## Chapter 4: Progress of Education and Research in LIS

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Chapter 4: Progress of Education and Research in LIS

4.1 Introduction:-

Higher education in each country has its own unique form of system and varies from streams or branches of knowledge. Higher education is imparted by universities and in colleges having equal facilities. Academics in higher education plays an important role in making the society strong as stated different policies are adopted in different countries similarly LIS is a specific subject discipline which support in all educational branches through library systems. Schools of library science provide useful professional education universally and develop (Program, 2006) library and information professionals to manage the libraries efficiently. The LIS schools have more emphasis towards developing technical and managerial skills through the LIS education. Following paragraphs briefly narrated the status of LIS education.

4.2 LIS Education: Global Overview:

Tsuji et al (2006), pointed out it in his study that the main theme in LIS education Japan was developed qualified librarians (Shisho) and assistant 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.

Wilson (2012), in his article “Fifty years of LIS education” in USA and 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 will 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.

4.3 Library and Information Science Education in India:

Joshi M K (2010) and Rana R (2011) LIS education in India is completing a century of its existence during the period progress have been achieved in developing LIS education to tune with current practices. Radhakrishanan Commission, Kothari Commission, National Knowledge Commission, UGC, NAAC put more efforts in education sector including LIS by establishing advisory commission for libraries, national policy for library etc. Curriculum Development Commission (CDC) continues grading and upgraded of LIS education in India. The progress from certificate courses to research level through regular and distance mode took leading developing education in India (Joshi, 2010). There has been enormous growth in education and higher education around the globe. Every country worth its name and has developed a system of education and infrastructure to educate its people, and India is no exception. There has been a fast growth in institution of higher education since the dawn of twentieth century and more particularly, after India attained independence in 1947. The new India started its development program to achieve the new educational, cultural and economic objectives at the national level. Such developments at these institutions contributed to the
development of more libraries, which in turn had to accept new responsibilities to meet society’s changing needs and demands. Libraries are recognized to play an important role in education, scientific research and social-economic development of a country. This envisages the need for professionally qualified personnel to manage and run the libraries and information centres effectively and efficiently. In order to feed the growing number of libraries, more trained library professionals were needed. For this purpose, library science departments started springing up, and library science developed into a distinct field of specialization with its own normative principles, theories, techniques, and practices that were deemed sufficient to meet the growing dimensions of library services. Handling of recorded knowledge in modern libraries has given birth to the functional aspects of collecting, organizing and promoting the use of reading materials relevant to the users through information transfer activities. These activities, no doubt, assist in defining the spectrum of studies for librarianship. The basic tenet of LIS education is to provide balanced training, integrating theory with practical exercises, and to cover all aspects of professional work with equal emphasis embracing new frontier of librarianship. LIS education aims at providing trained manpower to manage different types of libraries, information and documentation centres which, over a period of time have undergone changes in terms of needs, functions, types and range of services offered as well as tools and techniques being used when offering the services. Research in library and information science in India is not deep rooted. In the beginning it was in the form of a trial and error method. It was Padamashree S R Ranganathan (1889-1972) father of library science who lifted trail librarianship to the level of a science with the formulation of laws of library science, and establishment library schools and research centres. He even graded them as normative principles, fundamental laws, canons, principles and postulates. Ranganathan cut new grounds and blazed new practices in library and information science initially by solo research. This is evidence from the published literature that Ranganathan era’s is characterized by a period of intellectual contribution to the library and information science, particularly library classification. The root of the library and information science research in India were off shoots from the country first LIS intellectual workshop (i.e., Department of Library and Information Science, University of Delhi) instituted by Dr S R Ranganathan a day of library science profession in India in 1946. The first research degree in the library and information science in the country and even in the commonwealth countries was awarded by the University of Delhi in 1957 to D B Krishna Rao for his thesis ‘Facet Analysis and Depth Classification of Agriculture’ under the
supervision of Dr. S. R. Ranganathan.

