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SCIENTIFIC PUBLICATION SCENARIO OF UTKAL UNIVERSITY AS REFLECTED IN SCOPUS DATABASE DURING 2001-2015 - A BIBLIOMETRICALLY APPRAISAL

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ABSTRACT

This paper investigates research papers published in Utkal University of Odisha from 2001 to 2015 and provides the quantitative and qualitative analysis of different departments of the University. Scientific performance is essentially a multidimensional



concept, which cannot be measured by a single universal indicator. This paper analyzes yearly growth pattern, author productivity, publications of different departments, type of documents, and degree of collaboration of papers published in Utkal University.

KEYWORDS :Utkal University,

Publications, Growth Rate.

INTRODUCTION

It is not enough to focus on the generation of knowledge, but it is also equally essential to spread and share it for the development of the people as well as for the benefit of the Nation. Mankind has always been instinctive towards progress. It is education which is a potent vehicle for social emancipation and economic reconstruction. Education or knowledge enriches human lives, advances human thinking, propagates new thought and enhances human capacity. For a knowledge society, knowledge generated through research is a critical national resource. It is not enough to focus on the generation of knowledge. It is equally essential to spread and share it. Time & situation are changeable

in nature. Knowledge is the highly organized intellectual product of human beings that includes personal experiences, skills, understandings of the different contexts in which we operate our activities. This recorded experience, data, information, scholarly communication, publications etc. helps for further growth of knowledge.

Now day's with the advance of web technologies, globalization has created both interrelated and interlinked opportunities for the scholars. The difficulties and struggles of today are the victories and joys of tomorrow. Scholarly publications focus the light on research works for new invention. It is very much important for the individual who uses it and also for the development of knowledge economy of the country. Universities and Research institutions play important role to fulfill this. Education is the power where future leaders are cultivated, and it helps scholars throughout the world transcending the boundaries of National origin, Race and Religion. Invention in science and technology has greatly influenced the course of human civilization. Scholarly publications play an important role in this innovation. They hold the key to future economic growth and social development for the country.

The Utkal University, established in the year 1943, is the seventeenth oldest University in India. This is a teaching-cum-affiliating University. There are at present twenty-seven Post-Graduate Departments located in the University Campus for Post-Graduate studies and research in various disciplines of Science, Humanities, Business Administration, Social Science, Law and Commerce. The total number of students in the P.G. Department of the campus at Vani Vihar is nearly 3,000. This is in fact the largest affiliating University in the country with approximately 267 affiliated Colleges (Degree Colleges-219, Professional College-44, and other Constituent Colleges-2) under its jurisdiction. At present the University has twenty-seven Post-Graduate teaching and research departments located within the campus and three constituent Institutions, viz. Directorate of Distance and Continuing Education, University Law College at Vani Vihar and M.S. Law College at Cuttack. Besides the regular courses, twenty-six sponsored courses are offered under the direct academic control of the P.G. Council of the University.

In this article an attempt has been made to analyze the papers to find out the yearly growth pattern, author productivity, publications of different departments, type of documents, and degree of collaboration of papers published in Utkal University during 2001 to 2015.

2.OBJECTIVES OF THE STUDY

Scholarly publications are mostly useful in research works and it is a sensitive indicator or tool for new emerging ideas in the subject. The value of scientific research will be more fruitful when the results are shared by others. The main objectives of the study are to find out the

- Subject wise productivity of Utkal University from 2001 to 2015;
- Document type;
- Year wise publications trends and its percentage from 2001 to 2015
- Authors productivity;
- Collaboration of Authors;
- Subject wise Analysis etc.

3. METHODOLOGY

The main thing in research is a good research design. Suitable methods and techniques should be adopted based on your research objectives, possible implications of results, overall environment and current knowledge, its utility, available resources and kinds of data required. Appropriate research

methodology is required for effective research. According to APJ Abdul Kalam in his book “Ignited Minds” says “Thinking is the capital, Enterprise is the way, and hard work is the solution”. In this study an attempt has been made to analyze the 942 papers published from Utkal University, Odisha during 2001 to 2015. For this purpose Scopus database has been used. It has been analyzed by using MS Access and MS Excel. Collecting, preserving & disseminating Scholarly content is very much fruitful for the growth of scientific literature and it should be done regularly yearly basis.

