CITATION ANALYSIS OF DOCTORAL THESES AWARDED BY SHIVAJI UNIVERSITY, KOLHAPUR DURING 1972-2012 IN THE SUBJECT OF "MATHEMATICS

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ABSTRACT

Citation analysis is an emerging trust area of research in the field of library and Information science. Citation are very important source of information for the library purchasing and to provide services to the researcher. In the present research paper research productivity of doctoral theses awarded in the subject of mathematics by Shivaji University during 1972-2012. The study is based on the 6761 citation taken out from 61 PhD theses of mathematics. In these researchers articles research is carried out chronological productivity, Gender wise researcher, Gender wise Guide, geographical area wise, authorship pattern wise, cited sources wise distribution, classification of Doctoral theses.

KEYWORDS: Bibliomentric, analysis, Authorship pattern, Citation analysis,

INTRODUCTION :

Citation analysis is a worthwhile are of research. "Citation analysis" refers to references in one text to anther text, with information on where that text a found. Citation analysis is useful for understanding subject relationships, author effectiveness, and publication trends and so on. With citation analysis one can evaluate and interpret citations cited articles, new bulleting, books, report, journals, association report, notes and other indications of scientific activity. The present study analyses the citations cited by the researcher in the theses of mathematics accepted by Shivaji University, Kolhapur during 1972-2012

OBJECTIVE OF THE STUDLY

This study has been undertaken with the prime objective of following aspects
1.To trace the chrono-logical growth of research
2.The study authorship pattern
3.To study Gender wise researcher
4.To study Gender wise Guide
5.To study cited sources wise distribution
6.To determine the average length of reference
7.To study Geographical area wise distribution of researcher
8.To study of Degree of Collaboration

SCOPE OF THE STUDY

The present research limited to 61 Phd awarded in the subject of Mathematics by Shivaji University, Kolhapur during 1972 to 2013.

LETURER REVIEW:

Citation analysis is a set of method of analyzing the scientific & technological. Literature & to trace the relationship, among science of mathematics citation such as
1. DESIDOC Journal of Library and Information Technology (DJLIT) : A Bibliometric study (2003-2012) written by Ramesh Pandita he find the volume wise authorship pattern of article ,volume wise distribution of articles , geographical distribution of contribution ,contributors and authors he find that most of contributors and authors from India considering the 23 country number rank obtained to India Singapore is ranked on second number UK is ranked on third number and so on.
2.S. Thanuskodi from Annamalai university he find Instituted wise contribution referencing character characteristics ,forms of documents cited as 53.03% is journals , 22.32% books, 12.55% seminar / conference these position of citation shows mostly of journals.
3. A bibliometric analysis of contribution in the journal 'Library Trends' written by Taapas Kumar Das Mr. of Visva-Bharati central library santiniketan is analysed degree of collaboration , average length of contribution , distribution of citation Volume wise Distribution i.e. he find the study of citation year wise percentage 21.84% citation used by author, 23.30% citation mostly used by user as above.
4 .Annals of Library and information Studies: A Bibliometric Study (2002-2010) written by Shalini M. Sakharkar. Foreign countires contributed in this Indian Journal as found in the study of nine volumes it reflects the popularity of the journal. Maximum   paper was contributed by B. K. Sen and average length of paper was 6 pages (63). And   Single author's domination.

METHODOLOGY:

The Study covers 61thesis containing references total 6761 during year 1972-2012 was collected from Shivaji University, Kolhapur library. The data collected was recorded on to sheets with pre-designed columns. All the required data like (a) title of thesis, (b) Subject, (c) number of authors, (d) degree of collaboration (e)Length of citation , (f) number of references, (g) contribution authors by references and (h) forms of document were tabulated. The data was subjected to the analysis as per the objective of the study.
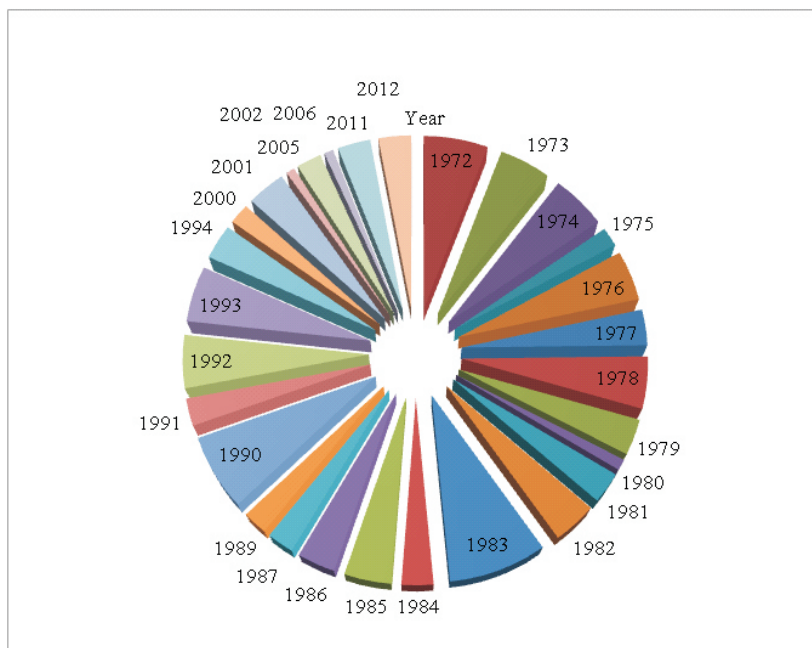
ANALYSIS OF THE DATA

Chronological growth of research

It can be seen form table 1 that year wise growth of PhD theses awarded by Shivaji University in the subject of mathematics during 1972-2012. In the years 1983 has highest number of references 562 (8.31%) followed by 1990 stand second and 1972 stand third. The year 2002 has the minimum number of 52(0.76%) references. It shows that research productivity was highest in the year of 1990 (5) stand first followed by 1993 stand second.

Table -1
Chronological growth of research

Year	Year wise number of total theses	No. Of References	Percentage
1972	1	391	5.78
1973	3	311	4.59
1974	3	335	4.95
1975	1	118	1.74
1976	2	304	4.49
1977	2	218	3.22
1978	3	315	4.65
1979	2	217	3.20
1980	1	67	0.99
1981	2	187	2.76
1982	2	255	3.77
1983	3	562	8.31
1984	1	182	2.69
1985	1	269	3.97
1986	2	218	3.22
1987	1	155	2.29
1989	2	142	2.10
1990	5	455	6.72
1991	1	166	2.45
1992	3	322	4.76
1993	4	341	5.04
1994	2	214	3.16
2000	3	125	1.84
2001	3	235	3.47
2002	1	52	0.76
2005	2	152	2.24
2006	1	56	0.82
2011	2	199	2.94
2012	2	198	2.92
Total 29	61	6761	100

Graph 1
Chronological growth of research

AUTHORSHIP PATTERN

The table explicates the authorship pattern of contribution, out of 6761contributions. A single author has contributed 4519 out of the total citations. 1826 of the articles contributed by double authors and 328 of the articles contributed by triple authors and 86 of the articles contributed by four authors and negligible amount is contributed by more than four authors. A significant note of the study is that the majority of the articles are contributed by Single authors. This will necessitate the individual authorship pattern.

Table -2
Authorship pattern

Year	One author	Two author	Three author	Four Author	Five Author	Total	Per.%
1972	318	68	3	2	Nil	391	5.78
1973	226	70	15	Nil	Nil	311	4.59
1974	272	48	11	4	Nil	335	4.95
1975	74	40	4	Nil	Nil	118	1.74
1976	238	56	9	1	Nil	304	4.49
1977	142	66	5	5	Nil	218	3.22
1978	164	126	14	11	Nil	315	4.65
1979	171	44	1	1	Nil	217	3.20
1980	53	10	2	2	Nil	67	0.99
1981	122	59	4	2	Nil	187	2.76
1982	147	63	43	2	Nil	255	3.77
1983	347	174	38	3	Nil	562	8.31
1984	101	52	27	2	Nil	182	2.69
1985	180	67	20	2	Nil	269	3.97
1986	197	20	1	Nil	Nil	218	3.22