4.4 Historical Development:

The modern period in the history of education for librarianship began in the mid-1800s as librarians around the world recognized that systematic education and training were required so that proper order could be brought to the collections that had been growing in all libraries. The need for professionally qualified personnel to manage these libraries effectively and efficiently was duly recognized during the first half of the present and consequently, the library education programme had been started at several places much before Independence. The history of the education of library science in India may be traced far back as the year of 1911 with the starting of a short term training programme in library science in the Baroda State, under the patronage of Maharaja Sayajirao Gaikwad of Baroda, who, impressed by the splendid work done by public libraries in the West, secured the services of an American librarian Mr. W. A. Borden as Director of the State Library Department. Mr. Bordon had been a pupil of Mr. Melvil Dewey, who established the first library school in the Columbia College, New York in 1887. In 1915, another student of Dewey, Mr. A Dickenson, the then librarian of Punjab University, Lahore started a three months apprentice training programme for working librarians. Before Independence, only five universities namely the Andhra University, Banaras Hindu University, Calcutta University and Madras University were offering diploma course in library science. Library education was given a new status and design by Professor S. R. Ranganathan in 1920, when the first systematic programme in library education was started under the auspices of the Madras Library Association in collaboration with the Madras University. This library school was subsequently taken over by the Madras University in 1931 and in 1937 the course was converted into Postgraduate (PG) Diploma in Library Science. This was the first diploma programme in Library Science in India. University of Delhi was the first university to establish a full-fledged Department of Library Science just before independence in 1946, and started admitting students to the PG Diploma in 1947. In 1951, the diploma was changed to Master in Library Science (M.Lib.Sc). Later, between 1956 to 1959, six new LIS departments were established at Aligarh Muslim University, M.S.University of Baroda, Nagpur University, Osmania University, Pune University and Vikram University. Since 1960s, the number of LIS departments has continued to increase. After Independence the stimulus for the growth and development of libraries and library science education has come from the progress in and extension of education, scientific research and programmes of socio-economic development.
which started in 1951 with the commencement of the First Five-Year Plan. As a result of these developments, Library and Information Science today is a well-recognized discipline of study and research at the post-graduate level in more than hundred universities in the country. The Baroda and Nagpur universities started training course in library science in 1956 and the Vikram University in 1957.

4.5 Present scenario of LIS Education in India:-

Since its inception decades ago, LIS education has grown and developed into a full-fledged multi-disciplinary subject. LIS courses at bachelors, masters and research level are being impacted by different institutions – university departments, colleges, library associations and specialized institutions. There are now 96 universities in India imparting Library and Information Science education as independent departments in different levels. The list is shown in appendix. Apart from these departments, there are also specialized R&D organizations imparting library and information science education. Worth mentioning is the two years Associateship in Documentation and Information Science (ADIS) imparted by Documentation Research and Training Institute (DRTC), Indian Statistical Institute, Bangalore (Karnataka) and National Institute of Science Communication and Information Resources (NISCAIR) formerly INSDOC, New Delhi which is equivalent to Mater degree of Library and Information Science (LIS). In addition to, these 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 Library and Information Science. With the realization of the importance of higher education and research, research in Library education is not lagging behind like other disciplines. The University Grants Commission (UGC) and the Indian Council of Social Science Research (ICSSR) are promoting to research activity in library and information science by awarding scholarships to research and doctoral students.

4.6 Objectives of Library and Information Science Education:-

The goal of library and information science education is the preparation of personnel for the task of successful performance at different levels of competence in different types of libraries with an insight into the role of these libraries in a fast changing society. It should impart a thorough grounding in the intellectual foundations of the profession and competence in the technical and technological skills required for their day-to-day practice in different positions.
In other words, education for library and information science should be both knowledge and theory oriented task or practice oriented. The two aspects of theory and practice blend harmoniously in a sound programme of library and information science education because on this aspects LIS education depend the effectiveness and success of the programme. In achieving this objective the methods of teaching and evaluation employed are as important as the quality of the faculty. The main objectives of LIS profession are to provide training for building up leadership qualities among the LIS profession develop knowledge on the latest techniques of information storage, transfer and retrieval of information help to acquire necessary skills in handling information, accessing and application of electronic resources, tools and media; and help to know the latest developments in the Information Technology (IT) To sum up, the basic aims of library and information science education may be as follows

- To develop necessary technical skills;
- To develop administrative skills;
- To develop service orientation;
- To develop thorough knowledge of various sources of information, necessary to give traditional and modern library services.
- To develop professional awareness.

### 4.7 Levels of Education:

Out of the 96 university departments, 56 departments conduct one-year Bachelors degree and one year Masters Degree in Library and Information Science at the postgraduate level. Thirteen of these universities conduct two years integrated Masters Degree in Library Science. These programme further leads to M.Phil. and PhD levels. The levels of LIS education in India are discussed as follows in brief:

#### 4.7.1 Certificate/Diploma in Library Science (C/D. Lib. Sc.)

Many polytechnic colleges, schools and Library Associations impart the low level of library science courses in India having duration of six months to one year. The basic qualification for these courses is 10+2. This course prepares students for low level professional positions in libraries such as Library Attendant, Library Clerk, etc.
4.7.2 Bachelor of Library and Information Science (BLIS) after any graduation:-

This is a one-year post graduate degree course. The basic eligibility is a three years degree from any discipline. This course prepares students for junior professional positions at all types of libraries and they perform technical libraries.