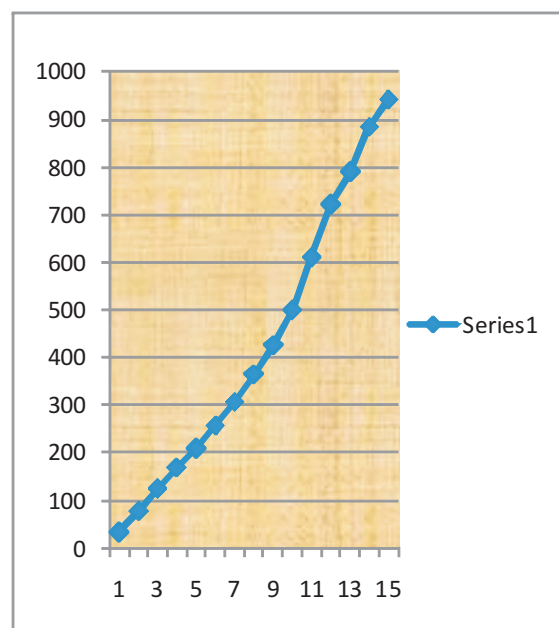
4. DATA ANALYSIS

The Analysis of papers has been made in the following tables:

Table-1: Year Wise Publications of Utkal University from 2001 to 2015

Sl No	Year	Paper Published	Cumulative Number of Articles
1	2001	35	35
2	2002	44	79
3	2003	47	126
4	2004	44	170
5	2005	41	211
6	2006	47	258
7	2007	50	308
8	2008	58	366
9	2009	61	427
10	2010	73	500
11	2011	112	612
12	2012	111	723
13	2013	68	791
14	2014	94	885
15	2015	57	942
Total		942	

**Fig: 1
Publication
s of Utkal
University
2001-2015**



Findings: It is found that about 942 papers have been published in Science and Technology by different departments of Utkal University. It shows that average 63 numbers of papers has been published per year. More number of scientific outputs is produced in the year 2011 & 2012. The cumulative numbers are increasing day by day.

Year Wise Growth Rate & Average GR

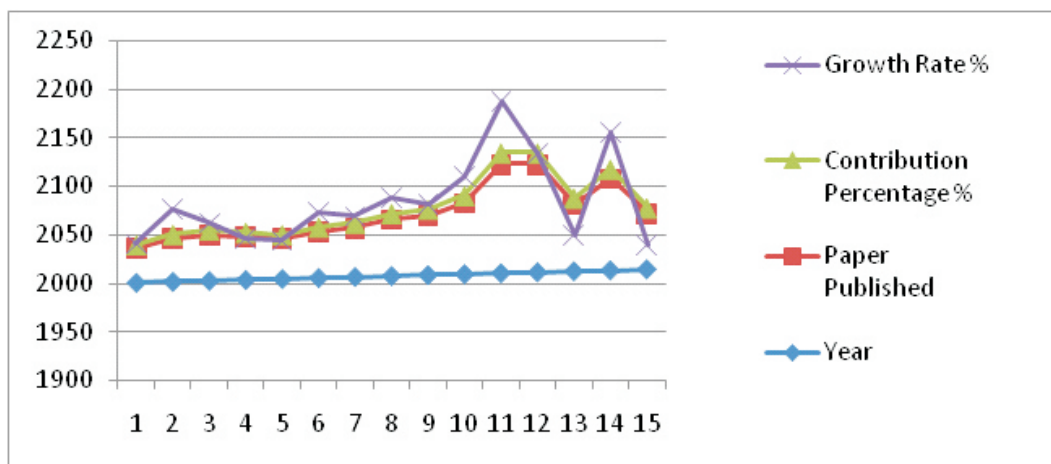
$$\text{Growth Rate Percent} = \frac{(\text{Present Value} - \text{Past Value})}{\text{Past Value}} * 100$$

Table 2 shows the year wise Contribution Percentage and Growth Rate of different types of papers published from Utkal University.

