LIBRARY & INFORMATION SCIENCE (LIS) RESEARCH 1987-1997: A Decade of Development

A study of ongoing research in any subject field can provide valuable information about the current trends and future direction of the field. Carries out an analysis of theses accepted for award of Ph.D. and research in progress in various Indian universities from 1987 to 1997 trying to provide foundation for examining the performance of library and information science (LIS) research. Presents the results of the study with the goal of broadening the perspectives of the LIS research community and to help them to debate on the nature and proper direction of the research.

Research is an investigation which seeks to increase one’s knowledge of a given situation or problem. Research in any subject field is carried out to develop and evaluate the concepts and theories. It is a careful study or investigation to discover new facts or information. It, therefore, requires a systematic analysis and logical interpretation of empirical evidence to confirm or disprove prior conceptions/assumptions.

Any subject field requires continuous research support to develop as a discipline. Library and information science (LIS) research is of recent origin. Though the research in this field started during the second decade this century, substantial growth has been registered during 1990s only. The research studies were carried out mainly by the practitioners particularly those in the academic libraries, faculty and students of schools of Library and Information Science. Raju [1] traced some factors such as rapid changes in information technology, problems faced in management of libraries, UGC norms for career promotion, changing pattern of reading habits of users, desire for recognition and faculty status in the society, which contributed towards the increased interest in LIS research. Feather and Strages [2] remark that “the role and status of LIS research have been the subject of controversy. As a professional field with an emphasis on practice rather than theory, LIS research has been criticised for its lack of rigorous theoretical base for the significance of the research questions addressed and the quality of research methodology employed”.

A study of subject trends in LIS research from 1975 to 1990 has revealed library management to be the most popular subject of research [3]. Another significant area of research identified in Atkins study [4] was research on information storage and retrieval systems and databases. A specialized study in LIS research is the statistical study of bibliographic information.

This study has been undertaken by analysing the theses submitted for the award of doctorate and research in progress in various Indian universities from 1987 to 1997. The research work done in field of library and information science only is analysed. For the purpose of this study, analysis of 255 LIS research activities has been carried out.

OBJECTIVES OF THE STUDY

The main objectives of the study are:

i) to find out the nature and direction of LIS research during 1987 to 1997;

ii) to verify the diversity of current research in LIS field; and

iii) to identify the areas of research which are receiving insufficient attention from LIS scholars.
RESEARCH METHODOLOGY

In order to achieve the objectives of this study, an in-depth study of the theses accepted for the award of the doctoral degree and the research studies currently in progress in Library and Information Science discipline during the years 1987 to 1997 has been undertaken. Since the purpose of the study was to find out the direction of LIS research, no attempt was made to differentiate between final theses submitted and research in progress. Hence the term "submission/research paper" is used to represent the final theses accepted for award of doctoral degree as well as research in progress.

The primary goal in carrying out this study for the LIS research community is to provoke further discussion and reflection, rather than to sharply draw any conclusions. In this paper, the stream of LIS research submissions already made and to be made to various Indian universities during the study period has been characterized. This process involved three important steps viz. a) selecting the submissions for review, b) identifying research questions or core concepts of each submission, and finally, c) classifying those research questions.

Selecting the Submissions

To get a possible panoramic view across the domain of LIS research over a period of time, it was decided to include in the analysis all the 255 LIS research submissions from 1987 to 1997 which included 151 theses for which doctoral degree has already been awarded and another 104 research studies which were in different stages of completion. The required data was culled out from the University News - an official newsletter of Association of Indian Universities, New Delhi which provides this information.

Identifying the Research Questions

The next step was to identify the research questions or core thought content of the research study. This step involved careful study of all the 255 research titles before writing the research questions. The research questions were formulated using standard phrases to eliminate any ambiguity in the title.

Classifying the Submissions

In order to find out whether there was any convergence around certain fundamental subject categories, all the research questions were classified with the help of Dewey Decimal Classification (DDC). Further these categories were clustered into themes of higher order to sharpen the image of direction of research submission. The individual libraries depending upon their nature of operation were grouped under six categories namely academic; public; industrial; special; government libraries and libraries-abroad.

