Citation Analysis of Dissertations

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Abstract

Citations in Master's degree dissertations submitted to the Department of Library and Information Science, Sri Venkateswara University, Tirupathi during the period 2000 - 2007, were analyzed for finding possible relationships between citing, citing articles and bibliographic forms. Frequency and percentage distributions (presented in charts, tables and graphs) and measures of central tendency were used to analyze data. Findings showed that journals were the most utilized reference materials in the dissertations. Also, library science in general had the highest number of citations followed by library management and cataloguing. The lowest numbers of citations were from education, literature and social sciences respectively. The findings from this study could serve as a user study with implications for collection, development and user services designing in libraries.

Keywords: Citation, Library and Information Science, Dissertations.

Introduction

Citation analysis is a new technique used to measure quantitatively the value of document through arranging the citations in some kind of rank or order. It is also used to study the growth and structure of literature of any subject. This technique is helpful tool for the library management in the selection and weeding of materials in the face of ever expanding information environment. Citation analysis reflects on citation practices.

"Citation analysis" refers to references in one text to another text with information on where that text can be found. Citation analysis is useful for understanding subject relationship, author effectiveness, and publication trends and so on. The first recorded citation analysis was done by Gross and Gross (1927) who looked at citational patterns to determine the journals to be subscribed to and back volumes to be acquired for the library of Pamona College.

They studied the citation frequency in the reference given in the "Journal of The American Chemical Society (Amudavalli 1977).From an application point of view, citation analysis may be considered as a collaborative peer effort to analyze and promote the quality of scholarly publication and research. Citation analysis studies the patterns of citations in documents, an objective method for gathering data about information needs. Williams and Fletcher explained citation analysis as a nonintrusive method of finding patterns in a specific population's use of research materials. Meho has observed that citation analysis is actually a branch of information science in which researchers studied the way articles in a scholarly field are accessed and referenced by others. It has been used for the purpose of scholarly analysis and evaluation in several fields of human endeavor. In this study, citation analysis is employed in studying masters' dissertations submitted to the Department of Library and Information Science, Sri Venkateswara University, Tirupathi (2000-2008) with a view to find out citation practice in the dissertations.

Review of Literature

In his essay on citation analysis, King pointed out that scientists are drowning in a flood of information overload. Remarkably, thousands of scientific studies are published on a daily basis. One method for tracking and evaluating research is citation analysis. Citation analysis works because

scientists leave an unmistakable trail behind them as they report their work-a trail of footnotes. Today, a scientific publication is easily recognized by its footnotes, endnotes and references to other scientific articles or books. More citations were from the books and periodicals than the other type of materials. Similar type of study was performed by Koley[1] & Sen (2003) covering 457 citations appended to 26 research articles published in the four issues of the quarterly Indian Journal of Physiology and Allied Sciences. Of the citations, 76.81% relate to journal articles, 18.59% to monographs, and the rest to conference papers, theses, etc. A total of 4,012 citations in 70 postgraduate dissertations in education were studied by Okiy (2003). Most students in education used more textbooks (60.3 per cent), than other forms of library materials. Megnigbeto (2006) studied the citations of dissertations of library and information science undergraduate students and found that the number of citations to Internet resources was very low.

Rethlefsen (2007) analyzed citation of journal articles authored by Minnesota Department of Health staff. Information on each cited reference was recorded, including reference type, relative age of citation, and journal name. Journals were the most heavily cited format (63%). Bhat & Sampath Kumar (2008) describes a citation analysis of research articles from scholarly electronic journals published in 2000-2006. The analysis focused on the extent to which scholars are using web-based sources in scholarly electronic journals. Results of the study shows that 81.49% of articles published in selected 9 electronic journals during 2000-2006 have web references. Out of 25,730 references 56.54 % of references are print journal references and 43.52% of them are web references. 437 citations in 32 research articles in two issues of the RMJ were collected by Javed & Shah (2008). The study revealed that 49.52 % citations pertained to journal articles and rest to other resource types. All the above studies except the last one reveals that journals are heavily cited and preferred source of information. In the above studies citations of journal articles were analyzed. Other studies have analyzed the citations of Doctoral dissertations or Masters' theses come up with the following results.