Table 2: Year Wise Contribution & Growth Rate

Sl No	Year	Paper Published	Contribution Percentage %	Growth Rate %
1	2001	35	3.72	
2	2002	44	4.67	25.71
3	2003	47	4.99	6.82
4	2004	44	4.67	-6.38
5	2005	41	4.35	-6.82
6	2006	47	4.99	14.63
7	2007	50	5.31	6.38
8	2008	58	6.16	16
9	2009	61	6.48	5.17
10	2010	73	7.75	19.67
11	2011	112	11.89	53.42
12	2012	111	11.78	-0.89
13	2013	68	7.22	-38.74
14	2014	94	9.98	38.24
15	2015	57	6.05	-39.36
Total		942	100	Average Growth Rate = 6.26

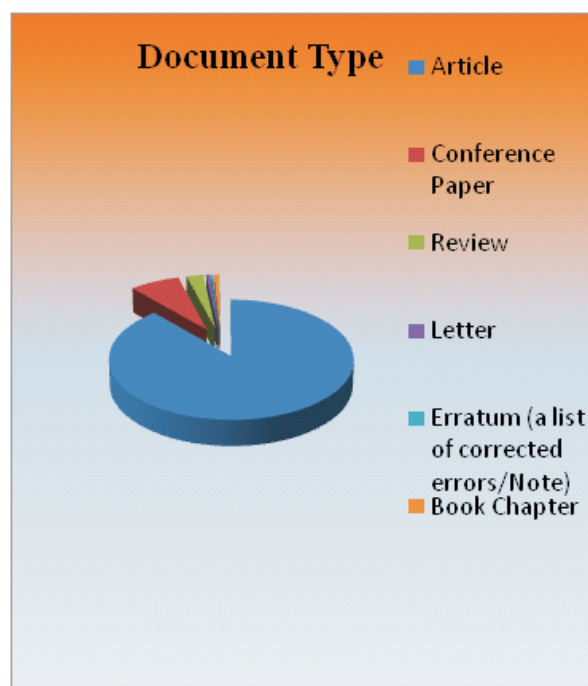
Fig: 2 Year wise Growth Rate



Findings: New Invention, Innovation, Research works do not move smoothly. Sometimes it may be done smoothly, sometimes the process move slowly. It is the law of nature. As the data has been retrieved towards the last of 2015, therefore all the required data for this year may not be completed. But in 2013 the data shows negative Growth Rate. Still then again publication output has been increased. It is calculated that Average Growth Rate Percentage is 6.26 % . Per year.

Table 3: Document Type

Sl No	Document Type	No of Papers	Percentage %
1	Article	835	88.64
2	Conference Paper	68	7.22
3	Review	23	2.44
4	Letter	5	0.53
5	Erratum (a list of corrected errors/Note)	3	0.32
6	Book Chapter	7	0.74
7	Short Survey	1	0.11
	Total	942	100

Fig: 3 Document Type

Findings: Generally in case of publications maximum number of papers is published in Article form following Conference papers and Review Letters etc. The articles are the main findings of Research work. It helps the scientists and new researchers the improvement in their field of interest.