4.7.3 Master of Library and Information Science (MLIS):-

In the early 19th Century, young people learned librarianship by working under the more experienced practitioners. But, gradually the tasks performed by librarians became more complex and more dependent on technology. As a result, the study of library science has moved from the work-setting to professional schools in Universities. The first ever library school was started by Melvil Dewey in USA in 1887 at Columbia College (now Columbia University). In 1889 the programme moved to the New York State Library in Albany when Dewey became the Director there. The success of Dewey’s training programme and the publication of Training for Library Service, a book by the economist Charles Williamson in 1923, led other universities, institutes of technology, and large public libraries to establish their own professional degree programmes in library science. Master of Library and Information Science is imparted as a one-year post graduate degree course in some universities while in some, it is conducted as a two years integrated course. Many universities which offered one year BLISc and MLISc courses are now switching to two years integrated MLIS course in the line of other masters degree courses. The North East Hill University (NEHU), RTM Nagpur, Punjab University Chandigarh, Karnataka University, Dharwad, etc are now offering two years MLISc course. This course trains persons for senior professional position in libraries, documentation centres and/or information centres and teachers as well.

4.7.4 Associateship in Documentation and Information Science (ADIS):-

The Documentation Research and Training Centre (DRTC), Bangalore (Karnataka) offers two years Associateship in Documentation and Information Science (Now know as Master of Science in Information Science). The National Institute of Science Communication And Information Resources (NISCAIR), New Delhi , formerly INSDOC also impart two years documentation programme i.e., Associateship in Documentation (AID) after graduation. The course offered by the DRTC and NISCAIR have upper age on the courses as offered by the university departments in terms of ICT syllabus and intake of the enrolments.
4.7.5 **Master of Philosophy in Library and Information Science (M.Phil):**

In Library and Information Science prepares a student for further advanced research in LIS. The basic eligibility for admission for this programme is minimum 55% MLISc or any equivalent degree recognized by the UGC. With candidates having more qualifications are being preferred for superior position, many students are opting for M.Phil. Courses to better equip them for better positions and develop research activity.

4.7.6 **Doctor of Philosophy of Library and Information Science:**

This is an advanced level of research programme being offered after the completion of MLISc or M.Phil. The general aim of a research degree, whether M.Phil. or Ph.D. is to provide training in doing research as well as to develop in the candidate a critical and analytical process of thinking with the purpose that they would be able to provide leadership in the profession. They would also be able to help librarians and information scientists to develop techniques and skills required to meet their requirements of the fast changing society. They should be able to identify the needs, set objectives, identify and analyze the problems and find appropriate solutions. They would also be in a position to participate in the planning, organization and implementation of programmes at various levels.

4.8 **First Course of Library Science in India (Certificate, Diploma and Training courses):**

In India the existence of in service training was initiated by John Macfarlane, the first librarian of the Imperial Library (Now National Library) at Calcutta from 1901-06, as mentioned in some reports. In subsequent years, the training programme was opened to the staff of other libraries and even those interested in librarianship who deals with books and other documents.

4.8.1 **Baroda School:**

In 1911, Sayajirao Gaikwad (1862-1939), the ruler of Baroda state called the American librarian Mr. William Allenson Borden (1853-1931), a disciple of Melvil Dewey to create a cadre of men for the newly established libraries in the state library system. In 1912, he initiated the first training school in library education in India. In 1913, another training class
for working librarians of town libraries was started. These classes continued even after the departure of Borden.

4.8.2 Lahore School:-

In 1912, the Punjab University called another librarian Mr. Asa Don Dickinson (1876–1960) from USA. He started the second educational course of three month duration in library science in the year 1915. This happens to be the first university course in India. Mr. Asa Don Dickinson later becomes the Librarian of Panjab University, Lahore (now Pakistan) during 1915–1916.

4.8.3 Andhra Desha:-

The Andhra Desha Library Association (founded in 1914) started conducting “training classes for the library workers” at Vijayawada in 1920. The classes covered a module on running adult education classes in addition to library technique.

