## 3. LIS EDUCATION AND DOCTORAL RESEARCH

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Chapter 3: LIS Education and Doctoral Research

3.1 Introduction:
The LIS education in India has played a significant role in the growth of information society through its planned efforts. The vital role of libraries and information centres, in an upcoming knowledge society, in improving the socioeconomic status is now a recognized phenomenon. The discipline of LIS is a composite one and has appropriately integrated in itself the best of principles from other disciplines like management, computer science, philosophy, statistics, and also handling of technology. India is fortunate to have visionaries like Dr S.R. Ranganathan and his distinguished scholar disciples who were instrumental in establishing formal library science schools in the country. The Library Science course, being a professional one, is somewhat analogous to other professions like Law, Medicine or Engineering as far as learning or teaching is concerned because both theoretical knowledge and its applicability are synchronous in practice (Gokhale, 2010).

3.2 Landmarks in LIS Education in India:
LIS education in India (Varalakshmi, 2009) has completing 100 years in 2011. History provides a picture to introspect and need to know the status of LIS with respect to its growth and development. It is largely a 20th century phenomenon. It has a history of a century behind it and has developed into a distinct discipline to meet the growing dimensions of library service and the changing needs of the society. Realizing the importance of professionally trained personnel to manage libraries effectively and efficiently, library training programmes were started at several places even before independence. The first formal course for librarianship training in India was started sometime in 1911 in Baroda (Kumar, 1987).

Chronological developments as reported in the literature reveal the following as important milestones in the history of LIS education in India (Gokhale, 2010):

1. John Macfarlane, the first librarian of the Imperial Library (now the National Library) Calcutta (now Kolkata) started the first in-service training programme for the staff in 1901.
2. W.A. Borden initiated training for librarians at the invitation of Maharaja Sayajirao Gaikwad II of Baroda in 1911.

3. Asa Don Dickinson started a systematic training programme at the Punjab University in Lahore in 1915. This was first university course in the undivided India. He also prepared a manual namely, "The Punjab Library Primer."

4. Andhra Desa Library Association, founded in 1914, started conducting training classes for library personnel in 1920 at Vijayawada. This is known as the "Peoples' Movement."

5. M. Vishveshwaraiah, the then Diwan of Mysore state in 1920, started training course for librarians at Bangalore as, "Programme of Library Development."

6. University of Madras in collaboration with the Madras Library Association started offering a certificate course in librarianship form 1929, which was taken over by the university in 1931. In 1937, it converted the certificate course in librarianship to postgraduate diploma course of one year duration.

7. Andhra University, the Imperial Library, and the Bengal Library Association imparted training through certificate/diploma courses for shorter duration of varying period.

8. Banaras Hindu University in 1941 (second university after University of Madras) to start postgraduate diploma course, University of Bombay in 1944, Calcutta University in 1946, and Delhi University in 1947 too started diploma courses.

Prof. S.R. Ranganathan was a pioneer in the LIS education in India as evident from his initial efforts at Madras University and BHU. In 1947, he moved to University of Delhi and started the first postgraduate diploma course. The first batch was awarded diploma in 1948 and continued their studies and were awarded BLIS in 1949. In the same year, a two-year programme for MLIS was introduced replacing the BLIS programme. Simultaneously, the PhD programme was launched by the university in 1949. University of Delhi was the first university (Singh, 2012) to start a doctoral programme in Library Science in the entire British Commonwealth.
3.3 Period of growth in LIS Education:

It is reported that there were about 12 library schools in 1960s, imparting Library Science education in the country at all levels except the M. Phil degree. The period of growth of Library Science started in early sixties (Kumar & Sharma, 1973). The main reason was the allocation of funds for libraries in the third five-year plan of Government of India. Another major factor was the support extended by UGC to libraries and library education. Many new library schools were started in sixties.

The decade of 1960s saw some very important events taking place affecting LIS education in the country. Ranganthan conceptualized the premier education and research institute, Documentation Research and Training Centre (DRTC), Bangalore under the auspices of Indian Statistical Institute in 1962 for imparting a specialized training programme in documentation. Another parallel institution, Indian National Scientific Documentation Centre (INSDOC), now named as National Institute of Science Communication and Information Resources (NISCAIR), was established under the aegis of Council of Scientific and Industrial Research (CSIR), Delhi, in 1957. It started a course in Associate ship in Documentation in 1964.

The decade, 1970-80, saw a gradual development in the LIS educational scenario in the country. Some more courses were added like University of Calcutta introduced two-year MLIS in 1974. There was a need felt to update the syllabi in view of the increasing importance of information. This decade also saw the second PhD being awarded to Dr Pandey S. K. Sharma after a gap of almost twenty years after the first PhD was awarded to Dr D.B. Krishna Rao.

The research in LIS in India started at a very slow pace because of the lack of proper identity to the subject. First PhD in LIS in India was awarded in 1950s. The second came only after 20 years. But, today the number of PhDs in LIS far exceeds the time frame; there are 1000 estimated PhD holders in India and each one of them has been guiding several students from their respective departments. In the next five years the number of PhD holders in LIS in India would be around 5000 estimated at about five times more than today. Seminar on Research in Library and Information Science in
1994 by University of Mysore's DLIS was held and numbers of papers on this subject were published to take stock of research output.

Microcomputers appeared on the scene in library activities and services during the 1980s. In late 1980s, in addition to formal teaching courses, some universities introduced correspondence courses at various levels. Early 1990s can be described as the period of modernization of Library Science when started taking modernization of libraries place (Kumar & Sharma, 1973). Initiation of automation activities and development of software packages in libraries started in 1990s.

Government of India gave a thrust to application of information technology, through various incentives. UGC also chipped in with liberal funding for establishing computer laboratories. Library schools started revising their curriculum, introducing courses on computer application in libraries, information science, and established computer laboratories for giving hands on experience to their students. This was also a period of consolidation. LIS entered the new century with the CDC report in 2001, emphasized to face the onslaught of ICT.

A step further, International School of Information Management (ISIM) was established to offer M. Tech and PhD degrees in information systems and management. It is a truly international venture with faculty from India and other countries. DRTC also revamped its curriculum, even changing the name of their degree to Master of Science (MS) in Information Science. The latest development is the introduction of education in which the IGNOU took the lead by introducing MLIS in the e-mode in 2008. National Knowledge Commission (NKC) 2006, set up by the Government of India, and has recommended certain measures for the overall development of LIS education in the country (NKC, 2006).

These are:

1. National Mission on libraries should be set up immediately, for a period of three years. The Mission should subsequently be converted into a permanent commission.
2. Revamp LIS education, training and research facilities. The proposed mission/commission on libraries must assess as soon as possible the manpower requirements of the country in the area of LIS management, and take necessary steps to meet the country's requirement through LIS education and training.

3. To keep the LIS sector abreast of latest developments, necessary encouragement should be given to research after evaluating the research status in this field.

4. Establishing a well-equipped institute for advanced training and research in Library and Information Science and services would provide the necessary impetus to this task.

5. A system should be set up to foster close cooperation between the teaching/research faculty and practicing librarians at all academic and research institutions.

6. The minimum staffing pattern for the BLIS course and the MLIS has been recommended.

7. There should be a 1:10 teacher-student ratio.

8. It was felt that the department should have not more than 50 students in one class for BLIS course, 20 students for MLIS course, and PhD students according to the university norms.

9. All departments of LIS should set up computer centres' and well-equipped departmental libraries with appropriate teaching tools.