Table 4: Department wise Publication % 2001-2015

Sl No	Department	Total	Total Contribution %
1	Anthropology	11	1.17
2	Biotechnology	44	4.67
3	Botany	109	11.57
4	Chemistry	144	15.29
5	Computer Science	42	4.46
6	Economics	7	0.74
7	English	3	0.32
8	Geology	68	7.22
9	Library and Information Science	11	1.17
10	Mathematics	44	4.67
11	PM and IR	12	1.27
12	Psychology	4	0.42
13	Physics	200	21.23
14	Pharmaceutical Sciences	146	15.5
15	Sociology	2	0.21
16	Statistics	27	2.87
17	Women's Education	5	0.53
18	Zoology	63	6.69
	Total	942	100

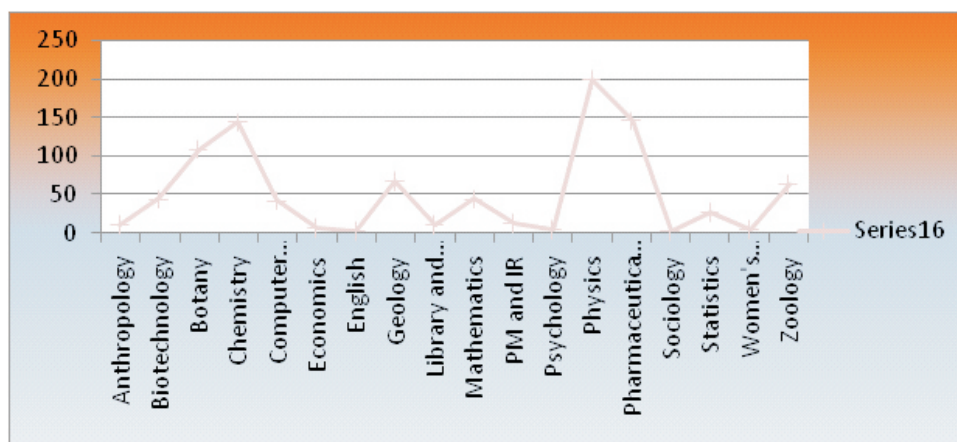


Fig: 4 Pictorial Representation of Department wise Publication 2001-2015

Findings: **The above table shows that publications of paper from different Departments under Utkal University have been increased day by day. More documents are in general subjects like Physics, Chemistry, Botany and Pharmaceutical Sciences. In 2001 to 2005 research in Pharmaceutical Sciences has not developed so much. But from 2006 onwards publications in this subject has been increased according to Scopus Database.**

Table 5: Subject wise & Document type publications of Utkal University 2001 to 2015

Sl No	Subject	Document Type							Total
		Conference Paper	Article	Review	Letter	Erratum	Book Chapter	Short Survey	
1	Advance Computing	1							1
2	Anthropology		8	2			1		11
3	Industrial Microbiology		2	3					5
4	Biochemistry		4						4
5	Biotechnology		40						40
6	Botany		102	3			2		107
7	Business Administration	1	6				1		8
8	Chemistry	2	139	3		1			145
9	Computer Science	30	9						39
10	Economics		7	1					8
11	English		1	2					3
12	Environmental Science		5						5
13	Geography		3						3
14	Geology		57		1	1		1	60
15	Library & Inf Sc.	2	8	1					11
16	Manag. and Inf. Technology		3						3
17	Mathematics	1	42						43
18	Mechanical Engineering	1							1
19	Pharmaceutical Sciences	2	139	3	1				145
20	Physics	25	170	2	2	1	1		201
21	Psychology		4						4
22	Sociology		2						2
23	Statistics	2	24	1					27
24	Textile Chemistry		1						1
25	Women's Education		2				2		4
26	Zoology	1	57	2	1				61
	Total	68	835	23	5	3	7	1	942

