

# **CHAPTER ONE**

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## **CHAPTER ONE**

### **1.1 INTRODUCTION**

The human generation have travelled long in the age of internet witnessing the information explosion, and seen the computer professionals dominating in the knowledge management activities. But, organizing the information or knowledge is the prerogative of library professionals. They have mastered the skill of delivering the right information to the right people at the right time. The Information and Communication technology has ushered the speedy retrieval of information. This is also impetus to the growth of research in third world countries. In spite of these facilities, countries like India are gasping to create their own platform to publish prime research papers. Many of the third world scientists are yielding to a handful of money minded publishing companies and allowing them to dictate the terms. This obsession can be effectively countered if the librarians can take a lead role in creating the institutional repositories and open access databases.

In the recent years UGC sponsored UGC-Infonet programme is active in providing the online database support for Indian universities. It has again restricted its support in negotiating and delivering the contents of commercial database. The coverage of Indian database needs to be improved. Though the effort of developing thesis database 'Shodhaganga' is initiated, the active participation of universities is the essence of this hour. The available programs in India are not representing the real needs of multidisciplinary interaction

between computer technology community and information science faculties for creating true information technology manpower. It has also not taken the end users to its confidence. There is no exhaustive survey conducted to analyze the user requirement. Apart from this, there are many more factors hindering the growth in terms of creation and its usage. The effectiveness of any program is incomplete without analyzing the impact of these programs on the present set up. Impact of online database on the factors like budget, infrastructure and user is required to be analyzed.

A recent finding of the study on India's research output and collaboration conducted by Thomson Reuter states that the country had just 3.5% of global research output in 2010. The report which was recently submitted to the department of science and technology puts forth discipline wise data on India's abysmally low research output (India's global research output is just 3.5%: Study, 2012). In this report India's share of world research output in clinical medicine was a meagre 1.9%, 0.5% in psychiatry, 1.4% in neurosciences, 1.8% in immunology, 2.1% in molecular biology and just 3.5% in environmental research. In mathematics, country's share of world output stood at around 2%, materials sciences 6.4% in physics 4.6%, Chemistry 6.5%, agricultural sciences 6.2%, engineering 4.2% and computer science 2.4%. India's global share of research in economics stood at 0.7% in 2010 while in social sciences it was worse - 0.6%. These figures may not include publications in national journals. That is because many of the national journals are not included in international databases. This demonstrates the need of indigenous

database. There is no significant effort in creating an indigenous database. The few databases developed in India are not even closer to the international standards. Use of non-standard formats, poor software, neglect of vocabulary control, insufficient data collection, inadequate processing facilities, lack of vision, low confidence level and non-motivation have all hindered database development in India. In fact, factors like the availability of subject knowledge, information handling experience, computer hardware and software skills and low manpower costs would have fastened the growth of database activities in the universities. The present study is to analyze the database activities and its impact on university libraries of Karnataka. It is an attempt to investigate into gaps and lacunae underlying the development of databases of Indian University libraries, in particular to Karnataka state.

## **1.2 DATABASE CONCEPT DEFINED**

The Macmillan Dictionary of Information Technology defines a Database as a collection of interrelated data stored so that it may be accessed by authorized users with simple user-friendly dialogues.

According to Online Dictionary of Library and Information Science (ODLIS), a large, regularly updated file of digitized information (bibliographic records, abstracts, full text documents, directory entries, images, statistics, etc.) related to specific subject or field, consisting of records of uniform format organized for ease and speed of search and retrieval and managed with the aid of Database Management System Software. Content is created by the Database producer (for e.g. American Psychological Association), which usually

publishes a print version (Psychological Abstracts) and leases the content to one or more database vendors (EBSCO and OCLC, etc.) that provide electronic access to the data after it has been converted to machine readable form (PsycINFO), usually on CD-ROM or Online via the Internet using proprietary search software.

A narrower definition from the point of Computer Science is “A database is a collection of data, organized logically and managed by unifying set of principles, procedures and functionalities, that helps guarantee the consistent application and interpretation of that data across the organization” (Korth & Silberschaiz, 1991).

