CHAPTER – 7
SUMMARY OF THE RESULTS
AND CONCLUSIONS
7.1 Summary of the Results

7.1.1 Year wise Recency Patterns

Average recency values of four journals have been calculated for the period of ten years. To find the distribution patterns of recency values of those journals, an analysis has been accomplished. Each of the four journals displays that the average recency values have been decreased in the study period. Combined result of all journals also indicates a decreasing tendency. But the rate of decreasing tendency is very low. The recency of an article decreases if the author uses more old cited items than the recent ones. An article level enquiry has been performed for this result. Surprisingly, most of the articles contain old cited documents in their references. But a large number of these cited documents are primary documents. Therefore, it is clear that in this information society the scientists, the researchers or the academics are able to retrieve old primary documents from various sources like online, CD ROM and so on in digital formats. Information Technology has changed the scope of the literature search to a better perspective by increasing the availability and the accessibility of information. Reflection of this change is found in the articles as well as in reference sections through the cited documents. As the decreasing rate of recency is low, it can be concluded that the use of old documents has increased to some extent during the period of ten years.

7.1.2 Distribution of Citations

Varieties of documents are used as cited items by the authors of the articles. Some of these documents are, by nature, of primary sources and others are of secondary sources. Most common cited items are manuscripts, conference proceedings, journal articles, theses and dissertations, books, newspapers, reports,
working papers and web documents. Moreover, several documents like personal notes, patents & standards, old records, occasional papers, video and audio cassettes, miscellaneous correspondences, trustee records etc. are also used as cited documents. A total of 48213 citations from four journals has been collected and analysed. These citations are categorized into ten groups. A separate analysis has been done to show the distribution pattern of cited items in different four journals during the period of ten years. The results show that the use of journal articles as cited items varies from journal to journal in different years. For example, most of the articles published in CRL and ISR have high percentages of journal articles as cited items in 2010 but IPM and LQ show their maximum percentages in 2008 and 2007 respectively in this regard. A leading percentage (55.54%) of all citations in four journals occupies journal articles as cited items. So it can be concluded that the scientists, the researchers or the academies are more concerned about the journal articles. They desire to choose these primary documents (journal articles) more in their reported works.

Generally, book is the most common secondary source to all. The study shows that three journals (i.e. ISR, CRL and LQ) out of four have a good number of books as cited items. Combined analysis of all citations from four journals exhibits that the books as cited items hold the second largest (21.49%) position. It ensures that the use of books as cited items is only next to the use of journal articles in importance. The use of conference proceeding, a primary source, is significant to authors of the articles. A considerable percentage (29.82%) of all citations in IPM which has been found demands a good position. Combined analysis allocates the third largest (14.54%) position to conference proceedings for its usage as cited items. Web
documents are also important cited items. The uses of email messages, blog entries, information from various social networks etc. have been increased notably.

7.1.3 Distributions of Leading Citations

The study finds that most of the leading cited documents are journal articles, books, conference proceedings and web documents. The authors of the articles show more interest to select these documents at the time of carrying out their studies. The percentages of these documents in total citations are more than the other documents like manuscripts, reports, newspapers, working papers, theses and dissertations. An analysis regarding the utilization pattern of these documents during the period of ten years has been accomplished. The outcomes of this analysis confirm that the use of journal articles, conference proceedings and web documents has increased during this study period but in case of book, it shows awful results. The use of books as cited items has been decreased dramatically during this study period. Amazingly, the decreasing rate of books as cited items is higher than the increasing rates of journals articles, conference proceedings and web documents. The later three cited items are primary documents in nature. Therefore, increasing tendency of these documents indicates that the authors of the articles mainly depend on primary sources of information. There are some reasons behind this significant change.

Most of the journal publishers provide the opportunity to access their journals through online. Some of the journals are available only through online access. Therefore, the use of the journal articles as cited items has been increased radically. The use of books as cited items that has been decreased dramatically depicts that the authors are not convenient to search for information more from books than from other documents. In this information age, most of the old primary documents are now
available in digital formats. These digitized primary documents acquire more acceptable positions than books and other secondary documents to the authors. Rising trend of web documents is a good indication of the rapid exercise of searching information from websites. It also confirms the usability and acceptability of web documents. Conference proceedings contain more budding information and most of them are now easily available in digital formats as well as in websites of institutions and organizations concerned. Therefore, the uses of conference proceedings are drastically changed during the period of ten years.

7.1.4 Average Citations in all Journals

An analysis for distributions of average numbers of citations in each of four journals has been carried out. Average numbers of citations of all journals have been increased drastically during the period of ten years. The increasing tendency of average citations reveals that the authors are using more sources of information to engrave their papers. It also discloses that during this period, various types of information sources have been increased and their availabilities have also been improved. Therefore, it can be concluded that the authors of the articles have enriched their reference sections of the articles.

