process in the Institutions. Therefore, it is through publication the scientists receive professional recognition and esteem as well as promotion, advancement and funding for future research. Publication is so central to productivity in research that the work becomes 'a work' only when it takes a conventional, physical (that is published) form, which can be received, assessed and acknowledged by the scientific community. Hence publication is a social norm in a public sense and serves as a tool for the betterment of the individuals. After publication only, it can be called as research and can be fixed or judged and acknowledged by the scientists in the society. It could be seen clearly from this study discussion that bibliometric analysis is an important tool in analyzing any discipline. By keeping this view in mind, this study intends to undertake the study on research publications of faculty members in the Urumu Dhanalakshmi College, Trichy, India [1].

OBJECTIVES OF THE STUDY

The main objectives were framed to find out the:

1. Year-wise distribution of publications;

2. Gender-wise distribution of faculty members;
3. Ranking of authors based on publications;
4. Productivity of authors based on Lotka's law;
5. Journal-wise distribution of publications;
6. Institution-wise collaboration research.

METHODOLOGY

The main objective of the study was to make an assessment; in quantitative terms with respect to the publications from the Urumu Dhanalakshmi College, Trichy, India during the period 1994–2016. Google Scholar was used as the main source of data. A total of 106 publications formed the basic data for this study. All the bibliographic details of publications were transferred to spreadsheet application. After validation, the bibliographic data were analyzed as per the requirement of the researcher.

YEAR-WISE DISTRIBUTION OF PUBLICATIONS

Year-wise distribution of publications is an important indicator of publication productivity of an institution. Table 1 clearly indicates the year-wise distribution of publications during the study period 1994–2016. The year-wise

productivity analysis of the published literature indicates that 2014 was the most productive year with 19 publications followed by 2016 with 18 publications and 2015 with 16 publications. A total of 106 publications were published in the Urumu Dhanalakshmi College, Tiruchirappalli, India [2].

Table 1: Year-wise Distribution of Publications.

Year	Publications	Percentage
1994	1	0.94
1997	1	0.94
1999	1	0.94
2000	4	3.77
2005	1	0.94
2006	1	0.94
2007	4	3.77
2008	2	1.89
2009	5	4.72
2010	3	2.83
2011	8	7.55
2012	14	13.21
2013	8	7.55
2014	19	17.92
2015	16	15.09
2016	18	16.98
	106	100

GENDER-WISE DISTRIBUTION

Most of the publications in Urumu Dhanalakshmi College, Trichy, India were contributions of male faculty with 23 (75%) publications and the rest (25%) were from female faculty (Figure 1).

RANKED LIST OF MOST PROLIFIC CONTRIBUTOR

The analysis of research performance of an individual scientist is one of the factors determining one’s intellectual caliber in the given discipline or sub-branches of the same field to prepare articles. It is to highlight the empirical findings by focusing the reasons for the various explanatory variables. It could be observed that some scientist may prepare and publish the papers individually by their own effort without seeking the assistance of other coscientists. The intellectual contributions of the scientists could be viewed from the articles in which their names are enrolled. In this section the individual scientists who have published papers has been measured on par with the performance according to the number of publications. Table 2 indicates ranking of authors by number of publications. Dr. P. Sakthivel is the most productive author contributing 15 publications followed by Dr. K. Ganeshamurthy with 14 publications.

