CHAPTER - VII
CONCLUSIONS & IMPLICATIONS

7.1 Introduction

The present study "Knowledge Mapping of DRTC Annual Seminar Publications: A Scientometric study" was concerned with the content and citation analysis of the conference/seminar proceedings since 1963 to 2012. The conclusions of the analysis from chapter 3rd, 4th, 5th and 6th were summarized and included in this unit. The findings in relation to the objectives (1.4) and hypothesis (1.5) have been discussed.

7.2 Conclusions/Findings

The conclusions/findings have been presented under the following headings.

7.2.1 DRTC conference/seminar proceedings

7.2.2 Content Analysis

7.2.3 Citation analysis

7.2.1 DRTC conference/seminar proceedings

The conferences under study, institutions, places, states, editors are the key points on which conclusions were drawn.

1. The conferences/seminars are organized every year except 1987 and 1997. In all 71 proceedings of 50 years are analyzed in the study. (Table no. 4.2)

2. DRTC alone had organized 48 (67.61%) conference/seminar. NISSAT New Delhi Collaborates in 8 (11.27%) conference/seminar, followed by INSDOC, New Delhi in 4 (5.63%) conference/seminar, while University of Mysore in 2 (2.82%) conference/seminar. HP Labs, India; ICSSR, New Delhi; IIT, Delhi; OCLC, Ohio; PID, New Delhi; SRELS, Bangalore and USEFI in 1 (1.41%) conferences/seminars each respectively.
Documentation Research and Training Centre, Bangalore has hosted all the events. (Table no. 4.3)

3. DRTC has hosted 100% conferences/seminars are organized by DRTC in Bangalore, Karnataka State. (Table no. 4.4)

4. The editors are appointed from the office bearer’s of parent organization and/or the staff of the institutions where the convention was held. Ravichandra Rao, I. K. occupied first position in the ranking of editors. There were 11 male and 2 female editors. (Table no. 4.5)

5. Gopinath, M. A. occupied first position in the ranking of editors in any position. There were 13 male and 3 female editors. (Table no. 4.6)

6. The themes of conferences/seminars was Information technology including digital libraries, open source, D-space, E-sources, etc focused towards service profession & knowledge management. Hence, “The Themes of the conventions are recent concepts “(Hypothesis No. 1) is valid. (Table no. 4.7)

7. Contribution of papers had 97.50% share and abstracts had a negligible number. i.e. 2.50% only in the conference/seminar proceedings. (Table no. 4.8)

7.2.2 Content analysis of conference/seminar proceedings

To analyse content of the proceedings under study, following parameters were taken into consideration viz. Author productivity, authorship pattern, citation metrics of key authors, communication channels are the parameters analyzed in chapter 5, and major conclusions are enumerated in this section.
8. In overall proceedings the authors appearing at any position, Gopinath, M. A. was found most prolific author with 85 papers contributed to proceedings under study. Neelameghan, A. was found second prolific author with contribution of 74 papers, followed by Prasad, A. R. D. with 51 papers respectively. (Table no. 5.2.1.1)

9. In overall proceedings there were 1441 papers written by 1391 authors appearing at first position. The average numbers of papers per author were 0.97. Gopinath, M. A. was found most prolific first author with 66 papers contributed to proceedings under study. Neelmeghan, A. was found second prolific author with contribution of 63 papers, followed by Prasad, A.R.D. with 44 papers respectively.

10. Total number of 1441 publications of overall proceedings were divided into 3 equal zones, while number of authors writing similar number of papers in each zone were in the ratio of 29:264:481. Bradford's law of scattering verbally as well as graphically fits in to the data for proceedings. (Table no. 5.2.2)

11. The productivity distribution fit Lotka’s inverse square law applied to it, in overall proceedings. The Lotka's law fits in to set of data by applying K-S test. Productivity Trend with proportion of authors for proceedings where only first authors were considered with exponent value of $\alpha = 2.05$ for proceedings.

   The analysis of the data revealed that the maximum difference (Dmax) in observed and estimated cumulative proportions is less than the K-S. static (Critical Value) at 0.01 level of significance for all proceedings. Therefore present set of data fits in to generalized form of Lotka’s law.