FINDINGS OF THE RESEARCH STUDY

Characterization of categories

The research questions and their categorization form primary database of the study. However the full text of research questions has been excluded from this article as it occupies substantial space in the report. Instead an attempt has been made to give rich account on core concepts of the study. This included keywords, concepts and associations that appear in the research questions (appendix 1). The elements in the appendix were drawn from the research questions themselves. Appendix 2 gives the yearwise distribution of categories during the study period.

Distribution of Submissions

To begin with, overall distribution of submissions during the study period were made. The yearwise distribution of the submissions has been given in the Table 1.
TABLE 1

Yearwise distribution of research submissions

<table>
<thead>
<tr>
<th>SI No</th>
<th>Year</th>
<th>Research Submissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1987</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>1988</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>1989</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>1990</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>1991</td>
<td>29</td>
</tr>
<tr>
<td>6</td>
<td>1992</td>
<td>33</td>
</tr>
<tr>
<td>7</td>
<td>1993</td>
<td>29</td>
</tr>
<tr>
<td>8</td>
<td>1994</td>
<td>29</td>
</tr>
<tr>
<td>9</td>
<td>1995</td>
<td>34</td>
</tr>
<tr>
<td>10</td>
<td>1996</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>1997</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOTAL 255</td>
</tr>
</tbody>
</table>

Source: University News 1987 to 1997

Distribution of categories

In order to ascertain the direction of LIS research, the pattern of distribution of submissions across the categories was analysed. Table 2 presents the distribution pattern of the categories during the study period.

Table 2

Distribution of submissions across the categories

<table>
<thead>
<tr>
<th>SLNO</th>
<th>CATEGORY</th>
<th>SUBN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Academic Libraries</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>Bibliographic/ Bibliometric/ Citation Analysis</td>
<td>43</td>
</tr>
<tr>
<td>3</td>
<td>User studies</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>Information System Design</td>
<td>26</td>
</tr>
<tr>
<td>5</td>
<td>Personnel Management</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Public Libraries</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>Special Libraries</td>
<td>13</td>
</tr>
<tr>
<td>8</td>
<td>LIS Networking</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>Library Professionals</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>LIS Education</td>
<td>9</td>
</tr>
<tr>
<td>11</td>
<td>Library Automation</td>
<td>8</td>
</tr>
</tbody>
</table>

contd.
The distribution pattern of categories indicates that the LIS research is revolving around a few research topics. The research questions associated with each category, which received more than five submissions during the study period, are given below.

The distribution pattern of submissions across the libraries is presented separately.

**i) Bibliographic/bibliometric/Citation Analysis**

This is a specialized area of research in LIS research. This category was the most popular area of research among the LIS research scholars. Research questions concerned with this category focused on the issues associated with bibliographic analysis of works of Dr. S.R. Ranganathan and P.N. Kaula, Malayalam translated works, Indian contributions, doctoral dissertations, and literature on children, punjabi, sanskrit, hindi, earth sciences, periodicals, physical education, horticulture, social sciences, Kerala's economy and LIS.

**ii) User Evaluation and Satisfaction**

This is another area, which has attracted many
LIS research scholars. Research questions concerned with this category focused on users' information needs, information seeking behaviour, satisfaction, and evaluation of effectiveness/utilization of library resources and services. More work can be traced on users' information needs and information seeking behaviour.

iii) Information System Design

Information systems design discusses the ways and means of designing of information systems to improve the efficiency of resources and services. This category concentrated on designing of information systems for agriculture, ayurveda, education, marine fisheries, machine tools, operations research, pharmaceuticals, soil survey and statistical information.

iv) LIS Personnel (Professionals and Personnel Management)

This category focused on the varied issues on application of personnel administration in libraries, staff training, professional attitude towards technology adoption, managerial role, leadership style, manpower utilization, job satisfaction, job opportunity and performance appraisal. More work has been registered on personnel administration in general.

v) Library/Information Network

Library and information networking explains the problems and prospects of networking and its applications in health, technical and ONGC libraries in India. More work has been done in health information side.

