## 6. FINDINGS, SUGGESTIONS AND CONCLUSION

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PARTICULAR</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Introduction</td>
<td>163</td>
</tr>
<tr>
<td>6.2</td>
<td>Findings</td>
<td>163</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Part A: Research output deduced from LIS theses</td>
<td>163</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Part B: Research scholar's feedback to questionnaire</td>
<td>167</td>
</tr>
<tr>
<td>6.2.3</td>
<td>Part C: From Literature review and Interviews</td>
<td>171</td>
</tr>
<tr>
<td>6.3</td>
<td>Suggestions</td>
<td>173</td>
</tr>
<tr>
<td>6.3.1</td>
<td>General suggestions from the researcher</td>
<td>173</td>
</tr>
<tr>
<td>6.3.2</td>
<td>Part A: LIS research output deduced from LIS theses</td>
<td>175</td>
</tr>
<tr>
<td>6.3.3</td>
<td>Part B: Research scholars' feedback to questionnaire</td>
<td>178</td>
</tr>
<tr>
<td>6.3.4</td>
<td>Part C: From Literature review and Interviews</td>
<td>180</td>
</tr>
<tr>
<td>6.4</td>
<td>Scope for further research</td>
<td>180</td>
</tr>
<tr>
<td>6.5</td>
<td>Conclusion</td>
<td>182</td>
</tr>
<tr>
<td>6.5.1</td>
<td>Critical analysis of the study</td>
<td>185</td>
</tr>
</tbody>
</table>
Chapter 6: Findings, Suggestions and Conclusion

6.1 Introduction:
There has been a phenomenal growth in teaching and learning in LIS and also in the research carried out in LIS in India during the last few decades. The LIS research activities have also shown deviations in implementation of new concepts in practice due to adding ICT element. To assess the research element covered in LIS using trends and technologies due to which changes have taken place in research area. It is the need of present time and hence this study is conducted. In the present study the researcher has analyzed the doctoral research work from top Indian universities and also revealed the impact of ICT using the citation study. The observations deduced for the data analysis, literature published, and opinions of experts in the field are reported in this chapter as findings of the study. The findings are grouped in Part A, B and C. The prominent findings from the study are presented below covering national, western Indian universities, and top Indian universities in India.

6.2 Findings:

6.2.1 Part A: Research output deduced from LIS theses:

1) LIS research in India is progressing continuously since 1950 and till 2013 nearly 1000 PhD research degrees have been awarded by different Indian universities, DLIS. The progress in LIS research is satisfactory and enhancing year by year but research conducted among the Indian universities are uneven and few DLIS are more productive in carrying out research where as few universities have not included research element so far.

2) The trends in Indian LIS research is slowly shifting towards undertaking modern concepts and ideas like ICT, but overall scenario is inclined still towards the traditional concepts and commonly used the descriptive research method for conducting research studies using survey and questionnaire technique.

3) The period 2001-2010, is the most productive period in Indian LIS research, and nearly 55% of research is carried out in different areas of LIS. However the period 1990-2000 was also prominent as compared to prior years in
conducting research activity, where in almost 41% of research is reported. It can be concluded that the period 1990-2010 is a peak period wherein 96% LIS research output is recorded in India in different areas of LIS.

4) It is noticed that among the different areas of research conducted in LIS, more prominent research areas in which research carried out more are: nature and types of libraries, library and society, changing role of libraries etc. (42.97%). Around 16.59% research activity is carried out in applications of management concepts in libraries. Researchers have identified and used different management tools for effective management of libraries in their research study. The area of information services (13.28%) is also considered as prominent areas in conducting research and using the different methods for delivering better services to users. Organization of Knowledge is accepted by 10.89% researchers for their research study and contributed more towards devising new subject headings for classifying new disciplines for which schedule has limitations as well as cataloguing of different documents especially non-print.

5) The use of ICT and its applications in the library management (4.62%) which is developed since 2000 onwards is reported comparatively less than traditional subject areas but in the following years the growth might be more covering new upcoming areas based on trends.

6) The weakest research areas reported in LIS research are Information Retrieval System (IRS), reference services, information services, research methods, information and communication etc. which accounts for only 3.12%. But these areas are most affected areas due to ICT.

7) Use and user studies, and information seeking behaviour studies are also leading in LIS research activity representing 3.73%, as there is a need to conduct such studies due to changing environment in LIS constantly. Such studies need to be concentrated.
8) In general it is observed that research strategies are based on traditional areas more than considering new areas, and there is a need now to strengthen the research considering new concepts like ICT usage, Internet, networking of libraries, use of web tools, Social networking etc information retrieval and dissemination systems.