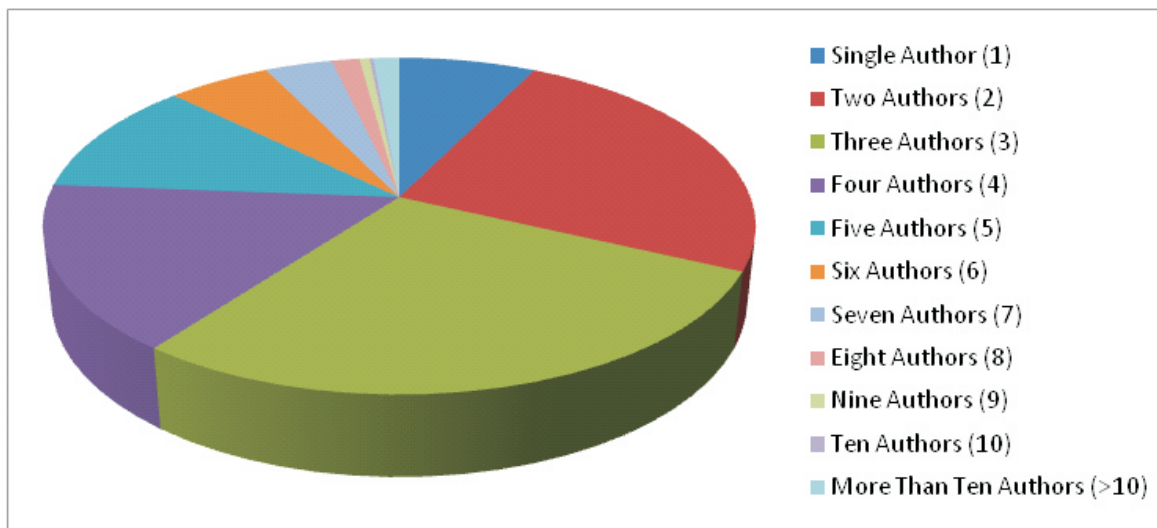
Findings: Maximum number of papers is published in article form, i.e. 835 out of 942 papers, equal to 88.64 % followed by conference paper, i.e. 68 means 7.22 % of total document. More papers have been published in Physics following Chemistry & Pharmaceutical Sciences and subjects related to them.

Table 6-Publications Year wise as well as by Collaboration of Authors 2001 to 2015

Year	Number of Authors											Total
	1 (One Author)	2 (Two Authors)	3 (Three Authors)	4 (Four Authors)	5 (Five Authors)	6 (Six Authors)	7 (Seven Authors)	8 (Eight Authors)	9 (Nine Authors)	10 (Ten Authors)	>10 (More Than Ten Authors)	
2001	4	5	17	3	4	0	0	1	0	0	1	35
2002	2	17	14	6	3	0	1	0	0	1	0	44
2003	7	13	12	8	4	2	0	0	0	0	1	47
2004	3	15	13	7	4	1	0	0	0	0	1	44
2005	4	14	8	6	3	1	3	0	0	0	2	41
2006	2	14	16	2	6	2	1	2	1	0	1	47
2007	3	11	8	11	7	6	4	0	0	0	0	50
2008	2	8	22	8	4	5	4	0	1	0	4	58
2009	2	12	18	10	7	5	4	0	1	1	1	61
2010	8	19	19	10	9	2	2	2	2	0	0	73
2011	4	25	29	27	12	3	8	4	0	0	0	112
2012	10	30	27	23	11	8	1	1	0	0	0	111
2013	6	14	21	10	10	6	0	1	0	0	0	68
2014	9	24	27	10	12	6	5	1	0	0	0	94
2015	3	11	16	9	8	5	1	2	0	0	2	57
Total	69	232	267	150	104	52	34	14	5	2	13	942

Table 7 Collaboration of Authors and Percentage of Publications

Number of Authors	Number of Publications	Percentage %	Cumulative Publications	Cumulative %
Single Author (1)	69	7.32	69	7.32
Two Authors (2)	232	24.63	301	31.95
Three Authors (3)	267	28.34	568	60.30
Four Authors (4)	150	15.92	718	76.22
Five Authors (5)	104	11.04	822	87.26
Six Authors (6)	52	5.52	874	92.78
Seven Authors (7)	34	3.61	908	96.39
Eight Authors (8)	14	1.49	922	97.88
Nine Authors (9)	5	0.53	927	98.41
Ten Authors (10)	2	0.21	929	98.62
More Than Ten Authors (>10)	13	1.38	942	100.00

Fig: 5 Collaboration of Authors and their Productivity

Findings: Table 7 shows that collaboration of two, three and four authors are more productive than single author. Most of the publications are done by 3 Authors and Two Authors.