Most databases used in library are catalogued, periodical indexes abstracting services and full text reference resources leased annually under licensing agreements that limit access to registered borrowers and library staff. In the broadest sense a database can be considered to be the sum total of all data that an organization keeps. An online database is a database accessible from a network, including from the Internet. It differs from a local database, held in an individual computer or its attached storage, such as a compact disc.

Online library databases provide people with a well-sourced, efficient and exhaustive well of information that can be used for research, curiosity or just for reading pleasure. Such online library databases are highly organized and classified into different database types in order to streamline search efforts. Library databases also contain more reliable information than what people find

on some websites, primarily because the information library databases contain is sourced from experts and professionals.

A library database can be made up of many different components such as a reference database, source or full text database and the library's online catalog. An online resource that contains a wealth of information and articles in the form of print sources like newspapers, magazines, journals and reference materials can also be called a library database. In addition, any given library may also subscribe to this online resource.

### **1.2.1 Different types of Databases**

The Databases can be distinguished into major five types as follows;

#### **1.2.1.1 Archival Database**

An organized collection of records in digital format, containing information to be retained for an indefinite period of time, usually for future reference, for example, the messages received and distributed by an e-mail discussion list or the reference questions received by an digital reference service, including the answers provided. JSTOR is an example of an archival journal database.

#### **1.2.1.2 Bibliographic Database**

A computer file consisting of electronic entries called records, each containing a uniform description of a specific document or bibliographic item, usually retrievable by author, title, subject heading (descriptor), or keyword(s). Some bibliographic databases are general in scope and coverage; others

provide access to the literature of a specific discipline or group of disciplines. An increasing number provide the full-text of at least a portion of the sources indexed. Most bibliographic databases are proprietary, available by licensing agreement from vendors, or directly from the abstracting and indexing services that create them.

### **1.2.1.3 Embedded Database**

An informational database accessible from within another software application, such as Microsoft Office 2003, which includes a feature enabling users to highlight words or phrases in their document or select a "look up" option to open a research window and enter keyword(s) in a data entry box, then select the source or service they wish to search. Microsoft has contracted with third-party content providers to incorporate some sources (Encarta Encyclopedia, dictionaries, and a thesaurus) directly into its applications. Other providers, such as Factiva, LexisNexis, and Gale, provide some free information normally retrievable only by logging on to their proprietary sites, with additional information available for a fee. In most cases, users must pay for full-text with a credit card if they do not have access to an institutional subscription. The main advantage of embedded databases is convenience to the user.

#### **1.2.1.4 Meta Database**

A database of databases, usually formed by aggregating two or more smaller databases to allow the user to search their contents as a whole, instead of repeating the same search in each separately (example: OneFile from Gale, which consolidates the InfoTrac bibliographic databases into a single, very large finding tool). The pace of aggregation has accelerated as very large vendors have dominated the market for access to periodical databases, but however helpful "one-stop searching" may be in interdisciplinary research (and to users who lack the skill to select the optimum databases for a specialized topic), segmentation still offers significant advantages for the experienced researcher.

#### **1.2.1.5 Niche database**

An electronic database designed to provide information about a very specific topic, as opposed to a range of topics, usually for a limited audience. An example is Thomson's SDC Platinum, providing current and historical data on mergers and acquisitions of domestic and international companies, new issues, and venture capital funding.

The reference database includes Metadata or bibliographical information such as Title, Author, Publisher, Web links, Keywords, citations and Abstracts. These are sometimes referred as referral database by including the information on persons, organizations for particular subjects.



The source or full text database may include books, journals, thesis and dissertations, newspapers, reports, conference proceedings, legal documents or statistical information, tables, charts, pictures, audio and video resources.

Online library catalogs have significantly increased the usability of traditional library catalogs. An online library catalog allows a user to search for any keyword in the title, which is particularly helpful to patrons who are unable to recall the exact book title, but have a general idea of what the title may be.