7.1.5 Distributions of Authorship Patterns

An analysis for the distribution of authorship pattern during the period of ten years has been done. The findings of this analysis show that the authorship patterns during this period have dramatically changed. Numbers of articles with a single and the double authors have been decreased. But the numbers of articles with triple or more authors have been increased significantly. Decreasing trends in numbers of single and double author(s) articles specify the decreasing tendency of solo researches
of studies. Percentages of articles with four and five authors articles have also been increased. But the increasing rates are lower than the increasing rate of the triple authors articles. This result specifies that major scientific works, research works or studies have been carried out by triple or more people during this study period. In conclusion, it can be stated that recently, tendency of group research is gradually on the increase.

7.1.6 Recency and Authorship Pattern

The present study concludes that the recency of citations of an article depends on the number of authors of that article. Various advantages can be achieved to carry out a research work by group researchers, e.g. a large scope of the literature search, identifying more supporting documents, immense possibilities to track related ongoing projects, inclusions of expert comments and so on. Therefore, an article with two or three authors or more has large scope to identify related documents and to locate those documents in reference section at the time of writing up the research or study report. Naturally, cited items of that reported work are very rich in recency. Very recent cited documents make that article recent. All of the articles in journal IPM and LQ show significant and vivid picture regarding this conclusion. Though there are small exceptions in the journals CRL and ISR, the composite results of all journals strongly support that the recency increases if the number of authors is on the increase.

7.1.7 Recency and Article Types

All the 1307 articles have been categorized into three groups - ‘Conference Papers’, ‘Original Articles’ and ‘Review Articles’. To find out the relation, if any, between types of articles and recency values, an analysis has been performed. The
results show two different relations and these relations vary from journal to journal. In some cases, conference papers possess high recency values. This picture is seen in the journal IPM. But in CRL, the recency values of original articles and review articles are higher than the recency values of conference papers. But the average results indicate that recency values of review articles are always higher than those of others. When conference papers acquire high recency values, it ensures that the conference papers cite more recent information and the themes of the conference, workshops, and seminars are more updated.

7.1.8 Recency and Article Impacts

A separate analysis regarding the article impact and recency has been carried out on all of 1307 collected articles in this study. A large number of those articles have been cited many times in different documents. The article impacts (cited in times) of all articles have been considered in this study period. Main object of this analysis was to find out the correlation, if any, between article impacts and recency values of those articles. The results of this analysis indicate that there is a positive relation between article impact and recency. If the article impact increases, the recency value also increases. This effect has been noticed in most of the articles published in four journals. For the articles published in CRL and IPM, the result shows strong positive correlation whereas in ISR and LQ it shows weak positive correlation. But there is no negative correlation in these journals. The composite results of all journals ensure this positive relation between recency and impact. Though some exceptions are noticed in several articles, in conclusion, it can be stated that article impact and recency value have established a positive but not strong relation.
7.1.9 Recency and Topics of Articles

The articles on the topics ‘Database Management’, ‘Storage & Retrieval’, ‘Information Processing’ and ‘Digital Library’ are in the domain of Information Technology. Most of the articles on IT have been published during the period of ten years and the recency values of those articles are higher than that of other articles. It clears that a lot of research works and studies have been carried out during this period and most of the cited documents in those reported works are very recent in nature than that of other studies. Various research works on current issues have been accomplished during this study period. Both, the number of articles and the recency values are lower in case of ‘Library Users’, ‘Library Research’, Library & society’, and ‘Library Administration’. This result demonstrates that a small number of research works and general studies have been carried out with conventional issues. The cited documents of those articles are also mature in age. The articles on the topic ‘In-house Operations’ have lower recency values than the recency values of others but this topic contains a good number of articles. It specifies that many articles on acquisition, collection, card cataloguing, classification, circulation activities, serial management, accounting etc. have been published with aged cited documents. Therefore, it can be concluded that most of the research works have been carried out on current issues especially in the field of IT and very recent documents have been consulted by the authors of those reported works.
7.2 Conclusion

Citations are a way to acknowledge intellectual debts. Citations give the necessary information to find that source again, including information about the author, the title of the work, the publishers’ information, date and so on. Cited items contain book, journals, dissertations, theses, web documents, manuscripts, newspapers etc. It should always be stressed that citation data must be carefully interpreted and their limitations must be clearly understood when they are used for evaluating anything. Citations numbers, authors and their frequency of publications of articles greatly depend on the disciplines. According to Garfield (1990), smaller fields like Botany or Mathematics do not generate as many articles or citations as, say, Biotechnology or Genetics. Also, in certain fields it may take ten or more years for an article to attract a meaningful number of citations, while in other research areas citations can typically peak after only a few years. Therefore, in this research work, all the cited items are carefully examined and evaluated for the study.