9) Few researchers have selected advanced topics for research in LIS like information services in digital era, knowledge management, organisation of digital knowledge, ICT etc. along with traditional areas. The introduction of new areas in research study is a very good sign but need more consideration.

10) From the analysis it is observed that from the selected top universities first five ranking universities in which LIS research is carried out more are – Karnataka University – 8.09 %, Andhra Pradesh University – 17.77 %, Delhi University – 14.28 %, Gauhati University – 8.57%, and Osmania University – 8.25%. Karnataka University is more prominent in LIS research and contributed nearly 18% in national output of LIS research. The above five universities are contributing nearly 66 % of total research output of India. The reason behind this might be more research guides are available for giving guidance and inclination of LIS professionals are towards registering for research is also increasing.

11) The LIS research carried out in India is organized in four zones, and analyzed. It is noticed that nearly 60% LIS research is reported from southern zone of India and it is the most productive zone in LIS research. The north and east zones contributed to 22.22% and 17.77 % respectively in LIS research. In comparison to all these zones western zone of India is weak in conducting research activity and reports to only 0.2 % contribution. The fact is deduced on the consideration of India Today –Nielsen survey, and sample selected from this report depicts no top Indian university represented from this zone and hence the results are getting low. But to some extent the data is workable when considered literature review. In addition to this data other resources pointed out that LIS research in western part of universities especially in Maharashtra (89.47%) is prominent in which Pune and Nagpur universities are
at leading positions in participating research programs among different universities in state.

12) Nearly 90% research work in LIS is carried out under the guidance of solo or single guide ship and the senior experts are leading in this category. But a trend is also noticed that 4% research in LIS is conducted under co-guide ship. The trend of solo-guide ship is more prominent in natural sciences due to multidisciplinary nature of research conducted. But in social sciences this practice is surfaced out due to introduction of new areas like ICT. It is also reported that 21 senior most guides in this survey supported to carry out 50% of LIS research in which one guide has guided to more than 24 students (Dr C R Karisiddappa for Karnataka University, Dharwad). Whereas 90 guides supported in undertaking the remaining 50% of LIS research activity in survey.

13) Research in LIS is dominated by male researchers than female researchers (69.84%). Female researchers are also increasing and participating in research activity (26.66%). The female researchers are comparatively less than the male researchers and it might be due to constraints faced by them in getting time for performing research studies because of dual responsibilities.

14) Use of journals by researchers are more and ranked first, since journal covers nascent information and the use is more and it is true in LIS research too. Nearly 45% LIS researchers referred to the journals, followed by use of books and conference proceedings (7.05%). This data supports to general trends of usage of literature in social and natural sciences. However due to ICT the other non print collection available in e-form is also reported in research, as researchers are using internet and web tools. It is also observed that LIS researchers are using e-publications and web based resources (9.48%) for carrying out research and using new media. In social sciences e-resources are less as compared to natural sciences but the rate of e-resource usage is increasing slowly.
15) Researchers are now familiar with the use of search engines and internet resources and they have used references available over different domains. The LIS researchers have used academic domain (7.71%), commercial domain (25.32%), education domain (11.58%), government domain (5.15%), organisational domain (27.89%) and gathered information for research. But among all the domains it is found that LIS researcher use heavily organisation, commercial and education domains.

16) The usages of print citations (90%) are more used than e-citations (10%). But it is good sign that LIS researcher are now using e-publication for supporting to their research study.

17) The trends in LIS research are shifting towards multidisciplinary subject areas and also introduced in LIS research to manage research appropriately and solve the problems faced by library professionals.

6.2.2 Part B: Research scholar's feedback to questionnaire:

1. The analysis of the content of the research titles of the thesis using LCSH revealed nearly 201 different subject headings covered in LIS research. The researchers have more interest in conducting research in academic libraries within different states of India (9.95%). The ranking of the subject also reveals that management, special libraries, information seeking behaviour, web study, bibliometric method, and automation are popular areas. Few studies covering latest trends in profession like ICT, networking, digital libraries, green computing, and human-computer interaction etc. are also reflected in the survey. The analysis focuses on the fact that different states in India like Andhra Pradesh, Gujarat, North East region, Tamil Nadu, Uttarakhand, Karnataka, Kerala, Maharashtra, Punjab, Rajasthan and Uttar Pradesh are taking keen interest in conducting research and contributing to 13.43%.