### **1.3 NEED FOR THE STUDY**

Though the database concept is old, it is considered to be a relevant topic when people talk about consolidation and distribution of information. A well-defined database is the backbone of any networking system. A large portion of the budget is spent on the procurement of commercial databases. In India consortia like UGC-Infonet, CeRA, Helinet are reducing the burden of the academic by offering the online database free or with some nominal price. However, some of the database might not be used by target population in universities. On the other hand, some indigenously developed database like *Indian Science Abstract* might have not included in this collection due to its inability to meet international standards. To make its effort successful, comprehensive study on the usage of database and user requirement analysis is need of this hour. It will also help the universities to develop their own database. The present study finds out the way to create, select and manage the database. The study also does the comparative analysis where one can find out

which university is benefited most and which university is benefitted least. This further helps to support the university weak in its usage.

Sometime the large initiatives will ignore the small factors which may affect the large population in the long run. The impact analysis will help to identify this kind of problems and suggest the suitable solutions for them.

#### **1.4 STATEMENT OF THE PROBLEM**

The growing tendency of the Universities towards the development of online resources in their collection is welcoming, especially in this digital era. At this juncture there is no clear cut definition on the collection development policies of online resources especially Databases. Identifying the right resources and customizing the information to the user requirements is needed of the hour. The present study entitles "**An analysis of Database activities and its impact on University libraries of Karnataka: A Critical study**" addresses all the problems involved in creation, selection, distribution and usage of databases at the university level in Karnataka state.

#### **1.5 OBJECTIVES OF THE STUDY**

The main objectives of the present study is to understand the sources of online databases available in selected university libraries of Karnataka state and segregate them based on their discipline, service provider etc.

The other objectives are to:

1. Study the matters related to creation, procurement, management, usage and impact of online databases within university libraries of Karnataka state
2. Appraise the infrastructure, budget and manpower available in university libraries to carry out the database services and measure the impact on these factors
3. Inspect the library compliance level to execute the online database creation in university libraries and suggest possible solutions to improve the standards
4. Study the effectiveness of library consortium in building the online database collection in university libraries of Karnataka state
5. Understand the usage pattern of the users from different disciplines in the university and to note their preferences
6. Propose the model for the universities to carry out the database activities and formulate the guidelines to bring the uniformity in all the universities in Karnataka state

## **1.6 HYPOTHESES**

1. In-house database development/creation in university libraries of Karnataka is in primitive stage;
2. University libraries in Karnataka are more dependent on the consortia to provide online database access to its users;

3. University libraries are not having adequate ICT infrastructure, manpower and funds to develop and manage the online database;
4. Availability of the online database and usage is found more in science discipline compare to Humanity and social science discipline;
5. Increase in the availability of online database affects the procurement and usage of print resources;
6. Addition of online databases to University libraries improves the usage of library services and productivity of the library users;
7. The Open/Free full text online databases are the most preferred sources of reference in the academic community.

## **1.7 RESEARCH METHODOLOGY**

The study was mainly based on the data collected from the university libraries of Karnataka state. The study was conceptualized with exhaustive literature review. Many of the important databases like Library and Information Science and Technology Abstract (LISTA), Library and Information Science Abstract (LISA), J-GATE, EMERALD Insight, ACM Digital Library, ScienceDirect were searched for the related literature.

### **1.7.1 Data Collection**

The primary data was mainly collected through the structured questionnaires. There were two separate questionnaires designed to distribute one for the librarians and the other one for the users.

This questionnaire was developed in two stages. In the first stage i.e., in the pilot study the questionnaires were distributed to the librarian and set of twenty five users from different disciplines at different levels, there were certain observations made on usage pattern. The library staff and users were consulted during this period to understand the effectiveness of the questionnaires. Based on their recommendations certain amendments were incorporated in both the questionnaires and released in second stage.

These questionnaires were made more effective by adapting different rating scales. The multiple choice questions and open ended questions were added in the questionnaire at appropriate points.

The questionnaire designed for librarians 'consisted of two parts. The first part was about general information on university and library. The second part was on matter related to online database activities. There were total sixty four questions under ten broad headings. The second part dealt with the basics of database, creation, acquisition, management, usage and impact of database. The comments and suggestions were asked at the end of questionnaire.

