Chapter 6

Summary of Main Findings, Suggestions, Conclusions and Recommendations for Further Research
CHAPTER – 6
SUMMARY OF MAIN FINDINGS, SUGGESTIONS,
CONCLUSIONS AND RECOMMENDATIONS FOR
FURTHER RESEARCH

6.0 INTRODUCTION

In the previous chapter, the data collected is analyzed and interpreted in the light of the objectives and hypotheses. On the basis of analysis and findings of the research study, this was carried out from 2420 publications and 67 faculty members. This chapter is devoted to the summary of major findings, suggestions, conclusion and recommendations for further research.

6.1 SUMMARY OF MAJOR FINDINGS

The analysis of data is done on the basis of the different variables and tests considered, helpful in drawing useful findings. The major findings that are dawn from the analysis done according to different variables are stated separately here:

6.1.1 Author Productivity

1. As per Participative Index (PaI), University of Delhi has the highest participative index (0.177) followed by Babasaheb Bhimrao Ambedkar University (0.113) and Aligarh Muslim University (0.112) whereas Dr. B.R. Ambedkar University is having minimum participative index (0.010).

2. Babasaheb Bhimrao Ambedkar University, Lucknow has the highest Average Publication Per Faculty Member (APPFM) (54.80) followed by University of Delhi (53.63) and Panjab University (50.67) whereas Jammu University is having minimum average publication per faculty member (15.00).

3. Based on the combined arithmetic mean, the University placed at the top position is Babasaheb Bhimrao Ambedkar University (4.35) followed by Panjab University (3.62) and Kashmir University (2.80) whereas the University placed at the last is Guru Nanak Dev University (0.76).
4. The Average Publications Per University (APPU) was found to be 161.33 publications. The study reveals that the 6 universities have contributed above average publications per university, while rest i.e., 9 universities contribute lower than average publications per university.

5. The overall average publications per faculty Member (APPFM) was found to be 36.12 publications. The study revealed that out of 15 universities considered for the study, there are 8 universities contribute which have contributed higher than the average publications per faculty Member and rest 7 universities contribute lower than average publications per faculty Member.

6. The Average Author Per Paper (AAPP), according to which one paper is contributed by maximal 2.07 authors in the year 2014 and minimal 1.15 authors in the year 1995. The overall average author per paper is 1.77 of total 2420 publications contributed by 4290 authors.

7. The highest productivity per author (PPA) is 0.87 papers in the year 1995 and lowest productivity per author is 0.48 papers in the year 2014. The overall productivity per author is 0.56 of the authors engaged in publications.

6.1.2 Most Prolific Authors and Preferred Journal

1 Prof. Jagtar Singh from Punjabi University, Patiala has highest number of publications to his credit. The second most prolific author was found to be Prof. Inder Vir Malhan from Central University of Himachal Pradesh, Dharmshala.

2 Library Herald (Delhi Library Association, Delhi) is the most preferred journal, with the highest number of publications (58) in it, followed by Journal of Library and Information Science (The Department of Library and Information Science, University of Delhi, Delhi) (48) and IASLIC Bulletin (Indian Association of Special Libraries and Information Centres, Kolkata (47) respectively.

6.1.3 Year wise Distribution of Research Productivity

1. It is noteworthy to mention that the publication output, the year 2012 is noted to be the highest productivity output (12.31%) over the period of the study
and the year 1984 is recorded as lowest productivity output (0.12%) over the 37 years.

2. Except a few years where the research productivity has decreased, an overall progressive trend in research productivity is quite visible. This upward and progressive trend in library and information science research productivity indicates a positive sign in the direction of adding to the existing knowledge base pertaining to Library and Information Science.

6.1.4 Preferred Communication Channel (Journals, Books/Book Chapters, and Conference Proceedings)

1. In the category of Book/Book Chapter, faculty members of select North Indian universities highest publications was recorded in the block year 2001 – 2010 (42.93%) while lowest publications was recorded in the block year 1978-1990 (1.46%).

2. In the category of Conference Proceeding, highest numbers of publications have been reported during the block year 2001 – 2010 (55.14%) however, lowest publications have been reported in 1978-1990 (1.65%).

3. In the category of Journals, faculty members of selected universities have highest publications in the block year 2011-2014 (45.38%) while lowest publications have been recorded in the block year 1978-1990 (6.45%).

4. Out of all 4 blocks, the block year 2001-2010 has contributed maximum publications 45.49% followed by the block year 2011-2014 (40.00%).

5. In the category of Book/Book Chapters, University of Delhi (18.78%) has contributed maximum publications whereas University of Lucknow (1.71%) has contributed the least.