12. Percentage of papers published in proportions to the square root of total author is 33.43 which is much below 50% as predicted by De Solla Price.

   Similarly it was observed that 20% of the authors contributed maximum of only 46.72% of the total papers. This is much below the 80%
as predicted by 80/20 rule. In overall set of data 80% of papers were contributed by the authors in the range of 76.80.

Hence neither Price square root law nor does 80/20 rule fit in to the present set of data. (Table no. 5.2.4.2)

13 On an average more than 200 papers were published each year. However the years 1983-1992 are exception because in that year 205 papers were published. The years 2003-2012 are most productive year for proceedings under study. (Table no. 5.2.5.1)

14 Gopinath, M. A., Neelameghan, A., Prasad, A. R. D., Seetharama, S. and Bhattacharyya, G. are key authors in overall set of data continuously contributed from 1963 to 2012 to the proceedings under study. (Table no. 5.2.6)

15 The male authors have published 77.28 papers where as female authors have published 22.72 papers in overall proceedings. The average ratio of female to male authors was 1:2.63.

   The average numbers of papers per male author were 2.04 papers where as in female author it was 1.58, this clearly indicates that though female authors were less in number, average number of papers produced by female authors were equal to the average number of papers produced by male authors.

   Further Chi square test was applied to overall set of data it proved that though the number of female authors were less in number they have produced equal number of papers in proportion

   Though there is general assumption that there is significant association between gender of authors and productivity, for the present set of data for overall proceedings this difference is considered to be not statistically significant, hence it clearly indicates that “Male and female authors produce equal number of publications” (Hypothesis No. 3) is invalid. (Table no. 5.2.7.2)
The Case Study is the most favorite subject on which 259 (8.96%) were published. Digital library 40 (1.38%), India 36 (1.25%), etc are the areas of work on which more papers are published. This confirms, "The themes of the conventions are recent concepts" (hypothesis no.1) is valid. (Table no. 5.2.8.1)

An analysis of authorship pattern based on overall set of data indicates that, of the 1441 papers single authors contributed 928 (64.40%) papers, 365 (25.33%) papers were jointly written by two authors and 81 (5.62%) papers were written by three authors. 10 (0.69%), 7 (0.49%) and 50 (3.47%) papers were written by four and five authors respectively. Maximum number of authors for single publication is 928. Multi-authored papers (35.60%) were more as compared to single authored papers (64.40%). It indicates that research is shifting from solo to team hence; "Research is shifting from solo to team" (hypothesis no. 6) is valid. (Table no. 5.3)

The degree of collaboration coefficient found was 0.26312 in all data sets. (Table no. 5.3.1)

The collaboration of authors was up to five authors under the present data set. It further reveals that 64.40 % papers were single authored, 25.33% two authored, 05.62% three authored, and 0.69% four authored, which indicates that collaboration up to 4 authors is prominent. (Table no. 5.3.2)

Gopinath, M.A. had 85 authored papers. He was first authoring 69 times and second author 13 times. Neelameghan, A. had 74 authored papers. He was first authoring 62 times and second author 11 times. Prasad, A.R.D. had 51 authored papers. He was first authoring 42 times and second author 9 times. Seetharama, S. had 50 authored papers. He was first authoring 41 times and second author 9 times. Bhattacharyya, G. had 47 authored papers. He was first authoring 35 times and second author 12 times.
Maximum 923 (40.39%) authors were from the DRTC followed by HMT Limited 54 (2.36%) authors and Calcutta University 41 (1.79%) authors. It can also be noted that the more number of authors are from the universities. There were 1391 authors from different 493 institutions. Hence, "Information professionals from academic institutions contribute maximum research papers" (hypothesis no. 4) is valid. (Table no. 5.3.5)

Bangalore ranked first with 690 (49.60%) authors followed by New Delhi with 108 (7.76%) authors and Mumbai with 63 (4.53%) authors. More number of authors are from the state capitals and metro cities. (Table no. 5.3.6)

The authors of the proceedings under study were from 23 Indian states and 9 union territories. The state of Karnataka have occupied first rank with 643 (46.23%) authors followed by Delhi 153 (11%) and Maharashtra 101 (7.26%) authors. (Table no. 5.3.7)