10. Appropriate physical facilities such as classrooms, must be made available to each LIS department.

11. E-learning materials for upgrading the skills of the existing staff should be provided.

12. Teachers who will teach in areas such as ICT applications in libraries and other modern methods should have a specialization in these areas. A system must be set up to allow stringent review of the performance of teachers. A suitable system of rewards, including promotions, should be instituted.
3.4 Nomenclature of LIS Schools:
The nomenclature of the LIS schools in India is not uniform. Most of the LIS schools are known as DLIS Science. However, certain LIS schools are known with different names as given below (Karisiddappa, 2001):

- Department of Library Science and Documentation
- College of Library and Information Science
- School of Library and Information Science
- Institute of Library and Information Science
- Institute of Library Science
- Department of Studies and Research in Library and Information Science
- Faculty of Library and Information Science
- Department of Information Science
- Library Science Training College
- School of Studies in Library and Information Science
- School of Library Science
- Library and Information Science Division
- Department of Library and Information Management
- Department of Library Science and Manuscriptology.

3.5 Pattern of degrees awarded by different universities and Institutions:
The education framework of LIS in India at present is as given below (Ramesh Babu & Ramesha, 2005):

- Certificate (CLISc) course: A six months course sponsored by the State Library Associations, state and central libraries, and some other universities.
- Diploma in Library and Information Science (DLISc): A one-year course offered by many Polytechnics.
- Bachelor’s degree in Library and Information Science (BLISc): A one-year course sponsored by many universities
- Master’s degree in Library and Information Science (MLISc) (Singh, 2012): postgraduate programme of one year after BLIS/BLISc.
• Master's degree in Library and Information Science (MLISc) (Singh, 2012): Postgraduate programme of two years after any bachelor degree. Some universities are still offering one year MLISc for the BLISc degree holders.

• Master's degree (MSc) in Information Science of two years offered by Madras University and Baba Saheb Bhimarao Ambedkar Central University, Lucknow

• Master's degree in Library and Information Science (MLISc) (Singh, 2012): A five-year course. It is an adventurous attempt by the Annamalai University in the recent years

• M. Phil: Full-time/part-time course of one year/two year duration

• PhD: A full-time/part-time programme, which leads to the award of doctor of philosophy in LIS

• Postgraduate Diploma in Library Automation and Networking (PGDLAN).

Other than the above mentioned the Library Training Certificate (LTC) Course of 2 months duration is being organised by the recognised Maharashtra Rajya (state) and Vibhag (division) Granthalaya Sangh under Directorate of Libraries, Govt. of Maharashtra. The Examination is being conducted in the month of June every year by Directorate of Libraries. There are 30 centres of this course in the State. About 3000 students appear for this examination every year. The certificate holders are eligible for the appointment as Librarian in Public Libraries as well as in secondary schools and Library Assistant in Institutional Libraries.

The LIS education in India has a unique profile, as it started as a voluntary vocation by many university libraries. This trend followed for at least a decade or so. An independent identity to the course was reached only in early 1970s. Today, it has reached a stage where it is being considered as a course to be reckoned with technologically affluent programmes, and being considered on the agenda of apex bodies offering technical education. It is influenced by within and goes with concurrent progress made by India in the field of IT. In traditional subjects of LIS too,
India stands different with scholarly contribution by Dr Ranganathan and his contemporaries and disciples.

It was mentioned (Eisenberg, 1988) that an integration of traditional areas and IT developments is seen vibrantly in India as is evidenced by the PhD theses generated by the DLIS of Indian universities. The range of LIS subjects researched in India presents a very broad base, expressing in itself its potentialities and expertise in conventional subjects like library classification, library cataloguing, and library management and in the specialized areas like, digital libraries and open archives initiatives.

LIS education began under the patronage of the philanthropic nature of Indian princes and the charismatic appearance of Dr. Ranganathan in the Indian library scene, gave LIS education a real boost. The discipline got recognition with the introduction of various courses at the university level. It has seen periods of growth and maturation. Thus the history of a century behind it has developed LIS into a distinct discipline to meet the growing dimensions of library service and the changing needs of the society. The recommendations of National Knowledge Commission provide an opportunity for reforms and a change in the educational system needs to be grabbed.

3.6 Present scenario of LIS Education in India:
Since its inception decades ago, LIS education has grown and developed into full-fledged multi-disciplinary subjects. LIS courses at bachelors, masters and research level are being impacted by different institutions- university departments, college, library associations and specialized institutions. There are now 96 Universities in India imparting LIS education as independent department in different levels (Phugnar, 2012). Apart from these departments there are also specialized R & D organizations imparting LIS Education. Worth mentioning is the two years Associate ship in Documentation and Information Science (ADIS) imparted by Documentation Research and Training Centre (DRTC), Indian Statistical Institute Bangalore (Karnataka) and National Institute of Science Communication and Information Resources (NISCAIR) formerly INSDOC, New Delhi which is equivalent to masters
degree of LIS. In addition to theses universities / departments there are several other open universities imparting library education as distance education. The professional associations such as Delhi Library Association (DLA) and the Polytechnic institutions throughout the country are also imparting LIS education as lower level such as certificate /diploma in LIS (Singh, 2012). The University Grants Commission (UGC) and Indian Council of Social Sciences (ICSSR) and Defence Scientific Information and Documentation Centre (DESIDOC) are also promoting LIS Research programme by awarding scholarship to doctoral students.

3.7 Present status of LIS Education in India:
Only few departments and associations now provide Certificate Courses in Library and Information Science (CLIS) and Diploma in Library and Information Science (DLIS). The others provide B.L.I.Sc. and M.L.I.Sc. courses. In most of the universities, the prerequisites for admission into bachelor’s course in LIS are 10+2+3 years from any faculty (Arts, Science, and Commerce etc.). The majority of the universities mainly conduct two separate courses for the bachelor’s degree followed by master’s degree of one years or two semester’s duration each. In recent years some institutions have offered two years of integrated courses of four semester duration. The University of Calcutta went a step ahead and introduced five years integrated course in LIS with entry qualification as 10+2. Similarly IGNOU and YCMOU are also playing a major role in imparting LIS education along with deemed and formal universities

3.7.1 LIS Education in Maharashtra:
As stated in paper (Gokhale 2010), the subject of LIS is relatively a younger one compared to those like Chemistry, Physics, Literature, and Philosophy. In Maharashtra it is taught as short-term certificate level to postgraduate research degree level. The universities offering LIS in Maharashtra are (Year of establishment of the department of LIS mentioned in brackets): University of Mumbai(1944), SNDT Women’s University Mumbai (1961), Pune University Pune (1958), Dr Babasaheb Ambedkar Marathwada University (BAMU) Aurangabad (1968), Rashtrasant Tukdoji Maharaj Nagpur University (1956), Shivaji University, Kolhapur (1965), Sant Gadge
Baba Amravati University (1990), Swami Ram Teerth Marathwada University (1984) (SRTMU) Nanded (1999), North Maharashtra University, Jalgaon (2000), Tilak Maharashtra Vidyapeeth, Pune, Bharati Vidyapith Deemed University, Pune, Yashwantrao Chavan Maharashtra Open University i.e. YCMOU (1989), Nashik., Indira Gandhi National Open University i.e. IGNOU (1989) Regional Centres. The research paper has limited its scope as IGNOU, YCMOU are distance learning open universities. Tilak Maharashtra Vidyapeeth, Pune, conducts courses in vernacular medium. Bharti Vidyapeeth is a deemed university, not covered by Maharashtra University Act.

3.8 LIS Education: Global Overview:
In his study (Tsuji et al, 2006) pointed out that the main theme in LIS education Japan developed qualified librarians (Shisho-ho) for public libraries and as well as qualified teacher librarian (Shisho-kyouyu) for school libraries. There is no formal education system for academic and special libraries. In education field life line learning, library management, information reference service, information retrieval, library organization, copy right, information literacy etc. were more focused.

In his article (Wilson 2012), “Fifty years of LIS education” in USA conducted a survey of research productivity and LIS educators during the period 1959-2008. Author narrated the progress of LIS education in USA and stated that prior to 1960s practicing librarians were teaching LIS education according to syllabus and examination conducted by library associations and similar status was also in Australia and Library Association Australia (now Australia Library and Information Association (ALIA) was taking care of the education system. Latter LIS education moved to higher education institute since 1980.