1987	109	35	10	1	Nil	155	2.29
1989	70	61	11	Nil	Nil	142	2.10
1990	349	90	14	2	Nil	455	6.72
1991	116	39	2	9	Nil	166	2.45
1992	181	136	2	3	Nil	322	4.76
1993	237	85	15	4	Nil	341	5.04
1994	128	76	9	1	Nil	214	3.16
2000	85	25	13	1	1	125	1.84
2001	119	98	14	4	Nil	235	3.47
2002	41	8	2	1	Nil	52	0.76
2005	92	55	4	1	Nil	152	2.24
2006	30	18	6	2	Nil	56	0.82
2011	121	66	11	1	Nil	199	2.94
2012	89	71	18	19	1	198	2.92
Total	4519	1826	328	86	2	6761	100

Gender wise researcher information

Table shows that researchers information Gender wise . The Majority number of contribution is from Male 52 (85.24%), females researchers only 9 (14.51%) .

Table 3
Gender wise researchers information

No.	Gender	Total Researcher	Percentage
1	Male	52	85.24
2	Female	9	14.51
	Total	61	100

Gender wise guide information

Table shows the distribution of research Guides Genders. The table clearly indicates that 46 (75.40 %) theses awarded under the Male Guidance and 2 (3.27%) theses awarded under the guidance of female.

Table 4
Gender wise guide

No.	Gender	Total Guide	Percentage
1	Male	46	75.40
2	Female	2	3.27
3	Not mention	13	21.31
	Total	61	100

Form wise Cited Documents

Distribution of various forms of cited documents are given table . They include Books, Journals, Theses, Review, Bulletin, Lecture notes, Letter, Conference/workshop Proceedings ect. . The table shows that General citied of references occupied the top position with the highest number of 562 year of 1983 . Total citation 6761. The second position occupied by Information and Announcements 455 year of 1990 and followed by flowering Trees stand third with 391 year of 1972.

Table 5
Form wise Cited Documents

Year	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Books	179	190	225	106	215	151	188	143	45	118
Journal	120	81	76	12	71	51	73	57	19	56
Theses	46	12	19	-	7	-	9	7	2	2
Review	8	9	11	-	6	2	25	2	1	6
Bulletin	11	11	2	-	5	10	11	8	-	3
Lecture Note	25	1	1	-	-	4	-	-	-	2
Letter		3	1	-	-	-	8	-	-	-
Conf. /Works.	2	4	-	-	-	-	1	-	-	-
Total	391	311	335	118	304	218	315	217	67	187

Year	1982	1983	1984	1985	1986	1987	1989	1990	1991
Books	173	352	119	170	163	67	96	305	94
Journal	70	174	49	85	36	70	33	123	49
Theses	5	6	6	5	-	2	5	11	-
Review	5	11	4	3	8	3	3	11	-
Bulletin	2	19	-	3	11	6	2	1	22
Lecture Note	-	-	3	3	-	7	3	-	1
Letter	-	-	1	-	-	-	-	2	-
Conf./ Works	-	-	-	-	-	-	-	-	-
Total	255	562	182	269	218	155	142	455	166

Year	1992	1993	1994	2000	2001	2002	2005	2006	2011	2012	Total
Books	208	253	166	1979	115	34	110	40	135	128	4367
Journal	76	68	25	27	85	14	28	13	45	61	1749
Theses	6	7	6	3	3	2	3	-	2	2	178
Review	13	4	4	4	4	2	5	1	10	3	168
Bulletin	13	7	7	12	14	-	6	2	7	4	199
Lecture Note	3	1	4	-	4	-	-	-	-	-	62
Letter	2	1	2	-	8	-	-	-	-	-	28
Conf. /Works.	1	-	-	-	2	-	-	-	-	-	10
Total	322	341	214	125	235	52	152	56	199	198	6761

Pages Length of Reference

The table indicates the pages length of cited documents. Highest Pages length of 27 cited documents between 11to20 out of 61 theses stand first followed by 25 cited document between 1 to 10 stands second and 8 cited documents between 21-30 stand third.