The South Indian states have maximum 785 (56.43%) contributors followed by North India with 265 (18.98%) contributors and West India with 125 (8.99%) contributors. As the 56.43% authors are from the South Indian states it indicates that the hypothesis "South Indian states dominate the scenario" (Hypothesis No. 5) is valid. (Table no. 5.3.8)

India ranked first with 1219 (87.63%) authors followed by USA with 21 (1.51%) authors and Canada with 11 (0.79%) authors. (Table no. 5.3.9)

The key authors of DRTC Proceedings was Gopinath, M. A. and the impact factor of him was 1.1486. fallowed by Neelameghan, A. and the impact factor of him was 0.2256, Prasad, A.R.D. at third place and the impact factor of him was 2.55, Seetharama, S. at fourth place and the impact factor of him was 0.4132 and Bhattacharyya, G. at fifth place and the impact factor of him was 0.4352.
Researcher with the help of a software named Publish and Perish found out h-index of Gopinath, M. A. was 7, Neelameghan, A. was 12, Prasad, A. R. D. was 7, Seetharama, S. was 5 and Bhattacharyya, G. was 6.

g-index of key author in the present data set was calculated with the help of a software named Publish and Perish and it was 11 for Gopinath, M. A., 15 for Neelameghan, A., 11 for Prasad, A. R. D., 14 for Seetharama, S. and 10 for Bhattacharyya, G.

The key author in overall set of data; Gopinath, M. A. published 242 papers and received 280 citations for these papers. He had contributed with maximum six authors. Neelameghan, A. published 408 papers and received 840 citations for these papers. He had contributed with maximum six authors. Prasad, A. R. D. published 74 papers and received 197 citations for these papers. He had contributed with maximum five authors. Seetharama, S. Published 56 papers and received 222 citations for these papers. He had contributed with maximum four authors. Bhattacharyya, G. published 16 papers and received 130 citations for these papers. He had contributed with maximum five authors. (Table no. 5.4.3)

The publication density was 0.04927. (Table no. 5.5.1)

The publication concentration for overall proceedings was 0.422535 of the papers i.e. 1441 papers by 30 communications channels. (Table no. 5.5.2)

7.2.3 Citation analysis of conference/seminar proceedings

The chief conclusions from chapter 6th based on analysis of citation distribution, authorship pattern, cited authors, channels of communications, bibliographic coupling, co-citations and self citations are specified in this section.

The highest number of citations were 1037 (10.22%) in the year 2012, followed by 989 (9.74%) in the year 2007 and 463 (4.56%) in the year
2006 respectively. The lowest number of citations were 06 (0.06%) in the year 1988. (Table no. 6.2.1)

33. In the case of proceedings there were 7.04 average citations per paper and 142.97 average citations per proceedings. There were maximum 16.07 average citations per paper in the year 1991 and minimum zero average citation per paper in the year 1973 and 2008 respectively. (Table no. 6.2.2)

34. In the list of top ten citations seven citations were of journals and all other citations were of websites and books. Website of w3 cited maximum 75 times. A book Prolegomena to Library Classification was on 7th position with 85 citations. (Table no. 6.2.3)

35. In overall proceedings maximum 100% citations were in English. The language of conferences/seminars and the papers was English hence it was quite but natural that citations were in English mostly. (Table no. 6.2.4)

36. Citations by Personal authors were cited more i.e. 77.43 followed by Websites 19.25%, Corporate authors including government were 3.32%. It indicates that personal authored documents were referred more. However the percentage of citing websites increased tremendously in recent past. This confirms, “Citation trend is shifting from traditional sources to internet sources” (hypothesis no. 7) is valid. (Table no. 6.3.1)

37. The highest 6339 (62.45%) number of citations observed with single authorship followed by 1742 (17.16%) citations with two authors and 484 (4.77%) by three authors. Multiple authorship citations were 1586 (15.61%) to the total personal authored citations. It may be inferred that single authored citations were predominant in overall proceedings. (Table no. 6.3.2.1)
38. Maximum 554 of single authorship found in the year 2012 followed by 472 in the year 2007. Minimum 4 of single authored citations were recognized in 1988. Single authored citations were maximum 6339 (62.45%) followed by two authored citations were 1742 (17.16%). It seems that there is trend of writing papers for conference proceedings by single author only. (Table no. 6.3.2.2)