vi) LIS Education

LIS education is the basic requirement for rendering of professional services to the users. Research questions on LIS education cover a range of issues like restructuring, continuing education, attitude for graduate level learning, status of LIS in Karnataka and North India, It also covers two comparative studies of LIS education system in UK and India, and India and Iran.

vii) Automation/Computerization

Research questions on automation deal with studies on information infrastructure facility required, HRD needs and its application in circulation and other operations in special, technical, and medical libraries.

viii) Collection Development

Collection development deals with acquisition of LIS resources. Research questions grouped in this category envelope the topics on acquisition system of maps, nonprint media, archives and serials management.

ix) Information Technology

The research questions in this category shared the goal of explaining applications and impact of IT, job opportunity, and attitude of librarians towards adoption and utilization of IT.

X) Classification

Research questions associated with this category explore various issues of classification such as comparative study of various classification systems, knowledge classification, DDG Expansion for cancer and natural sciences literature.

ix) Indexing

Research questions associated in this category focused on indexing systems, indexing languages, book indexing, and comparative study of different indexing techniques.

Distribution of Submissions and Subjects across the libraries

Table 3 gives the distribution pattern of research submissions across the various libraries. The distribution pattern of subjects across the libraries is presented in Table 4.
TABLE 3

Distribution of submissions across the libraries

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Library</th>
<th>Su Bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Academic Library</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>Public Library</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Special Library</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Libraries-Abroad</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Industry Library</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Govt. Library</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>So.Sci. Library</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4

Distribution of subjects across the libraries

Academic Libraries
- Growth and devp.
- Collection Development
- Library Management
- Information System Design
  - Health Information
  - Consumer health
  - Online information
  - Information Management
- Networking/resource Sharing
- Job satisfaction
- User study
  - Information needs
  - Library resources and services
  - Information Seeking behaviour

Special Libraries
- Growth & Devp
- Networking
- Automation
- Users Study
  - Information Needs
  - Information Seeking Behaviour
  - Library resources and services

Public Libraries
- Library system in MP, AP, Manipur, Kamataka, WB.
- Library Legislation
- Public Relation
- Mass Communication
- Professionals
- Career Development

Industrial Libraries
- Growth & Devp
- Networking
- National Information System
- User study
  - Library Resources and services
  - Information Seeking Behaviour

Libraries- Abroad
- Growth and Devp in Yemen, UAE, Thailand
- LIS Education- UK, Iran
- Marketing Of Inf. Products

Government Libraries
- Growth & Devp.
- Publications
- User Study
  - Use of Information

Note: General submissions like bibliographic analysis/information system design where library name is not mentioned are not considered for analysis.
a) Academic Libraries (70)

This category consists of the major share of LIS research activity. The specific libraries covered under this category were school, polytechnic, college, scientific/technical, medical, management, distant education and university libraries.

Study on university libraries was one of the most favoured research areas among LIS research community. The research studies explore the issues on acquisition system, collection development, growth and development, library buildings, library services, library management, financial management, personnel administration, networking, role in education policy and S&T research of university libraries.

Research in academic libraries is thus being concentrated more on growth and development, collection development, information system design and less on user studies.

b) Public Libraries (13)

Research questions associated with public libraries included issues like library legislation, library movement, services and public library systems in Madhya Pradesh, Orissa, Manipur, Kerala and Delhi. The concentration of research is on growth and development of libraries.

c) Special Libraries (13)

Defence, geographic, newspaper, railways, R&D, rural and sports libraries research studies converged in this category. The research is concentrated on user studies like assessment of information needs, information seeking behaviour and utilization of library resources and services.

d) Industrial Libraries (6)

This category comprised of studies on ONGC, BHEL, sugar, petroleum, jute and special libraries in Andhra Pradesh. The concentration of research is almost similar to special libraries.

e) Libraries-Abroad (6)

Studies on libraries of BCD, Iran, Kenya, Thailand, United Kingdom and Yemen, is covered in this category. The favoured area of research is growth and development of libraries in these countries.

f) Government Libraries (5)

This category is concerned with government polytechnic, central government and government libraries in Delhi.