Research Objectives

The specific objectives of the present study are to know
- ➢ The distribution of citations in the major branches of library and information science.
- ➢ The authorship patterns
- ➢ Geographic scattering of cited journals
- ➢ Language wise distribution of cited journals.
- ➢ The chronological scattering of cited periodicals
- ➢ The self citing rate and subject wise break-up of cited journals.

Limitations of the Study

Citation analysis like any other study is not free from criticism. The following are some of the limitations of citation.
- ➢ The study is confined to the dissertations submitted to dept of library and information science for the fulfillment of M.L.I.Sc.
- ➢ The study is confined to only available dissertations in library and in the department.
- ➢ The study is completely confined to the documentary
- ➢ Citation and co-citation counts are just part of the available experimental data, thus the assigning the relative weight age to citation is objectionable keeping in view the totality of information.

Methodology

The research design adopted was a descriptive study sources of data used are dissertations submitted for M.L.I.Sc degree in the department of library and information science, Sri Venkateswara University, Tirupati covering the period 2000-2007. The sampling procedure for the study was purposive since data was being collected specifying the target period 2000-2007. Table1 shows that total populations of the dissertations total 91 M.L.I.Sc dissertations (991 citations) were analysed (Figure 1).

Table 1
Sample Size

| S.No	Publications	Year Wise				Total
		2000-2001	2002-2003	2004-2005	2006-2007	
1	Journal Articles	87 (40.85)	98 (42.79)	103 (39.62)	109 (37.72)	397 (40.06)
2	Books	112 (52.58)	99 (43.23)	97 (37.31)	85 (29.41)	393 (39.66)
3	Web	0	12 (5.24)	36 (13.58)	56 (19.38)	104 (1049).
4	Conference proceedings, Seminars, workshops	3 (1.41)	11 (4.80)	23 (8.85)	39 (13.49)	76 (7.67)
5	Technical Reports	11 (5.16)	9 (3.93)	1 (0.38)	0	21 (2.12)
	Total	**213 (21.49)**	**229 (23.11)**	**260 (26.24)**	**289 (29.16)**	**991 (100)**

(Figures in Parentheses indicate percentage)
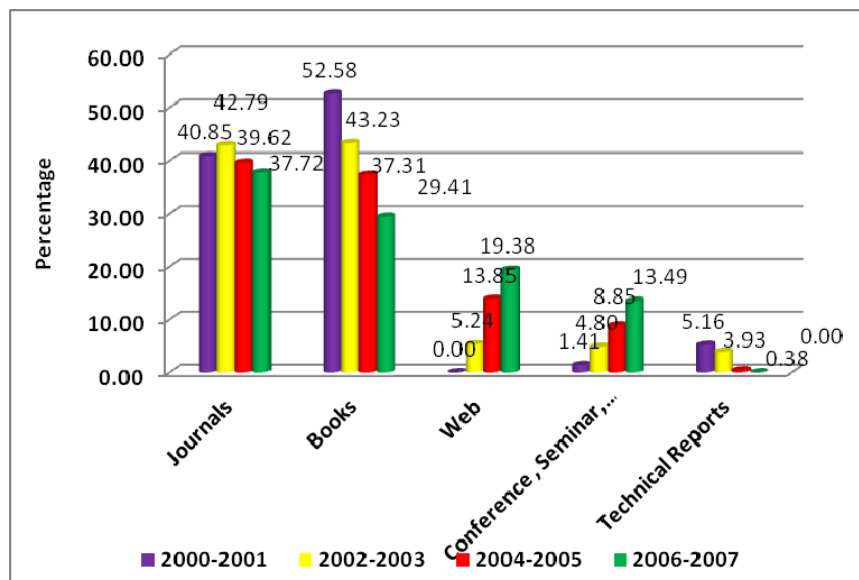
Fig. 1
Year Wise Publications of Citations

Data Analysis

The data received carefully edited tabulated and analyzed. To make the data analysis statistically sound SPSS (Statistical Package for the Social Science), necessary statistical techniques (diagrams) are used.

