

A BIBLIOMETRIC STUDY OF CITATIONS IN Ph.D THESES IN EDUCATION



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ABSTRACT

Analysis of 42,872 citations cited in 215 theses accepted by Sri Venkateswara University and Andhra University for the award of Ph.D degree in Education reveals that journals were the most preferred sources of information used by the researchers in the field of Education accounting for 39.26% of total citations, followed by books with 23.62% of total citations. The journal 'Dissertation Abstracts International' occupied first place for being cited more number of times accounting for 14.54% of total journal citations. The book entitled 'Research in Education' secured the first rank for being cited more number of times accounting for 2.49% of the total

book citations. The publisher 'Mc Graw-Hill' has secured the first rank among the publishers for being cited its books more number of times accounting for 28.4% of the total book citations. Authorship pattern for cited documents shows that the majority of citations (52.46%) were contributed by single authors. The average number of authors per citation and the degree of collaboration in Education is 1.43 and 0.48 respectively. The research scholars in Education are mostly (85.65%) using the literature published in English language. They are citing the majority documents (52.27%) from their subject literature itself. USA is contributing to 59.04% of cited literature by the research scholars in Education.

KEYWORDS : *Bibliometric study, Citation analysis, Authorship pattern, Degree of collaboration, Ranking of journals, Ranking of books, Ranking of publishers.*

INTRODUCTION :

Information plays a vital role in the development of nations. It is essential for all decision making and developmental activities. Effective information systems are to be established to make information available pinpointedly, expeditiously and comprehensively. Ever increasing needs of user community, the diminishing library budgets, multiplicity of journals and increasing cost of journals, necessitate the development of a need based system of information sources and services to meet the user requirements.

It is necessary to understand the characteristics of the literature to plan and design an information system relating to a particular field. The structure and characteristics of literature can be assessed by the application of quantitative techniques to recoded knowledge. This necessitated the development of a new field 'bibliometrics' in Library and Information science. Bibliometrics can be defined as the application of mathematical and statistical methods to books and other media of communication to know the characteristics pertaining to them.

Citation analysis is one of the areas in bibliometrics, Analysis of citations or bibliographical references that are appended with the research communication namely research papers, theses, research reports, etc., is known as citation analysis.

Citation studies are helpful to formulate a need-based acquisition policy with regard to books, journals and other type of reading materials within limited budgetary provision of libraries. They are also helpful to adopt an accurate weeding and stacking policy. They can bring out useful information regarding authorship pattern in different subjects, and the relative use of various kinds of documents such as books, periodicals, theses, reports, etc. Citation studies help in measuring the relative importance or quality of contributions of authors/scientists and institutions in a research field. Obsolescence of literature, and scatter of literature in different disciplines, languages and countries can be studied through these studies. These studies help in identifying core periodicals, core books and core publishers in different disciplines, which are useful in collection management of libraries. Finally, the performance of a library can be judged based on the availability of cited literature in that library through citation studies. Because of the importance of citation studies, the present study has been undertaken to analyse the citations cited in Ph.D theses in Education as no study has been undertaken in this regard so far.

2. REVIEW OF LITERATURE

The studies which were conducted on the citation analysis of Ph.D theses/postgraduate dissertations in pure sciences, Applied Sciences, Social Sciences and Humanities are enumerated in the following paragraphs.

2.1 Pure sciences

Citation analysis of Ph.D theses in physical sciences was conducted by Sudhier¹ whereas Sheshrao and Khaparde² conducted in Physics. Hiremath and Sangen³ and Aruna Prasad Reddy⁴ conducted studies on the analysis of citations in Ph.D theses in Chemistry. Vimala⁵ carried out a study on the analysis of citations in Ph.D theses in Biological Sciences whereas Maheswarappa and Prakash⁶, Rajasree⁷ and Banateppanvar et al⁸., carried out in Botany. Prasad et al⁹., conducted a study on the analysis of citations in Ph.D theses in Geology whereas Doraswamy and Pulla Reddy¹⁰, and Omkar Murthy¹¹ conducted in Geography.

