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BIBLIOMETRIC ANALYSIS OF RESEARCH PUBLICATION OF VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI, KARNATAKA

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ABSTRACT

The paper analyses the research publication of Visvesvaraya Technological University, Balagavi, Karnataka, as reflected in Scopus database. Analysis of the publications revealed that majority of the publications were articles (n=1322,64.49%) and conference papers (n= 589(28.73%). There is growth of publications from 25 in 2012 to 565 in 2021. Research on Engineering (n=955) and Computer Science (n=667) subjects are done primarily followed by material science(n=615), physics and Astronomy (n=390) and chemistry (n= 315). Most productive authors are Afzal, A (n=120) and Shetty, A P (n=90). Materials Today Proceedings is the main publication in which most of the research publications from VTU are published.

Keywords: Bibliometrics, Computer Sciences, Engineering Instructions, Engineering Sciences
Scopus, Visvesvaraya Technological University

1. INTRODUCTION

A bibliometric analysis is an efficient way to quantify the quality of published work for organizations, authors, and countries by analyzing the data obtained from several indices and converting it into numerical Figures (Mohsen et al., 2017). Traditionally, bibliometrics is known as "the measurement of patterns in written communication" (Broadus, 1987). However, it involves not only the characterization of publications and citations but also the evaluation of variables that include the number of scientific publications and citations that each author, research group, or institution has over time (De la Flor-Martínez et al., 2017)

In current knowledge-driven societies, universities are increasingly involved in outreach activities that extend beyond teaching and research (Forliano et al., 2021). In this regard, universities have started to become more open towards societies, performing different kinds of activities (e.g., knowledge dissemination, technological innovation, social innovation, advisory services, or entrepreneurship), with government support or not, at a local, regional, or global level (Guerrero & Urbano, 2013)

The institutions these days are keen to position themselves amongst their peers. This speaks volumes for the institutional aspirations to move towards quality, and augurs well for

the future evolution of higher educational institutions. Hence, there is enough justification for an increased assessment of the Quality of the country's educational institutions. Traditionally, these institutions assumed that Quality could be determined by their internal resources, viz., faculty with an impressive set of degrees and experience detailed at the end of the institute's admission brochure, number of books and journals in the library, an ultra-modern campus, and size of the endowment, etc., or by its definable and accessible outputs, viz., efficient use of resources, producing uniquely educated, highly satisfied and employable graduates.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI, KARNATAKA

Visvesvaraya Technological University (VTU) is a public state university in Belagavi, Karnataka established by the Government of Karnataka. The university is named after Sri M.Visvesvaraya, an Indian civil engineer, statesman and the 19thDiwan of Mysore. All colleges in the State of Karnataka imparting education in Engineering or Technology, are required to be affiliated with Visvesvaraya Technological University, Belagavi.

2. Materials and Methods

For analyzing the research publication of Visvesvaraya Technological University, Balagavi, Karnataka, Scopus data base for retrieving the publications during the period 2012-2021. Following search strategy for retrieving the publications on 08thDecember 2021. (AFFIL(visvesvaraya AND technological AND university) AND PUBYEAR > 2011 AND PUBYEAR < 2022).

Review of Literature:

Studies have been reported from different countries like Spain, (De la Flor-Martínez et al., 2017) on different subject universities. From India few studies are undertaken to know the research output of organizations. (Singh, 2015) analyzed the research performance of the Indian Institute of Technology, Delhi in terms of publications, collaboration and international participation, and major research areas of study. Physics, Mathematics, and Material Science are the top research areas of IIT, Delhi.(Dsouza, n.d.) carried out a Bibliometric study of to know the research publication trend St Joseph Engineering College, Mangaluru, Karnataka indexed in Scopus from 2004 to 2019. (Bachalapur & Hugar, n.d.) carried out a Bibliometric analysis of publications published by the BLDEA's V P Dr.P.G.Halakatti College of Engineering and Technology, Vijayapur for the period from 2001 to 2019.No studies were on Visvesvaraya Technological University, Belagavi, Karnataka. Hence an attempt is made in this paper to know the research output of VTU as indexed in Scopus database for the period 2012 to 2021.