Subject wise Distribution

The Distribution of citation appended to the Distributions of library and information science in the major branches of library and information science is shown in table 2.

Table2
 Distribution of citation in subject wise

S.No.	Subject	No. of Citations	Percentage
1	Library Science-in-General	319	32.19
2	Library Management	126	12.71
3	Cataloguing	92	9.28
4	Information Retrieval Systems	34	3.43
5	Information Science	24	2.42
6	Academic Libraries	114	11.50
7	Generelia	25	2.52
8	Bibliometric	31	3.13
9	Engineering	13	1.31
10	Reference Service	64	6.46
11	Communication	11	1.10
12	Computer Science	32	3.23
13	Education	50	5.04
14	Literature	24	2.42
15	Social Sciences	32	3.26
	Total	**991**	**100**

Distribution of citation in subject wise majority of citations is Library science-in-General (32.19%) and Library management 12.71%, Academic Libraries 11.50% cited articles are used the M.L.I.Sc Students dissertations (Figure 2).
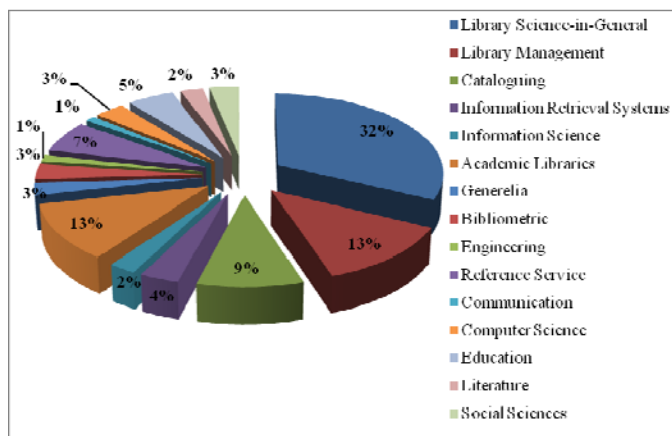

Fig. 2
Distribution of Citation in Subject wise

Distribution of Subject wise Vs Authorship pattern

The Characteristics of subject literature consists of not only the basic publishing patterns, but also the authors.

Table3
Distribution of Subject wise Vs Authorship pattern

S.No	Subject	Single Author	Two authors	Three authors	More than Three
1	Library Science-in-General	279 (35.05)	38 (23.75)	0	2 (6.45)
2	Library Management	107 (13.44)	16 (10.00)	1 (25.00)	2 (6.45)
3	Cataloguing	83 (10.43)	4 (2.5)	3 (75.00)	2 (6.45)
4	Information Retrieval Systems	31 (3.89)	3 (1.87)	0	0
5	Information Science	15 (1.88)	6 (3.75)	0	3 (9.68)
6	Academic Libraries	89 (11.18)	22 (13.75)	0	3 (9.68)
7	Generelia	10 (1.26)	0	0	15 (48.39)
8	Bibliometric	21 (2.64)	8 (5.00)	0	2 (6.45)
9	Engineering	13 (1.63)	0	0	0
10	Reference Service	18 (2.26)	46 (28.75)	0	0
11	Communication	10 (1.26)	1 (0.63)	0	0
12	Computer Science	24 (3.02)	8 (5.00)	0	0
13	Education	49 (6.16)	1 (0.63)	0	0
14	Literature	20 (2.51)	4 (2.50)	0	0
15	Social Sciences	27 (3.39)	3 (1.87)	0	2 (6.45)
	Total	**796 (80.32)**	**160 (16.15)**	**4 (0.40)**	**31 (3.13)**

Authorship has been analyzed to determine the percentage of single and multiple authors. Table 3 shows the authorship pattern distribution of 991 citations according to the number of authors in different subjects. It is evident form table 3 that 80.32% of citations are contributed by single authors (Library Science - in-General); followed by 16.15% of citation contributed by double authors (Library Science –in-General) and 0.40% of citation contributed by triple authors (Cataloguing) finally 3.13% of citation contributed by multiple authors (Generelia).

