

A STUDY ON CATEGORIES, ROLE AND EVALUATION OF E-DATABASES OF SCHOLARLY COMMUNICATIONS AND ACADEMIC PUBLISHING IN TODAY'S LIBRARY

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Abstract:

Electronic-Databases have become an established component of many academic libraries' collection. Libraries all over the world are finding vital information through online information retrieval services with access to thousands of databases containing bibliographic, citations and full text primary resources. These databases are used for various activities of handling of information, such as resources sharing, reference services, abstracting and indexing services, easy retrieval of information. The paper outlined in details about the concept of e-databases with special reference to academic and online databases. Electronic databases provide a good overview of what is available on any particular topic. Before user had to depend on books, printed journals, pamphlets, or newspapers. Now they have more information at their fingertips all in one spot. The paper discussed about the categories of academic databases which were subscribed by the today's libraries and further discussed the different parameters on basis of which libraries can incorporate these scholarly databases into their library's holdings. The purpose of study was to explore library and information science (LIS) professional's experience related to the use of electronic databases.

Keywords: Electronic databases, Information sources, academic databases, online journal, Library Resources and Services

1.0 Introduction:

The use of electronic resources, especially scholarly electronic databases, is now considered a norm in the academe. As electronic resources for scholarship proliferate, more and more scholars turn to their computers rather than to print sources to conduct their research. E-databases are widely available and can be accessed from anywhere and by many users at the same time. It is therefore convenient to use. These databases often contain journal articles, or references to such articles, e-books, reference sources, conference papers and reports among others. University libraries spend a large amounts of money on these resources to satisfy the teaching, learning and research needs of its faculty and students. As universities spend substantial amount of money on subscription of these databases, it is only appropriate and economical that these databases are optimally utilized to contribute to the academic achievement of students and faculty and also to get value for money [8]. But today's it is seen that costly scholarly databases often remain underused or ignored altogether by research scholars, faculties and also students who seem to prefer to do their academic assignments last minute and with the least amount of effort. As a result, academic libraries, who invest large portions of their acquisition budgets for database subscriptions, and librarians who provide information literacy training, are more or less dissatisfied with the students' choices of information resources and in particular with the level of their use of electronic scholarly databases.

Libraries all over the world are finding vital information through online information retrieval services with access to thousands of databases containing both bibliography and primary sources information. The increasing availability of digital information sources, emergence of web based digital libraries and desktop based search

tools have changed the notion of traditional researches in library and information science field. The whole array of digital information sources and services enabled the library professionals to conduct various researches on different burning issue related to accessibility and usability of digital resources and services in current scenario. Librarians are able to bridge the existing gap in the professional literature and students' motivation for the use of electronic scholarly databases and also they can help to remove barriers in searching and getting of appropriate digital information resources. The study focused in particular on LIS students, as future information professionals, who are believed to be more information literate than their peers at other academic departments.

2.0 Meaning and concept of Databases:

What is Database? Most people agree on the minimal definition of a "database" as a collection of persistent, related information. This information, according to the World Intellectual Property Organization (WIPO), includes "collections of literary, musical or audiovisual works or any other kind of works, or collections of other materials such as texts, sounds, images, numbers, facts, or data representing any other matter or substance [including] Expressions of folklore." So any durable collection of related material constitutes a database. The database approach can be employed wherever storage and manipulation of data are required. It is most useful when relationship between data are numerous and complex, and information requirement are subject to change. Some of the database hold publicly accessible information such as abstracting and indexing databases, full text of reports, encyclopaedias and directories, whilst other database will be databases that are shared within an institution or group of institutions.

2.1 E-Database or Electronic databases:

The term, "electronic databases" has been defined in various ways by the experts. It's defined to include capacity for automated search and retrieval. One standard source describes it as "a collection of files used to store information that is managed by a database management system, or DBMS." The everyday meaning of "electronic database," however, depends on the user's profession. To most librarians, electronic databases are bibliographic files. But to most quantitatively oriented social scientists, an electronic database holds large files of numbers that can be deciphered with corresponding documents, called codebooks. To a smaller but growing group of political scientists and scholars in communications studies, an electronic database can mean vast bodies of natural language text converted to digital codes and stored in searchable files.