The questionnaire framed for users community consisted of twenty nine questions under eight broad headings i.e. general information about the user, basics of online database, contents, access methods, user education, impact, comments and suggestions. The questionnaire which was designed for librarians was distributed in all the sixteen state level university libraries. There was 100% response from the respondents.

The questionnaire meant for the users were distributed to faculty and research scholars of sixteen universities. Since the users' population was huge, random sampling method was used to collect the data. There were around 1363 questionnaires distributed and obtained 955 filled questionnaires back. The cumulative response rate was 70.07%. The questionnaire was distributed to four groups i.e. Professor, Associate Professor, Assistant Professor and Research Scholars.

The data collection was done through personal visits. Librarians and users were interacted through phone, e-mails and personal meetings to obtain the response to the questionnaire. During the data collection many scholars and experts were interacted with to gain knowledge in this subject. During this period annual reports, university websites, committee reports and other official documents were reviewed to get the complete information on database activities.

### **1.7.2 Data Analysis**

The collected data was processed by adapting various data cleaning methods. The processed data was tabulated to conduct statistical tests. The data was analyzed using statistical formulas, percentages, factor analysis methods, Chi-Square tests and other metrics to extract the research outputs. The PASW (SPSS) software, Microsoft excel and Microsoft word were used to analyze the data. Obtained results were tested with the hypothesis and the results were

discussed with the guide and subject experts to confirm the correctness of the result. The conclusions were drawn and the possible solutions recommended.

## **1.8 SCOPE AND LIMITATIONS OF THE STUDY**

In Karnataka, there are 46 Universities as on the period of the survey. In that 23 (50.00%) universities are funded and managed by Government of Karnataka. There are about 15 (32.61%) Deemed to be Universities managed by private sponsoring bodies, one Central University (2.17%) established by the Government of India and 7 (15.22%) Private Universities funded and managed by private bodies.

The State Universities (23) can be distinguished into following three classes based on the features and nature of activities. 1) The Universities which were established before 1984 and are fully developed i.e. 6 (26.09%), 2) The Universities which were established between 1985 and 2004 and are still in the progressive stage, which is 10 (43.48%) and 3) The Universities which established in and after 2005 and are still in their primitive stage, is 7(30.43%).

To get better results, only the developed and progressive state universities are considered for the study. There are totally 16 (34.78%) Universities fall under this category. These universities were established before 2005 and have adequate infrastructure and manpower to carry out the database activities.

The selected universities are further categorized into large and small universities for the convenience of the study. The categorization is done considering all the parameters like age of the university (Estd. Year), available infrastructure (NAAC Accreditation and 12(b) status) to carry out the database activities and size of the university (number of departments). There total 8 universities fall under large university category and 8 fall under small university category.

The present study focuses only on online library reference databases. This might be full text journal article database, online book database, bibliographic database, seminar or conference proceedings database, theses database, statistical database or any other kind of reference database. This study does not include CD ROM database or any other databases used for day-to-day administrative work.

The present study also limits itself to the online database related activities in the above specified Universities. The database might be In-house developed or procured from the external sources or through the consortia.

The study focuses only on the online database activities in the selected university libraries and the usage of these databases by the faculty and research scholars of this university. Post graduate and Undergraduates were not covered under this study.



## **1.9 CHAPTERIZATION**

The Thesis has been divided into seven chapters. A brief overview of each chapter is given below;

### **Chapter One - Introduction**

This chapter introduces the research work. It describes the need for the study, statement of the problem; state the objectives and hypotheses of the study, scope and limitations of the study, research methodology followed by the cauterization.

### **Chapter Two - Review of Literature**

This chapter highlights the details of the study already done in this area. It represents various views of the database activities carried out in university libraries worldwide. This chapter also presents the opinion of different authors on the impact of database technology in university libraries. This chapter narrates the relevant literature from the different parts of the world. The inferences of various studies on this topic are identified, recorded and presented in this chapter.