2.2 Applied sciences

Citation Pattern in the theses of Engineering and allied sciences was studied by Mull and Konnur¹² whereas Dhanamjaya and Talawar¹³ studied in Engineering and Technology. Studies were conducted on citation analysis of Ph.D theses/dissertations in Paediatrics by Birdar and Tippeswamy¹⁴, in Dental Medicine by Tongar and Ablghasemi¹⁵, and in Psychiatry by Birdar and Premalatha¹⁶. Citation analysis of Ph.D theses/dissertations in Agricultural Sciences, and Agronomy were studied by Kabir¹⁷ and Srinivasulu¹⁸ respectively. Studies on citation pattern in theses/dissertations of Veterinary Science were conducted by De Oliveria¹⁹ and Biswas and Hague²⁰ and in poultry science by

Hemasundar Naidu²¹, and Veerabasavaiah²².

2.3 Social sciences

Omury²³ conducted a study on citation pattern in theses of Social Sciences whereas Zafrunnisha and PullaReddy²⁴, and John²⁵ conducted studies on analysis of citations in theses in Psychology. Seshaiah²⁶ studied the citation pattern in the theses of History whereas Panda²⁷ and Bandopadhyay and Nandi²⁸ studied in the theses of Political Science. Studies pertaining to citation analysis of theses in Economics were conducted by Hrawade and Dankhade²⁹, and Nasir and Devendra Kumar³⁰. Devarajan and Vijayalakshmi³¹ made a study on the analysis of citations in the theses of Applied Economics. Studies on the analysis of citations in the theses of Library and Information Science were conducted by Liborie and Helperin³², Pandey and Rajyalakshmi³³, Gupta and Khare³⁴, and Lokhanda³⁵.

2.4 Humanities

A study on citation pattern in Humanities was conducted by Lainb and Goi³⁶. Deo and others³⁷ made a study on citation analysis of theses in English language and literature whereas Vijaya Kumar³⁸ made a study in English Literature. Chandra Kumar and Sritharan³⁹ conducted a study on the analysis of citations in the theses of Sanskrit.

It is evident from the above review of literature that no study has been undertaken on the analysis of citations in Ph. D theses in Education. Hence, the present study has been undertaken.

3. OBJECTIVES

The following are the objectives of the study:

- 1.To know the different bibliographic forms of literature used by the researchers in Education;
- 2.To study the distribution of citations by subject, country and language;
- 3.To prepare rank list of periodicals and books cited;
- 4.To prepare rank list of publishers based on their respective books cited; and
- 5.To examine the authorship pattern and degree of collaboration in books and journal articles.

4. METHODOLOGY

The present study is confined to the analysis of citations cited in 215 Ph.D theses accepted in the field of Education for the award of doctoral degree by Sri Venkateswara University, Tirupati, and Andhra University, Visakhapatnam, during the period from 1976-2013. The data collected from 42,872 citations, which were appended to the 215 theses, is utilized for the present study.

The analysis with respect to the different characteristics of literature is carried out. The information relating to each citation i.e., number of authors, type of bibliographic form, publication year, name of the journal, title of the book, the name of book publisher, subject, country, and language are recorded on the reference cards of standard of size of 12.5 x 7.5 cm. The data is fed into the computer using Ms-Excel software package and processed using the Statistical Package for Social Sciences (SPSS). Percentages were used in the analysis of data.

5. ANALYSIS OF THE DATA AND DISCUSSION OF RESULTS

The data collected was analysed under the various headings, and the results were discussed.

5.1 Bibliographic Forms

The literature in any discipline is published in different bibliographic forms such as journals, books, seminar/conference proceedings, etc. The distribution of citations among different bibliographic forms in Education is shown in Table 1.

Table 1: Bibliographic form-wise distribution of citations in Education

S. No.	Bibliographic form	Citations		Cumulative citations	
		No.	%	No.	%
1.	Journals	16831	39.26	16831	39.26
2.	Books	10125	23.62	26956	62.88
3.	Reference books	734	1.71	27690	64.59
4.	Newspapers	824	1.92	28514	66.51
5.	Committee/ commission reports/surveys	3805	8.89	32319	75.38
6.	Theses and dissertations	8496	19.85	40815	95.20
7.	Conference/seminar proceedings	1292	3.02	42107	98.22
8.	WWW	179	0.42	42286	98.63
9.	Unidentified documents	586	1.37	42872	100.00
	Total	42872	100	42872	100

It is evident from Table 1 that the journals contribute the highest number of citations accounting for 39.26% of total citations. Books secured second highest number of citations accounting for 23.62% of total citations. The third highest number of citations is from theses and dissertations accounting for 19.85% of total citations. The fourth highest number of citations is committee/commission reports/surveys accounting for 8.89 % of total citations, followed by seminar/conference proceedings (3.02%). The remaining 4.05% of citations are distributed in other bibliographic forms namely, reference books (1.71%), newspapers (1.92%), and World Wide Web (0.42%). The investigator was unable to identify the bibliographic forms for 1.37% of total citations. They are given in the table as unidentified documents. Hence, it can be concluded that the researchers in Education are heavily using journals, books and theses and dissertations.