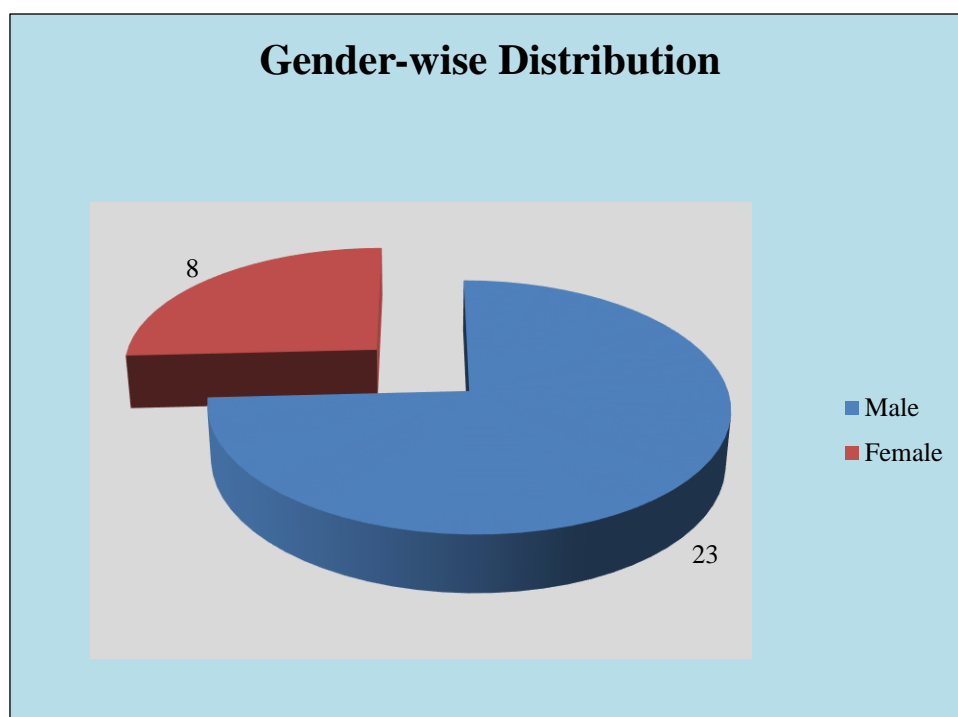


Fig. 1: Gender-wise Distribution.

Table 2: Ranked List of Most Prolific Contributor.

Name of the faculty	Department	Records	Percentage
Dr. P. Sakthivel	Physics	15	14.15
Dr. K. Ganesamurthy	Physics	14	13.21
Dr. S. Jeyachitra	Library Science	6	5.66
Dr. R. Krishnakumar	Mathematics	6	5.66
Dr. R. Thiagarajan	Physics	6	5.66
Dr. P. Dharmalingam	Chemistry	6	5.66
Dr. M. Perumal	Economics	4	3.77
Dr. A. Pasupathy	Chemistry	4	3.77
V. Vasudevan	Mathematics	3	2.83
Dr. S. Sekar	Commerce	3	2.83
Dr. S. Seshadri	Physics	3	2.83
Dr. R. Sambasivam	Physics	3	2.83
Dr. N. Jamaluddin	Commerce	3	2.83
Dr. M. Kalyanasundaram	Commerce	3	2.83
Dr. A. Jebamalairaja	Economics	3	2.83
S. Nirmala	Chemistry	2	1.89
R. Swaminathan	Computer Science	2	1.89
Dr. Suhashini Ernest	Physics	2	1.89
Dr. S. Ellango	Commerce	2	1.89
Dr. S. Ananthalakshmi	Chemistry	2	1.89
Dr. P. Senthil	Economics	2	1.89
Dr. K. Kamar Jahan	Economics	2	1.89
Dr. N. Subramani	Commerce	2	1.89
R. Ramachandran	Computer Science	1	0.94
Dr. V. Periasamy	Commerce	1	0.94
Dr. S. Chandraleka	Chemistry	1	0.94
Dr. S. Uma Maheswari	Commerce	1	0.94
Dr. N. Vembu	Chemistry	1	0.94
Dr. Mohan	Mathematics	1	0.94
Dr. A. Sebastin	Chemistry	1	0.94
Dr. D. Christy Selvarani	Commerce	1	0.94
		106	100

PRODUCTIVITY OF AUTHORS BASED ON LOTKA'S LAW

In the present study the productivity of faculty members was examined. At the first observation, the analyzed data invalidate Lotka's findings that the proportions of all contributions that make a single paper contributed authors contribute 25.8% of the total authors. To probe further, Lotka's Chi-Square model was applied. It was assumed that the single paper contributed authors constitute

about 25.8% of total authors [3]. The computed Chi-Square value was 177.68 (Table 3).