Table 6.
Pages Length of Reference

No. of references	Pages Length of reference	Total	Per.%
01 -10	25	25	40.98
11- 20	27	27	44.26
21- 30	8.	8	13.11
31- 40	0.00	0.00	0.00
41- 50	1	1	1.63
Total	61	61	100

Geographical distributions of references *

Geographical distribution of cited documents majority of forerunners authors contribution is total 4715 and Indians authors contributions total 2046   out of 6761cited documents

Table .7
Geographical distributions of references

Year	Author Indian	Forerunners authors	Total	Per.%
1972	20	371	391	5.78
1973	94	217	311	4.59
1974	100	235	335	4.95
1975	27	91	118	1.74
1976	105	199	304	4.49
1977	14	204	218	3.22
1978	60	255	315	4.65
1979	103	114	217	3.20
1980	13	54	67	0.99
1981	58	129	187	2.76
1982	55	200	255	3.77
1983	163	399	562	8.31
1984	54	128	182	2.69
1985	51	218	269	3.97
1986	100	118	218	3.22
1987	21	134	155	2.29
1989	87	55	142	2.10
1990	243	212	455	6.72
1991	67	99	166	2.45
1992	115	207	322	4.76
1993	110	231	341	5.04
1994	97	117	214	3.16
2000	39	86	125	1.84
2001	60	175	235	3.47
2002	19	33	52	0.76
2005	61	91	152	2.24
2006	17	39	56	0.82
2011	54	145	199	2.94
2012	39	159	198	2.92
	2046	4715	6761	100

DEGREE OF COLLABORATION

The authorship pattern determines the type of research. Out of 61thesis and total citation 6761, the number of single author citations is the lowest and it accounts for total thesis authors 4519, multi author total year highest 2242 and total years authors 6761. It helps it determine the degree of collaboration, in quantitative terms, of "Mathematics' theses" for the

period of 1972-2012.

C= Nm / Nm + NS

Where C=Degree of Collaboration, Nm= Number of Multi-Author cited document

NS=Number of Single Author cited document

In the present study (NM=2242) (NS=4519) (NM+NS=6761)

C=0.331

Thus the degree of collaboration in cited documents of Doctoral theses awarded by Shivaji university, Kolhapur during 1972-2012 in the subject of "Mathematics is 0.331Which clearly indicates its dominance upon individual contribution.

Table.3
Degree of Collaboration

Year	One author	Multi authors	Total	Per.%
1972	318	73	391	5.78
1973	226	85	311	4.59
1974	272	63	335	4.95
1975	74	44	118	1.74
1976	238	66	304	4.49
1977	142	76	218	3.22
1978	164	151	315	4.65
1979	171	46	217	3.20
1980	53	14	67	0.99
1981	122	65	187	2.76
1982	147	108	255	3.77
1983	347	215	562	8.31
1984	101	81	182	2.69
1985	180	89	269	3.97
1986	197	21	218	3.22
1987	109	46	155	2.29
1989	70	72	142	2.10
1990	349	106	455	6.72
1991	116	50	166	2.45
1992	181	141	322	4.76
1993	237	104	341	5.04
1994	128	86	214	3.16
2000	85	40	125	1.84
2001	119	116	235	3.47
2002	41	11	52	0.76
2005	92	60	152	2.24
2006	30	26	56	0.82
2011	121	78	199	2.94
2012	89	109	198	2.92
Total	4519	2242	6761	100

Thus the study manifests the forty years of research productivity Doctoral theses awarded by Shivaji university, Kolhapur during 1972-2012 in the subject of "Mathematics".As many as 61 PhD theses were produced so far in the year 1972-2012. In the cited documents 6761 studied by the researcher.

The following In the years 1983 has highest number of references 562 (8.31%) followed by 1990 stand second and 1972 stand third. The year 2002 has the minimum number of 52(0.76%) references. It shows that research productivity was highest in the year of 1990 (5) stand first followed by 1993 stand second.

CONCLUSIONS ARE DRAW FROM THE PRESENT STUDY.
1. In the years 1983 has highest number of cited documents 562 (8.31%).
2. Single authors were contributed 4519 out of the total citations
3. The Majority number of contribution is from Male 52 (85.24%),
4. 46 (75.40 %) theses awarded under the Male Guidance.
5. Highest Pages length of cited documents is between 11-20.
6. Majority of cited documents from forerunners (4715).

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