6. In the category of Conference Proceedings, Babasaheb Bhimrao Ambedkar University (16.36%) has highest publications, on the other hand the LIS faculty of Dr. B.R. Ambedkar University (0.92%) have published least in conference proceedings.

7. In the category of Journals, University of Delhi (20.62%) leads followed by Aligarh Muslim University (12.71%) and Kashmir University (10.89%). Dr.
B.R. Ambedkar University (0.67%) has contributed least number of publications in the form of journals.

8 Faculty members of the universities under consideration have preferred Journals (42.89%) for disseminating and sharing their research output. Although, their academic contributions in the shape of Conference Proceedings is also considerably significant (40.17%). However, Book/Book Chapter comes out to be the least preferred (16.94 %) mode of publication.

9 The library and information Science faculty members of universities included Aligarh Muslim University (48.71%), Central University of Himachal Pradesh (48.89%), University of Delhi (49.88%), Guru Nanak Dev University (59.46%), Kashmir University (50.45%), Kurukshetra University (60.28%) and Panjab University (51.32%) have preferred Journal in comparison to Book/Book Chapter and Conference Proceedings as their medium of scholarly communication.

10 The library and information faculty members of universities included Babasaheb Bhimrao Ambedkar University (58.03%), Banaras Hindu University (45.90%), Bundelkhand University (45.68%), Jammu University (44.44%), University of Lucknow (45.16%), PUP (61.35%) have their maxima contribution in the form of Conference Proceedings.

11 Maharishi Dayanand University has contributed highest publications (37.10%) in the category of Book/Book Chapters and Dr. B.R. Ambedkar University has equal contribution (36.00%) in the category of Book/Book Chapters as well as in Conference Proceedings.

12 The null hypothesis (H₀₁): ‘There is no significant variation amongst Journals, Books/ Book Chapters and Conference Proceedings as preferred communication channels in the total research output’ is rejected. Hence, the alternate hypothesis (H₁): ‘There is significant variation amongst Journals, Books/Book Chapters and Conference Proceedings as preferred communication channels in the total research output’ is accepted.

6.1.5 The Relative Growth Rates (RGR) and Doubling Time (D(t))

1. The Relative Growth Rates (RGR) indicates growth in publications per unit of time. The highest relative growth rates was recorded in 1979 (0.47) and lowest
relative growth rates was noted in 1990 (0.06). The value of doubling time was found to be the highest in 1990 (11.99) and lowest doubling time was in 1979 (1.48).

2. The mean relative growth rates for the first phase of six years (1979-1984) is 0.26 and mean doubling time is 4.02. The mean relative growth rates for the second phase of six years (1985-1990) is 0.10 and mean doubling time is 7.32. For the third phase of six years (1991-1996) mean relative growth rates is 0.12 and mean doubling time is 6.05. Similarly for next fourth (1997-2002), fifth (2003-2008) and sixth phase (2009-2014) has mean relative growth rate 0.16, 0.14, 0.13 and mean doubling time 4.30, 5.12, 5.49 respectively.

3. The null hypothesis (H_0): ‘The relative growth rate is not constant during the publication year of LIS faculty members’ is rejected. Thus, the alternate hypothesis (H_a): ‘The relative growth rate is constant during the publication year of LIS faculty members’ is corroborated.

6.1.6 Authorship Pattern

1. In the block years, 1978-1990 and 1991-2000, faculty members have published highest number of publications as single authorship 52.81% and 57.63% respectively. The respondents under study publish less in the category of quadruple (4 authors) & papers with more than 4 authors publications. In the block years, 2001-2010 and 2011-2014, faculty members publish highest number of publications as double authorship 45.50% closely followed by single authored publications 41.42% and 54.65% respectively. The study follows the same pattern of previous years, posses lowest publications in category of quadruple (4 authors) & papers with more than 4 author’s publications. Overall the years 2001-2010 have maximum publications 45.49%.

2. In the category of single authorship publications, the block year 2001-2010 have highest publications. i.e., 49.24% and lowest publications in the block year 1978-1990 i.e., 5.08 %. In the category of double authored publications, the block year 2011-2014 have highest publications. i.e., 45.29% and lowest publications in the block year 1978-1990 i.e., 3.17%. In the category of triple authored publications, the block year 2011-2014 have highest publications. i.e.
50.00% closely followed by 46.50% in the block year 2001-2010 and lowest publications in the block year 1978-1990 i.e. 1.40%. In the category of quadruple (4 authors) & papers with more than 4 authors publications, the block year 2011-2014 have highest publications i.e., 62.50 % and lowest publications in the block year 1978-1990 i.e., 2.50%. Overall faculty members prefer to publish as double authored i.e. 48.27%.