In general in academic, public and government libraries, much of research is focusing on traditional library activities. Whereas in special and industrial libraries, attempts are made to understand the customer for better services/delivery process.

The specific libraries covered under each category of libraries are diagrammatically represented in figure 1. The numbers in the brackets denote the number of submissions during the study period. i.e. from 1987 to 1997.
Distribution of submissions across the Universities and Faculty Guides

The pattern of distribution of submissions across various universities to find out any concentration on any region was also studied. The pattern is given in the Table 5 and the pattern across the faculty guides is given in the Table 6.

Table 5

*Universitywise distribution of research submissions from 1987 to 1997*

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>University</th>
<th>Subn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Annamalai</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>BHU</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Bangalore</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Berhampur</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Bharatidasan</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Bundelkhand</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Burdwan</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Calicut</td>
<td>6</td>
</tr>
</tbody>
</table>

*contd.*
contn. (table 5)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>University</th>
<th>Subn</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Cochin</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>Delhi</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>Dr. H.S. Gour</td>
<td>16</td>
</tr>
<tr>
<td>13</td>
<td>Gulbarga</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>Guwahati</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>JNU</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>Jadavpur</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Jammu</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>Jiwaji</td>
<td>16</td>
</tr>
<tr>
<td>19</td>
<td>Karnataka</td>
<td>20</td>
</tr>
<tr>
<td>20</td>
<td>Kerala</td>
<td>21</td>
</tr>
<tr>
<td>21</td>
<td>Kurukshetra</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Kuvempu</td>
<td>2</td>
</tr>
<tr>
<td>23</td>
<td>Madras</td>
<td>4</td>
</tr>
<tr>
<td>24</td>
<td>Manipur</td>
<td>5</td>
</tr>
<tr>
<td>25</td>
<td>M.Sukhadia</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>Mysore</td>
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</tr>
<tr>
<td>27</td>
<td>N. E. Hill</td>
<td>2</td>
</tr>
<tr>
<td>28</td>
<td>Osmania</td>
<td>4</td>
</tr>
<tr>
<td>29</td>
<td>Padmavati</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>Poona</td>
<td>2</td>
</tr>
<tr>
<td>31</td>
<td>Punjab</td>
<td>22</td>
</tr>
<tr>
<td>32</td>
<td>Punjabi</td>
<td>2</td>
</tr>
<tr>
<td>33</td>
<td>pt. Ravishankar</td>
<td>2</td>
</tr>
<tr>
<td>34</td>
<td>Rajastan</td>
<td>5</td>
</tr>
<tr>
<td>35</td>
<td>Sambalpur</td>
<td>6</td>
</tr>
<tr>
<td>36</td>
<td>Shivaji</td>
<td>1</td>
</tr>
<tr>
<td>37</td>
<td>SNDT</td>
<td>2</td>
</tr>
<tr>
<td>38</td>
<td>Utkal</td>
<td>2</td>
</tr>
<tr>
<td>39</td>
<td>Vikram</td>
<td>12</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 TOTAL NORTH REGION 98 3 TOTAL EAST REGION 29
2 TOTAL SOUTH REGION 75 4 TOTAL WEST REGION 53

Table 6

Distribution of research studies across the faculty guides

<table>
<thead>
<tr>
<th>Slno</th>
<th>Submissions guided by each faculty guide</th>
<th>No. of faculty guides</th>
<th>Total no. of Submissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7 to 10 and above</td>
<td>7</td>
<td>72</td>
</tr>
<tr>
<td>2</td>
<td>4 to 6</td>
<td>11</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>2 to 3</td>
<td>18</td>
<td>48</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Guide name not mentioned</td>
<td>45</td>
<td>45</td>
</tr>
</tbody>
</table>
NOTE: *** Areas of popular research under each theme.

Fig. 2: Relationships among Categories and Themes of Higher Order
Distribution of submissions across the themes of higher order

In order to get a clear picture of direction of LIS research; the categories mentioned earlier in this text (Table 2) were further grouped into eight themes of higher order. The grouping pattern and the terminology were borrowed from the Dewey Decimal Classification. The clustering of categories around each themes of higher order is shown in Fig. 2 and the distribution pattern of submissions across the broader themes is presented in Table 7.