Distribution of Subject wise Vs Different Publications

The distribution of citations in different bibliographic forms in various branches of Library Science is noted in table 4. Citations of various bibliographic forms are scattered among multi discipliner [viz] Engineering, Communication and Social Science etc.

Table 4
Distribution of Subject wise Vs Different Publications

S.No	Subject	Journals	Books	Web	Conference proceedings, Seminars, workshops	Technical Reports
1	Library Science-in-General	70 (17.63)	169 (43.00)	42 (40.38)	26 (34.21)	12 (57.15)
2	Library Management	81 (20.40)	35 (8.91)	7 (6.73)	3 (3.95)	0
3	Cataloguing	37 (9.32)	40 (10.18)	7 (6.73)	6 (7.89)	2 (9.52)
4	Information Retrieval Systems	20 (5.04)	9 (2.29)	5 (4.81)	0	0
5	Information Science	9 (2.27)	11 (2.79)	4 (3.85)	0	0
6	Academic Libraries	53 (13.35)	45 (11.46)	15 (14.42)	1 (1.32)	0
7	Generelia	0	5 (1.27)	1 (0.96)	2 (2.63)	4 (19.05)
8	Bibliometric	12 (3.02)	19 (4.83)	4 (3.85)	0	0
9	Engineering	7 (1.76)	6 (1.53)	0	0	0
10	Reference Service	40 (10.07)	15 (3.82)	0	0	0
11	Communication	9 (2.27)	1 (0.25)	9 (8.65)	1 (1.32)	0
12	Computer Science	10 (2.52)	21 (5.34)	0	0	1 (4.76)
13	Education	12 (3.03)	7 (1.78)	5 (4.81)	25 (32.89)	1 (4.76)
14	Literature	16 (4.03)	4 (1.02)	0	4 (5.26)	0
15	Social Sciences	21 (5.29)	6 (1.53)	5 (4.81)	8 (10.53)	1 (4.76)
	Total	**397 (40.06)**	**393 (39.66)**	**104 (10.49)**	**76 (7.67)**	**21 (2.12)**

Distribution of Subject wise Vs Different Language

Table 5 shows the language distribution of 991 citations. Nearly all citations are in English 985 (99.39%), only limited number of citations are referred from Telugu, Sanskrit, Hindi Viz 0.30%, 0.10%, 0.20% respectively.

Table 5
Distribution of Subject wise Vs Different Language

S.No	Branch	English	Telugu	Sanskrit	French
1	Library Science-in-General	89 (9.04)	0	0	0
2	Library Management	81 (8.22)	0	0	0
3	Cataloguing	79 (8.02)	0	0	0
4	Information Retrieval Systems	73 (7.41)	0	0	0
5	Information Science	70 (7.11)	0	0	0
6	Academic Libraries	68 (6.90)	1 (33.33)	0	0
7	Generelia	65 (6.60)	0	0	0
8	Bibliometric	62 (6.29)	0	0	0
9	Engineering	58 (5.89)	0	0	0
10	Reference Service	56 (5.69)	0	0	0
11	Communication	67 (6.80)	0	0	0
12	Computer Science	63 (6.40)	0	0	0
13	Education	49 (4.97)	1 (33.33)	0	1 (50.00)
14	Literature	51 (5.18)	0	0	0
15	Social Sciences	54 (5.18)	1 (33.34)	1 (100)	1 (50.00)
	Total	**985 (99.39)**	**3 (0.30)**	**1 (0.10)**	**2 (0.20)**

Distribution of Subject wise Vs Geographical

Geographical analysis of citation provides information about the countries active in the subject field and their relative contribution. Table 6 shows the geographical distribution of 991 citations. One quarter or 33.6%, covering 333 citations are form India, and it certainly stands first, followed by 266 citation covering 26.84% are from USA, while 228 citation (23.01%) 98 citations (9.89%), 66

citations (6.66%) are from Nigeria, UK, China respectively. Figure 3 shows as star marks in different countries citations.