2. During the period 1996 - 2013, the period 2007-2013 is the most productive period (81.92%) in LIS research. However during the period 1996-2006 almost 18% of research is reported.
3. The nature of guidance to the researchers is by a single / solo guides (97%) and co-guide ship is also introduced in LIS due to merging of new areas in the profession and hence co- guidance is also reported (3% approx) in LIS.

4. From the respondents feedback, few universities apart from the surveyed sample are conducting research extensively like University of Pune (15.27%), SNDT Women's University (8.33%), Bharatisadan University (5.55%) etc. and are at the leading position in Indian research contribution.

5. The respondents feedback (100%) have confirmed that the scope for further research is present in their reported research and 98% researchers have justified their research theme as one of its kinds. There is a room for further studies. The LIS researcher's findings, were related to the objectives set for the research problems (95.83%) and have confirmed it in the study, where as 4.17% has not confirmed the relation.

6. The 66.62% of respondents have used descriptive and survey method for their research study. Citation analysis method is used by 9.7%. Experimental research is used by 2.77% researchers whereas historical method is used by 1.38% and case study is used by 2.76% researchers. The techniques used are different in these methods.

7. For the research study, the population selected by the researchers is preferably belongs to Academic Libraries 38.27%. Rest of the libraries viz. public and special are considered by a very few. Use and user studies are 16.63 % and use of ICT is reflected 8.29% in research activities.

8. The research tools preferred by researchers are questionnaire, personal interviews and observations which are about 59.72%. The mode of data collection is preferred by researchers covers both traditional and modern means of communications and also used different forms of literature.

9. Various statistical methods are employed by the LIS researchers for data analysis purpose but 15.27% preferred the use of SPSS statistical software, which is very commonly used by researchers of social sciences, followed by usage of Microsoft Excel and percentile 9.72% each. Researchers also used Chi Square, average and mean, derivation methods, ranking system of
evaluation, graphical and tabular presentations. HistCite software for citation analysis etc. This is a good sign for making the analysis systematic and meaningful.

10. It is deduced that 76.38% LIS researchers have agreed that their studies are tuned to the education and research implications. The studies have been useful to LIS profession and auxiliary management services with 13.88% followed by information services and practices with 12.5%.

11. The LIS researchers have presented their research studies in different chapters ranging in between 4 to 13. The researchers have preferred the submission in prescribed format fixed by the university. 47% researchers have reported the study in six to seven chapters and 10% researchers in 8 to 9 chapters. Only one thesis is presented in 13 chapters and one in only 4 chapters. Thus research studies generally presented in between 6-8 chapters.

12. 91.66% LIS researchers have reported post research publications and continued research activity and contribution in the form of publishing research papers, in journals, book or chapters in a book.

13. The range of contribution in publishing papers is in between 1 to 17 after declaring the PhD. 61.15% research contribution covers 1 to 4 papers. 15.25% research contribution covers 5 to 8 papers. Whereas 12 and 17 papers are contributed by one researcher each. One researcher has indicated contribution of 110 papers and he maybe the senior most LIS researcher.

14. Only 24% researchers have made efforts in publishing the research work in book form and 26% researchers have made efforts to contact the publishers and the publishing research work is in process. It is observed that remaining 50% LIS researchers have not published their research in book form so far. However these researchers have indicated that they have made up their mind in publishing the research work.

15. Nearly 68% theses are already uploaded in repositories like INFLIBNET and 24% researchers have indicated negative opinion due to ICSSR policies. 7% researchers have indicated that university may take the appropriate decision
for inclusion of thesis in repositories. Whereas 1% researchers shown negative interest in publishing thesis.

16. The 47% LIS researchers indicated that research work conducted by them are cited by either fellow researchers or the research students working under their capacity. It is also observed that very few are aware of the citations. While 53% researchers are not knowing the status of citing the research study conducted by them.

17. It is understood that there is a very less possibility of filing patents in social science research as patent filing is based on fact finding and providing solutions based on novelty, utility and innovative concepts. Simply suggesting any new concepts which can not be a base for the filing of patents in case of natural sciences. In social science rarely novelty is presented hence the response for filing patents is 100% in negative side.

18. The 68% LIS researchers indicated that their research study is useful to profession in implementing new developments and solving the management problems. The researchers have taken up the practical problem at their working place and have come up with the solutions to solve the problem.