2.2 Role of Databases in Dissemination of Information:

The retrieval of exact information today has become a difficult task due to the exponential growth of the information in all fields of human knowledge. The generation, collection, retrieval and dissemination of information through creation of databases and systematic information services are becoming essential to meet the demand. This must be done more rapidly and accurately. The advances in computer and telecommunication technologies simplify this job in more a more sophisticated way, i.e. database creation. Databases are the medium which have changed the way we perceived and disseminate information. Databases help to access any remote information. Databases are used for various activities of handling of information, such as resources sharing, reference services, abstracting and indexing services, easy retrieval of information.

Hence databases have totally changed the scenario of resource sharing, Current awareness services, Selective dissemination services, document delivery services, and inter library loan, etc. In other way, sharing of sound, video, photographs, graphic, text, and hypertext in digital form to libraries and their users have played major role in the dissemination of information.

3.0 Evaluation of Databases for library:

The database are evaluated on the same criterion on which the printed reference sources are evaluated. In addition to those, there are some measures are considered in evaluating online database, such as storage of materials in the databases and their format, deep and quick knowledge of information, the common and specific type of need of the users that differs in each database. How and in how many quantity databases can be update, and which type of hardware and software may be needed?

Therefore parameters for evaluation of these database are necessary for determining criteria for selecting database for libraries. Obviously, the first question is whether the databases hold the required data or not. Apart from this crucial question. The list of evaluation parameters mentioned below:

3.1 Generic parameters:

- 1) Firstly it should be check about scope and coverage of databases. For scope of databases ,it is considered that all the periodical, journal, reports, documentation etc., which are indexed and abstracted in printed forms, are included in the databases or not.
- 2) What is frequency of updating the databases?
- 3) What are the distribution policy of publisher or vendor?
- 4) Is local subscription agent available for the databases or not?
- 5) Whether the database run in different hardware architecture and different software platforms?
- 6) Library should check data access speed, cost of databases, replacement facility, along with all copyright and other legal issues.

3.2 Content related parameters:

- 1) What is the extent of coverage of sources of information?
- 2) What is the coverage time span of database?
- 3) Whether the database uses standard encoding formats, standard record structure, and standard tools in information organization?
- 4) Whether the database represents creation/reference only or represents the abstract also?
- 5) Whether the full bibliographical details of the periodical is given in the database or not? Because it is very difficult to get the information about required document without full bibliographical details of the periodical?

3.3 Retrieval related parameters:

- 1) Which method is used in indexing? And for that how analysis of subject is done? The used method should be in such position, so that the retrieval of information may possible from the point such as year, language, geographical location and other items.
- 2) whether the search technique such as Boolean search operators, relational and positional search operators, Truncation (right, left, and middle) facility, Proximity operators, Range search, Field level search and Fuzzy logic (AND, NEAR etc.) are used for quick dissemination of information.
- 3) How much is the effectiveness of the access points in the database which are represented for search? I.e. the terms under which the organization of searching is, how they are helpful in search?

3.4 Post processing parameters:

Once relevant records have been identified and retrieved through search system, it is desirable to provide different facility to transfer retrieval information;

- 1) Facility download in different formats like text, html, pdf, ISO-2709, z39.2 etc.
- 2) Printing facility and Integration facility with other data.
- 3) Facility to control number of fields in transfer of information.
- 4) Possibility for choosing of data transfer in different formats for e.g. simple text, CSV file, MARC/UNMARC format etc.

3.5 Interface related parameters:

The retrieval Software should not only powerful to satisfy retrieval of relevant information but also easy to use it. User interface should assist all categories of users by providing;

- 1) Facility to break search or processing result.
- 2) Facility to use online thesaurus.
- 3) Saving of search profile for future use.
- 4) Facility to navigation between records, within records and Hyperlinked based navigation outside the system or web.
- 5) Multilingual communication facility (Indic script based interface is desirable in case of India).
- 6) Support online help and appropriate error message with instruction to solve access problems.