### **Chapter Three - Components of Online Database activities in Libraries**

This chapter discusses the components of online databases activities in libraries with theoretical background. The genesis of online databases, type of databases, the chief sources of libraries to procure online databases, consortium

operational within India and the factor influencing the growth of online databases are presented in this chapter.

#### **Chapter Four–Profile of the selected universities and their libraries in Karnataka**

This chapter illustrates the profiles of the universities and their libraries covered under the study. The details like total departments, areas of specialization, Population of faculties and students of respective universities are provided. It also attempts to provide brief description on the databases subscribed by each university libraries.

#### **Chapter Five - Analysis and Interpretation of database activities and its impact on university libraries of Karnataka**

This chapter is divided into two sub sections. They are represented as part A section and Part B section. The Part A section is entitled as “PREVALENT DATABASE ACTIVITIES IN UNIVERSITY LIBRARIES”. This section contains five subsections like (i) acquisition of database, (ii) creation/building of online databases, (iii) maintenance, (iv) access and licensing of databases, (v) online database usage, training and services and (vi) impact of databases in libraries. The second section B is entitled as “USERS’ PERCEPTION ON ONLINE DATABASE” and contain five subsections (a) online database, (b) users’ preferences and priorities, (c) users’ awareness and satisfaction on library consortia, (d) online database access methods, (e) users’

education and training on using online database and (f) Impact of online database on users.

The framed questionnaires were carefully analyzed and inference drawn based on this data and presented in this chapter. The critical study was also made with the help of this data.

### **Chapter Six - Proposed model for building online database in university libraries of Karnataka**

This chapter proposes a model for building online database in university libraries based on the analysis made through the collected data. This model was designed considering the facts which are favorable or not, which will solve the current issues on online database activities. This chapter also provides a blue print for the universities on developing and using the online databases.

### **Chapter Seven–Findings, Suggestions and Conclusion**

This chapter covers the summary of major findings, suggestions, conclusion and area of further research.

### **APPENDICES**

At the end appendices are attached. The details of the appendices are given below:

#### **Appendix A – Questionnaire for the librarian**

The model questionnaire for the librarian is attached in this appendix

## **Appendix B – Questionnaire for the library user**

The model questionnaire for the library user is attached in this appendix

## **Appendix C- Selected Bibliography**

The bibliography on the research topic is provided in the APA sixth edition format.

## **Appendix D- Abbreviations/Acronyms**

This portion provides the expansions of the Abbreviations/Acronyms used in this thesis

## **Appendix E- List of online databases subscribed by university libraries of Karnataka**

This Appendix provides the list of online databases subscribed by the university libraries of Karnataka covered for this study.

## **1.10 CONCLUSION**

The study focuses on the realistic implementation of database management system in university libraries of Karnataka. The universities while focusing on the usage of the online databases procured should also concentrate on in-house development of database. When they form a consortium to procure the commercial database, they should also think on the collaborative way to create the indigenous database. Merely merging of bibliographic database to form the union catalogue or preparing the abstract for the theses collection will not achieve the goal. The universities should seriously think about the

integration of complete information system for the benefit of its clients. The much talked subject digitization of the available resources which is also called as Institutional Repository will be effective when all the participant institutions publish the content in the form of online database and share it with others. There is a need to have special approach towards the user requirement. In the age of globalization, universities require to protect their intellectual capital and manage efficiently to support their users. The data-warehousing or data mining concept are the most welcomed initiatives for this kind of environment. This chapter introduces the research problem which is further discussed in the subsequent chapters.