Chu, 2006 in his paper “Curricula of LIS programs in the USA: A Content Analysis” in which the syllabi was reviewed by author from 45 ALA accredited LIS master programs in USA. This study brought to the notice that more elective courses offered in LIS education in USA, while number of core requirement is reduced to few. Author has also pointed that 10% of the LIS courses in USA are designed in such a way to deal with emerging subject and latest development in the field of LIS. Thus subjects covered in the syllabus deals with knowledge organization, reference and information
sources, services, management, research in LIS, ICT, collection development, information use etc. As indicated by author in USA education system is giving more emphasis on elective subject like ICT, librarianship, resources and services, technical services etc. to manage latest situation. Now LIS courses clusters were introduced, which covers Digital library, Website design, Internet library, Network, Digitization, Knowledge management, Metadata, Network security, Internet application, Information seeking behaviour, Multimedia, Digital publishing etc.

3.9 Research in Library and Information Science in India:
Libraries and Information Centres (LICs) not only play the key role of repository of knowledge but also work as the purveyor of research activities. The information professionals engaged in LICs have been striving hard to improve the conditions of information environment. The realization that library is an important and dependable component for furthering research in any field stimulated the role of Library in education (Lahiri, 1996).

What is research? Research is a scientific undertaking which by means of logical and systematized methods, aims to discover new facts, or verify old facts and to analyze their sequences, interrelationships, casual explanations and the natural laws which govern them. Research is a careful, critical study or examination in seeking facts or principles; intelligent (Vishnumaya, 2013) and diligent investigation in order to ascertain something. It answers questions by the accumulation and assimilation of facts which lead to the formulation of generalizations, correct or verify knowledge. Research is an intellectual act that starts with the asking of a question and progress through critical and analytical study of evidence and; arrives at new conclusions or new knowledge. Webster's New International Dictionary defines research as 'studious enquiry or examination; specifically and usually, critical and exhaustive investigation of experimentation having for its aim the discovery of new facts and their correct interpretation,' the revision of accepted conclusions, theories or laws, in the light of newly discovered facts or the practical (Biswanath, 2002). applications of such new or revised conclusions, etc'.
‘Research is the only sure way to constantly expand the fund of human knowledge and solve the problems that face the mankind today’ (Satija, 1992).

While justifying offering of Ph.D. programmers in LIS, Wilkinson has rightly pointed out that “if librarianship aspires to become a profession, it should depend upon research to develop its knowledge base and its theoretical framework” (Wilkinson, 1983).

Research in LIS plays an important role in the educational process as a source of new information for the field of librarianship in general and LIS education in particular. Research here is defined as diligent, protracted investigation using appropriate methods to discover new knowledge, to develop new applications of existing knowledge or to explain relationships between ideas or events. Research is governed by the rule of objectivity and not of subjectivity.

3.10 The factors that prompted the need for research in LIS:

1. Changes due to socio-economic plans of the country in the information environment.

2. Increased recognition of information as an important national resource. In order to utilize it effectively national and international information networks are being set up. These would require manpower and research into information systems.

3. Advancement of the discipline of LIS. Research programmes can help to sharpen the existing tools and techniques and design new ones. They also help to train personnel, who can take up research for the same purpose.

4. Finding of the solution to problems faced in the running of the libraries.

From above it becomes clear that Research in LIS has an important role to play in the educational process, creation of new knowledge and solution of problems faced by librarians, information scientists and documentalists. Incidentally, these programmes will also enable library profession to achieve academic and professional respectability, which is lacking to a certain extent at present.
The LIS professionals have been realizing the value and effectiveness of research. Various factors like,

1. Increase in Library collection.
2. Emergence of digital collection.
3. Library automation and networking.
4. Challenges of IT to keep peace with the complexities of present requirement.
5. Recognition of official position.
7. Growth of doctoral programmes in library schools has been some of the factors that have been responsible for initiating research in LIS (Singh, 2001).

3.11 LIS Research: A Nineteenth Century Scenario:
LIS research was initiated in the last quarter of the nineteenth century with the establishment of the ‘American Library Association in 1876 and the British Library Association in 1877’.

With the individual and the independent contributions, the nineteenth century USA and European countries have witnessed the beginning of systematic trend in Research in the field of Library Science. Such contributions of some of the personalities are still relevant.

3.12 Levels of LIS Research—International:

Table 3.1: Levels of LIS Research at International level

<table>
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<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Place</th>
<th>Personalities</th>
<th>Research work</th>
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<tr>
<td>1.</td>
<td>1841</td>
<td>UK</td>
<td>Antonni Panizzi</td>
<td>Developing cataloguing rules and designing British museum library</td>
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<td></td>
<td></td>
<td>UK</td>
<td>Dorothy Norris</td>
<td>Writing ‘History of cataloguing’</td>
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<td></td>
<td></td>
<td>UK</td>
<td>RCB Partridge</td>
<td>Writing ‘History of legal deposits of books’</td>
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<tr>
<td>2.</td>
<td>1852</td>
<td>USA</td>
<td>Charles C Jewett</td>
<td>Cataloguing code</td>
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<td>3.</td>
<td>1876</td>
<td>USA</td>
<td>Charles A Cutter</td>
<td>Bringing systemization in various library practices and procedures and to develop rules in the field of subject indexing</td>
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<td>4.</td>
<td>1876</td>
<td>USA</td>
<td>Melvil Dewey</td>
<td>Framing classification scheme</td>
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<td>5.</td>
<td>1876</td>
<td>UK</td>
<td>Berwick Sayers</td>
<td>Classification</td>
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<tr>
<td>6.</td>
<td>1886</td>
<td>Germany</td>
<td>K Dziatzko</td>
<td>Cataloguing code</td>
</tr>
<tr>
<td>7.</td>
<td>1894</td>
<td>UK</td>
<td>James Duff Brown</td>
<td>Writing on “Instruction of open access in lending library in England”</td>
</tr>
<tr>
<td>8.</td>
<td>1897</td>
<td>UK</td>
<td>F J Burgoyne</td>
<td>Construction: architecture, fitting and furniture</td>
</tr>
<tr>
<td>9.</td>
<td>*1627</td>
<td>France</td>
<td>Gabriel Naude</td>
<td>Avis pour dresser use bibliotheque (pictorial guide on how to create a catalogue)</td>
</tr>
<tr>
<td>10.</td>
<td>*1690</td>
<td></td>
<td>Frederick Rostgaard</td>
<td>On how to create a catalogue</td>
</tr>
<tr>
<td>11.</td>
<td>*1791</td>
<td></td>
<td>Abbe Leblond</td>
<td>First national code of descriptive cataloguing</td>
</tr>
</tbody>
</table>


With the individual and the independent contributions, the nineteenth century USA & European countries have witnessed the beginning of systematic trend in research in the field of Library Science. Such contributions of some of the personalities are still relevant. Refer table 3.1.

Research in librarianship does not have a long history. When the degree of doctor of Library science was first established by Melvil Dewey, the then Director of the New York State Library School at Albany in 1891, the idea was that the degree should be awarded Honorius Causa for conspicuous professional achievement rather than for research. There is no record that the degree was ever granted. The establishment of the Graduate Library School at the University of Chicago in 1926 included immediate, provision for awarding the earned degree of doctor of Philosophy. But,
not until 1930s did a substantial number of members of the profession begin to fully recognize the value of conducting careful studies pertaining to various library phenomena. The USA witnessed systematic research activities under an institution when Graduate Library School at the University of Chicago opened Ph. D. programme in 1928. The first LIS doctoral dissertation was submitted by E. S. Upton, ‘A Guide to sources of 17th Century English History in selected reports of the Royal Commission on Historical (Vishnumaya, 2013) Manuscripts” to the University of Chicago in 1930.