3. Objectives of the Study:

The main objective of the study is to present research literature of Visvesvaraya Technological University, Belagavi, Karnataka and make the quantitative assessment of status of publications by analyzing the various features, The specific objectives are:

- To examine the growth of research literature of Visvesvaraya Technological University, Belagavi, Karnataka for the last decade [2012-2021]
- To study the documents type of the research publications

- To study the research profile of most productive authors
- To study the research output in context of different subject categories

4. RESULTS AND DISCUSSION

Type of Documents Published

During 2012-2021 Visvesvaraya Technological University, Belagavi, Karnataka VTU contributed 2050 items under nine different document categories. Table-1 shows document type publication as indexed in Scoups. Of these 1322 (64.49%) were articles, 589 (28.73%) were conference papers and 56 (2.73%) were Book Chapter followed by Reviews (n=53, 2.59%). Data Paper (n=10, 0.49%), Editorial (n=10, 0.49%), Erratum (n=7, 0.34%), Letter (n=2, 0.10%) and Book (n=1, 0.05%) were the document types found on analysis of the literature.

Table-1: Document Type Publications

Document Type	TP	% of TP
Article	1322	64.49
Conference Paper	589	28.73
Book Chapter	56	2.73
Review	53	2.59
Data Paper	10	0.49
Editorial	10	0.49
Erratum	7	0.34
Letter	2	0.10
Book	1	0.05
	2050	

Growth Pattern of Publication:

The analyses of 2050 publication during 2012-2021 indicates that the number of papers published in 2012 grew more than twenty two times compared to papers in 2021. The yearly output is depicted in Figure-1 which indicates that the publications increased steadily from 2012 to 2021.