Journal-wise Distribution of Publications

The study revealed that the journal-wise distribution of publications for the study period (1994–2016) were in 106 journals [4]. The major portion was covered by the International Journal of Research in Pharmacy and Chemistry and Nuclear Physics A with four publication (Table 4).

Table 3: The Lotka's Law of Scientific Productivity.

No. of Contributions	Observed No. of author with 'n' publication (an)	Observed percentage of author $100 \cdot a_n / a_1$	Expected No of author $(1/n^2)$	Expected percentage of authors predicted by Lotka's $a_1 \cdot 1/n^2$	(F-P) ² /P
1	8	100	100	8	0.00
2	8	100	25	2	18.00
3	7	87.5	11.11	0.8888	42.02
4	2	25	6.25	0.5	4.50
6	4	50	2.78	0.2224	64.16
14	1	12.5	0.51	0.0408	22.55
15	1	12.5	0.44	0.0352	26.44
					177.68

Table 4: Journal-Wise Distribution of Publications.

Source title	Publications	Percentage
International Journal of Research in Pharmacy and Chemistry	4	3.77
Nuclear Physics A	4	3.77
Acta Crystallographica Section E	3	2.83
Agricultural Economics Research Review	3	2.83
Brazilian Journal of Physics	3	2.83
Indian Journal of Physics.	3	2.83
International Journal ChemTech Research	3	2.83
International Journal of Management Research and Reviews	3	2.83
International Journal of Scientific and Research Publications	3	2.83
Journal of American Science	3	2.83
Pelagia Research Library	3	2.83
Advances in Applied Research	2	1.89
Cauvery Research Journal	2	1.89
Chemical Science Transactions	2	1.89
Global Journal of Arts & Management	2	1.89
Indian Journal of Applied Research	2	1.89
Indian Journal of Pure & Applied Physics	2	1.89
International Journal of Engineering Research & Applications	2	1.89
International Journal of Contemporary Research in Social Science	2	1.89
International Journal of Advanced Research in Management	2	1.89
International Journal of Chemical and Analytical Science	2	1.89
International Journal of Computer Applications	2	1.89
International Journal of Mathematical Archive	2	1.89
International Journal of Pure and Applied Physics	2	1.89
International Journal of Scientific & Engineering Research	2	1.89
Journal of Advancements in Library Sciences	2	1.89
Recent Research in Science and Technology	2	1.89
SMART Journal of Business Management Studies	2	1.89
Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy	2	1.89
Turkish Journal of Physics	2	1.89

Ain Shams Engineering Journal	1	0.94
Bulletin of the Astronomical Society of India	1	0.94
CAB Direct	1	0.94
Current Trends in Information Technology	1	0.94
Indian Journal of Science & Technology	1	0.94
Indian Journal of Science	1	0.94
Indo American journal of Pharmaceutical Research	1	0.94
International Journal of Contemporary Mathematical Sciences	1	0.94
International Journal of Engineering Research & Science & Technology	1	0.94
International Journal of Fuzzy Mathematical Archive	1	0.94
International Journal of Applied Mathematical Analysis and Applications	1	0.94
International Journal of Business Economics and Management Research	1	0.94
International Journal of Engineering Sciences & Research Technology	1	0.94
International Journal of Management	1	0.94
International Journal of Management, IT and Engineering	1	0.94
International Journal of Pharmacy & Life Sciences	1	0.94
International Journal of Science and Research	1	0.94
International Journal of Science, Engineering and Technology	1	0.94
International Mathematical Forum	1	0.94
International Review of Pure and Applied Mathematics	1	0.94
Journal of Advanced Studies in Topology	1	0.94
Journal of Biologically Active Products from Nature	1	0.94
Journal of Library Advancements	1	0.94
Journal of Materials Science: Materials in Electronics	1	0.94
Journal of Pharmacy Research	1	0.94
Management Research Review	1	0.94
Modern Physics Letters A	1	0.94
International Journal of Recent Scientific Research	1	0.94
International Journal for Light and Electron Optics	1	0.94
Procedia Economics and Finance	1	0.94
Solar Physics	1	0.94
Superlattices and Microstructures	1	0.94
Voice of Research	1	0.94
	106	100