5.2 Rank list of journals

The journals which were cited by the researchers in Education were ranked on the basis of number times they were cited. The rank list of journals in Education is shown in Table 2.

Table 2: Rank list of journals

S. No.	Rank	Journal title	Citations		Cumulative citations	
			No.	%	No.	%
1	2	3	4	5	6	7
1	1	Dissertation Abstracts International	2448	14.54	2448	14.54
2	2	Journal of Educational Research	1673	9.94	4121	24.48
3	3	Journal of Educational Psychology	1528	9.08	5649	33.56
4	4	Journal of Educational Research and Extension	1423	8.45	7072	42.02
5	5	Journal of Applied Psychology	739	4.39	7811	46.41
6	6	British Journal of Educational Psychology	533	3.17	8344	49.58
7	7	Journal of Experimental Education	363	2.16	8707	51.73
8	8	Journal of Abnormal and Social Psychology	270	1.60	8977	53.34
9	9	Journal of Experiments in Education	242	1.44	9219	54.77
10	10	Journal of Personnel and Guidance	232	1.38	9451	56.15
11	11	Journal of Higher Education	214	1.27	9665	57.42
12	12	Journal of Indian Education	212	1.26	9877	58.68
13	13	Journal of Personality	196	1.16	10073	59.85
14	14	Journal of Educational Review	188	1.12	10261	60.96
15	15	Journal of Psychology	173	1.03	10434	61.99
16	16	Journal of School Science	168	1.00	10602	62.99
17	17	Journal of Teacher Education	159	0.94	10761	63.94
18	18	Journal of Review of Educational Research	154	0.91	10915	64.85
1	2	3	4	5	6	7
19	19	American Journal of Educational Research	144	0.86	11059	65.71
20	20	Journal of Social Psychology	140	0.83	11199	66.54
21	21	Indian Educational Review	129	0.77	11328	67.30
22	22	Journal of Genetic Psychology	127	0.75	11455	68.06

23	23	Journal of Research in Science Teaching	106	0.63	11561	68.69
24	24	Indian Journal of Adult Education	102	0.61	11663	69.29
25	25	Journal of Personality and Social Psychology	95	0.56	11758	69.86
26	26	Journal of Education	93	0.55	11851	70.41
27	27	American Journal of Sociology	91	0.54	11942	70.95
28	28	Journal of Society for Educational Research and Development	81	0.48	12023	71.43
29	29	Journal of Educational and Psychological Measurement	79	0.47	12102	71.90
30	30	Journal of Elementary School	78	0.46	12180	72.37
31	31	Journal of Clinical Psychology	74	0.44	12254	72.81
32	32	Journal of Indian Education Review	72	0.43	12326	73.23
33	33	Journal of Educational Planning and Administration	67	0.40	12393	73.63
34	34	Journal of Curriculum Studies	65	0.39	12458	74.02
35	35	Journal of Counseling Psychology	64	0.38	12522	74.40
36	36	Journal of Abnormal Psychology	62	0.37	12584	74.77
37	37	Journal of Academy of Management	62	0.37	12646	75.14
38	38	Journals which were cited less than 62 times (351)	4185	24.86	16831	100
Total		388	16831	100	16381	100