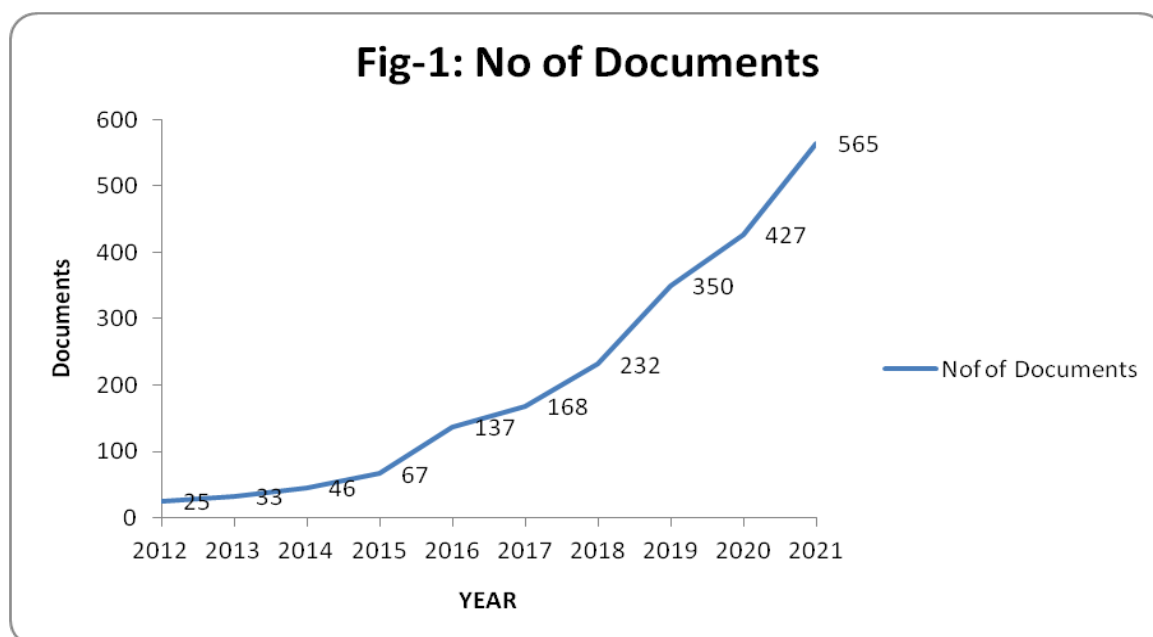


Table-2: Subject- wise break up of publications Big Data

Sl No	Scopus Categories	TP
1	Engineering	955
2	Computer Science	667
3	Materials Science	615
4	Physics and Astronomy	390
5	Chemistry	315
6	Chemical Engineering	181
7	Mathematics	162
8	Energy	161
9	Environmental Science	141
10	Biochemistry, Genetics and Molecular Biology	94
11	Business, Management and Accounting	68
12	Decision Sciences	66
13	Social Sciences	61
14	Medicine	60
15	Earth and Planetary Sciences	46
16	Agricultural and Biological Sciences	36
17	Pharmacology, Toxicology and Pharmaceutics	31
18	Multidisciplinary	29
19	Immunology and Microbiology	20
20	Economics, Econometrics and Finance	9
21	Arts and Humanities	7
22	Health Professions	7
23	Neuroscience	6
24	Psychology	3
25	Nursing	1

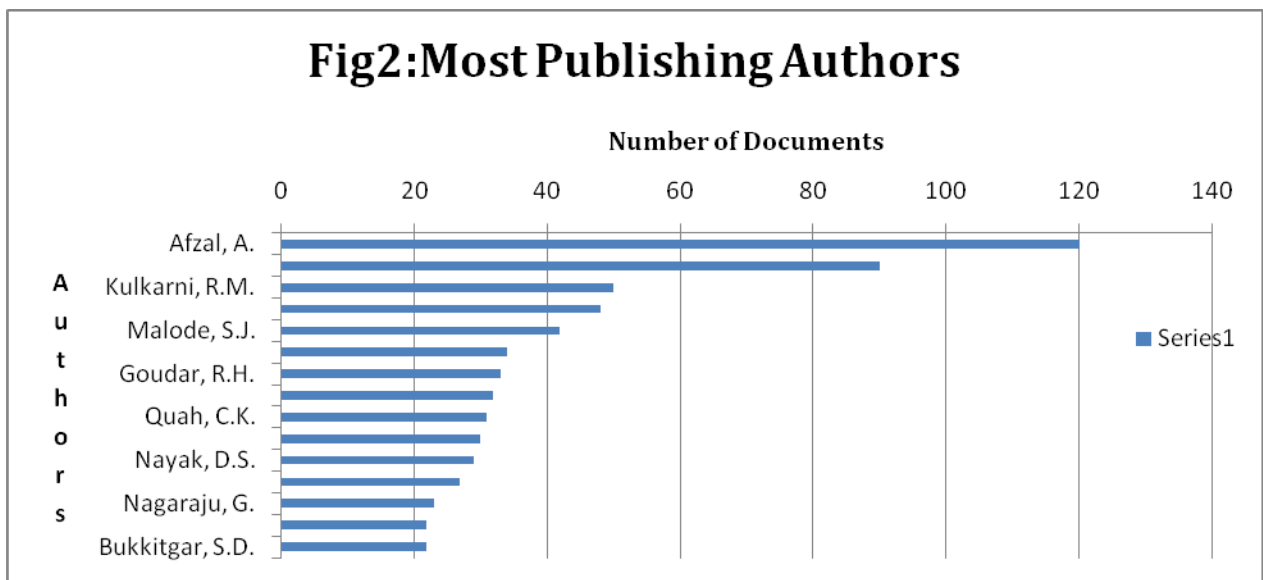
Table – 2 shows the subject wise break up of documents. It is evident from the analysis that Engineering (n=955), Computer Science (n=667) and Material Science (n=615) are the main subjects where more numbers of documents are published.