Table 7

Yearwise distribution of themes of higher order

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Themes</th>
<th>87</th>
<th>88</th>
<th>89</th>
<th>90</th>
<th>91</th>
<th>92</th>
<th>93</th>
<th>94</th>
<th>95</th>
<th>96</th>
<th>97</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LIS in General</td>
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<td>2</td>
<td>2</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
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<tr>
<td>2</td>
<td>LIS Relationships</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>LIS Personnel</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>LIS Operations</td>
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<td>5</td>
<td>LIS Services</td>
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<td>5</td>
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<tr>
<td>6</td>
<td>Computer Supported LIS Mgt.</td>
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<td>2</td>
<td>1</td>
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<td>1</td>
<td>3</td>
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<td>7</td>
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<td>33</td>
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<td>7</td>
<td>User Evaluation and Satisfaction</td>
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<td>1</td>
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<td>7</td>
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<td>6</td>
<td>4</td>
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<td>1</td>
<td>6</td>
<td>40</td>
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</tr>
<tr>
<td>8</td>
<td>Specific Libraries*</td>
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<td>33</td>
<td>29</td>
<td>29</td>
<td>34</td>
<td>14</td>
<td>21</td>
<td>255</td>
</tr>
</tbody>
</table>

* Study on overall aspects is considered. Specific studies are listed in respective classified categories.

Relationships among the categories and higher order themes

Dewey decimal Classification has been used to derive headings taking into account the hierarchical, horizontal and vertical relationships that exist among the broader and narrower subject areas. An ILO programmed book on LIS services in management education institutes [5], remarks that all libraries whether they are small, medium or large operate as systems composed of four major components viz. users, resources, personnel and services. The relation between these components can be represented diagrammatically as follows:

```
\[ \text{User} \rightarrow \text{Resources} \rightarrow \text{Personnel} \rightarrow \text{Services} \]
```

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All these four components have direct relationships with one another. The present study traces other components such as computer supported information management, library relationships, which are supplement to the qualitative output of any library. The library services and operations are greatly affected by the specific nature of the library. Any library should fulfill the mission and objectives of the parent organization; hence the type of library has been considered as another component, which supports the four major components. The modified diagram of ILO model is presented in Fig 3.

![Diagram](image)

**Fig. 3 : Relationship among the higher order themes**

*Note: Categories outside the relationship chain are the popular areas of research in each theme. LIS Operations includes resources, and the process of acquisition and other activities.*
LIS Personnel have direct links with LIS in general and networking and LIS education has major impact on staff for effective services. Likewise LIS services closely relate to LIS in general (LIS education) and computer supported LIS management. Similarly LIS relationships and types of libraries influence the users’ information seeking behaviour and effective utilization of resources. It must be noted that library operations are greatly affected by users, LIS personnel and services. LIS services and computer supported library and information management have been projected as separate themes of higher order as they are closely associated with the users.

DISCUSSIONS

Based on the primary objectives reported earlier in this paper and the findings of the study, presented below are some broad issues, which are worth consideration.

a) What does the distribution pattern in LIS research submissions depict about the developments in LIS research?

b) Does the submission stream give any clear picture of the direction of LIS research?

c) How well does the submission stream reflect the diversity of current research in LIS field?

d) Does the submission stream suggest that there are areas of research, which are receiving insufficient attention from LIS scholars?

e) How well are we directing our attention towards the emerging areas?

f) Is it too early to consolidate our research agendas around a set of issues?

g) Does the submission pattern across the subject areas (categories), universities and faculty guides indicate:

i) Reservations/hesitation to go for any innovative research by LIS professional?

ii) Lack of availability of competent faculty guides?

iii) Lack of adequate research and infrastructural facilities available to research scholars in Indian universities?

iv) Duplication/parallel nature of research studies?

v) Defective/noncooperative reporting system by Indian universities in University News which is a common and easily accessible communication platform?

As mentioned earlier, the primary objective is to help the LIS research community to debate on the issues rather than to draw some sharp conclusions. A national level debate is certainly desirable to find out answers for these issues. However presented in the next section are the guidelines to fuel the debate.