19. The 67% LIS researchers indicated that their research studies have been adopted and used by other libraries also but 34% researchers reported that they are not aware of the use of their studies.

20. The 92% LIS researchers do not receive any type of financial aid or grant for any organizations / agencies like UGC, ICSSR or NGO's. But only 8% researchers are the beneficiary of research grants for conducting research study.

21. The 86% researchers share their research experiences with others. The research generally conducted to provide solutions to the problems and hence sharing the research concepts by contributing in different sources is advisable.
22. The 89% LIS researchers shared their views on positive as well as negative aspect of LIS research in India and submitted their feedback in proper manner. The respondents have suggested passively that there is a need for research based on new concepts.

23. The LIS researchers are inclined towards interdisciplinary approach and have included ICT based topics along with Computer Science, Pure and applied Science, Management, Social Science, Medical and Veterinary Science etc. It is found that research in LIS is exploring multidisciplinary approach as different areas are introduced in LIS research.

24. The LIS researchers are experimenting with usage of mobile phone cameras, open source software, programming language, e-resources and databases etc. for collecting data. Thus there is gradual paradigm shift from traditional data collection to technology based data collection.

25. It is found that IPR issues are not taken up by the researchers properly. Proper citations to the used literature of any scholar need to be acknowledged suitably. This helps other researchers to correct the drawbacks of others.

6.2.3 Part C: From Literature review and Interviews

1. The credit for introduction of research degree programme in LIS in India goes to Dr. S.R. Rangnathan, Delhi University, 1958. The first PhD was awarded to Dr. D.B. Krishna Rao for his thesis “Facet Analysis and Depth Classification of Agriculture” under the guidance of Dr. S.R. Rangnathan.

2. The research output made during the period 2000 to 2008 is 43.02%. Yet another 40.52% of the research output was made during the previous decade i.e. 1990 to 1999. It is evident that more than 83 percent of the Ph.D. degrees were awarded during the past 19 years. It is concluded that majority of quality research output can be isolated during the last two decades. The LIS research by the end of 2012 is reached nearing to 1000.
3. During the period 1957-2008, 802 doctoral degrees were awarded by various Indian universities. Since 1991 a steady rise is reported in LIS research activity and 1991-2008 periods is the peak period of research. The present situation is that on an average 35 doctoral theses are being accepted and awarded Ph.D. degree every year.

4. The universities in the State of Karnataka have awarded highest number of PhDs in LIS by end of 2008 amongst top 10 states in India. The state wise distribution of research output in LIS by end of 2008 were Karnataka (169), AP (96), Madhya Pradesh (80), Maharashtra (68), West Bengal (56), Punjab (45), Orissa (43), Uttar Pradesh (42), Rajasthan (41), Tamil Nadu (31) and other state's contribution is 141 degrees. Karnataka and Maharashtra states are at leading positions in conducting research activity.

5. The guide-wise output of doctoral theses analysis depicts that Prof. C.R. Karisiddappa has successfully guided for 31 doctoral degrees. Prof. S.L. Sangam is in the second place with 21 doctoral theses. Prof. V.G. Talawar from University of Mysore has guided and supervised 15 doctoral theses. Prof. P.S.G. Kumar from Maharashtra and Prof. Ramesh Babu from Madras University are the major contributors as guiding professors to researchers at national level.

6. It is observed that research conducted in Indian universities is inclined towards bibliometric method, library management, university library, information systems, information seeking behaviour, library and information services, public libraries, IT, use and user studies, resource sharing and networking, college libraries, information sources LIS education etc. Thus more than 50% research (473) degrees in Indian universities were awarded in these research areas.

7. Numbers of studies have been conducted in LIS research, but the data varies from study to study and reporter to reporter. But there is no standard compilation available in respect of quantum of research conducted in India, in spite of devising new tools like repository, web pages and links and traditional bibliographic tools. Even web pages of university libraries are not indicating updated status of research conducted and in process.
8. Many government initiatives have been taken by different agencies instrumental in the development of LIS research. The commission initiatives like Radhakrishnan Commission; Kothari Commission; National Policy on Education, National Knowledge Commission and functioning of institutions such as UGC, NAAC, and DEC have influenced the entire higher education sector as well as supported to research activities in different fields.

9. According to the research articles and studies published in LIS pertaining to doctoral research, growth in LIS research in India has been gradually increasing.