5: MAJOR FINDINGS OF THE STUDY

The major findings of the study are as follows:

- Maximum number of papers are published in document form , i.e. 835 out of 942 papers , equal to 88.64 % followed by conference paper, i.e. 68 means 7.22 % of total document.
- More papers have been published in general subjects like Physics, Chemistry, Pharmaceutical Sciences and Botany. In 2001 to 2005 research in Pharmaceutical Sciences has not developed so much. But from 2006 onwards publications in this subject has been increased according to Scopus Database.
- Maximum papers have been published in Physics and subjects related to it.
- Publications of paper from different Departments under Utkal University have been increased day by day.
- Collaboration of two, three and four authors are more productive than single author.
- Now a day's all Institutions and Universities are giving more emphasis towards their quality as well as quantity productiveness.

6: CONCLUSION

Research and Publication works are main part of scientific activities and Industrial development. Educational Institutions of higher studies play an important role in this field. Utkal University (Vani Vihar), which is an old and very reputed University, is stand at the forefront of this work. Publication outputs of different departments are increasing year by year. Government of Odisha as well as Government of India are sanctioning funds and trying to improve the Scientific Research Work in Universities and different R & D Organizations. As a leading Institution more effort is necessary to improve its quality and quantity of productivity. Annual academic audit or growth report ensures that the Institution is on the right track in its mission for excellence.

7: REFERENCES

- 1.Chavan, S. B. and Chaurasia, N. K. (2014). Research output of Indian Institute of Technology Delhi (IIT Delhi) during 2001-2010: A bibliometric analysis. *International Journal of Information Dissemination and Technology*, 4(2), 141-147.
- 2.Koganuramah, M. M., Angadi, M. and Kademani, B. S. (2002). Bibliometric dimension of innovation communication productivity of tata institute of social sciences. *Malaysian Journal of Library and Information Science*, 7(1), 69-76.
- 3.Maharana, R. K and Das, P. (2013). Research publication trend of Utkal University's researchers indexed in Scopus during 2008 to 2012: a bibliometric analysis. *Library Philosophy and Practice (e-Journal)*, Paper 999.
- Maharana, R. K. and Sethi, B. B. (2013). A bibliometric analysis of the research output of Sambalpur University's publication in ISI Web of Science during 2007-11. *Library Philosophy and Practice (e-Journal)*, Paper 926.
- 4.Rubinandhini,A. and Gomathi,P.2015,Authorship pattern on Annals of library and information studies output during 2005-2014: A Binliometric study,*International Journal of Engineering Sciences & Management Research*, 2.(9).
- 5.Jena Kamal Lochan; Swain Dillip K; Sahu Sadabihari. (2012). Scholarly communication of The Electronic Library from 2003 to 2009: A bibliometrics study. *The Electronic Library*. 30 (1), p. 103 – 119.
- 6.Kumari, L. (2006). Trends in synthetic organic chemistry research: cross-country Comparison of activity index. *Scientometrics*, 67, 467-476.
- 7.Li, Z. and Ho, Y.S. (2008). Use of citation per publication as an indicator to evaluate contingent valuation research. *Scientometrics*, 75 (1), 97-110.
- 8.Mishra manoj; Sahu Mahesh C; Brahma P K and Mahapatra Rabindra K (2015): A bibliometric study on growth of research in an Indian Medical college. *Library Philosophy and Practice (e-journal)*, paper 1275.
- 9.Moed, H.F.; Burger, W.J.M.; Frankfort, J.G. and Vanraan,A.F.J. (1985). The use of bibliometric data for the measurement of university research performance. *Research Policy*, 14(3), 131–49.
- 10.Singh, Yogendra; Gupta, B. M. and Kumar, Suresh (2005).Research contributions and impact of research of Indian Institute of Technology, Roorkee, 1993-2001. *Annals of Lib. And Inf. Stud*, 52(1), p. 8-14.



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