4.8.4 Mysore State:-

In 1920, a course for the training of librarians was conducted at Bangalore under the “program of library development” initiated by the then Dewan of Mysore Mr. M. Visweswaraya.

4.8.5 Madras Library Association:-

A summer school for college librarians and lecturers in charge of college libraries in Madras was held in 1928 and repeated in 1930. The Madras Library Association also organized a regular certificate course in library science from 1929. Then in 1931, University of Madras took up the training course of MALA in 1931 and started offering the course on a regular basis.

4.8.6 Andhra University:-

Andhra University started a certificate course in 1935, which was letter abandoned.
4.8.7 *Imperial Library, Calcutta:*

The Imperial library, Calcutta started a training class under the supervision of its librarian Mr. K. M. Asudulah in 1935. It was a full time regular Diploma course in librarianship at the Imperial Library, Calcutta (now National Library, Kolkata). It continued till 1946.

4.9 *Post Graduate Diploma courses:*

University of Madras, in 1937, introduced a one year Post Graduate Diploma course in place of the certificate course of three month duration. This was the first P G Diploma in library science in India. The second university to start a post graduate diploma course was the Banaras Hindu University in 1942. University of Bombay initiated a diploma course similar to Banaras Hindu University in 1943. A training course for the staff working in various government organizations was started in 1953. This course was recognized as equivalent to the university diploma courses.

4.10 *Degree Courses:*

In 1947, Aligarh Muslim University started B.Lib. Science Course for the first time in the country. University of Delhi was the first university to establish a full fledged Department of Library Science in 1946. It also instituted the first post diploma degree course in 1948. In 1949, the structure was changed. The programme of Master of Library Science was introduced as a two year course with the first year leading to Bachelor of Library Science. In between 1956-59, six new LIS departments were established at Aligarh Muslim University, MS University of Baroda, Nagpur University, Osmania University, Pune University and Vikram University. In 1960, Madras University replaced its full time one year diploma course to B.Lib.Sc. Degree course. By mid 1960, many other universities had fallen in the line of university of Madras following the recommendation of Review Committee Report of UGC in introducing different degree courses. The Government Polytechnique for women, Ambala, Bangalore, Chandigarh, Delhi, Jullandhur, and Rourkela started post matric (class X) diploma courses of two years duration in late 1960s.

4.11 *Documentation Research and Training Centre (DRTC):*
In 1962, Dr. S. R. Ranganathan established Documentation Research and Training Centre at Bangalore. Previously DRTC courses were of 14 month duration which was later on moved to two years programme. INSDOC conducted a short term course for Asian Documentalists in 1963. In 1964, it started a one year post graduate course in Documentation and Reprography leading to “Associateship in Documentation and Reprography”. In 1977, the programme was renamed as “Associateship in Information Science (AIS)”. On September 30, 2002, INSDOC merged with the National Institute of Science Communication (NISCOM) and was renamed as National Institute of Science Communication And Information Resources (NISCAIR). At present, it is conducting “Courses in Information Science”.

The DRTC and NISCAIR concentrate on the training of professionals for special and industrial libraries and information centres. Their course contents are biased toward information science and technology. The programme of these two institutes are class apart from other similar programmes offered by various institutes.

In India advanced professional education has remained attached to universities, though there are some regional library associations conducting certificate courses of a few months duration and women polytechnics offering post-masters two year diplomas in library science to train paraprofessionals. At present, about 107 institutions, mostly university colleges and polytechnics, have library science education courses. Out of these, M. Lib. I. Sc. course is being offered by more than 75 universities.

4.12 Five Year Integrated Course in LIS:-

In 2010, University of Calcutta introduces five year integrated course in Library and Information Science and thus becomes the first university to launch such course in LIS domain. The entry qualification for this course was set at Higher Secondary (10+2) in Arts / Science or Commerce. Launching of this course will force the learners to choose the LIS by choice and not by chance. It will again help the students to grasp and understand the contents for LIS in a better and exhaustive way.

4.13 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 BLISc and MLISc courses. In most of the universities, the prerequisite for admission into the Bachelor or Master degree course in Library and Information Science is 10+2+3 years of education from any faculty (arts, science, commerce etc). The majority of the universities generally conduct two separate courses for the Bachelor’s degree followed by the Master of Library and Information Science of one year (or two semesters) 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 major role in imparting LIS education along with deemed and formal universities.