OBSERVATIONS

On basis of the findings of this research study, the following observations can be drawn:

a) The overall distribution of submissions over the years indicates that the second half of the study period has attracted more research scholars.

b) It has been observed that bibliographic analysis (including bibliometric and citation study), users studies in particular, user’s information needs and information seeking behaviour, design of information systems, were some of the most popular subjects of research followed by HRD in libraries, LIS professionals, networking and LIS education in India during 1990s.

c) Academic libraries, in particular, university libraries occupy major share of research followed by public, special, industrial, government and social science libraries in that order.

d) It is opined that the categories which received more than ten submissions during the study period indicate the direction of current research of LIS.

e) Further the concentration among the few
categories signals the lack of diversity in the subject areas and reservations/hesitation of LIS professionals to go for any innovative research.

f) The LIS research submission across the universities reflects the lack of adequate research and infrastructural facilities available to research scholars in Indian universities.

g) Even among the top performed universities, the research study was concentrated on few areas like bibliographic study, information system design, and networking which reflects the duplication/parallel nature of research studies.

h) The research output with regard to supervisors highlights the lack of availability of sufficient and competent faculty guides.

i) The pattern of distribution of submissions across the categories indicates that there are many areas of research which do require much attention of LIS research community. The subject areas with one or two submissions during the study period, need to be considered for further research by LIS professionals.

LIMITATIONS

The primary source for this study is University News an official newsletter of Association of Indian Universities, which publishes the data on theses accepted for the award of Ph.D. degree and research in progress. All the universities are supposed to send the research data periodically for publication in University News. Entire analysis and interpretation of this study is based on the data available in the newsletter.

DIRECTIONS FOR FUTURE RESEARCH

The study reveals that some of the directions for further research are:

i) The present study revealed that the subject areas like LIS education, industrial relations, marketing of library and information services, market oriented LIS education, customer satisfaction, TQM in LIS, status of LIS professionals in society, models for market research methodologies for understanding of customers, appropriate research models for statistical data analysis, technical capability of LIS professionals, financial administration, LIS networking, innovations in LIS services and buildings have not received the desired attention of the scholars.

ii) Developments in information technology are playing a major role in administration of library services. CD-ROM, multimedia, Internet and Intranet technologies are giving great threat to the delivery process. The emphasis has been shifted from production centre to customer centre. This study indicates that the LIS research is not much progressing towards this emergent phenomenon.

iii) Service quality, service marketing, relationship marketing, people empowerment and participative management is gaining much importance in service organizations (both nonprofit and service industries). These areas have not yet been touched by LIS research community.

CONCLUSION

The LIS research has shown an upward trend during 1990s which is an encouraging sign of increased interest and confidence among LIS professionals in research activities and definitely this trend will attract more and more researchers.

Enger [6] points out that LIS research is sometimes criticized for using descriptive rather than inferential statistics and is generally lacking in quantitative methods. He responds to the criticism with an argument that “LIS research is often concerned with intangible things like services, behaviour etc. which is difficult to quantify. Instead, the research should concentrate on qualitative output”. Quality is today's buzzword in service as well as manufacturing sector. Therefore in order to get qualitative output, it is desirable for the universities to organize and conduct orientation and training programmes on research methodology and arrange special lectures on research topics by the experts in the field. Such programmes will facilitate the researchers to obtain...
clear understanding of research methodology and to use appropriate statistical tools for data analysis.

The analysis for this study was carried out on the basis of the data available in University News. All the universities are supposed to send the data on research studies regularly to University News for publication. If the data published is exhaustive, the LIS research definitely requires strong encouragement. Otherwise, it is desirable that the LIS schools/associations/AIU should take initiative to compile an exhaustive and up to date status report on LIS research and build strong coordination for an uninterrupted flow of information. The report should be made available in all the universities and research institutions to avoid any duplicate/parallel research. INFLIBNET should come forward to compile such a report and provide on-line information services to the research scholars.

Sponsorship/financial assistance plays a major role in promoting the research activity. As in other subject fields, the associations, universities and other agencies should find sponsors for conducting research in untouched areas, which have not received the desired attention of the scholars.