The first school of librarianship of the United Kingdom was established in 1919 at the University College, London. Strangely enough provision of PhD facilities had to wait till 1960s. The Postgraduate School of Librarianship and Information Science at the University of Sheffield in 1963 can be considered as the first milestone in formal doctoral research activity in United Kingdom. In UK, only in 1963, formal research programme (Ph.D.) was started with the initiative of PG School of librarianship and information science at the University of Sheffield (Mangla, 1971).

3.13 Levels of LIS Research -National: Overview of the earlier work:
Library Science education in India though “started as early as in (Vishnumaya, 2013)1911, it was only after the World War II that it was gradually recognized as a fully fledged discipline and separate departments were set up in universities offering courses leading to bachelor and master degrees” (Chatterjee,1995).

Provision for PhD in Library and Information Science in India was made for the first time in 1948 by University of Delhi. Informally, however Ranganathan was single handedly conducting research in every sphere of LIS ever since he became the librarian of the Madras University Library. It was he who was responsible for the instituting master degree and Ph.D. programmes for the first time in Delhi University with the active co-operation of Sir Maurice Ggwyer, the vice chancellor of Delhi University, in 1948 and 1950-51 respectively. *The* first PhD in LIS was awarded by the same university in 1957 to D B Krishna Rao for his thesis ‘Facet Analysis and Depth Classification of Agriculture’. Dr .S.R. Ranganathan was his guide.
3.14 List of Ph. Ds produced earlier in India:

1. Basu Munindranath: ‘Museum methods and process of cleaning and preservation’ 1950. University of Calcutta. But, it is partially concerned to the field of LIS. (First librarian).


3. Jagadish Saran Sharma: ‘Mahatma Gandhi: A descriptive bibliography’ 1954. Michigan University, USA. He was the first professional to get Ph.D degree from abroad. (First Indian).


6. Pandey SK Sharma: ‘Expansion and modification of Dewey decimal classification (18) for classifying Indological books with Special reference to Indian Philosophy and Indian Religion’ by Punjab University (Vishnumaya, 2013). Dr JS Sharma was his guide

3.15 List of PhDs obtained from abroad:


In LIS research in India, two persons earned D.Litt. degrees. One from Utkal University, Bhubaneswar, Dr. Bana Bihari Shukla and the other from Vikram University, Ujjain (Kumar, 2011).
However, the research work carried out in 1960s and 1970s was very meagre. Only few individuals out of their academic interest and curiosity obtained their PhDs with committed academic endeavour. But their contribution to the knowledge was substantive in LIS.

Research in LIS by PhD students in India was a sporadic activity for about two decades, increasing slowly until around 1980, when it increased by more than five times during the 1980s. In the 1990s, the number of PhD theses more than doubled. The growth slowed during the next decade. The 1990s recorded a rapid growth in both the number of doctoral degrees awarded and the geographic spread of universities/institutes offering doctoral degree programmes in the country. The new millennium recorded continued growth; more than two-fifths of total doctoral degrees were awarded in the first nine years. This growth in doctoral degrees was fuelled by parity in pay-scales and promotional avenues accorded by the University Grants Commission to Library Science professionals, bringing them in line with university teachers at time of the fourth pay-commission. Seventy universities awarded 623 degrees in Library Science during 1957-2009 giving an average of about nine degrees per University (Rana, 2011).

3.16 Status of LIS Research in India:

The Research activities in Indian universities are gathering momentum as there is a greater demand for the research in the discipline. During the recent past, quite a number of research activities have been carried out in the universities and research institutions in various parts of the world. In India due to establishments of UGC, AICTE and other similar bodies and their active support, many students are carrying out M.Phil and Ph.D. degrees. During pre-independence there were only few doctorate degree holders, but after independence the research output increased drastically in every field. In India about 125 Universities and Research institutions are offering PhD programme in LIS. Many researchers made an effort to collect data from different universities and analyzed it to fix the research productivity of the various universities in India (Chandrasekara, 2009).
3.16.1 Chronological analysis as per studies carried out in India:

Distinguishing criteria of any profession, including LIS, incorporate the ability of its members to develop a structure of theoretical and practical knowledge to generate and test hypothesis relevant to practical variables or theories, and to conduct both basic and applied research utilizing effective methods of inquiry. Individual queries and developing methods for their solving are an age-old episode in the field of LIS. With the advancement of time, the professionals have been increasingly realizing the value and effectiveness of research. This trend has been reflected globally in the Ph.D. programmes of the universities (including India) during last sixty decades. The detailed information is presented in Appendix A.

An attempt has been made to provide a comprehensive review of research works in the LIS discipline in India during 1957-2009. It is observed that PSG Kumar (1988) studied the period from 1950-1956 mentioning the PhD work of 04 theses and continuing till 1992 with the mention of 293 PhD theses. This is the only study which has the data of the above mentioned period. The other studies which need to mention in the course of the investigation is the work by Kannapannawar (2000) which is mentioning the period of study as 1950-1999 with 346 theses. Ramesha (2002) carried out the analysis of LIS theses of the period 1951-2000 which stated 381 theses. Soma Raju (2008) carried out the analysis of data restricted to the journal PEARL Volume-1 No.3, July 2007. The total number of these mentioned are 633. Mallinath (2005) add reference and bibliography studied from the year 1957-2007 with estimation of 764 analyses of theses. Chandrashekhar (2009) has estimated the highest number of 802 theses of doctoral degree awarded in the period of 1957 – 2008. The study conducted by Rana, 2011) in the period from 1957 -2009 and the number of PhD awarded in this period is 624. This work is a bibliographic review of doctoral theses awarded in the discipline of LIS, taking the DLIS, limited to Panjab University as a case study.

It is observed that there is gradual increase in the doctoral degree added except for few exceptions. This is due to the different methods followed and limitation of the scope. Most of the study has collected the data from “University News” published by All India Association of Indian Universities, N. Delhi. In some cases theses appeared twice in University News but the compiler (authors of respective papers) has corrected
The data also is seen to be collected from INFLIBNET, Vidyanidhi, LIS Gateway, University News and a web-based survey. The web-based questionnaire was mailed to LIS professionals through e-discussion forums like Lis-Forum, NMLIS, IATLIS and Corporatelibrn. The data provided in the articles written by Professor V.G. Talawar, Professor M.P Satija, Professor R.S.R. Varalakshmi and Dr. Rajyalakshmi were considered, to verify the basic data along with data from Journal PEARL Volume-I No.3, July 2007.

Research and development are the index of prosperity of the nation. The LIS research in India is gaining the attention of LIS researchers. The number of researchers registering for doctoral research is increasing over the years. It is seen from the study that there has been a phenomenal growth of teaching and research in LIS in India during the last six decades.

3.17 Research scenario at Western Indian Universities:

Amongst the top university only one university from the western region of India fall under the said category i.e. Maharaja Sayajirao University of Baroda, Vadodara. As observed (Gokhale, 2010) it is interesting to note that Maharashtra is the third largest state in India known for its outstanding educational quality and facilities at all levels in almost all the major disciplines of study. As per the 2001 census, the literacy rate in the state was 77.27 per cent (male 86.27 per cent and female 67.51 per cent). There are more than 3000 colleges in the state imparting higher education (non agriculture), with a student strength of nearly 32 lakh, University of Mumbai established in 1857 is one among the oldest university in the country followed by SNDT Women’s University, Mumbai (1916) and University of Pune, Pune (1948). The postgraduate level LIS courses conducted by the universities (Gokhale, 2010) are governed by Maharashtra Universities Act 1994. The Ph.D. degree awarded by University of Mumbai are (05), SNDT Women’s University, Mumbai (09), University of Pune (48), BAMU, Aurangabad (11), RTM Nagpur University (34), Shivaji University, Kolhapur (6), Sant Gadge Baba Amravati University (11), SRTMU, Nanded (4) and North Maharashtra University, Jalgaon.
3.18 Research trends at Western Indian Universities:
Western zone of India has three states (Maharashtra, Goa and Gujarat) and 21 non-
agriculture universities. Though the western Indian universities who runs the Ph. D
programme are not included in the survey of top universities of India, their
contribution in the LIS field should not be denied and thus makes it more authentic to
elaborate the research trends at western Indian universities. It highlights the
progression, current landscape of PhD program in respective universities in western
India. Result confirms the growth of LIS doctoral research program in western India.