4.0 Categorization of Databases:

Databases are available in many forms and formats. In library world two categories are the mostly used. These are online databases and CD-ROM databases. As far as mode of access concerned, Online database can be classified into two groups – Direct access (leased line based) database and Web-enabled databases. So databases can be classified in various way. One way to classify databases involves the type of their contents, for example: bibliographic, document-text, statistical, or multimedia objects. Secondly is by their application area, for example: accounting, music compositions, movies, banking, manufacturing, or insurance. And third way is by some technical aspect, such as the database structure or interface type. As far as nature of content is concerned, academic databases which are usually available to researchers are as follows:

- i) Bibliographic Databases
- ii) Citation Databases
- iii) Full-text Databases
- iv) Numeric Database
- v) Multimedia Database
- vi) E-Journal Gateways
- vii) Online Directories of Journals

These databases are briefly discussed in the following sections:

4.1 Bibliographic Databases :

Bibliographical database contains descriptive information about documents for example books, periodical articles, proceedings of conferences, subject reports, manuscripts, theses etc. The data typically included in these database are titles, authors, journal names, volume and number, abstracts etc. In bibliographic database the data stored comprise inputs of bibliographic details of a document for identification, storage, and retrieval purposes. Bibliographic databases can be divided into two categories:

- i. Internal databases and associated services
- ii. External databases and associated services

The internal bibliographic databases are those created by libraries and information centers of their published holdings, such as books, serial, articles in periodicals. Proceedings of conferences etc. In other hand, external bibliographic databases comprise online catalogues of the following types:

- A. Abstracting and citation database like PSYCINFO, the machine-readable counterpart of Psychological Abstracts. And SCISEARCH, the machine-readable counterpart of Scientific Citation Index and Current Contents, the publication of the Institution for Scientific information, USA.
- B. International, national, Regional, metropolitan and local bibliographic networks. The following examples are.
 - a. **International:** A network like OCLC that has outgrown its local, regional and national character and is used the world over.
 - b. **National:** A network like INFLIBNET.
 - c. **Regional:** A proposed network like NELIB-NET North-East India
 - d. **Metropolitan:** A city network like DELNET or CALIBNET
 - e. **Local:** A network in a campus or an institution such as IIT Bombay, or IIT Kanpur.
- C. Databases of union catalogue e.g. National Union catalogue of scientific serials in India (INSDOC).
- D. Databases of indexes to newspapers e.g New York Times Information Index or National Newspaper Index published in USA.

4.2 Citation databases:

A citation database is a form of bibliographic index which provides a record of citations between publications, enabling a user to see which publications have cited which other publications. Such a database will show which authors have cited a publication and how many times an author has been cited.[4] The first major citation index the 'Science Citation Index' was launched in 1964 by the US-based Institute for Scientific Information (ISI). Citation databases tend to focus on journal articles but may cover other material such as books, conference papers, dissertations or reports. No citation database covers all publications.

Citation databases have been developed for evaluating of publications by users to establish citation counts and to check, which publications and authors are the most cited. Some important online citation databases of journal literature available these days are, namely:

- Chinese Science Citation Database, produced jointly by Chinese Academy of Sciences and Thomson Reuters.
- Indian Citation Index (ICI), produced jointly by the Knowledge Foundation and Diva Enterprises India Private Ltd.
- Scopus, produced by Elsevier B.V.
- SciELO Citation Index³⁷, produced jointly by SciELO and Thomson Reuters.
- Web of Science (WoS), produced by Thomson Reuters. It consists of Science Citation Index Expanded (SCI-Expanded), Social Sciences Citation Index (SSCI) and Arts & Humanities Citation Index (A&HCI).