3. In the category of single authorship and double authorship, University of Delhi has highest publications (20.09%) & (18.58%) and Dr. B.R. Ambedkar University has lowest publications (0.86%) & (0.94%). In the category of triple authorship, Babasaheb Bhimrao Ambedkar University has maximum contribution (28.32%). However, no triple authorship publication was noticed in case of University of Lucknow. With reference to quadruple (4 authors) & papers with more than 4 authors publications, Kashmir University has maximum share (37.50%) followed by Babasaheb Bhimrao Ambedkar University (22.50%).

4. Library and information faculty members of the universities under consideration have preferred double authorship (48.27%) for disseminating and sharing their research output. Although, their academic contributions in the shape of single author is also considerably significant (38.26%).

5. The null hypothesis (H₀₆): ‘There is no significant variation in contribution of co-authored articles and single authored articles’ is rejected. Hence, the alternate hypothesis (H₆): ‘There is significant variation in contribution of co-authored articles and single authored articles’ is corroborated.

### 6.1.7 Collaborative Measures

1. In the year 2012, Collaborative Index (1.88), Degree of Collaboration (0.70), Collaborative Coefficient (0.38) and Modified Collaborative Coefficient (0.38).

2. It was found that highest Collaborative Index (2.07) was in the year 2014 whereas Degree of Collaboration (0.83), Collaborative Coefficient (0.45) and Modified Collaborative Coefficient (0.53) were found to be highest in the year 1982.
3. The study depicts that highest number of multi-authored (more than 1 author) publications were 209 observed in the year 2012.

4. The null hypothesis (H₀): ‘The Modified Collaborative Coefficient (MCC) has no variation during the publication year of LIS faculty members’ is not rejected.

6.1.8 Bibliometric Laws

1. This study clearly indicates that Lotka’s law holds good to Library and Information Science, literature published by the faculty of north Indian universities under study.

2. The study observed that Bradford's Law of distribution holds good even for the distribution of Journals.

6.1.9 Designation wise and Gender wise Research Productivity

1. 52% of female respondents are Assistant Professor, 16% of female respondents are Associate Professors and 32% of female respondents are Professors. While majority of 40.5% of male respondents are Assistant Professor, 31% of male respondents are Associate Professors and 28.6% of male respondents are Professors.

2. The study also depicts that out of 2420 publications, 25.04% publications have been contributed by Assistance Professors, 30.46% publications have been contributed by Associate Professors while 44.50% publications have been contributed by Professors, which is maximum.

3. In case of Assistance Professors, Female Faculty Members have contributed 31.35% whereas Male Faculty Members have contributed 68.65% of total publications of Assistance Professors. In case of Associate Professors, Female Faculty Members have contributed 13.16% whereas Male Faculty Members have contributed 86.84% of the total research output contributed by Associate Professors. In case of Professors, Female Faculty Members have contributed 42.34% while Male Faculty Members have contributed 57.66% of the total publications of Professors.
4. Assistant Professors have preferred to publish in the category of Conference Proceedings (44.06%) whereas Associate Professors have preferred to publish in the category of Journals (43.01%). However, Professors also have preferred to publish in the category of Journals (44.57%).

5. In the category of Book/Book Chapters, Professors (40.73%) have contributed highest publications followed by Associate Professors (35.37%). In the category of Conference Proceedings, Professors (44.24%) have contributed highest publications followed by Associate Professors (28.29%), while in the category of Journals, Professors (46.24%) have contributed highest publications followed by Associate Professors (30.54%).

6. The null hypothesis \(H_03\): ‘There is no significant difference in research productivity at different hierarchy of designations (Assistant Professor, Associate Professor and Professors)’ is rejected. Thus, the alternate hypothesis \(H_{A3}\): ‘There is significant difference in research productivity at different hierarchy of designations (Assistant Professor, Associate Professor and Professors) is verified.

7. The null hypothesis \(H_04\): ‘There is no significant association between the research productivity of LIS male and female faculty member of select north Indian universities’ is rejected. Hence, the alternate hypothesis \(H_{A4}\): ‘There is significant association between the research productivity of LIS male and female faculty member of select north Indian universities’ stands accepted.