It is obvious from Table 2 that the journal citations cited by research scholars in Education are scattered in 388 journals. Among them, 'Dissertation Abstracts International' occupies first place for being cited more number of times with 14.54% of journal citations. The researchers of Education used 'Dissertation Abstracts International' mostly, even though it is not a primary periodical. The reason for citing 'Dissertation Abstracts International' mostly may be due to the availability of relevant abstracts pertaining to their research in it. As it is difficult to get access to the dissertations abstracted in 'Dissertation Abstracts International', the researchers in Education reviewed the dissertations based on their abstracts. 'Journal of Educational Research' occupies second place for being cited more number of times accounting for 9.94% of total journal citations. These two journals contribute to nearly 25% of journal citations. These two journals are followed by 'Journal of Educational Psychology' (9.08%), 'Journal of Educational Research and Extension' (8.45%), 'Journal of Applied Psychology' (4.39%) and 'British Journal of Educational Psychology' (3.17%). The above first six journals contribute to nearly 50% of total journal citations. The first 37 journals in the rank list contribute to nearly 75% of the citations. The remaining 25% of citations are scattered among 351 journals. It can be concluded that

only a few journals (9.54% of total cited journals) are contributing to three-fourths of journal citations (75%) cited by the researchers in Education.

5.3 Rank list of books

The researchers in Education use heavily books after journals for their research work. The books used by researchers are ranked based on the number of times they have been cited. Table 3 shows the rank list of books in Education.

Table 3: Rank list of books

S. No.	Rank	Title of the book	Citations		Cumulative citations	
			No.	%	No.	%
1	2	3	4	5	6	7
1	1	Research in Education	252	2.49	252	2.49
2	2	Psychometric Methods	234	2.31	486	4.80
3	3	Dictionary of Education	142	1.4	628	6.2
4	4	The Experimental Study of Personality	121	1.20	749	7.40
5	5	Child Development	120	1.19	869	8.58
6	6	Statistics in Psychology and Education	119	1.18	988	9.76
7	7	Moral Development	87	0.86	1075	10.62
8	7	Statistical Principles in Experimental Design	87	0.86	1162	11.48
9	8	Handbook of Research and Teaching	78	0.77	1240	12.25
10	9	Fundamental Statistics in Psychology and Education	69	0.68	1309	12.93
11	10	An Outline of the Psychoanalysis	66	0.65	1375	13.58
12	10	Indian Philosophy	66	0.65	1441	14.23
13	10	Introductory Lectures to Psychoanalysis	66	0.65	1507	14.88
14	10	Social and Ethical Interpretations in Mental Development	66	0.65	1573	15.54
15	10	Studies in the Nature of Character	66	0.65	1639	16.19
16	10	The Child from 5 to 10	66	0.65	1705	16.84
17	10	The Moral Judgment of the Child	66	0.65	1771	17.49
1	2	3	4	5	6	7
18	11	Personality and Adjustment	64	0.63	1835	18.12
19	12	An Introduction to Child Study	62	0.61	1897	18.74
20	12	Personality a Psychological Interpretation	62	0.61	1959	19.35
21	12	The Description and Measurement of Personality	62	0.61	2021	19.96
22	13	An Introduction to Social Psychology	60	0.59	2081	20.55
23	13	Child Conception of the World	60	0.59	2141	21.15
24	13	Development of Moral Character and Moral Ideology	60	0.59	2201	21.74

25	13	Educational research ¼ an introduction, scholastic achievement/difficulties / backwardness, learning achievement of slum children in Delhi	60	0.59	2261	22.33
26	13	Human Development and Education	60	0.59	2321	22.92
27	13	Judgment and Reasoning in the Child	60	0.59	2381	23.52
28	13	Personality Assessment	60	0.59	2441	24.11
29	13	Psychology of early Childhood	60	0.59	2501	24.70
30	13	Psychology of the Child	60	0.59	2561	25.29
		82 books were cited in the range of 21 to 60 times	2509	24.78	5070	50.00
		218 books were cited in the range of 8 to 20 times	2528	24.97	7598	75.00
		683 books were cited in the range of 1 to 8 times	2527	24.95	10125	100
Total			1013	100	10125	100

It is obvious from Table 3 that the book citations cited by research scholars in Education are scattered among 1013 books. Among them ‘Research in Education’ occupies first rank for being cited more number of times with 2.49% of citations, followed by ‘Psychometric Methods’ (2.31%), ‘Dictionary of Education’ (1.4%), ‘The experimental study of personality’ (1.20%), ‘Child Development’(1.19%) and ‘Statistics in Psychology and Education’(1.18%). These 6 books account to 9.76% of total book citations. The first 30 books in the rank list contribute to 25.29% of the total book citations. Eighty two books next to the first 30 books, were cited in the range of 21 to 60 times. These books contribute to 24.78% of total book citations and account to 8.09% of total books cited. Two hundred and eighteen books next to the first 112 books were cited in the range of 8 to 20 times. These books contribute to 24.97% of the total book citations, and account to 21.52% of total books cited. The remaining 683 books next to the first 330 books were cited in the range of 1 to 8 times. These books contribute to 24.95% of total book citations and account to 67.32% of total books cited. Hence, it can be concluded that only a few books (22.27% of total cited books) are contributing to three-fourths of book citations (75%) cited by the researchers in Education.