Generally these online citation databases are available to subscribing institutions only. There are a few citation search engines, namely:

- a) Microsoft Academic Search⁴⁰, produced by Microsoft, Inc.
- b) Google Scholar Citations³⁹, produced by Google, Inc.
- c) CiteSeerX, hosted by Pennsylvania State University, USA.
- d) ChemxSeer, hosted by Pennsylvania State University, USA
- e) INSPIRE-HEP – the High Energy Physics Information System, hosted by CERN, Switzerland

4.3 Full-text Databases :

A Full-text database is a database that contains the complete text of books, magazines, journals, , dissertations, newspapers and other kinds of textual documents. It is opposed both to a bibliographic database and to a non-bibliographic database (such as directory or a numeric database) [17]. It is nothing but a compilation of documents or other information in the form of a database in which the complete text of each referenced document is available for online viewing, printing, or downloading. In addition to text documents, images are often included, such as graphs, maps, photos, and diagrams [14]. A full-text database is searchable by keyword, phrase, or both. Some example of full text open access databases are;

- **PubMed Central** - A free full-text archive of biomedical and life sciences journal literature.
- **arXiv** - E-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics
- **EconPapers** - A free bibliographic database of economics and finance papers with majority freely downloadable
- **e-LIS** - E-prints in library and information science (LIS) – an international OA repository for academic papers in LIS
- **BioRxiv** - A preprint server for biology
- **IDEAS** - A central index of economics and finance research, including working papers, articles and software code with external full-text links.
- **PeerJ PrePrints** - A 'preprint server' for the biological sciences, medical sciences, and health sciences

Subject repositories and institutional repositories are also online full-text databases that have varieties of scholarly contents. These searchable online databases actually store and retrieve journal literature and other forms of scholarly literature such as book chapters, conference papers, dissertations and monographs. Some repositories only store pre-print and post-print versions of journal contents due to copyright restrictions or embargo policies of for-profit publishers. Although, authors are allowed to self-archive publishers' version if these are made available through Creative Commons or copy left or other unrestrictive licensing.

4.4 Numeric Databases :

Numeric database ,also variously known as fact, source, and non-bibliographic databases, Data files, and Databank, provide organized data such as statistical, time series, demographic reports corporate financial records, stock market quotations, chemical and physical properties, and chemical nomenclature and graphic structures. Most of these database are used to support business or financial research, the smaller percentage of numeric databases of physical and chemical properties are used in the physical and biological sciences. Most

numeric databases can be manipulated interactively by their users. In economic forecasting or market research, these data are post-processed, or manipulated after the information has been identified and captured from online services, generally on a microcomputer. [6]

Generally, the difference between bibliographic and numeric information may not be clear, but practically differentiating both of these is a must. This may be clear the possible answer of a particular query. Such as what is the diameter of Mars? The answer of the same may be obtained 6972 km from numeric database. While in bibliographical database, a list of so many documents is obtained for answering these type of queries. Bibliographical reference may be available in numerical databases from which the information is obtained.

4.5 Multimedia Database :

Multimedia Databases are databases that contain and allow key data management operations with multimedia data. It is a type of databases that hosts one or more primary media file types such as .jpg (images), .txt (documents), .mp3 (audio), .swf (videos) etc. It can loosely fall into three main categories:

- Static media (time-independent, i.e. images and handwriting)
- Dynamic media (time-dependent, i.e. video and sound bites)
- Dimensional media (i.e. 3D games or computer-aided drafting programs- CAD)

Multimedia databases can provide more effective dissemination of information in science, engineering, modern biology, medicine and social sciences. The World Wide Web has enabled access to numerous multimedia databases. The Internet itself is the largest multimedia database. Multimedia Databases (MMDBs) facilitates the development of new paradigms in distance learning, and interactive personal and group entertainment. It has to cope up with the increased usage of a large volume of multimedia data being used in various software applications. The applications include digital libraries, manufacturing and retailing, art and entertainment, journalism and so on. Microsoft Word's grammar checker is also a multimedia database application. If a student makes a spelling or grammar error, the system will show the error automatically and can further correct the mistake [18].