5.2 CONCLUSION

There are hundred (100) Universities including State & Central in North India. Out of these only fifteen (15) Universities have Department of Library and Information Science. The population of the present study comprises 67 faculty members of LIS departments of selected 15 universities. These 15 universities are located in 7 states of North India. The significant dimensions of the study included preferred scholarly communication, author productivity, authorship pattern, collaborative measures and other associated bibliometric indicators. Based on the combined arithmetic mean, the University placed at the top position is Babasaheb Bhimrao Ambedkar University (4.35) whereas the University placed at the bottom is
Guru Nanak Dev University (0.76). The average publications per university was found to be 161.33 publications. The overall average publications per faculty Member was found to be 36.12 publications. The year 2012 has highest productivity output (12.31%) and the year 1984 is recorded as lowest productivity output (0.12%). The highest productivity per author (PPA) is 0.87 papers in the year 1995 and lowest productivity per author is 0.48 papers in the year 2014. Prof. Jagtar Singh from Punjabi University, Patiala has highest number of publications to his credit. Library Herald (Delhi Library Association, Delhi) is the most preferred journal, with the highest number of publications (58) in it. The study concluded that Journals are most preferred publication type i.e. 42.89 %. University of Delhi (18.78%) has contributed maximum publications in the category of Book/Book Chapter, whereas University of Lucknow (1.71%) has contributed the least. Babasaheb Bhimrao Ambedkar University (16.36%) has highest publications in the category of Conference Proceedings. On the other hand the Library and Information Science faculty of Dr. B.R. Ambedkar University (0.92%) has published least in Conference Proceedings. University of Delhi (20.62%) has contributed highest publications in the category of Journals. However, Dr. B.R. Ambedkar University (0.67%) has contributed least number of publications in the form of Journals. Out of all 4 block, the block year 2001-2010 has contributed maximum publications 45.49 % followed by the block year 2011-2014 (40%). Library and information faculty members of the universities under consideration have preferred double authorship (48.27%) for disseminating and sharing their research output. The highest relative growth rates were recorded in 1979 (0.47) and lowest relative growth rates were noted in 1990 (0.06). The value of doubling time was found to be the highest in 1990 (11.99) while lowest doubling time was in 1979 (1.48). It was found that highest Modified Collaborative Coefficient (0.53) was found to be highest in the year 1982. This study clearly indicates that Lotka’s law holds good to Library and Information Science, literature published by the faculty of north Indian universities under study. The study observed that Bradford's Law of scattering holds good even for the distribution of Journals. The study also depicts that out of 2420 publications, 25.04% publications have been contributed by Assistance Professors, 30.46% publications have been contributed by Associate Professors while 44.50% publications have been contributed by Professors. In case of Assistance Professors, Female Faculty Members have contributed 31.35% whereas Male Faculty Members have contributed 68.65% of total publications of Assistance
Professors. In case of Associate Professors, Female Faculty Members have contributed 13.16% whereas Male Faculty Members have contributed 86.84% of the total research output contributed by Associate Professors. In case of Professors, Female Faculty Members have contributed 42.34% while Male Faculty Members have contributed 57.66% of the total publications of Professors. The study comprises of 6 hypotheses. Out of these 5 hypotheses have been rejected and 1 hypothesis has not been rejected.

6.3 SUGGESTIONS

On the basis of observations and findings of the research study, following suggestions are given:

1. As the Annual Report is compiled and prepared in digital form, they should be made available on the university website for easy access. In some libraries, the Annual Reports are lying on shelves in libraries, but they are not maintained year-wise.

2. Updated faculty members curriculum vitae (CV) should be made online on the respective universities websites with complete publication details.

3. Social media may also used for the Promotion and Marketing of research activities.

4. More visible and prompt method of sharing/dissemination of research should be adopted by Library and Information Science faculty members.

5. Library and Information Science faculty members should utilize

6. For achieving these freely available tools like Research Gate, Mendeley etc can be used. This will further strengthen the research impact of the discipline.

6.4 RECOMMENDATIONS FOR FURTHER STUDY

In view of the present research, the following recommendations may be carried out:

1. The present study is confined only to department of Library and Information science of select North Indian Universities. This study can be extended to
various Library and Information Science departments of universities situated in other regions of India as well.

2. Present study reflects the research productivity and trends pertaining to discipline of LIS only. The same can be replicated to other disciplines of Arts, Humanities and Social Sciences (AHSS) as well as Science, Technology, Engineering, Math, and Medicine (STEMM) also. This will facilitate comparative analysis and deeper insight.

3. Further studies covering other disciplines and other universities should be based on primary data collected from the faculty members directly as databases do not cover publications in all formats (Journals, Conference Proceedings and Book/book Chapters) (specially Indian) adequately. Thus, limiting the finding of the study.

4. Further research needs to be done on the availability and adequacy of resources to determine what types of resources most affect and influence the research and publication productivity levels of university faculty members.

5. Further study may be carried out to find applicability of Zipf’s Law and Specialized Index and Priority Index of the various subject fields preferred by authors to publish their research.