4.14 Specialization:--

Students in most schools of library and information science have the opportunity to develop at least some degree of specialization. Some may take advanced courses in particular library functions, such as reference work, while others may take courses related to a particular type of library, such as a course in medical librarianship or public librarianship or academic librarianship. In simple, there are many different courses available in LIS. It makes the professionals available to work at all levels of library irrespective of type, structure and function.

4.15 Syllabus:--

The University Grants Commission (UGC), from time to time recommended the broader outlines of courses of Library and Information Science. The latest effort has 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.

All programmes to educate librarians share certain characteristics. Programmes typically offer courses in the history of books and librarianship to give students a background in the profession’s past. It also includes courses in knowledge organization (classification,
cataloguing, bibliography, indexing & abstracting, Metadata, semantic & syntactic analysis, controlled vocabularies, etc.), collection development (acquisition), information seeking behaviors of users, search strategies, library services (dissemination of the acquired library materials, reference), and management of the collection (preservation & conservation of documents). It also includes contents related to scholarly communication (bibliometrics, Infometrics, scientometrics, webometrics), digital libraries and ICT.

4.16 ICT as an Integral Part:-

Technology is entering in a very big way in every sector and in LIS where it has been used extensively to store and retrieve information in different forms and structures. This new dimension is reflected in the course structure of almost all universities that provides courses in LIS. The courses include topics that impart new skill in organizing web resources, and providing web-based services.

4.17 Practical Exposure:-

All courses provide scope of practical knowledge rather than restricting to only theory. Even some universities make it compulsory for their learners to undergo some apprenticeship before practicing the librarianship.

4.18 Problems with Present LIS Education and Research:-

4.18.1 Limited Accommodation Capacity:-

All universities which provide Library and Information Science courses witness a great flow of learners. But they are able to accommodate only a limited number of such desired students.

4.18.2 A Very Competitive Entrance Examination:-

In most of the universities, students desire to study the LIS has to go through a very competitive entrance examination for admission.

4.18.3 Limitation as a Professional Subject:-

LIS is a professional course and so it has the limitations of any other professional courses. The non-inclusion of Library and Information Science in UPSC, Civil Service / State Public Service Commission examination, SET / SLET is a very common.
The other problems include lack of a standard cohesive syllabus of LIS and low level of awareness among the general people about this course.

4.19  **LIS Research in India:--**

The LIS research briefly means the collection and analysis of original data on a problem of librarianship, done within the library school according to scientific and scholarly standard. Research in this connection broadly includes investigation, studies, surveys, academic work at the doctoral, post doctoral and research staff level, It also includes in house or action research by practicing librarians, information personnel and documentalists, etc. The aim of research in LIS, like any other discipline is to contribute towards the advancement of subject and contribution to the existing knowledge.

4.19.1 **Dr. S. R. Ranganathan’s Effort:--**

The era of LIS research in India started with S. R. Ranganathans efforts. He performed individual research for several years. His works that lead to some of the fundamental and theoretical principles have dominated the research activities for five decades. His idea of classification and cataloguing becomes the area of research in different library schools all over the world. The library and academic community of those days, even today also respect him as a pioneer researcher in LIS. Some of his worth notable contributions are

a) Five laws of library science  
b) Colon Classification  
c) Prolegomena to library classification  
d) Classified Catalogue Code  
e) Documentation and its facets  
f) Library administration, etc.

In India research activity to reflect in two programs.

4.19.2 **M. Phil Programme:--**

i) **University of Delhi:** University of Delhi was the first to introduce M. Phil programme in Library and Information Science in 1980. Today more than 11 universities offer the M.Phil programme. The duration of M. Phil programme in almost all universities in this country is one year.

4.19.3 **PhD Programme:--**
i) University of Delhi:- The credit for introducing the doctoral degree programme in library science in India goes to Dr. S. R. Ranganathan (1892–1972). In 1951, he started PhD program in Delhi University in 1958. The university offered first doctoral degree in Library science to D. B. Krishan Rao for his “Facet Analysis and Depth Classification of Agriculture” under the guidance of Dr. S. R. Ranganathan. In 1977, Panjab University, Chandigarh offered the second Ph.D. Today more than 125 Universities in India have Ph.D. research facilities.

ii) Documentation Research and Training Centre (DRTC):-

In 1962, Dr. S. R. Ranganathan established Documentation Research and Training Centre at Bangalore. Since its inception, it has been carrying out research studies on documentation and related areas.