10. One of the reasons in increasing the interest in conducting research and increasing in growth of doctoral research is apparently seen due to upgrading of scales and giving additional increments to researchers.

11. The LIS research is progressing fast in India. DLIS are taking lead in to research activity by initiating research programs like M Phil and PhD. The guides having the experience in the profession are selected by university authority and assign research students to each guide. The duration of PhD course is five years and extendable as per the norms set by the respective universities. But shortage of guides is reported in the survey.

6.3 Suggestions:

6.3.1 General Suggestion from the Researcher:

1) There is a need to prepare a national record of research guides with experience in profession, affiliation to universities, expertise in the field or LIS area, number of students guided and in hand and vacancies available with them. This register may help researchers in selecting the guides for their research studies.

2) At present it is observed that the lecturers, professors who are engaged in teaching in LIS are the guides, but many expertise from special libraries, industrial libraries are eligible for guidance and need to be employed to share the new concepts in research activity in LIS. Further a trend in selecting co-guide ship is also needed to be introduced to manage multidisciplinary areas in LIS. The new entrants might definitely contribute to practical research.
3) The competition to seek the admission for the PhD is increasing every year due to norms set by the academic organizations, but numbers of appointed guides for the guidance are comparatively very less. Hence the desired candidates do not get admissions to research programs.

4) Every university or DLIS have to put the data related to research completed and ongoing research on the web site and also update the data frequently to know the status of research conducted in the university. All the Indian universities having DLIS and conducting research program has to develop their own web pages and disclose the data. This is possible as the ICT is introduced in the syllabi as well students can take the projects.

5) There is a need to have a standard procedure for seeking admission to PhD course in all the Indian universities. A set of standard guide lines from admission to final output is to be developed and this might help researchers in selecting university and guide for research. The standard web page to be developed by the central agency like INFLIBNET, ICSSR etc or state level node.

6) The different notifications pertaining to LIS research activity is brought to the notice of researcher regularly by initiating SMS services.

7) For seeking admission in the universities for the PhD program a common cadre entrance test may be conducted instead of individual university exams. This may facilitate to get the admission to the students based on rank and also all the departments may get sufficient research students. These benefits to both students and departments. The communication is so fast that guide and students may be at any place.

8) Research design is also to be standardized for the Social Science stream. This might bring uniformity in disclosing the research. This is applicable to all Indian universities.

9) A national database of research completed and ongoing research is to be maintained to avoid the duplication of research. At present many efforts are made at different levels but somehow or the other compilation is not proper and comprehensive.
10) The research thesis displayed on web pages or in the thesis repository in full text may be discontinued to avoid plagiarism issues. Only bibliographic details and content pages of the thesis can be displayed. The availability of full text thesis free on repository hinder the researcher to publish their work in book form and affect on the sale of the copies and hence publishers also reluctant to publish the research work in book form when the data is available open in market.

On the basis of the findings suitable and feasible suggestions are placed below to improve the productivity and quality in research. The suggestions deduced from the observation of user survey are reported below:

6.3.2 Part A: LIS research output deduced from LIS theses:

1. LIS research in India is progressing since 1950 and also growing at an alarming speed since 2000 onwards. However there is no standard and reliable compendium of research conducted so far as well as in progress at national level. Few universities have loaded the research data on web but not updated regularly and many are yet in the process. Researcher strongly suggests that the proper bibliographic control of LIS research data be maintained at the university level and hosted on web and also updated regularly. The efforts at the national level are to be monitored by UGC / INFLIBNET and Association of Indian Universities. A comprehensive bibliographic control is necessary to avoid the duplication of research.

2. The topics selected by researchers are not current and hence recent trends are not reflected more in LIS research. In such cases there is a need to appoint new guides who are strong in the area of ICT and modern technology so that researchers can shift to new concepts in the field.

3. Library professionals are feeling the need of undertaking research but guides are not sufficient to enrol the professionals as researchers. The intake capacity of the guides in the department is to be increased. The selection criterion for the research guide is to be fixed.
4. The traditional subject areas in LIS are fully saturated and research in current areas is reported weak in the survey. The researcher identified few areas in which research is required and suggested that there is a need to assign the topics to researchers. The areas are library networks development, applications of web tools in practical management of library, library services using digital media, digital content management, digital resource management, resource sharing using modern tools, consortium management, collection development policies in digital era, tools for enhancing resource sharing, digital libraries and trend in library services, database development, information searching and different techniques, library networking, web tools and internet etc. are the prominent areas and based on this ISB studies are also to be conducted. These are the few new and upcoming areas in LIS in which there is a scope for conducting research.