Table 3.2 State wise growth of PhD research activity

<table>
<thead>
<tr>
<th>State</th>
<th>No. of Degrees</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarat</td>
<td>16</td>
<td>10.52</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>136</td>
<td>89.47</td>
</tr>
<tr>
<td>Goa</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100</td>
</tr>
</tbody>
</table>

The collected data of research output from different universities located in the western
part of India i.e. Maharashtra, Gujarat and Goa and the analysis of the (21) Non-
Agriculture Universities found that the research trends in this area and its growth has
been proliferated till the year 2010. The doctoral research work carried out collected
the data of research output from the different universities located in the western part
of India. All the 21 non-agricultural universities in these states are analyzed and found
that the research trends in this area and its growth has been found proliferating. It is
pointed out that Pune University (MS) stands at rank 1st in LIS area and awarded 57
degrees till 2010. The next in hierarchy are Nagpur University (32), BAMU (15) and
Amravati University (11). These universities have proved strong base for the research
activity. However North Gujarat University (9), SNDT (8) and Shivaji University (5)
have shown inclination towards research (Phugnar, 2012).
3.18.1 The Chronological distribution of research activity:

Figure 3.1 Chronological Distribution of Research Activity

The chronological research outputs from western Indian universities are detailed in figure 3.1. It depicts the number of doctoral degrees awarded in the field of LIS starting from the year 1986 (Samdani & Bhatti, 2011) till 2010. It is very clear that research activity was quite rare till 2001 and all of a sudden, the research productivity increased from 2002 onwards. One of the reasons for this rise is the need and emphasis on recruiting qualified faculty and librarians mainly in the universities and technological (Samdani & Bhatti, 2011) institutions having research degree. It was true fact that UGC started giving preference to the candidates who have done research in LIS. At present on an average 6 doctoral thesis are being awarded PhD degrees every year from this zone. During the period 2002 to 2010 average of 12 theses were awarded doctoral degrees. From this it is clear that there is an increase in research output in LIS starting from 2002 in this zone (Phugnar, 2012).

3.18.2 Decade wise growth of Research activity:

The Figure 3.2 depicts the decade wise distribution of PhD thesis in western Indian universities (Maharashtra, Gujarat and Goa). It was observed that there is quite a number of PhD degrees produced after 1991.
Further it is evident from the figure 3.2 that 78.29% of the research output was contributed during the period 2001-2010. Yet another 19.08% of the research output was made during the previous decade i.e. 1991-2000. From this it is evident that more than 78.29% of PhD degrees were awarded during the period 2001-2010. It is worth mentioning here at this juncture that only 21.71% research output contributed in 1986-2000 (almost 14 years). However, it can be concluded from this data that a majority of quality research output is observed during the last decade (11 years) (Phugnar 2012).

3.18.3 State wise distribution of Research activity:

Table: 3.3 State wise distribution of PhD research (Awarded)

<table>
<thead>
<tr>
<th>State</th>
<th>No. of PhDs</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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<td>89.47</td>
</tr>
<tr>
<td>Goa</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100</td>
</tr>
</tbody>
</table>
It is observed from the table 3.3 & figure 3.3 it is observed that Maharashtra state is prominent in research among all the three states and followed by Gujarat. The Goa state has not initiated the research program and no research output is seen from this state. In MS research activity was initiated from 1986 onwards and till 2010 nearly 136 PhD degrees were awarded. Where in Gujarat state the research activity initiated since 2000 onwards (14 years later than MS) and 16 Ph.D. degrees were awarded. From base year 2000 onwards Gujarat awarded 16 degrees where as MS awarded 103 degrees. This clearly indicated MS is at leading position in research activity in this zone (Phugnar 2012).

3.18.4 Subject analysis of PhD Research topics:
From the study it is revealed that the research activity was more in the following areas such as academic libraries, reference and information services, special library, information seeking behaviour, bibliometric and citation analysis, public library followed by next priority such as ICT, library networks, library education and curriculum. On comparing this with Indian research productivity ICT, library networks and LIS education has influenced main in this area. Refer table no. 2.6 for the ranking of subject analysis of PhD research topics. The (39) theses are inclined towards the research subject “ academic libraries” with (25.66%), followed by reference and information services (14) with (9.21%) and special libraries with (10) to (8.55%) of the study (Phugnar 2012).
3.18.5 Ranking of Guides:
There are (37) research guides assisted in guiding research studied in this zone. It is observed that Dr PSG Kumar ranked first and had 31 successful candidates, followed by Dr Mrs. Rajyalakshmi D with 11 candidates and Dr. Mrs N J Deshpande having 10 completed 152 research topics till 2010-11. From Maharashtra Dr PSG Kumar is rank one and is also competing to national ranking at third position (Phugnar 2012).

3.18.6 University wise Statistics of First PhD degree awarded:
Among all these research scholars Dr M B Konnur from Maharashtra was the first librarian who honoured with PhD in 1986 and followed by others, similarly from Gujarat Dr. Bhavsar Vaishaliben was the first PhD degree awardees in 2000. Refer Table no. 2.8 for the first research scholars from different universities (Phugnar 2012).

3.18.7 Average citations per thesis:

Table 3.4 Distribution of P-Citation v/s E-Citation

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type</th>
<th>Count</th>
<th>Ranking</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>p-Citations</td>
<td>15482</td>
<td>1</td>
<td>94.84</td>
</tr>
<tr>
<td>2.</td>
<td>e-Citations</td>
<td>831</td>
<td>2</td>
<td>5.16</td>
</tr>
</tbody>
</table>

In this study about 6% uses of e-resources is reflected. In natural sciences more use of e-resources are reflected as more data is available in e-from including databases. In Social Sciences now the growth of e-resources is increasing. However print resource may have dominance in its use due to comfort. The table 3.4 shows the analytical study of citations from PhD (LIS) theses and revealed many findings. These findings have thrown light on the variety of information sources on which the research scholars depends on heavily. (Phugnar, 2012).
3.19 Commission & Committees related Education and LIS Education in India:

Historically, government has been the single most influential player in higher education scenario. Despite erosion in government role in capitalist world, it has retained its prominent place particularly due to social relevance of education.

The demand for PhD in Library Science is growing rapidly in India, the main reason being that today most of the universities are demanding a doctoral degree for LIS faculties as well as for senior professionals in university and other higher educational and research libraries. This led to an increased research activity at various library schools in India. LIS research in India is gathering momentum and generating confidence among the LIS professionals. Factors like recognition, salary scale, UGC norms for career promotion etc. have been the motivating factors.