iii) Library Associations:-

The contribution of library association of India towards research activities is negligible but they restrict their activities in the field of publication of journals, organization of seminars, conferences and workshop, etc. for making ground to do research in LIS. IATLIS, NASSDOC, ILA, IASLIC are the mentionable among them.

iv) Funding of LIS Research in India:-

The University Grants Commission (UGC) is promoting LIS research by awarding different kinds of fellowships to the students. Indian Council of Social Science Research (ICSSR) and Defence Scientific Information and Documentation Centre (DESIDOC) are also promoting LIS research programme by awarding scholarship to doctoral students.

v) D.Litt Programme:-

In 1992, Utkal University, Bhubaneswar awarded D.Litt. to Dr. B. B. Shukla. It claimed to be the first such degree in library science all over the world.(Kumar, 1998)

4.20 LIS Research : Global Overview:-

Rochester and Vakkari (2003) conducted various national studies of different countries to analyse the trends in LIS research at global scenario and record the research trends in LIS 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
Rochester (1998) 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 of the following topics.

1. Information storage and retrieval (87)
2. Library and information services (77)
3. Information seeking behavior (8)
4. 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 in LIS research. Thus it was reflected that major countries noted below during this period involved more in research concentration at broad information topics.

- 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 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 association 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 behavior, User education
3. Information storage and retrieval: Cataloguing, classification and indexing, Information retrieval, Bibliographic databases
4. Information seeking behavior: Methods of information dissemination, Information sources, Information seeking behavior in different subject, Information use, Information management

5. Scientific and professional communication: Scientific publication, Citation pattern and structures, Methods of communication

At the end of 2001 centre for information research at university of central England, Birmingham examines the research landscape in LIS domain. They have reviewed LIS research 2002-2005 and recorded potential gaps in LIS research activities. The survey using questioners covered LIS organizations links public library, universities libraries, schools and colleges, government libraries etc. the survey was focused on core areas in LIS. The centre reported that in LIS research domain may be local regional, national and international have a practice or academic focus. Hayns et. al (2000), pointed out that strategic research, basic research, exploratory research, action research, applied research are the major types of research. Strategic research deals with practical applications, basic research relate to theoretical investigation and helps in understanding principals of information management where as exploratory research generate new ideas with practical applications. Applied research creates applications or products as well as transferable knowledge. Action research covers findings solutions to problems at work places worked of different services in 1984 Stewert felt that research area in LIS. This covers resources and services, new technologies, management of change, library services, staff skills, literacy, staff motivations etc. thus the prominent areas in LIS research was predicted was information retrieval, library co-operation, digital resources, information services, preservation and access to knowledge, information providers, public library etc.

Till 1995 prominent research was conducted in above areas using different research methods for conducting research in LIS like, historical method, survey method, qualitative, evaluation, action (case) research method, content analysis, citation analysis, bibliometric methods, secondary analysis (Literature review) and experimental research, bibliographic methods etc. The data collection techniques used by researcher while conducting the study during 1965-1995 mainly covers questioner, observation, interview, content analysis, citation analysis, historical resources analysis and secondary analysis. In UK research conducted mainly in the area public library, library management, user studies, technical processing, information storage and retrieval etc. (Meadows 1994, 1995).
Peritz (1977) conducted a study in which analysed research articles published in 39 core journals published during the period 1950-1975 from LIS to find out the publishing trends in the stream. Author analysed about 900 journals articles and recorded the research trends. Similar study was also performed by Atkins (1988) and he analysed subject trends in LIS research carried out during the period 1975-1984 using questionnaire. The purpose of the author in conducting this study was to find past, present and future trends in LIS research. Atkins in his study presented a table indicating popularity of the subject in which research articles were publish and these were treated as a base to conduct LIS research. The areas isolated by him are:

1. Library management
2. Information retrieval
3. Databases
4. Cataloguing
5. Public library
6. Library automation
7. Library history
8. Library finance
9. Collection development
10. Information services
11. User study
12. Preservation
13. Copyright
14. Acquisition
15. Citation studies
16. Special libraries
17. Research libraries
18. Library education
19. University library
20. Library building
21. Special collection
22. National library
23. Library security
The author opined that in developed countries till 1980 traditional concept were considered and since 1980 emphasis was given on latest trends related topics which were in currency like databases, ICT applications. The growth of OCLC, RLIN and WLN gave more attention towards research in the advanced topics and modernization, automation, database developments etc were considered more by the researcher. “Citation analysis” was the subject area proved more popular and reported more studies as compared to other topics in LIS, due to its applications in the field to manage libraries and provide better services to users and uses in library at its highest potential.