5. Instead of using descriptive research study methods there is a need to analyse the problems based on secondary analysis or experimental methods to have diversions in the methods. The analytical studies using past experience can be used to predict the new concepts in the profession.

6. The research population selected by the researchers is academic library domain and very few studies relates to special, industrial or public libraries. Hence these areas are to be considered more for conducting research.

7. The format of research report writing and presenting in a thesis form is to be standardised and fixed the limit of chapters and pages including style guide usage. In absence of these the reporting of research is in different forms and not standardized.

8. The researcher felt and would like to suggest that concept of full text repository for the theses is to be converted in to bibliographic databases with possible abstracts and summery included in it. This helps in avoiding copying of contents by others. However the thesis can be published as modified text in brief, in book form or in the article form but research results must be communicated to public for general use.
9. For the less salaried researcher or students without employment need to be provide financial aid. The practice of financial aid is followed instead of granting study leave to employed staff. Since period is quite lengthy (5 years) it is possible for the researcher to present the thesis in stipulated period. In shortage of manpower this is a sort of crises to organization to manage within the limited staff after deputing the researcher on study leave. There are other routes like awarding Junior Research Fellowships to the researchers and depute on scholarships.

10. Regular progress in research study performed by the candidate is to be monitored by organizing presentation of researchers in respect of work done. The committee should scrutinise the progress and certify the study as well suggest if there is deviation or weakness in performing study every year instead of six months report without review.

11. It is suggested that the researchers need to focus on and undertake a research work on the subject areas which are not yet considered viz. use of internet, development of web based services, networking of libraries, Library 2.0, web tools and library systems etc.

12. Among the different states of India, Karnataka, Maharashtra, A.P, Delhi are at leading position in LIS research. Whereas few universities (Goa University) have not yet developed research element so far. A uniform policy for the development of research studies is to be developed by UGC for the benefit of LIS researchers.

13. Researchers are still depending on print resources where as it is suggested that huge information is available in e-resources form over the net. Hence researcher have to change their information collection habits using e-resources along with print resources.

14. Literature review is necessary for conducting research study, but very few researcher have conducted comprehensive searches on specific topics useful for the study. In general literature scan is not to the mark. Use of Internet
resources, databases, review articles need to be consulted while conducting qualitative research work.

15. There is a need to encourage female library professionals to enter into research activity. In the survey the contribution of female researcher is reported at minimal.

16. It is suggested that university libraries and other organizations awarding PhD degrees in LIS has to update their web page frequently and provide the updated data for research by Intranet as well as Internet. This definitely will be useful for developing databases, providing links, and also very useful to the researchers and research guides in avoiding duplication efforts.

17. It is noticed that researchers cited the electronic references incomplete way in the bibliography and references and hence it creates difficulty for the future researcher to find out the full text document. Researcher must have to take care and provide complete bibliographical details of the references in the research work by providing URL along with accessed and retrieved date, and intellectual developer etc. (author, title etc.) to facilitate others to reach to the source over the internet.

18. Quality control mechanism can be managed by forming a high level committee comprising of senior library educators under the Indian university with PhD research program. The committee should work out strategy before publishing the research work of the researcher of their respective university. This streamlines the process and maintain a close links with library schools in other countries for global librarianship. The mechanism also keeps check on the e-theses repositories of the universities. It also avoids duplication of work, check and counter check on plagiarism, and authenticate the currency of topic and its practical orientation.

6.3.3 Part B: Research scholars’ feedback to questionnaire:
1. Though 50% theses are available in printed form it is suggested that there should be some quality control mechanism to find out the quality of research work before its publication in different forms.
2. The research in LIS have to identify some major problems in LIS so that they can find out some practical solutions to the problems by way of conducting study.

3. It is suggested that the structure of the thesis should be of six to seven chapters, viz. introduction, review of literature, chapter on main theme of the research study, supplementary chapter, data analysis and interpretation and lastly findings, suggestion and conclusion. In addition to this specific models are to be developed by the candidates can be taken out as additional chapter or conclusion can be presented with a model developed by the researcher on the basis of research study.

4. There is a need to create awareness amongst the LIS researchers about the IPR issues and its filing procedure with the help of legal expert. There is a need to evaluate the best ways to prepare doctoral students to succeed in this interdisciplinary and multidisciplinary environment.