Many government initiatives taken by different agencies have been instrumental in the development of LIS. The larger 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. The Government of India has also taken keen interest in library matters through Advisory Committee for libraries; Working Group of Planning Commission; National Policy on Library and Information System, etc. UGC has shown keen interest in LIS education through its various committees and subject panels. The Library Committee; Review Committee and the two Curricular Development Committee constituted have been largely responsible for the present state of LIS education in India. Importance of library and information services in higher education was emphasized in India by many committees of Government of India. Refer table no.3.5.
### Table 3.5 Commission & Committees related Education and LIS Education in India

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Commission &amp; Committees in India</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mehrotra Committee, UGC (Chairman: Prof. R C Mehrotra)</td>
<td>1983</td>
</tr>
<tr>
<td>2.</td>
<td>The Education Commission</td>
<td>1882</td>
</tr>
<tr>
<td>3.</td>
<td>The Universities Commission</td>
<td>1902</td>
</tr>
<tr>
<td>4.</td>
<td>Government Resolution on Educational policy</td>
<td>1913</td>
</tr>
<tr>
<td>5.</td>
<td>The Calcutta University Commission (Chairman: Michael Saddler)</td>
<td>1917</td>
</tr>
<tr>
<td>6.</td>
<td>The Sapru Committee</td>
<td>1934</td>
</tr>
<tr>
<td>7.</td>
<td>The Abbot-Wood Report</td>
<td>1936</td>
</tr>
<tr>
<td>8.</td>
<td>Zakir Hussain Committee</td>
<td>1937</td>
</tr>
<tr>
<td>9.</td>
<td>The Sergeant Report</td>
<td>1944</td>
</tr>
<tr>
<td>10.</td>
<td>The University Education Commission (Chairman: Radhakrishnan, Dr. S.)</td>
<td>1948</td>
</tr>
<tr>
<td>11.</td>
<td>University education commission (Chairman: Radhakrishnan, Dr. S.)</td>
<td>1949</td>
</tr>
<tr>
<td>12.</td>
<td>The Secondary Education Commission</td>
<td>1952</td>
</tr>
<tr>
<td>13.</td>
<td>University Grants Commission</td>
<td>1953</td>
</tr>
<tr>
<td>14.</td>
<td>Ranganathan committee (Chairman: Ranganathan, Dr. S.R.)</td>
<td>1957</td>
</tr>
<tr>
<td>15.</td>
<td>Advisory committee for library (Chairman: Sinha, K.P)</td>
<td>1958</td>
</tr>
<tr>
<td>16.</td>
<td>The National Committee on Women's Education</td>
<td>1958</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
<td>Year</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>17.</td>
<td>University Grants Commission, Library Committee (Chairman: Ranganathan, Dr. S.R.)</td>
<td>1958</td>
</tr>
<tr>
<td>18.</td>
<td>Review committee (Chairman: Ranganathan, Dr. S.R.)</td>
<td>1961</td>
</tr>
<tr>
<td>19.</td>
<td>Education Commission (Chairman: Kothari, D.S.)</td>
<td>1964</td>
</tr>
<tr>
<td>20.</td>
<td>Education Commission (Chairman: Kothari, D.S.)</td>
<td>1966</td>
</tr>
<tr>
<td>23.</td>
<td>The working group of planning commission, UGC, 7th year plan 1985-90</td>
<td>1985</td>
</tr>
<tr>
<td>24.</td>
<td>National policy on library and Info system (Chairman: Chattopahayya, Prof. D.P.)</td>
<td>1985</td>
</tr>
<tr>
<td>26.</td>
<td>Curriculum Development Committee</td>
<td>1990</td>
</tr>
<tr>
<td>27.</td>
<td>Curriculum Development Committee</td>
<td>1992</td>
</tr>
<tr>
<td>29.</td>
<td>Kaula Committee (Chairman: Kaula, Prof.)</td>
<td>1992</td>
</tr>
<tr>
<td>30.</td>
<td>Yashpal Committee Report (Chairman: Yashpal, Prof.)</td>
<td>1993</td>
</tr>
<tr>
<td>31.</td>
<td>National Assessment and Accreditation Council</td>
<td>1994</td>
</tr>
<tr>
<td>32.</td>
<td>Sen Committee</td>
<td>1994</td>
</tr>
<tr>
<td>33.</td>
<td>Curriculum Development Committee</td>
<td>2000</td>
</tr>
<tr>
<td>34.</td>
<td>Karisiddappa Committee (Chairman: Karisiddappa, Prof. C.R.)</td>
<td>2002</td>
</tr>
</tbody>
</table>
After independence, on the suggestion of Radhakrishnan Commission, University Grants Commission (UGC) was established in December 1953 (in November 1956 as a statutory body) to not only fund higher education but to maintain quality and regulate its all round growth. But UGC is not the sole agency in this context, many a time the Ministry of Human Resource Development (erstwhile Ministry of Education) appoints committees or commissions on issues pertaining to larger social context of education. Planning Commission is another agency that ponders on the issue of education. The University Education Commission (1948-49) and the Education Commission (1964-66) were appointed by the Government of India to suggest future course of action on higher education and education in general, respectively. The report of the Education Commission was widely discussed among different sections of Indian society and the consensus that emerged on future direction of education in India was reflected in the National Policy on Education in 1968. This policy led to expansion of educational facilities, common structure of education at undergraduate level and setting up of Centres of Advanced Study for postgraduate education and Research (Joshi, 2010)

3.20 University Grants Commission:

3.20.1 UGC Genesis:
The present system of higher education dates back to Mountstuart Elphinstone's minutes of 1823, which stressed on the need for establishing schools for teaching English and the European sciences. Later, Lord Macaulay, in his minutes of 1835, advocated "efforts to make natives of the country thoroughly good English scholars". Sir Charles Wood's Dispatch of 1854, famously known as the ' Magna Carta of
English education in India', recommended creating a properly articulated scheme of education from the primary school to the university. It sought to encourage indigenous education and planned the formulation of a coherent policy of education. Subsequently, the Universities of Calcutta, Bombay (now Mumbai) and Madras were set up in 1857, followed by the University of Allahabad in 1887.

The Inter-University Board (later known as the Association of Indian Universities) was established in 1925 to promote University activities, by sharing information and cooperation in the field of education, culture, sports and allied areas.

The first attempt to formulate a national system of education in India came. In 1944, with the Report of the Central Advisory Board of Education on Post War Educational Development in India, also known as the Sergeant Report. It recommended the formation of a University Grants Committee, which was formed in 1945 to oversee the work of the three central universities of Aligarh, Banaras and Delhi. In 1947, the committee was entrusted with the responsibility of dealing with all the then existing universities.

Soon after independence, the University Education Commission was set up in 1948 under the chairmanship of Dr. S Radhakrishnan "to report on Indian university education and suggest improvements and extensions that might be desirable to suit the present and future needs and aspirations of the country". It recommended that the University Grants Committee be reconstituted on the general model of the University Grants Commission of the United Kingdom with a full-time chairman and other members to be appointed from amongst educationists of repute.

In 1952, the Union Government decided that all cases pertaining to the allocation of grants-in-aid from public funds to the central universities and other universities and institutions of higher learning might be referred to the University Grants Commission. Consequently, the University Grants Commission (UGC) was formally inaugurated by late Shri Maulana Abul Kalam Azad, the then Minister of Education, Natural Resources and Scientific Research on 28 December 1953.
The UGC, however, was formally established only in November 1956 as a statutory body of the Government of India through an act of parliament for the coordination, determination and maintenance of standards of university education in India. In order to ensure effective region-wise coverage throughout the country, the UGC has decentralized its operations by setting up six regional centers at Pune, Hyderabad, Kolkata, Bhopal, Guwahati and Bangalore. The head office of the UGC is located at Bahadur Shah Zafar Marg in New Delhi, with two additional bureaus operating from 35, Feroze Shah Road and the South Campus of University of Delhi as well.

3.20.2 UGC Mandate:
The UGC has the unique distinction of being the only grant-giving agency in the country which has been vested with two responsibilities: that of providing funds and that of coordination, determination and maintenance of standards in institutions of higher education.