REFERENCES


3. Ibid., 402.

4. Ibid., 403.

5. ILO. Library and information services of management development institutions. 1986, ILO; Geneva; p. 91.


KEYWORDS, CONCEPTS and ASSOCIATIONS

ACADEMIC LIBRARIES
College Libraries
Growth & Devp.
Teacher Edun.
Distant Edu. Libs
Library Services
Engg/Tech. Libraries
Collection Devp.
Networking
Job Satisfaction
Users Study
Infn. Seeking Beh.
Medical Libraries
Health Infn. System
Consumer Infn. System
Networking
Infn. Management
Users Study
Library Services
MGT. Edu. Libraries
Thesaurus Construction
Users Study
Library Services
Physical Edu. Libraries
Growth & Devp.
Library Services
School Libraries
Growth & devp.
Library resources
University Libraries
Acquisition System
Application of IT
Building
Collection Devp.
Financial Administration
Growth and Devp.
Infn. Services
Library Usage
Management
New Edu. Policy
Personnel Administration
Resource Sharing
Role in S&T
Science & Technology
Serials Control
Users Study
Library Services

AUTOMATION
Attitude of Staff
Circulation System

ACADEMIC LIBRARIES
HRD Needs
Infn. Infrastructure
Librarians' Resistance
Medical Libraries
Special Libraries
Technical Libraries

BIBLIOGRAPHIC ANALYSIS
Chemical Literature
Children Literature
Earth Science
Hindi Reference Sources
Horticultural Literature
Indian's Contribution
Kerala Economy
LIS Literature
LIS Ph.D Theses
Malayalam Journals
Malayalam Translations
Periodicals Publications
Ph.D Theses
Physical Edu.
Phytopathology
Punjabi Sanskrit Literature
Science Journals
Social Sciences
SRR and P.N. Kaula Works
Thai National Library

BIBLIOGRAPHIC SERVICES

BIBLIOMETRIC ANALYSIS
See Bibliographic Analysis

CATALOGING
Impact of Ranganathan
Rendering of Names
Since Cutter

CIRCULATION SYSTEM
Automation

CITATION ANALYSIS
See Bibliographic Analysis

CLASSIFICATION SCHEME
Cancer Literature
Comparative
DDC
DDC Expansion
Knowledge Classification

COLLEGE LIBRARIES
Growth and Devp.
Teachers Edun.

COLLECTION DEV.
Acquisition System
Archives
College Libraries
Comparative Librarianship
Map Collection
Non Print Media
Serials Management
Special Library

CONTENT ANALYSIS
LIS Books

COMPUTERIZATION
See Automation

COPYRIGHT ACT

DISTANT EDUN. LIBS
Library Services

DOCUMENTATION

ENGINEERING LIBS.
Collection Devp. Networking
Job Satisfaction
Users Study
Infn. Seeking Beh.

GOVT. LIBRARIES
Central Govt.
Users Study
Infn. Usage
State Govt.
Publications
Polytechnic, Delhi
Growth & Devp.

HRD/PERSONNEL MGT.
Attitude-Tech. Adoption
HRD Needs in Libs.
In Service training
Job Opportunities
Job Satisfaction
Leadership Style

AUTOMATION
Attitude of Staff
Circulation System
Managerial Role
Manpower Utilization
Merchants Performance
Measurement Model
Personnel Administration
Professional Attitude/Quality
Resistance to Automation
Women Librarians

INDEXING
Comparative Study
Book Indexing
Indexing System
Indexing Languages

INDUSTRIAL LIBRARIES
A.P.
Growth & devp.
BHEL, ONGC, Jute
Networking
Users Study
Infn. usage
Infn. Seeking Behaviour
Library Utilization
Sugar Industry
National Infn. System

INFORMATION SERVICES
INFORMATION SYSTEM DESIGN
Agriculture
Ayurveda
Education
Fisheries
Legal
Machine Tools
Medical Colleges
O.R. Techniques
Online Bibliographic
Pharmaceuticals
Planning and Devp.
Retrieval System
Soil Survey
Statistical
Sugar Industry