Table 6
Distribution of Subject wise Vs Geographical

| S.No	Branch	India	USA	Nigeria	UK	China
1	Library Science-in-General	27 (8.11)	22 (8.27)	18 (7.89)	14 (14.29)	11 (16.67)
2	Library Management	35 (10.51)	30 (11.28)	24 (10.53)	0	0
3	Cataloguing	29 (8.71)	21 (7.89)	18 (7.89)	12 (12.24)	0
4	Information Retrieval Systems	39 (11.71)	23 (8.65)	20 (8.77)	0	0
5	Information Science	18 (5.41)	17 (6.39)	15 (6.58)	13 (13.27)	11 (16.67)
6	Academic Libraries	19 (5.71)	15 (5.64)	13 (5.70)	11 (11.22)	10 (15.15)
7	Generelia	21 (6.31)	12 (4.51)	11 (4.82)	10 (10.20)	0
8	Bibliometric	14 (4.20)	13 (4.89)	12 95.26)	11 (11.22)	12 (18.18)
9	Engineering	21 (6.31)	19 97.14)	13 (5.70)	0	0
10	Reference Service	24 (7.21)	21 (7.89)	16 (7.02)	0	0
11	Communication	23 (6.91)	18 (6.77)	14 (6.14)	-	-
12	Computer Science	11 (3.30)	10 (3.76)	14 (6.14)	8 (5.16)	6 (9.09)
13	Education	22 (6.61)	19 (7.14)	16 (7.02)	0	0
14	Literature	16 (4.80)	14 (5.26)	13 (5..70)	9 (9.18)	7 (10.61)
15	Social Sciences	14 (4.20)	12 (4.51)	11 (4.82)	10 (10.20)	9 (13.64)
	Total	**333 (33.60)**	**266 (26.84)**	**228 (23.01)**	**98 (9.89)**	**66 (6.66)**
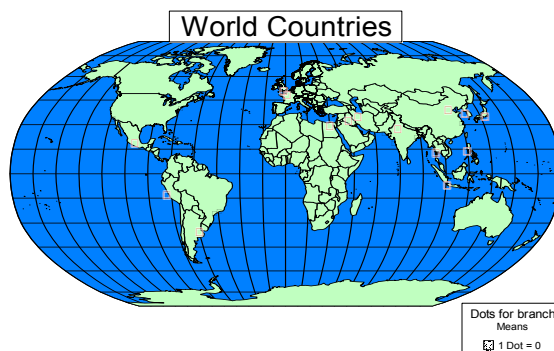
Fig. 3
Distribution of Citation in Geographical

Ranked List of Journals

Journals are essential for research, but their increase demands that librarians study their quality, usefulness and suitability to particular group of users. The raking list is a practical tool to help select journals of maximum utility in relation to their coverage of new and important literature in a particular subject area. Ranked list of periodicals are prepared based on following criteria: a) Journal use studies b) Circulation statistics c) Inter Library Loan data d) Citation analysis e) Questionnaires f) Comparative techniques.

Of the above mentioned methods, each method has got its own advantages and disadvantages. In the present study, citation analysis has been used for preparing rank list of periodicals in various branches of Library and Information science.

Table7
Rank list of cited journals in Library and Information science

S.No.	Journals	Citations	Cumulative	Rank
1	Annals of Lib. Sci. & Documentation	46 (11.59)	46 (11.59)	1
2	Harold of Library Science	34 (8.56)	80 (20.15)	2
3	IASLIC Bulletin	31 (7.81)	111 (27.96)	3
4	Indian Library Association	27 (6.80)	138 (34.76)	4
5	Indian Librarian	21 (5.29)	159 (40.05)	5
6	Lucknow Librarian	16 (4.03)	175 (44.08)	6
7	Indian Library Management	12 93.02)	187 (47.10)	7
8	Journal of Documentation	9 (2.27)	196 (49.37)	8
9	Library Quarterly	9 (2.27)	205 (51.64)	8