The UGC's mandate includes:

- Promoting and coordinating university education.
- Determining and maintaining standards of teaching, examination and research in universities.
- Framing regulations on minimum standards of education.
- Monitoring developments in the field of collegiate and university education; disbursing grants to the universities and colleges.
- Serving as a vital link between the Union and State governments and institutions of higher learning.
- Advising the Central and State governments on the measures necessary for improvement of university education

3.20.3 UGC Efforts:
The UGC efforts in the development of LIS education (Varalakshmi, 2009) are well evidenced by the three committees that were constituted to formulate model curriculum and pedagogic guidelines for the LIS courses in India. The Ranganathan reports on University and College Libraries and Library Science Education were the first landmarks in this regard. Later, report of the Kaula Committee on Curriculum Development in LIS Education was published in 1992. This was followed with the
Karisiddappa Committee report on Curriculum Development in LIS in 2002. This committee brought into focus the modular approach to curriculum design and expanded it to suit the local needs. The impacts of these efforts were first seen in the continuous development of the curriculum with changing times. Second, the UGC recognized LIS as a discipline on par with other pure and applied subjects. Third was the growth of teaching departments in various universities. And finally, it also necessitated the need for qualified personnel to teach the subject, which gave impetus to start the masters and research degrees programmes. Thus the curriculum, developed over the years for the LIS matches with the modern and contemporary developments in the field and has been responsible for the creation of manpower to man the different types of professional responsibilities, in practice and teaching.

3.20.4 New initiative of UGC:

The UGC, from time to time recommended the broader outlines of courses of LIS. The latest efforts have been through a UGC Curriculum Development Committee (1993). The UGC and other higher bodies now give emphasis to semester system rather than annual system, and credit-based rather than marks based system. Every university being autonomous is free to frame its own course of studies, and syllabi of many universities / schools are quite modernized. The UGC is promoting LIS research by awarding different kinds fellowships to the students, Indian Council of Social Sciences (ICSSR) and Defence Scientific Information and Documentation Centre (DESIDOC) are also promoting LS research programme by awarding scholarship to doctoral students.

The UGC has given regulations on minimum qualification for appointment of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in higher education, Sep 2009, published in the Gazette of India Part III Sector 4. It stated that –

1. i. These Regulations may be called the University Grants Commission (Minimum Qualifications for Appointment of Teachers and other Academic staff in universities and colleges and measures for the maintenance of standards in higher education) Regulations, 2009.
ii. They shall apply to every university established or incorporated by or under a Central Act, Provincial Act or a State Act, every institution including a constituent or an affiliated college recognized by the Commission, in consultation with the university concerned under Clause (f) of section 2 of the University Grants Commission Act, 1956 and every institution deemed to be a university under section 3 of the said Act.

iii. They shall come into force with immediate effect from the date on which these regulations are notified. However, all promotions under career advancement scheme (CAS) schemes shall continue to be governed by the above referred regulations vide No. F.3-1/2000 (PS) dated 4th April 2000, in case such candidate has become eligible for promotion on a date prior to the present regulations coming into force.

2. Minimum qualifications for appointment and other service conditions of university and college teachers, librarians and directors of physical education as a measure for the maintenance of standards in higher education, shall be as provided in these Regulations.

3.20.5 Minimum Standards and Procedure for Award of M.Phil/Ph.D. degree: UGC Regulation 2009:
The UGC Regulation 2009 called minimum Standards and Procedure for Award of M.Phil/Ph.D. Degree), to be published in the Gazette of India, shall apply to every university established or incorporated by or under a Central Act, Provincial Act or a State Act, every institution including a constituent or an affiliated college recognized by the Commission, in consultation with the university concerned under clause (1) of Section 2 of the University Grants Commission Act, 1956, and every institution deemed to be a University under section 3 of the said Act. According to the Regulation, all Universities, Institutions, Deemed to be Universities and Colleges / Institutions of National Importance shall be eligible for conducting M. Phil and Ph.D. Programs. But, no University, Institution, Deemed to be University and College/
Institution of National Importance shall conduct M. Phil and Ph.D. programmes through distance education mode. A Supervisor of the M. Phil / Ph.D. programme can not have more than eight Ph.D. scholars and five M. Phil scholars at any given point of time. The number of seats for M. Phil and Ph.D. shall be decided well in advance and notified in the university website or advertisement. Further, these institutions shall widely advertise the number of available seats for M. Phil / Ph.D. studies and conduct admission on regular basis. There is provision for the university to decide separate terms and conditions for those students who qualify UGC/CSIR (JRF) Examination / SLET / GATE / Teacher fellowship holder or have passed M. Phil programme for Ph.D. Entrance Test. It shall be followed by an interview. The same procedure shall be adopted for the M. Phil programme. The admission of the Ph.D. programme would be either directly or through M.Phil programme. National State Reservation policy will also be considered by the universities at the time of granting admission to a M. Phil / Ph.D. programmes to the students. It is mandatory to publish at least one research paper in a referred peer-reviewed journal before the submission of the thesis and need to be produced evidence for the same in the form of acceptance letter or the reprint. The thesis shall be evaluated by at least two experts, where one shall be from out of the state and it is optional to have one examiner from out of the country. At last, on the satisfactory evaluation reports, students shall undergo a viva voce examination. On the successfully completion of the evaluation process and announcements of the award of M. Phil / Ph.D. the university has to submit a soft copy of the thesis to the UGC/ INFLIBNET within a period of thirty days for hosting the same in the INFLIBNET repository accessible to all institutions / universities.

A new set of direction from the University Grant Commission (UGC) has imposed some important changes in rules governing PhD students. Getting a PhD degree in India has become very competitive. UGC has made entrance exams mandatory for PhD and M. Phil aspirants. The entrance will be followed by an interview where aspirants will discuss their research area. After admission to PhD, students will have to do course work for at least a semester. The course will be treated as pre-research preparation and universities will fix the minimum qualifying criteria to proceed with writing of dissertation.
The new norms will ensure that before submission of theses, students make a pre-MPhil/PhD presentation in the department for feedback. It will also be mandatory for them to publish one research paper in a refereed journal. The thesis will be evaluated by two experts, including one outside the state, followed by a viva-voce examination. UGC has exempted PhD holders who do their doctoral programmes under the new norms from clearing the National Eligibility Test (NET) for lectureship. For others, NET/SLET (state level examination for lectureship) is a must for recruitment. UGC has also restricted the number of seats for PhD/MPhil in universities but it will be compulsory for them to advertise the seats to encourage students from other states. Also, supervisors cannot have more than eight PhD and five MPhil scholars at a time. To check plagiarism, researchers will have to submit theses on a CD so that the content can be checked for duplication and cheating before handing out degrees. UGC has asked all state, central, private and deemed universities to prepare a database of research work and digitalize them.

3.20.6 UGC Doctoral Research Programme Regulation 2009 revised:
For the standardization of award of MPhil and PhD degrees and with a view to bring about qualitative improvement in Research output, the University Grants Commission (UGC) has notified regulation for minimum standards and procedure for awards of MPhil and Ph.D Degree in the year 2009. This was done in order to maintain quality in the doctoral research programme of universities. The Regulations laid down the eligibility criteria for MPhil and Ph.D supervisor, procedure to be followed for admission into these programmes procedure for allocation of supervisor and evaluation and assessment methods for awarding the degree. Now, the regulations have also made it mandatory for one semester course, compulsory viva-voce and evaluation by at least two experts, one of which should be an outsider. This regulation is applicable to every university established or incorporated by or under a Central Act, Provincial Act or a State Act, every institution including a constituent or an affiliated college recognized by the UGC and every institution deemed to be a university under section 3 of the UGC Act, 1956.
In an attempt to standardize the process of awarding MPhil and PhD degrees and bring about a qualitative improvement in the research output, the University Grants
Commission has devised a way to crack down on universities that award degrees in a haphazard manner. All universities, including central, state, private varsities and deemed-to-be universities, have been asked to submit information regarding the number of PhDs and M. Phil’s given and the manner in which they are awarded. All universities are expected to follow the recommendations of the UGC (Minimum Standards for Award of M. Phil/PhD Degree) Regulation, 2009. (http://timesofindia.indiatimes.com/home/education/news/UGC-tightens-rules-on-awarding-MPhil-PhDs/articleshow/19827844.cms).