Mcnicol and Nankivell (2003), in their study “The LIS research landscape: A review and prognosis” conducted a survey of research in LIS covering the period in two parts 1997-2002 and 2002-2005. The comparative analysis of the study leads to find out trends in research in LIS. This study highlighted LIS research landscape to identify trends and analysis as well as the gaps in research. Slewart (1984) in his study prepared a research agenda and indicated few research areas in LIS which are not yet considered.

1. Resources utility and user and services requirement
2. New technologies
3. Management change
4. Library services
5. Staff skill
6. Literacy
7. Retraining staff
8. Restructuring libraries

Sumsoon (1994), also focused on the following research topics and also opined that there is a need to work on the current development to get the quicker solution.

1. Library principals
2. Identify trends
3. New user needs
4. New type of services

Pluse and Prytech (1996), studied and analysed LIS research conducted during 1990-1996 and identified few prospective areas like:

1. Operational management
2. Standards and benchmarking
3. Use of internet
4. Networking
5. Staffing pattern

Few authors pointed out areas of research conducted in UK, USA during period 1996-2002 after a study and reported few of the prominent areas considered more in developed countries are:

1. Information retrieval
2. Information skill
3. Networking
4. Professional development
5. Digitization
6. LIS research
7. LIS education
8. User development
9. Electronic services

Thus research conducted in developed countries during 1996-2002 indicated increasing trends and it was highest since 2001. Further while indicating future research development themes for research activities suggested were,

1. Electronic information
2. Information policy
3. Multimedia policy
4. LIS education
5. Business information

Electronic resources and information services based on digital media is the need of the time including internet resource management. Few prominent subjects presented to undertake future studies are:

1. Impact of digital resources
2. Digital library development
3. ICT and school library
4. Use of electronic resources
5. Community building
6. Controlled vocabulary
7. Information searching
8. E-resources
9. E-learning
10. Semantic web and controlled terminologies

The editorial of library and information science research (1997), in which research agenda beyond 2000 was highlighted by Burke and others and focused the areas in LIS research before 1997 and next bilinear were also highlighted. Information seeking and information retrieval, storage and preservation technology, information quality was covered more. The opinion of editorial board covers the major topics like economics, manage rising cost of journals, electronic publishing, information retrieval, internets and its impact on libraries, bibliographic information resources, library services, quality information services, information need/assessment, managing organizational change due to application of information technology, digital information services, web technology, value added information services are the major core areas to be looked in to 2000 onwards.

Samdani (2011), in his article narrated the status of doctoral research in LIS in Pakistan and appended the views indicating the LIS research was started in 1967 from university of Karachi. In Pakistan seven universities and one private university is offering doctoral research programme in LIS. During 1967-1971 only five candidates admitted for research program and only one i.e. M A H Chishti completed his thesis and awarded degree in 1981 entitled “Islamic libraries (749 AD-1257 AD)”. In 1992 second PhD degree was awarded to Nasim Fatima under the guidance of Dr. Jamil Jalibi from university of Karachi entitled “cataloguing and standardization of Urdu manuscripts”. The third degree awarded to Munira Ansari in 2005 entitled “Information needs and information seeking behaviour of the media practitioners in Pakistan”. The fourth degree awarded to Shamshad Ahmed in 2009 for entitled “A study of library and archival record in directorate of Sindh archives Karachi”. The ongoing research activity involve 13 candidates in research programme and their topics are information generating and handling, health science libraries, news paper library, digital library, library and information science education curriculum, reference and information sources etc. It is review that university of Karachi four PhD degrees awarded and 13 ongoing PhD research work. (Uhegbu, A. N., 2011).
From University of Panjab, Lahore initiated doctoral research program in 1971. First degree awarded in 2004 and second degree awarded in 2005. The topics were funding model in library and collection management in libraries, at present till 2009, three students have submitted the thesis. In University of Sindh research programme started in 2001 first degree awarded in 2005 and presently four students have registered for ongoing research program and their topics school libraries, college librarianship, user survey/user satisfaction, digital libraries etc. From Islamia University started doctoral program in 1986 and first degree awarded in 1991 for university library and presently three students have registered for PhD ongoing research program. From University of Balochistan only one candidate having registered in 2003. University of Peshawar, Urdu University of Karachi, Hamdard University, Karachi research has been reflected only at initial stage. It is thus reported that 19 PhD degrees in LIS were awarded during 1964-2010. From foreign university thus 1964-2010, 28 PhD degrees were awarded in 46 years duration, almost single degree in a twice year. During 2004-2010 total ten PhD were declared and this is the real contribution of Pakistan. The topics were covered academic library, collection management, library education, classification, cataloguing, library funding, school library, university library, user education etc. as compared Indian progress is excellent.