Collaborative Research with Other Institutions

Table 5 indicates institution-wise collaboration of research productivity. The number of contribution may vary on their nature and latest functions. Institutions are considered as indispensable sources for science and technological research output in journals. The faculty members of the Urumu

Dhanalakshmi College, Trichy, India collaborated with 37 institutions [5]. The first place was attained by Trichy Engineering College, Trichy, India with 14 publications and the second place was attained by J. J. College of Engineering and Technology, Tiruchirappalli, India with 12 publications. The rest of publication is shown in Table 5.

Table 5: Collaborative Research with Other Institutions.

Name of the institution	Publications
Trichy Engineering College, Tiruchirappalli	14
J. J. College of Engineering and Technology, Tiruchirappalli	12
Arignar Anna Government Arts College	9
National College, Trichy	5
Shanmugha College of Engineering, Thanjavur, India	5
A.A. Government Arts College, Musiri Tk	4
Bishop Heber College, Tiruchirappalli	4
Annamalai University, Annamalaiagar, Chidambaram	3
Bharathidasan University, Tiruchirappalli	3
Centre for Photonics and Nanotechnology, Sona College of Technology, Salem	3
Indian Institute of Astrophysics, Kodaikanal	3
J.J. College of Arts and Science, Pudukkottai	3
Periyar University, Salem	3
Roever College of Engineering and Technology, Perambalur	3
Anbil Dharmalingam Agricultural College and Research Institute, Trichy	2
ISSRE, Tennur, Trichy	2
Kongunadu Arts and Science College, Coimbatore	2
SASTRA University, Thanjavur	2
School of Life Sciences, Bharathidasan University	2
A.V.V.M Pushpam College, Poondi	1
Arumugam Pillai Seethaiammal College, Tirupathur	1
Cauvery College for Women, Trichy	1
Christ University, Bangalore	1
MAM College of Engineering, Anna University, Tiruchirappalli	1
Manonmaniam Sundaranar University, Tirunelveli	1
Mookambigai College of Engineering, Keeranur	1
Multimedia University, Malacca, Malaysia	1
Peiyar EVR College, Tiruchirappalli, Tamil Nadu	1
Raghunathpur College, Purulia	1
Rajalakshmi Engineering College, Thandalam	1
RKM Vivekananda College (Autonomous), Chennai	1
School of Bioscience and Technology, VIT University	1
Shri Angalamman College of Engineering and Technology, Siruganoor, Tiruchirappalli	1
Thanthai Hans Roever College, Perambalur	1
University of Aberdeen, Aberdeen AB24 3UE, Scotland	1
University of Madras, Guindy Campus, Chennai	1
Vivekanandha College of Arts and Science for Women, Elayampalayam	1

CONCLUSION

Bibliometrics are now used in quantitative research assessment exercises of academic output which is starting to threaten practice-based research. This study calculated the

publication productivity of faculty members of the Urumu Dhanalakshmi College, Trichy, India with special reference to journal articles. Quantity and quality of the publications are one of the major factors considered for ranking

of colleges and the publication output of the faculty members has a major role. Gender-wise analysis revealed that the female contributors were very less. Therefore attention may be taken to increase the number of female contributors. There is a need to encourage and motivate the faculty members for paper publication by awarding gifts and funds etc. To deliver high-quality research output, it is essential that the college and research organizations make available the required facilities and allocate some funds.

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