3.20.7 Incentives for PhD /M. Phil and other Higher Qualification in the Field of LIS:

1. Five non-compounded advance increments shall be admissible at the entry level of recruitment as Assistant Professor to persons possessing the degree of Ph.D. awarded in a relevant discipline by the university following the process of admission, registration, course work and external evaluation as prescribed by the UGC.

2. i) Teachers who complete their Ph.D. Degree while in service shall be entitled to 3 non-compounded increments if such Ph.D. is in a relevant discipline of the discipline of employment and has been awarded by a university complying with the process prescribed by the UGC for enrolment, course work and evaluation, etc.

   ii) However, teachers in service who have been awarded Ph.D. at the time of coming into force of this schemes regulations or having been enrolled for Ph.D. have already undergone course-work, if any, as well as evaluation, and only notification in regard to the award of Ph.D. is awaited, shall also be entitled to the award of three non-compounded increments even if the university awarding such Ph.D. has not yet been notified by the UGC as having complied with the process prescribed by the commission.

3. Five non-compounded advance increments shall be admissible to Assistant Librarian / College Librarian who are recruited at entry level with Ph.D. degree in the discipline of Library Science from a university complying with the process prescribed
by the UGC in respect of enrolment, course-work and evaluation process for the award of Ph.D. in Library Science.

4. i) Assistant Librarian / College Librarian acquiring the degree of Ph.D. at any time while in service, in the discipline of Library Science from a university complying with the process prescribed by the UGC in respect of enrolment, course-work and evaluation shall be entitled to three non-compounded advance increments.

   ii) However, persons in posts of Assistant Librarian / College Librarian or higher positions who have been awarded Ph.D. in Library Science at the time of coming into force of this schemes regulations or having already undergone course-work, if any, as well as evaluation, and only notification in regard to the award of Ph.D. is awaited, shall also be entitled to the award of three non-compounded increments even if the university awarding such Ph.D. has not yet been notified by the UGC as having complied with the process prescribed by the Commission.

5. In respect of every other case of persons in the posts of Assistant Librarian / College Librarian or higher positions who are already enrolled for Ph.D. shall avail the benefit of three non-compounded increments only if the university awarding the Ph.D. has been notified by the UGC to have complied with the process prescribed by the Commission for the award of Ph.D. in respect of either course-work or evaluation or both, as the case may be.

6. Assistant Librarian / College Librarian and others in higher Library positions in service who have not yet enrolled for Ph.D. shall therefore derive the benefit of three non-compounded increments on award of Ph.D. while in service only if such enrolment is with a university which complied with the entire process, including that of enrolment as prescribed by the UGC.

7. Teachers, library and physical education cadres who have already availed the benefits of increments as per existing policy for acquiring Ph.D. / M. Phil while in service, shall not be entitled to advance increments under this schemes regulations.
8. For posts at the entry level where no such advance increments were admissible for possessing PhD/M. Phil under the earlier schemes regulations, the benefit of five advances for possessing PhD/M. Phil shall be available to only those appointments which have been made on or after the coming into force of this schemes regulations. (http://www.unipune.ac.in/admin/circular/UGC%20Regulations-23.09.09.pdf)

Thus the growth of doctoral research has been fuel by parity in pay scale and promotional avenue according to UGC.

3.21 Post doctoral Fellowship Programme:
Universities around the world offer many postdoctoral fellowships for students to continue their studies. Postdoctoral research is an academic research carried by students who have completed their doctoral studies. Postdoctoral fellows can retrieve some of the suitable resources in their areas of interest and will help them in building collaborative relations with miscellaneous universities. There is a need to evaluate the best ways to prepare doctoral students to succeed in this interdisciplinary and multidisciplinary environment (Jaeger, 2010). The Council on Library and Information Resources (CLIR) Washington DC, announces post-doctoral fellowship program. The program is offered in conjunction with a consortium of academic research institutions that establishes a new kind of scholarly information professional. It educates new scholars about the challenges and opportunities created by new forms of scholarly research and the information resources that support them, both traditional and digital (CLIR, 2004).

3.22 Global status of LIS Research:
The research conducted (Rochester & Vakkari 2003) various national studies of different countries to analyze the trends in LIS research at global scenario and record the research at global level based on the analysis. The different national studies in research were conducted by these two authors as an assignment of IFLA project during 1997-1998 and compared national and international trends in LIS research and recorded the development in research. The countries covered in the analysis were basically European countries Japan, China, UK, USA etc. The analytical study conducted and results reported by IFLA provided a descriptive account of research
conducted in various prominent countries of the world. The author's analysis on the research activity and broad subject in which prominent research covered during the period 1965-1995 indicated that the major focus in LIS research at international level was concentrated mainly the following topics such as Information storage and retrieval (87), Library and Information services (77), Information seeking behaviour (8), Other LIS topics (25).

Thus out of 197 research studies it was reflected that ISR, LIS services and ISB were in prominent areas. Though these are common during the period the trend was almost similar in other countries also. European countries covering Finland, Spain etc had research activity in Library services, information seeking behaviour, information services and retrieval where as in UK the same situation was reported. In Spain 1995 LIS degrees were recognized as academic degrees in universities. Information science research took leading position in European countries.

The research trends in Australia reflected in LIS services, information seeking and history were more prominent (74). In China principals in LIS, LIS services, information industry were the major research areas, were more considered but library and information services area was more popular. The most popular sub topics on which research was conducted more during 1965-1995 in China were Classification, Automation, Collection development, Information retrieval, Library management and administration, Library use.

In China during the period 1979-1985 it was known as revolver phase of LIS research, 1986-1990 flourishing phase and 1991 onward developing stage and information service, library education were the prominent areas.

A comparative study conducted (Vakkari, 1996) for LIS research in Scandinavia countries like Denmark, Finland, Sweden, Norway; Spain etc. also reflected European trends LIS research. Thus it was reflected that major countries noted below during this period involved more in research concentration at broad information topics such as Denmark (47), Finland (44), International (40), Spain (38), Sweden (33), Norway (26), Turkey (21), Australia (16).
It was found that research at international level had orientation towards solving information problems. In LIS many authors reviewed the research the research methods used by LIS scholars for conducting effective research and noticed that the among the different methods in which descriptive research covering survey (66), historical conceptual research element (79) as well as discussions, mathematical methods, literature review were the prominent methods.

In UK, LIS research was examined by Layzell Ward (1998) and pointed out the research trends and informed that research output was low initially and increased latter after establishment of Library associated which setup research committee 1946 and from 1960. Government funding made available for LIS research. Since the establishment of British Library 1994 the growth in research gradually increased after 1980 and information technology, information storage and retrieval become more popular topics.

From the above global study it is noticed that LIS research progress was slow and different topics were grouped in to three areas based in traditional practices and since 1990 area were shifted towards modernization covering:

2. Library and information services: Circulation Collection development, information and seeking behaviour, User education
3. Information storage and retrieval: Cataloguing, classification and indexing, Information retrieval, Bibliographic databases
4. Information seeking behaviour: Methods of information dissemination Information sources, Information seeking behaviour in different subject, Information management
5. Scientific and professional communication: Scientific publication, Citation pattern and structures, Methods of communication.
Summary:
The education and research both have prominent importance in LIS sector. Recently since the technological use has increased in the area research has also more proliferated areas than before. LIS education is restructured and the syllabus is updated at regular intervals to meet the needs of the profession. Similarly research is growing and there is a necessity to evaluate the research conducted in LIS. The third objective “To identify the factors responsible for growth of doctoral research in Library and Information Science in India” is successfully accomplished by the researcher. The larger 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. Factors like recognition, salary scale, UGC norms for career promotion etc. have been the motivating factors. Thus the growth of doctoral research has been fueled by parity in pay scale and promotional avenue according to UGC.

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