Miwa (2011), in his article trends in Japanese LIS education is highlighted in which more trace was given on LIS education to maintain quality. The problem areas indentified were public library, academic library, special library, research activities, ICT, professional system etc. it has also same educational pattern followed in India i.e. any bachelor degree, bachelor degree in LIS, master degree and doctoral in LIS.

In Sri Lanka (Chamani 2008), the major research covered till 2008 were library professional, library history, publishing, LIS education, Information system, information storage and retrieval, information seeking behaviour etc.

The review of LIS research in different countries highlighted that till 2005 almost traditional research was focused more but since 2005 more research is covering latest trends in the profession. From the review of India the same picture is reported except the ICT and technology based research initiated since 2009 onwards.

**4.21 Research trend in Indian Universities:**
The research activity in Indian universities is 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 the establishment of University Grants Commission (UGC), AICTE and other similar bodies and their active support, many students are carrying out M. Phil. and PhD 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 programs 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 (Chandrashekara 2009).

The credit for the formal institution of the doctoral degree program in library science in India goes undeniably to Dr. S.R. Ranganathan (1892–1972). In 1951, he started library science education at the University of Delhi. The University of Delhi awarded the first de jure degree in library science in 1957 to D.B. Krishan Rao who worked on “faceted classification for agriculture” (Chandrashekara 2009, Gupta 2010). Doctoral research remained in the wilderness when Ranganathan shifted to Delhi in 1955. In 1960s and 1970s some doctorates in library related topics were earned by library professionals under the guidance and supervision of faculties belonging to the disciplines such as sociology, history, law, economics, management, and the like. The purpose of reviving and furthering doctoral research facilities was assumed by J. S. Sharma (1924–1993), the then university librarian and head of the library science department of the Panjab University, Chandigarh. Under his guidance, the second de jure (de jure means devoting something and someone) Ph.D. in library science was awarded in 1977 after a gap of two decades. Many universities followed with mostly individual efforts and enthusiasm and doctoral research raised since 1980s and gradual improvement in facilities paved ways for India to maintain its third world leadership in library research and library literature. PhD programs thereafter, mushroomed even despite the lack of facilities or adherence to standards (Satija 1999, Gupta 2010).

Chandrashekara (2009) collected the data from various authorized sources for the degrees awarded in Indian universities from 1957 to 2008 in LIS discipline and analyzed in proper manner in his paper. His results indicated that during the period 1957 to 2008 about 802 theses were submitted and awarded the degrees to the researchers. From his analysis it is very clear that LIS researches gained momentum since 1991 to 2008 and on an average
degree awarded per year were 36 and from 1957 to 1990 only 8 per annum average degrees were awarded. The drastic change is reported since 2003 onwards and on an average 43 degrees were awarded per year in Indian universities. Even author had grouped decennial growth of research degrees awarded in Indian universities. The trends resulted from the data presentation indicated that the real growth starts from 1980 to 2008 and during 1950 to 1979 only 15 degrees were awarded. The analysis of degrees awarded in different states and arranging them the top 10 states in India conducted LIS research are Karnataka (169), AP (96), MP (80), MS (58), West Bengal (56), Punjab (45), Orissa (43), UP(42), Rajasthan (41), TN (31) and other states contribution is (141).

The analysis made by Chandrashekara and Ramashesh (2009) regarding the research conducted in India during the period 1957-2008 and found that research activity in Karnataka state is leading and Maharashtra is ranked at 4th position.

**Summary:-**

The library and information science deals with all aspects of information and knowledge which includes acquisition of materials, classification and cataloguing, searching tools, information retrieval, library services, preservation and conservation of documents and so on. The library and information science closely related to all other subjects. It forms its own foundation by taking the help of some other subjects. Dr. S. R. Ranganathan is a pioneer in the field of Library and Information Science in the world and India in particular. He contributed in almost all aspects of the library science. Nowadays many university and colleges provides different courses in Library and Information and its related subjects. It ranges from certificate course to PhD. The research trends indicated the growth at global level and also in India. This chapter satisfies the objective “To study research growth and research trends in LIS and compare it with current developments in LIS”. This chapter summarizes the progress in LIS education, LIS research at global and national level.

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