5.4 Rank list of Publishers

The publishers were ranked on the basis of number of times their books have been cited. Table 4 shows the rank list of publishers.

Table 4: Rank list of publishers

S. No.	Rank	Publisher name	Citations		Cumulative citations	
			No.	%	No.	%
1	1	Mc Graw-Hill	2876	28.40	2876	28.40
2	2	Mac- Millan Publishers	1620	16.00	4496	44.40
3	3	Prentice Hall	898	8.87	5394	53.27
4	4	Holt Rinehart and Winston	447	4.42	5841	57.69
5	5	John Willey and Sons	369	3.64	6210	61.33
6	6	Harper and Brothers	248	2.44	6558	63.77

1	7	NCTE Publications	187	1.85	6645	65.62
2	8	World Publishing	150	1.48	6795	67.10
3	9	Longman Press	144	1.42	6939	68.52
4	10	Metheun Publishing	141	1.39	7080	69.91
11	11	Norton	132	1.30	7212	71.21
12	12	Basic Books	123	1.22	7335	72.43
13	13	Erlbaum Press	120	1.19	7455	73.62
14	14	Free Press	105	1.04	7560	74.66
15	15	Oxford University Press	97	0.96	7657	75.62
16	16	Sterling Publications	92	0.91	7749	76.53
17	17	Publishers whose books were cited less than 92 times (248)	2473	24.43	10125	100
Total		264	10125	100	10125	100

It is evident from Table 4 that 10,125 book citations cited by research scholars in Education are scattered among the books of 264 publishers. It is evident from the table that the publisher 'Mc-Graw Hill' occupies the first rank for getting more number of citations from its books accounting for 28.4% of total book citations, followed by 'Mac-Millan Publishers' (16%) and 'Prentice Hall' (8.87%). The books of these three publishers contribute to 53.27% of total book citations. The books the first 15 publishers listed in the rank list contribute nearly to 75% of total book citations. The remaining 25% of book citations are scattered among the books of 249 publishers. The results indicate that the books of that only a few publishers (5.68% of total publishers) are contributing to the maximum book literature (75%) required by the research scholars in Education for their research work.

5.5 Authorship pattern

The distribution of citations according to number of authors is shown in Table 5.

Table 5: Author-wise distribution of citations

S.No.	Authors	Citations	
		No.	%
1.	Single authors	22492	52.46
2.	Multiple authors	11651	27.17
	Two authors		
3.	Three authors	5559	12.96
4.	More than three authors	3170	7.39
5.	Subtotal	20380	47.53
6.	Grand Total	42872	100

Table 5 shows the predominance of single authored papers over the multiple authored papers. It is also evident from the table that the single-authored documents account for 52.46% of total citations, two authors documents account for 27.17%, three authors documents account for 12.96%, and more than three authors documents account for 7.39% of the total citations. Hence, it can be concluded that single authored documents are predominant over multi-authored documents in Education. In case of science disciplines multi-authored documents are predominant over single authored documents.

5.6 Degree of collaboration and number of authors per citation

The degree of collaboration and number of authors per citation are shown in Table 6.