## REFERENCES

- ACM. (2000). *ACM digital Library*. Retrieved March 2000, from <http://portal.acm.org/dl.cfm>
- Avasia, M. (2001). *Electronic resources : Collection Development*. INFLIBNET.
- Bhatt, J., & Joshi, N. (2009). Impact of UGC Infonet Digital Library Consortium to Academic Community : A Case Study of The Maharaja Sayajirao University of Baroda. In INFLIBNET (Ed.), *7th International CALIBER-2009* (pp. 565-571). Puducherry: Pondicherry University.
- Bhatt, R. (2009). Academic Libraries in India : A Historical Study. *ICAL 2009 – VISION AND ROLES OF THE FUTURE ACADEMIC LIBRARIES*, (pp. 56-67).
- Chandrakar, R. (2003). Barriers of bibliographic database creation in Indian university libraries: the INFLIBNET experience. *The Electronic Library*, 21(4), 310-315.
- Development, M. O. (2013). *Educational Statistics*. New Delhi: Bureau of Planning, Monitoring and Statistics.
- Feret, B., & Marcinek, M. (1999). The future of the academic library and the academic librarian: a Delphi study. *Library Career Development*, 7(10), 91-107.
- Goriya, S. (1999). Bibliographic database management system in India: Problems and prospects Vikram University. Ujjain: Department of Library and Information Science, Vikram university.
- Gupta, B. (2010). Ranking and performance of Indian Universities, based on publication and citation data. *Indian Journal of Science and Technology*, 3(7), 837-843.
- Kettunen, J. (2007). The strategic evaluation of academic libraries. *Library Hi Tech*, 25(3), 409-421.
- Korth, H. F., & Silberschaiz. (1991). *Database System Concepts*. New York: McGraw-Hill.
- Lagier, J. (2002). *Measuring Usage and Usability of Online Databases at Hartnell College: An Evaluation of Selected Electronic Resources*. Ann Arbor: ProQuest Information and Learning Company.
- Lahari, a. (1990). *An Indian model for database services*. Luxembourg: Infotap S.A.

- Mahajan, P. (2005). Academic Libraries in India: a Present-Day Scenario. *Library Philosophy and Practice*, 8(1), 1-4.
- Morgan, S., & Atkinson, J. (2000). Academic libraries. *Library Review*, 49(9), 448-453.
- Patil, D. B., Parameshwar, S., & Kumbargoudar, P. (2007). Use of UGC-infonet consortium by the faculty Members and research scholars in Department of chemistry of Gulbarga university: a survey. *5th International CALIBER -2007* (pp. 756-765). Chandigarh: INFLIBNET.
- Reenen, F. V. (2001). Library budgets and academic library rankings in times of transition. *The Bottom Line: Managing Library Finance*, 14(4), 213-218.
- Sachan, D. (2012). Indian universities lag behind in scientific research: study. *Down to earth*. Retrieved January 10, 2012 from <http://www.downtoearth.org.in/content/indian-universities-lag-behind-scientific-research-study>
- Samson, S., & Oelz, E. (2005). The Academic Library as a Full-Service. *The Journal of Academic Librarianship*, 31(4), 347-351.
- Samuelson, K. (1992). *Information Systems and Networks*. New York: North Holland Publishing.
- Sandhu, G., & Sale, A. (2005). 25 years of electronic resources collection development at the university of salford: some issues and challenges. *3rd Convention PLANNER* (pp. 1-9). Inlibnet.
- Sarkhel, J., & Sutradhar, B. (2000). Design and development of web-based Databases of current periodicals at Indian institute of technology, Kharagpur. *DRTC Annual Seminar on Electronic Sources of Information* (pp. 1-3). Bangalore: DRTC.
- Seshagiri, N., Rao, I. R., & Sathyanarayana, N. (Eds.). (1993). *Database production and distribution: Resources, technology and Management*. New Delhi: Tata McGraw-Hill publishing company Limited.
- Shivalingaiah, D., & Gowda, V. (2009). Facilities and Services in University Libraries in Karnataka: A Study from the Researchers' Point of View. *International Conference on Academic Libraries* (pp. 598-607). Delhi: Delhi University Library System, University of Delhi .
- Walmiki, R. H., & Ramakrishnegowda, K. C. (2009). E-resources in University Libraries of Karnataka: A Study. *7th International CALIBER-2009* (pp. 423-429). Puducherry: Pondicherry University.
- Yi, J. B. (2011). Assessing an academic library collection. *emerald insight*, 30(3), 120-125.