INFORMATION TECHNOLOGY
Applications
Attitude it Usage
Impact on Library
Job Opportunity
Library Staff Attitude
Technology Adoption

LIBRARIANSHIP
in Muslim Rule

LIBRARIES
Abroad
U.A.E, Iran, Thailand
L&I Centres/Services
Jordan
Marketing Infn. Products
U.K., Iran
LIS Education

LIBRARIES
Abroad
Academic
Govt.
Industry
Social Science
Special Libraries

LIBRARY & COMMUNITY
LIBRARY & SOCIETY
LIBRARY ASSN. INDIAN
LIB. COMMUNICATION
LIBRARY LEGISLATION
Rajasthan

LIBRARY MANAGEMENT
Distance Edun. Libraries

LIBRARY MOVEMENT

LIBRARY NETWORK
Health Science
ONGC Libraries
Rural
Technical Libraries

LIBRARY ORIENTATION

LIS EDUCATION
continuing
Grad. level Learning
India & UK
India and Iran
Karnataka
North India
Rajasthan & M.P.
Restructuring
Yemen

LIS PROFESSIONALS
Attitude-Tech. Adoption
Leadership Style
Managerial Role
Professional Attitude
Professional Quality
Resistance to Automation
Women Librarians

MANAGEMENT EDUN. LIBs
Thesaurus Construction
Users Study
Library Services

MEDICAL LIBRARIES
Health Infn. System
Consumer Infn. System
Networking
Infn. Management
Users Study
Library Services

MARKETING OF
Agri. Infn. Products
Infn. Products

MULTIMEDIA IN LIBRARY

NETWORKING/NETWORKING
Health Science
ONGC Libraries
Rural
Technical Libraries
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Library Services |
| PRE CO-ORD. INDEXING | |
| PERSONNEL MGT/HRD | Attitude to Tech. Adoption  
HRD in Libraries  
HRD Needs  
In Service Training  
Job Opportunities  
Job Satisfaction  
Leadership Style  
Managerial Role  
Manpower Utilization  
Merchants Performance  
Measurement Model  
Personnel Administration  
Professional Quality  
Resistance to Automation  
Women Librarians |
| PUBLIC LIBRARIES | Growth & Devp.  
Delhi, M.P., Manipur,  
Kerala, Orissa  
Library Building,  
Legislation  
Movement in M.P.  
Public relations  
System, Services  
Tribal Community |
| PUBLIC REL. IN LIBRARY | |
| RESOURCE SHARING | Health Science  
ONGC Libraries |
| SECURITY AGAINST THEFT | |
| SPECIAL LIBRARIES | Defense Libraries  
Users Study  
Inf. Needs  
Use of Standards  
Geographic Libraries  
Growth & devp.  
Users Study  
Library Usage  
Newspaper Libraries  
Users Study  
Inf. Needs  
Inf. Seeking Beh.  
Railway Libraries  
Growth & devp.  
Res. & Devp. Libraries  
Growth & devp.  
Networking  
Automation  
Users Study  
Library Services  
Rural Libraries  
Networking  
Sports Libraries  
Library Services |
| TECHNICAL LIBRARIES | Collection Devp.  
Networking  
Job Satisfaction  
Users Study  
Inf. Seeking Behaviour |
| TECHNOLOGY ADOPTION | Attitude Study |
| THESES | |
| ACADEMIC LIBRARIES | |
| UNIVERSITY LIBRARIES | Acquisition System  
A.P./U.P.  
Application of IT  
Archives  
Building  
Collection Devp.  
Financial Admn.  
Growth & Devp.  
Inf. Service  
Library Usage  
Management  
New Edun. Policy  
Personnel Admn.  
Resource Sharing  
Role in S&T  
Science & Tech.  
Serials Control |
| USER STUDIES | Catalog/Index Usage  
Inf. Need  
Inf. Seeking Beh.  
Inf. Sources Usage  
Library Collection  
Usage of Inf. Sources  
Attitude  
Library Usage  
User Satisfaction  
Resource Evaluation  
Service Evaluation |
### YEARWISE DISTRIBUTION OF CATEGORIES

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