5. The LIS research should adopt amalgamation of other discipline and multidimensional approach; the study pointed out that there is a need to conduct deliberations, information literacy program, short duration workshop on intense education and training for the research scholars to acquaint them with the advanced information tools and available resources in the library which may help in conducting better research.

6. The emerging areas for LIS research identified to bridge the research gaps are Library accreditation, Modernization of library services in the changing scenario, evaluation of web-based services in digital libraries, and preservation and conservation of library materials (electronic media), Library and social networking, Digital imaging, market potential and market strategies, repository software, open access publication, IR and digitization to develop education network/ knowledge network, emerging technologies to attend tech savvy user community, global network environment, Knowledge Management, Web technology etc.
7. It is suggested that the universities and research institutions are to be provided with more financial assistance in the form of research grants to increase the quality of research education.

6.3.4 Part C: From Literature review and Interviews:

1. The data is dispersed and reported differently in resources, but there is a need to assemble the research data and collect for validation of data concerning to degree awarded in Indian universities. It is also a possibility to tie up this database to international sources for interchanging the data. This helps in recognizing topics for research and also avoiding duplication of work. Truly attempts are made as discussed but still database needs updating.

2. It is noticed that out of 28 Indian states, notable research is carried out in ten states and the other states have low profile in research. There is a need to accelerate the research activity in every university equally. Kamataka and Maharashtra are at leading position; research guides are less as compared to demand and need to be added in the list of guides to attend more research scholars in the LIS field.

3. More than 50% of research work was carried out in traditional areas but contemporary technological and management related areas are to be included during conducting research.

4. The research conducted at the Indian national level is designating the same trends as in developed countries. It indicate that till 2000 more research was based on conventional but they have commenced research in current ICT based platform much earlier than developing countries like India, but the research activity in Indian universities has to look in to wider aspects of the currency like ICT and web based concepts.

6.4 Scope for future research:
The researcher has attempted to collect the maximum information available on this subject. But due to the scope and limitations of the study researcher could not throw
light on the other aspects of LIS research in India. The researcher is suggesting following topics for further research such as-

1. The findings of the present study can be compared with the research undertaken in same period but different countries like UK, USA. A comparative study can be undertaken with respect to LIS research in India, UK, and USA. Same type of research can be undertaken by having the different time span

2. LIS curriculum should be designed to inculcate innovation and ICT enabling changes in education. By responding to the research work and participating in the LIS research activity, the LIS professionals will get the power to serve its users better and thus making the society information savvy, and change in librarianship. The use of mixed methods research (MMR) should be explored thereby enabling the different methods to beneficially corroborate or validate one another.

3. The LIS professionals must take up the challenge to preserve and make available the key Intellectual product of their institutions to the world with the help of web technology, quality management and digital preservation, different issues faced by LIS profession, publishers and online access providers by providing access to the relevant literature, IPR and Plagiarism need to be discussed. This will lead to permanent change in the landscape of scholarly communication and empowering India.

4. The emerging areas for LIS research identified to bridge the research gaps are library accreditation, modernization of library services in the changing scenario, evaluation of web-based services in digital libraries, and preservation and conservation of library materials (electronic media), library and social networking, digital imaging, market potential and market strategies, repository software, open access publication, IR and digitization to develop education network/ knowledge network, emerging technologies to attend tech savvy user community, global network environment, knowledge management, web technology etc. The agenda for research in future can be summarized that there is lot to learn through research and for this financial aid, Infrastructure facilities, un-biased guidance from seniors along with hard work & persistence from researcher is the recipe to solving practical problem, dedicated service and thriving the LIS field with new knowledge.
6.5 Conclusion:
The exponential growth of subject literature, interdisciplinary nature of research and inclination towards specialization has posed many hurdles both to the information scientists and librarians.

The researcher has concentrated on setting a huge data and information on the present subject. But due to certain limitations it could not achieve the comprehensive information of all the universities. But definitely whatever the researcher have obtained through various techniques, means and methods might be useful for the entire community of LIS. This research certainly useful for the LIS professionals and aspiring LIS students for getting a guidepost and it proves a research tool for undertaking further research.

In the present study five objectives and two hypotheses were formulated. As a part of the study the researcher analyzed 315 doctorate theses from 15 top Indian Universities, 2481 citations from 19 theses and 72 filled questionnaires from LIS professionals from 15 states of India. After examining all the factors relating to study, it is concluded that the objectives and hypothesis set for this thesis are well covered and discussed in different chapters systematically viz. chapter 2, chapter 3, chapter 5 and chapter 6. This study also simultaneously proved the hypothesis that “Most of the research is of descriptive nature” and disproved that “The LIS research outcome is not communicated adequately” and “The LIS Research is degree oriented than practice oriented”.