As shown in Table-3 the most publishing authors were Afzal, A(n=120) . and Shetti, N.P(n=90) publications followed by Kulkarni, R.M. (n=50) and Rangappa (n=48) documents to their credit.

Table-4 shows the ranking of publications based on the number of documents publishes was done and it was found that Lecture Materials Today Proceedings with 127 documents was ranked first followed by Advances in Intelligent Systems and Computing (50, Rank=2 with 2.44 share) and Aip Conference Proceedings (43, Rank=3 with 2.10 share).

Table-3: Most Publishing Authors in VTU

Sl No	Author Name	Documents in Scoups
1	Afzal, A.	120
2	Shetti, N.P.	90
3	Kulkarni, R.M.	50
4	Rangappa, D.	48
5	Malode, S.J.	42
6	Reddy, K.R.	34
7	Goudar, R.H.	33
8	Chidan Kumar, C.S.	32
9	Quah, C.K.	31
10	Soudagar, M.E.M.	30
11	Nayak, D.S.	29
12	Reddy, N.	27
13	Nagaraju, G.	23
14	Aminabhavi, T.M.	22
15	Bukkitgar, S.D.	22



Funding agencies were ranked as shown in Table-5 and it was found that Visvesvaraya Technological University was the top ranked agency with 72 documents (Rank=1, with 3.51 share) followed by Department of Science and Technology, Ministry of Science and Technology, India (54, Rank=2 with 2.63 share) and Vision Group on Science and Technology (35, Rank=3, with 1.71 share).

Table-4: Source wise Publications

Rank	Publication Title	TP	% of TP
1	Materials Today Proceedings	127	6.20
2	Advances In Intelligent Systems And Computing	50	2.44
3	Aip Conference Proceedings	43	2.10
4	International Journal Of Innovative Technology And Exploring Engineering	30	1.46
5	International Journal Of Electrical And Computer Engineering	29	1.41
6	Lecture Notes In Electrical Engineering	27	1.32
7	Iop Conference Series Materials Science And Engineering	26	1.27
8	International Journal Of Engineering And Advanced Technology	23	1.12
9	ActaCrystallographica Section E Crystallographic Communications	21	1.02
10	International Journal Of Recent Technology And Engineering	20	0.98
11	Ceramics International	18	0.88
12	Journal Of Materials Science Materials In Electronics	18	0.88
13	Materials	17	0.83
14	Materials Research Express	17	0.83
15	Journal Of Physics Conference Series	16	0.78
16	Asian Journal Of Chemistry	15	0.73

Table-5: Funding Agency Wise Publications

Rank	Funding Agency	TP	% of TP
1	Visvesvaraya Technological University	72	3.51
2	Department of Science and Technology, Ministry of Science and Technology, India	54	2.63
3	Vision Group on Science and Technology	35	1.71
4	Deanship of Scientific Research, King Faisal University	34	1.66
5	Department of Science and Technology, Government of Kerala	20	0.98
6	University Sains Malaysia	19	0.93
7	Science and Engineering Research Board	17	0.83
8	University Grants Commission	16	0.78
9	Indian Institute of Science	15	0.73
10	All India Council for Technical Education	14	0.68
11	King Khalid University	14	0.68
12	King Mongkut's University of Technology North Bangkok	11	0.54
13	Taif University	11	0.54
14	Department of Biotechnology, Ministry of Science and Technology, India	10	0.49
15	King Saud University	10	0.49

5. Findings and Conclusion:

Scientometrics techniques are being used for a variety of purposes like determination of various scientific indicators, evaluation of scientific output, selection of journals for libraries and even forecasting the potential of a particular field. The present study reveals that the highest numbers of documents appeared in the area of Engineering and computer science. There is steady increase in the number of publications of Visvesvaraya Technological University, Belagavi, Karnataka.

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