4.6 E-Journal Gateways:

E-journal gateways are collaborative efforts of mainly non-profit publishers which includes research councils and learned societies also. The effort was taken for freely reaching out global audiences through single searchable portals. Actually electronic journal gateways host full-texts of numerous and different scholarly journals which are published by various publishers worldwide. This aggregation of e-journals helps in crosscutting academic disciplines in a larger context to support discourses in multidisciplinary and trans-disciplinary subject areas within the region. These gateways greatly increase the journals' accessibility to researchers and educators throughout the world which ultimately makes the research works useful to a wider audience. Some of the examples of open access e-journal gateways are African Journals Online (AJOL), Bangladesh Journals Online (Bangla JOL), Latin America Journals Online (LAM JOL), Mongolia Journals Online (Mongolia JOL), Sri Lanka Journals Online (Sri Lanka JOL), SciELO (Scientific Electronic Library Online) and Philippine E-Journals etc. These gateways except SciELO are the part of the INASP's the Journals Online (JOL) project. International Network for the Availability of Scientific Publications (INASP) helps in capacity development of non-profit academic publishers in developing countries in launching e-journal gateways for their respective country or a region using the open source software PKP Open Journal Systems (OJS). [16]

4.7 Online Directories of Journals:

Online directory of journals are the websites that index and provides access to high quality, peer-reviewed, open access journals. The objective of these online directories are to increase the visibility and ease of use of scientific and scholarly journals, which ultimately promote their increased usage and impact. For e.g. Directory of Open Access Journals (DOAJ), SHERPA/RoMEO - Journals' and Publishers' Open Access Policies, UlrichsWeb (Ulrich's Periodicals Directory) etc. Directory of Open Access Journals (DOAJ) is a searchable multidisciplinary directory of open access scholarly journals. It provides detailed information on scholarly journals. DOAJ is searchable at article level for about 5,700 journals. The Ulrich's Periodicals Directory – owned by ProQuest LLC – is highly popular in academic and research circles. The online edition of Ulrich's Periodicals Directory is known as UlrichsWeb. It is a searchable database covering about 336,000+ periodicals.

It provides information about popular and academic magazines, trade journals, scientific journals, newspapers and other serial publication. SHERPA/RoMEO on the other hand provides information about open access policies of the journals and publishers, to help researchers in self-archiving related decision making. There are some journal aggregating databases that aggregate full-text journal contents in common searchable databases for providing a unified and single interface online access to researchers. These aggregators usually provide access to relatively few months' older journal contents, as aggregators are third party service providers – not actually publishers of scholarly journals. China Knowledge Resource Integrated Database (CKNI), EBSCOhost Online Research Databases, IndianJournals.com, JSTOR, MetaPress, Ingenta Connect, Project Muse and ProQuest Research Library are example of some important journal aggregating databases. The ProQuest and EBSCOhost are leading aggregators' databases having considerable market share in both developed countries and developing countries [16].

5.0 Conclusion:

Electronic databases have always been an important resource in all the organizations, especially in libraries and research & development centers. There is no denying the fact that its power must be exploited to the benefit of the organization. This goal can be achieved through making database approach easy and simple for the student, research scholars, faculty members etc. Electronic databases save time in looking up information and retrieving information while doing research online since the search goes faster, user can do more searches with more keywords and look over more information. Electronic databases provide a good overview of what is available on any particular topic. It is a good resource to be able to get a feel for what you are going to write about. It gives you a feel for the breadth of your subject, and helps you to be able to narrow it down. Before user had to depend on books, printed journals, pamphlets, or newspapers. Now they have more information at their fingertips all in one spot. And last but not least, librarians should better integrate electronic databases into their holdings and use discovery services to make access to databases as convenient as possible. As it happens, the electronic databases at the studied universities cannot be searched via library catalogs but users must access each database individually by clicking on an external link.

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