Table 6: Degree of collaboration and average number of authors per citation

Year	Total no. of		Average no. of authors per citation	No. of single authored papers	No. of multiple authored papers	Degree of collaboration
	Citations	Authors				
1861	71	162	2.28	37	34	0.48
1900-1905	78	167	2.14	37	41	0.53
1906-1910	92	202	2.20	42	50	0.54
1911-1915	92	287	3.12	48	44	0.48
1916-1920	93	212	2.28	57	36	0.39
1921-1925	97	222	2.29	62	35	0.36
1926-1930	359	654	1.82	261	98	0.27
1931-1935	406	767	1.89	298	108	0.27
1936-1940	421	777	1.85	319	102	0.24
1941-1945	416	798	1.92	249	167	0.40
1946-1950	540	1021	1.89	340	200	0.37
1951-1955	971	1676	1.73	725	246	0.25
1956-1960	1215	1877	1.54	879	336	0.28
1961-1965	2172	3766	1.73	1432	740	0.34
1966-1970	7019	8787	1.25	2989	4030	0.57
1971-1975	6155	7876	1.28	2887	3268	0.53
1976-1980	2445	4332	1.77	1556	889	0.36
1981-1985	2509	4012	1.60	1321	1188	0.47
1986-1990	4877	6551	1.34	2432	2445	0.50
1991-1995	4125	6321	1.53	2089	2036	0.49
1996-2000	3806	4331	1.14	2112	1694	0.45
2001-2005	2946	3676	1.25	1343	1603	0.54
2006-2010	1656	2134	1.29	834	822	0.50
2011-2014	311	654	2.10	143	168	0.54
Total	42872	61262	1.43	22492	20380	0.48

It is evident from Table 6 that the average number of authors per cited document in Education is 1.43. The average degree of collaboration among the authors in Education is 0.48 which is less compared to degree of collaboration in science disciplines. It is also obvious from the table that the average number of authors per cited document varies from 1.25 to 3.12 over the various time periods. The degree of collaboration also varies from 0.24 to 0.54. The average number of authors per citation and the values of degree of collaboration over various time periods fluctuate. In other words, no consistent trend towards increase or decrease in the number of authors per citation has been observed over the time. Similarly, no consistent trend has been observed towards increase or decrease in the degree of collaboration among the authors over the time.

5.7. Language-wise distribution of citations

The literature in any discipline is published in different languages. Language-wise distribution of citations in Education is shown in Table 7.

Table 7: Language-wise distribution of citations in Education

S. No.	Country	Citations		Cumulative citations	
		No.	%	No.	%
1	English	36721	85.65	36721	85.65
2	Hindi	2556	5.96	39277	91.61
3	Hindi/English	1568	3.66	40845	95.27
4	English/German	33	0.08	40878	95.35
5	English/French	350	0.82	41228	96.17
6	English/Greek	456	1.06	41684	97.23
7	English/Turkish	35	0.08	41719	97.31
8	English/Malay	233	0.54	41952	97.85
9	English/Mandarin	334	0.78	42286	98.63
10	Unidentified	586	1.37	42872	100
	Total	42872	100	42872	100

It is evident from Table 7 that English language occupies the first place for contributing 85.65% of the total citations. Hindi language occupies the second place for contributing 5.96% of total citations. The remaining 7.02% of citations are published in other languages. The investigator was not able to identify the languages for 1.37% of cited literature by researchers in Education. Hence, it can be concluded that most of the cited literature (85.65%) by the researchers in Education is published in English language.

5.8. Country-wise distribution of citations

Literature in Education is being published all over the world. The country-wise distribution of citations is shown in Table 8.

Table 8: Country-wise distribution of citations in Education

S. No.	Country	Citations		Cumulative citations	
		No.	%	No.	%
1	USA	25313	59.04	25899	59.04
2	India	9876	23.04	35775	83.45
3	UK	3921	9.15	39696	92.59
4	Australia	571	1.33	40267	93.92
5	Philippines	432	1.01	40699	94.93
6	Canada	211	0.49	40910	95.42
7	Germany	176	0.41	41086	95.83
8	Ethiopia	87	0.20	41173	96.04
9	Switzerland	112	0.26	41285	96.30
10	Brunei	76	0.18	41361	96.48
11	Pakistan	89	0.21	41450	96.68
12	Turkey	74	0.17	41524	96.86
13	Japan	98	0.23	41622	97.08
14	Netherland	67	0.16	41689	97.24
15	France	102	0.24	41791	97.48
16	Sweden	134	0.31	41925	97.79
17	South Africa	232	0.54	42157	98.33
18	UAE	244	0.57	42401	98.90
19	China	443	1.03	42844	99.93
20	Greek	28	0.07	42872	100.00
21	Unidentified	586	1.37	42872	100
	Total	42872	100	42872	100

It is obvious from Table 8 that USA alone contributes to 59.04% of total citations in Education. India and UK contributes to 23.04% and 9.15% of total citations respectively. USA, India and UK are together contributing to 92.59% of total citations. They are followed by Australia (1.33%) and Philippines (1.01%). The remaining citations (3.7%) are scattered among 15 other countries. Each of these countries is contributing to less than one per cent of cited literature. Hence, most the cited literature (92.59%) by the researchers in Education is originating from USA, India and UK.