The possible reasons for variations in productivity of universities are:

- Various Ph.D. programmes started at different times.
- The data for the present study was collected through various sources. After repeated reminders, the data that was collected has been analyzed.
- Some university library like University of Madras Library had practical reason of undergoing renovation, so the request was not entertained.
- Due to technical problems like non-functioning of the Internet server, lack of communication and the call not been transferred lead to non accessibility to the library professionals.
- Most of the universities are not up to date with the recent research work and the web sites are not updated.
There is tremendous scope for improving LIS research in India by conducting mixed method of research. The best and innovative practices can be achieved by sharing the research work with fellow professionals through wide publication and providing a platform for researchers to deposit their work and make it available to entire scholarly community. This can be achieved by research assessment exercise and regulatory policy in maintaining standards, quality, proper submission and publication practices. The bibliometric methods will bring Indian knowledge production and dissemination at par with International standards.

While planning to conduct a research, various steps are considered. There is always a need of a systematic plan for carrying out doctoral research. On the basis of the LIS research output, contribution from research scholars and the literary review the researcher of present study, has developed a basic conceptual or ideal model for conducting research. It presents systematic planning, framing the study of the research, fixing the objectives and hypothesis and fixing limitations. According to the model the LIS discipline, doctoral research and the applications of LIS research go hand in hand. This model suggests that the process of doctoral research arises after identifying the 'problem' leading to idea development through literature review. Thereafter, theory is developed to conceptualize the idea which leads to implementation of action for data collection and evaluation. The results are reported and disseminated for knowledge management, curriculum development, training the students and standardizing the process, industry-academic interface, best practices for innovative services and appreciating the efforts of researcher by rewarding. The doctoral research also leads to sponsorships for post doctoral research, organization of different deliberations, popularizing the subject by publication and establishing monopoly rights, writing minor and major projects for innovative practices and working in collaboration with nationalized bodies, and last but not the least opens up the doors for promotional avenues for the doctorate LIS researcher. Refer Figure 6.1.
Figure 6.1 Doctoral research model

Curriculum development

Knowledge management

LIS DISCIPLINE

Research outcome published

Best Practices

Industry-Academic Interface

Rewards

Philosophical

Conceptualizing

Formalizing Ideas

DOCTORAL RESEARCH

Publication

Evaluation

Implementation

Workshops

Proposal

APPLICATIONS

Sponsorship

Promotional avenues

Partners

Publication and establishing monopoly rights
6.5.1 Critical analysis of the study:

A critical analysis of the present study has been done to examine the work for determining the ability and effectiveness. The objectives, findings and suggestions are conscientious and understandable. The study provides with a coherent insight into the need, research problem, analysis, and interpretation.

1. The study has provided literary evidences of studies and surveys in LIS research. Thus different sources analyzed inferences like saturated and missing links.

2. The study has focused on the content of the title of the theses and helped to find convergence with in subject category. Thus it provides the analysis of PhD research areas in LIS and helped in identifying with prominent and weaker research areas.

3. The study helps the aspiring LIS researches to scrutinize the research scenario before conceptualizing the research topic of interest. The research guides also be benefitted in assigning the research areas to researchers in emerging areas in LIS.

4. The present study has analytically revealed the status of LIS research efforts in India by conducting bibliometric studies for research trends.

5. The study has accessed the LIS research based on ICT and its impact on p-citations and e-citations.

6. The study revealed that the researchers are inclined towards publication of theses and uploading on e-theses repositories.

7. The study has highlighted the role of UGC doctoral research programme. The secondary analysis of data collected from various publications such as web resources, un-published thesis, Journal articles, surveys, reviews and reports revealed the factors like recognition, hike in salary scale and UGC norms for career promotion has been motivating factors for LIS research.

8. The study has proved that the researchers are implementing the study results to solve practical problem and thus ascertain the fact that the research in LIS is practice oriented.

9. The study has provided a Doctoral Research Model on the basis of data analysis and interpretation along with literary review to show the interchangeable and interactive nature of LIS discipline, doctoral research and application.

10. The present work can be subjected for comparative study with other developed or developing countries with respect to same or different time span of study.