Citation analysis has blossomed over the past four decades. The field now has its own International Society of Scientometrics and Informetrics. Stephen Lock, the former editor of BMJ, has aptly named the application of bibliometrics to journals evaluation “journalology” (Lock, 1989). Citation analysis typically points to the evidence of the correlation of citation counts with other measures of the quality of documents or their authors, such as publication productivity, peer ratings, and awards of grants and prizes (Cole & Cole, 1967). For example, Garfield (1973) used citation analysis to evaluate journals.

Bibliometrics offers a powerful set of methods and measures for studying the structure and process of scholarly communication. Citation analysis, the best known of bibliometric approaches, has become more sophisticated and the advent of networked information technologies has led to quantitative and qualitative advances in other bibliometric methods. More connections exist between documents, both in the form of citations and in the
form of active hyperlinks that allow an information seeker to move between related documents (Harnad & Carr, 2000).

Citation analysis is applied to evaluate and discover the relations among various attributes of cited and citing documents. For example, co-citation measure was designed to identify the relationships among print publications; similarly, an impact factor was developed to assess the influence of a journal, an author, a laboratory, a university, or a country. Citation analysis is now an accepted bibliometric measure to all the researchers and scientists.

The present research work is based on citation data which focuses on the recency of the cited documents in the articles published in Library and Information Science. All the conclusions in this section are based on this study and applicable to the articles published in the field of Library and Information Science.

Recency of an article has been calculated by using the cited documents of that article. Cited documents of an article depend on a number of factors such as authorship pattern, topic of the article, nature of the research work, and type of the article and so on. Therefore, recency of an article also depends on those factors. Almost all the factors have been included in this study. A method of calculation of recency value of an article has been developed by using statistical tools. Though there are some pros and cons in this method the entire research work based on huge numbers of citation data would not be investigated and evaluated easily.

Many cited documents have been identified and classified into different groups for ease of data representation, analysis and interpretation. The study has found that the nature of cited documents vary from journal to journal. For example, a number of journal articles as cited documents in ISR is higher than that of the other three journals and the number of conference proceedings in IPM is higher than that of the others. The journal articles, books and conference proceedings are the most important cited documents in all of the articles as well as in all of the journals. Use of web documents is also significant in this regard. Therefore, in recent times, most of the authors of the articles like to choose those information
sources largely in their research studies. The uses of web documents, journal articles and conference proceedings have gradually increased during the period of ten years but the use of books as cited documents has been decreased dramatically. So, it indicates that the use of secondary sources of documents has been decreased.

The study reveals that numbers of cited documents vary from journal to journal as well as article to article. For example, an average number of citations in an article published in ISR is two times higher than that of in CRL. The study also ensures the increasing trends in numbers of citations in the articles. An average number of cited documents in an article has been increased in this study period. Thus, in this information society, the authors are utilizing more information to carry out their research study. Availability and accessibility of large volume of information have made this situation simple.

The authorship pattern of the articles has been changed during the period of ten years. Most of the articles published in recent times have two or more authors. It certifies that the group research or group study is increasing in a greater way. A number of cited documents in those articles is higher than that of in a single author article. Recency values of double or triple authors articles are higher than that of others. It concludes that researcher or academes are depending on most recent and current documents to carry out their study.

Cited documents of a conference paper are most current documents than that of a review article. The study clears that this statement is not true for all journals. It varies from journal to journal. Therefore, the recency value of a conference paper may be higher or lower than the recency values of original article or review article. For example, recency value of conference paper published in IPM is higher than that of in LQ. So, recency value of an article does not depend on the type article in all the time.

A general relationship has been found between article impact and the recency value of the corresponding article. Recency value increases if the article impact increases. Therefore, the high impact article contains most current documents in its reference section.
Recency values of articles published on current issues or on Information Technology are higher than that of other topics. As each of the articles deal with one particular topic or subject matter recency value also depend on subject content or topic of an article.

In the conclusion, it is stated that this study has explored a number of avenues to conduct another different studies in future. Recency measure of the citations as well as the articles published in other fields is required. Comparison among different recency values of articles published in multidisciplinary fields is needed. It provides the possibility to conduct further study for analysis of recency with co-citation and self citation. There is a greater scope to develop a tool for the evaluation of persons, journals and institutions based on recency of citations.