39. The conference wise degree of collaboration over the years from 1963 to 2012. It can be noted that the degree of collaboration in the citations in the proceedings is 0.376. (Table no. 6.3.3.1)

40. The degree of collaboration in the citations in the proceedings varies from 0.029 to 0.911. The degree of collaboration for proceedings was 0.376. The degree of collaboration was maximum 0.911 in the year 2005 and minimum 0.029 in the year 1995. (Table no. 6.3.3.2)

41. Neelameghan, A. was on rank first with 323 citations, followed by Ranganathan, S. R. with 195 citations. Authors on third rank with 155 citations were Rao, C.N.R., followed by Seetharama, S. with 121 citations and Bhattacharyya, G. with 108 citations. Hence, "Editors of the proceedings have maximum contribution/citations" (hypotheses no. 2) is valid. (Table No. 6.4.1)

42. The productivity distribution does not fit Lotka’s inverse square law applied to it, in overall proceedings data, hence a different procedure was adopted.

However the Lotka’s law fit in to set of data by applying K-S test. Productivity Trend with proportion of authors for overall proceedings where only first authors were considered with exponent value of $\alpha = 2.16$. 

337
The analysis of the data revealed that the maximum difference (Dmax) in observed and estimated cumulative proportions is less than in overall data where as the K-S static (Critical Value) at 0.01 level of significance for all sets of data. Therefore present set of data fits in to generalized form of Lotka’s law.

43. There were total 10151 citations cited in 71 conference/seminar proceedings under study. Maximum 3386 (33.36%) citations were of Periodicals followed by 2455 (24.18%) citations of Books and 1954 (19.25%) citations of Websites. Hence, “Citation trend is shifting from traditional sources to internet sources” (Hypothesis No. 7) is valid. The periodicals have also its own importance in scholarly communication. (Table no. 6.5)

44. Prolegomena to Library Classification cited maximum 114 times followed by Classified Catalogue Code cited 48 times and Colon Classification ranked third with 29 citations. It was surprising to note that even in the age of Information technology the book Prolegomena to Library Classification by Dr. S. R. Ranganathan is still referred by the researchers. Reference and recent technology books are cited more times. There were 2455 book citations in proceedings.

45. Sams Publication acquired first rank with 168 citations followed by Academic Press ranked and DRTC second rank with 149 citations respectively and BPB Publications third rank with 125 citations in proceedings. There was good combination of Indian and foreign publisher in first ten ranked publishers.

46. In proceedings there was sudden growth in the number of citations in last ten years. The half-life of the literature was found ten years i.e. fifty percent citations were from last ten years only. The first citation identified from the
year for 1695 proceedings. It can be said that authors cited latest publications in their research papers.

47. The capital city of New York City topped first with 345 citations of the books published from the city followed by Chennai with 164 cited publications.

48. Maximum 321 books were from United States of America followed by India 120 and United Kingdom 72 citations respectively.

49. Library Science ranked first with 390 citations followed by Journal of Documentation with 145 citations and ASLIB Proceeding with 97 citations. Library and Information Science Journals were more than the general and other subject journals. (Table no. 6.5.2.1)

50. By dividing total number of cited journals into 3 equal zones, the relationship between the zones is 12:223:1107. Hence the relation 1:n: n2 is not proved exactly in conference/seminar proceedings, however it proves general statement that the when journals grouped into a number of zones each producing a similar number of relevant articles, number of journals in each zone will be increasing rapidly. Bradford's Law fits into the present set of data. (Table no. 6.5.2.2 and Figure no. 6.5.2.2)

51. The journals from 83 years were cited in the proceedings. Maximum 509 (15.03%) citations were from the year 1967-71. There were more than 100 citations per year from the year 1962 to 2012. The decade 1962 to 1971 covered 784 (23.15%) citations. The unidentified citations with missing year figured 124 (3.66%).

52. Maximum 823 citations from 94 journals were cited from the periodicals published in United States followed by 722 citations from 22 journals.
originated from India. The UK had also large contribution of 661 citations from 42 journals. These three countries had share of 65.09% in overall proceedings.