5.9 Subject-wise distribution of citations

Due to interdisciplinary nature of research, the researchers in Education depend not only on the literature of their own subject but also on the other related subjects. The subject-wise distribution of citations in Education is shown in Table 9.

Table 9: Subject-wise distribution of citations in Education

S. No.	Subject	Citations		Cumulative citations	
		No.	%	No.	%
1	2	3	4	5	6
1	Education	22537	52.57	22537	52.57
2	Psychology	13898	32.42	36435	84.99
3	Medicine	1234	2.88	37669	87.86
4	Science	1198	2.79	40056	93.43
5	Sociology	1189	2.77	38858	90.64
6	Management	456	1.06	40512	94.50
7	Social sciences	345	0.80	40857	95.30
8	Economics	233	0.54	41090	95.84
9	Women studies	198	0.46	41288	96.31
10	Public administration	176	0.41	41464	96.72
11	Agriculture	165	0.38	41629	97.10
12	Engineering	143	0.33	41772	97.43
13	Philosophy	112	0.26	41884	97.70
14	Linguistics	108	0.25	41992	97.95
15	Botany	68	0.16	42286	98.63
16	Law	60	0.14	42162	98.34
17	Politics	56	0.13	42218	98.47
18	History	48	0.11	42040	98.06
19	Commerce	37	0.09	42077	98.15
20	Anthropology	25	0.06	42102	98.20
21	Unidentified	586	1.37	42872	100
	Total	42872	100	42872	100

It is evident from Table 9 that the research scholars in Education are citing the literature largely (52.57%) from their own subject field. It is also obvious from the table that nearly one-third of cited literature (32.42%) by the research scholars is from psychology. It is followed by Medicine (2.88%), Science (2.79%), Sociology (2.77%) and Management (1.06%). Each of the remaining subjects, is contributing to only less than one percent of cited literature. Hence, it can be concluded that research scholars in Education are depended to a large extent (84.99%) on the literature of their own subject and psychology.

6. FINDINGS

The following findings are obtained by the analysis of citations in Ph.D theses in Education.

- Journals were the most preferred sources of information by the researchers in Education accounting for 39.26% of total citations, followed by books with 23.62% of citations and theses and dissertations with 19.85% of citations.
- The periodical 'Dissertation Abstracts International' was ranked first for being cited more number of times accounting for 14.54% of total citations, followed by the 'Journal of Educational Research' (9.94%) and 'Journal of Educational psychology' (9.08%).
- The book 'Research in Education' was ranked first for citing largely with 2.49% of citations, followed by 'Psychometric Methods' (2.31%), and the 'Dictionary of Education' (1.4%).
- McGraw-Hill was ranked first for citing its books largely with 28.4% of book citations, followed by Mac-Millan Publishers (16%) and Prentice Hall (8.87%).
- Among cited publications, single author publications (52.46%) are more in number compared to multi-author publications (47.53%).
- The average number of authors per citation is 1.43. The degree of collaboration among the authors in Education is 0.48 which is less compared to science disciplines.
- The research scholars in Education are using mostly (85.65%) the literature published in English language.
- USA contributes the majority of the cited literature (59.04%) in Education, followed by India (23.04%) and UK (9.15%).
- The research scholars in Education are citing the majority literature (52.27%) form their own field of Education.

7. SUGGESTIONS

The journals cited most frequently in the rank list should be subscribed by the libraries of S. V. University and Andhra University if they were not subscribed already. The mostly cited books in the rank list should be procured by the libraries in case those books were not procured already. Rank lists of journals and books of this study are to be used in the selection and acquisition of journals and books by the libraries of Sri Venkateswara University and Andhra University. In the case of reduction in library budget, less frequently used journals in the rank list are to be deleted from the subscription list of the libraries. At the time of acquiring books to the Department of Education, the libraries of Sri Venkateswara University and Andhra University can give preference to Education books published by the first 15 publishers listed in the 'Rank list of publishers'.

The present study is based on the theses accepted by University and Andhra University. Similar type of studies can be undertaken based on the theses accepted by other Indian Universities in the discipline of Education. These studies will be useful in generalizing the findings of the study by getting an indepth knowledge of the characteristics of the literature used by the researchers in the discipline of

Education.

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