10	Journal of Library Automation	9 (2.27)	214 (53.90)	8
11	Journal of Lib & Information Science	8 (2.02)	222 (55.92)	9
12	Cataloguing and Classification Quarterly	8 (2.02)	230 (57.93)	9
13	Collection Management	8 (2.02)	238 (59.95)	9
14	Library Journal	7 (1.76)	245 (61.71)	10
15	Library Trends	7 (1.76)	252 (63.48)	10
16	Wilson Library Bulletin	7 (1.76)	259 (65.24)	10
17	Grandalya Jyothi	7 (1.76)	266 (67.00)	10
18	Delnet News Letter	7 (1.76)	273 (68.77)	10
19	Information Studies	6 (1.51)	279 (70.28)	11
20	Education for Information	6 (1.51)	285 (71.79)	11
21	Modern Librarian	6 (1.51)	291 (73.30)	11
22	Nissat News letter	6 (1.51)	297 (74.81)	11
23	Grandalaya Sarvaswamulu	5 (1.26)	302 (76.07)	12
24	Telecommunication	5 (1.26)	307 (77.33)	12
25	IEEE Transactions on Engineering Management	5 (1.26)	312 (78.59)	12
26	Technical Service Quarterly	5 (1.26)	317 (79.85)	12
27	Journal of Human Resources	5 (1.26)	322 (81.11)	12
28	Computer Networks	5 (1.26)	327 (82.37)	12
29	UNESCO Bulletin for Libraries	5 (1.26)	332 (83.63)	12
30	Journal of Indian library Association	4 (1.01)	336 (84.63)	13
31	Indian Library	4 (1.01)	340 (85.64)	13
32	Journal of Librarianship	4 (1.01)	344 (86.65)	13
33	Education Libraries Bulletin	4 (1.01)	348 (87.66)	13

34	The Library and Librarian	4 (1.01)	352 (88.66)	13
35	University News	4 (1.01)	356 (89.67)	13
36	Information Development	4 (1.01)	360 (90.68)	13
37	Information Today	3 (0.76)	363 (91.44)	13
38	Information Library Review	3 (0.76)	366 (92.19)	13
39	Library Philosophy and Practice	3 (0.76)	369 (92.95)	13
40	American Documentations	3 (0.76)	372 (93.70)	13
41	Canadian Library Journal	3 (0.76)	375 (94.46)	13
42	DESIDOC Bulletin of Information Technology	2 (0.50)	377 (94.96)	14
43	British Journal of Academic Librarianship	2 (0.50)	379 (95.47)	14
44	ALA Bulletin	2 (0.50)	381 (95.97)	14
45	Advanced Technology Librarian	2 (0.50)	383 (96.47)	14
46	Information Technology and Libraries	2 (0.50)	385 (96.98)	14
47	Bulletin of Medical Library Association	2 (0.50)	387 (97.48)	14
48	Resource Sharing and Information Networks	2 (0.50)	389 (97.98)	14
49	OCLC Systems and Services	2 (0.50)	391 (98.49)	14
50	6 Journals have '1' Citation	6 (1.51)	**397 (100)**	15
	Total	**397 (100)**		

The ranked list of Journals in the field of library and information science is presented in table 7. Titles are arranged in their decreasing order. It is evident from the table that the journal articles of library science are scattered in 50 different periodicals. However most cited journal by M.L.I.Sc student is Annals of library science and documentation, Which has cited 46 items, more than 11.59% of total percentage of citation, followed by Harold of library science at 34 (8.56%), IASLIC Bulletin 31 (7.81%). Indian Library Association 27 (6.80%), Indian Librarian 21(5.29%).

Conclusion

The present investigation is mainly intended to describe the characteristic features of library and information science literature from 91 M.L.I.Sc dissertations covering 991 citations submitted to Sri Venkateswara University, Tirupathi. The Analysis of the study renewals the following findings.

- Frequency of citation found to be higher in dissertations of library science in general (32.19%) than other branches.
- The analysis of authorship patterns in library and information science renews that 80.32% of citations are contributed mainly by single authors. It seems that most of the authors in library and information science are conducting research and publishing books and articles individually.
- Analysis on distribution of various bibliographical forms renews that journal articles contributed highest number of citations accounting for 40.06% out of 397 citations.
- The analysis of authorship pattern of journal articles renews that majority of citations were contributed by single authors. Annals of Library Science and Documentation are the most cited journals, followed by Harold of Library Science.
- Most cited journals are form India, English Language predominates than other regional languages viz., Telugu, etc.

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