53. Journal Library Science had maximum 390 citations followed by IASLIC Bulletin 49 citations and Library Science with a Slant to Documentation 40 citations. Library and information Science professional journals were cited from the Indian journals.

54. The website, www.w3.org had maximum 76 citations followed by www.dlib.org with 33 and en.wikipedia.org with 25 citations respectively. It can be stated that from the above discussion researchers are referring more and more websites for their research publications. Hence, “Citation trend is shifting from traditional sources to internet sources” (Hypothesis No. 7) is valid. (Table no. 6.5.3.1)

55. Extension .org websites are cited maximum 717 times followed by .com (.co) 433 and .edu 220 times.

56. UK websites are cited maximum 122 times followed by Indian 115 times and .de 41 times. Websites of Indian, United Kingdom, Canada, Germany and Australia are referred more by the researcher for writing papers in the conference proceedings under study.

57. DRTC Seminar had maximum 369 citations followed by ACM Conference 35 citations and IASLIC Seminar with 45 citations. (Table no. 6.5.4.1)

58. Proceedings of DRTC, Bangalore cited maximum 367 times in the proceedings under study. IASLIC seminar cited 45 times where as ACM was cited 34 times. The proceedings under study were ranked on top
positions were prominent cited conferences held at national and international level.

59. DRTC Bangalore had acquired first rank with 234 citations to its conference publications followed by IASLIC Seminar ranked second with 49 citations in overall proceedings and ACM ranked third with 33 citations. Authors of papers have cited national and international conferences held in India and abroad.

60. In proceedings there was sudden growth in the number of citations during 1968 to 1974. The half-life of the literature was found six years i.e. fifty percent citations were from 1968 to 1974 years only.

61. The city Bangalore ranks first in the rank list of cited conference proceedings with 294 citations followed by New Delhi with 29 citations. Only one city was from abroad, all remaining top cities were from India.

62. Maximum 483 of citations were from Indian publications followed by USA with 52. There were 1253 citations of conference proceedings of publications from 35 countries in overall dataset.

63. There were 215 bibliographical couplings. The maximum strength of bibliographic coupling was 5 in eleven couple of papers. (Table no. 6.6)

64. Co-citations identified in 27 cases when Neelameghan, A. was cited Gopinath, M. A. There were 53 bibliographic couples with 230 citations. (Table no. 6.7)

65. Maximum 563 (5.05%) self-citations appeared in proceedings. Average rate of self-citation were 0.055 Neelameghan, A. has maximum 125 self citations. Hence, it can be noted that in all the conference proceedings the self-citation tendency is negligible. (Table no. 6.8)
7.3 Implications of Results

Based on experience, problem faced by the researcher in data collection, data analysis and results of the present study following implications have been suggested to Library and Information Science Professionals, organizers, editors of the proceedings and the authors of the papers.

7.3.1 For Library and Information Science Professionals

There is an urgent need to create a database of conference papers or conference paper index. This will help as a bibliographic control tool as well as it will also help in control of duplication of papers by same title and sometimes republication of same paper in different conference and journals.

7.3.2 For Organizers

The seminar themes are on latest trends and more stress has been given to the information technology. There is need again to discuss basic subjects in the light of new technology.

The seminars are organized in few states & cities only. Every state should get privilege to organize such important events. So that the professionals from that state get benefit on large scale.

Due representation should given to the female professionals in editorial processes such as the Editor.

7.3.3 For Editors of the proceedings
The editors of the proceedings needs to be more careful in selecting, editing the papers. Even there are many print mistakes in the proceedings that need to take due care in the editing. It is necessary to give clear guidelines and be adhering to it. They should give proper guidelines for citation of website.

7.3.4 For the Authors

The authors must take care of quality of paper, its content, structure and references etc. language of the paper must be of high quality, research oriented case studies should be more than that of the theoretical papers. Author should follow guidelines given by the editorial board. Republication of paper as it is or with minor changes in other proceedings or journals should be avoided. Citations of website should be standard and uniform covering all bibliographical details and date of access of website by the researcher.

7.5 Areas for Further Study

The further study can be carried out on the topics; viz.

i) Scientometric study of other type of conference proceedings like ILA, SIS etc.

ii) Obsoloence studies of the journal literature etc can be undertaken.