

ELEMENTS OF LITERATURE SEARCH

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Introduction

In this we will be talking about two themes. The first theme deals with the methods and techniques of literature search which are to be related to the varying information needs of users. Strategies for literature search will correspondingly vary with the purpose and use of information.

The second theme is on computer databases. The advent of computers and communication technologies and their applications to bibliographical organisation have afforded opportunities to access literature with greater speed and efficiency. Online searching through computer communication networks with facilities for interrogation and interaction of databases on the video screen has given a new dimension to information services.

User, Needs and Literature Search

The first and most important activity is that user must get his information within a reasonable time and cost frame. Let us examine all the elements involved in information retrieval, which literature search is all about. The user could be 1. A *layman* who needs information to satisfy his curiosity 2. A *student* who needs more details than provided by the text books. 3. A *technical worker* who needs the information to perform a certain task (e.g. a special distillation or purification work. 4. A *research worker* embarking a new area of research. 5. A *project manager* contemplating a new product line. 6. An *administrator* who has to give his decision on a new project report or formulate a new strategy.

Obviously the nature of information, extent of information and depth of information required by each of them are different. Research worker and project manager can be satisfied only by extensive literature search entailing all the sources of a modern information centre and skill.

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Reference Services

Usually a reference service responds to a specific piece of information about a person, a place, event, a method, a procedure, a formula etc.

Literature search on the other hand can be equated to "long range reference service", when the search has to be more exhaustive both in depth and extent. The range and complexity of reference sources to be consulted are wider and generally more than one source has to be consulted to adequately carryout a literature search.

Primary tools

Dictionaries, Encyclopaedias, Manuals, Handbooks, Gazetters, Directories, Year books.

Secondary tools

Bibliographies, Abstracting services, Indexing services, Reviewing periodicals.

Need for Literature Search

While the scientific and technical literature has been growing exponentially, the amount of time that any user has for reading this literature remains more or less the same. Therefore literature search is the means to bridge this gap between the vast store of documented information and its potential user. The main function of an information service is to bring documents of data to the attention of the user community through search of the literature conducted on demand (or in anticipation) to meet the problem solving or decision making needs of the member.

Steps in Literature Search

The first and the foremost step is to ascertain the purpose, scope, depth and precise field of enquiry. Once

the parameters of a query is fully understood, a proper search strategy should be chalked out.

1. **Selection of Sources** - Primary
Secondary

One very good approach to literature search is looking up on appropriate selection of articles in a bibliography, an encyclopaedia or a review publication. Search should be carried out with secondary publications like abstracting and indexing services.

2. **Searching in Secondary Sources**

When secondary sources like periodicals are available on the subject as well as on broader subjects search must first begin with the secondary periodical on the subject proper, supplemented by references which covers journals peripheral and sometimes quite alien to the main subject of search. Searcher should acquaint himself not only with scientific nomenclature and terminology but also with the latest changes.

3. **Search in other sources**

Search is not complete without looking at other sources of information like conferences, research reports, thesis, monographs, trade literature etc.

4. **Recording of References or Information**

Every literature searcher develops his own style of taking notes of references. It is well to remember that a few extra seconds spent to make proper preliminary records may save many frustrating hours later.

5. **Presentation of Results**

To be most effective in presentation of search results, it requires as much skill and care as correctly defining the subject and parameters of search. The sources should be stated giving the exact reference.

Skills in Literature Search

Some attitudes or traits conducive to a good literature search are: imagination, mental flexibility, thoroughness and orderliness, persistency, judgement in resolving contradictory information and accuracy in recording.

Computer Databases for Literature Search

MeSH

Medical Subject Headings is a controlled vocabulary or thesaurus, used by skilled subject analysts at the National Library of Medicine, and around the world, to index and catalog the world's biomedical information. The same MeSH headings are used for online searching of many MEDLARS databases.

MEDLARS

Medical Literature Analysis and Retrieval System developed in 1960.

INDEX MEDICUS and CURRENT CATALOG can also be accessed by the database file.

MeSH Vocabulary, is an on-line database on MEDLARS SYSTEM. It consists of

1. MeSH Headings (Descriptors)
2. Sub headings (Qualifiers)
3. Supplementary chemical terms

Additional information in the database includes

1. Definition for approximately 60% of the headings in the MeSH Scope Note (MS) field.
2. References, including non- print ones in the Backward Errors Reference (Bx) field.
3. Historical data in the Previous Indexing (PI) field.
4. Retrieval counts for the Medline Backfiles in the Backfile Posting (M##) fields.
5. Legal MeSH headings/sub - headings combinations in the Allowable Topical Qualifiers (AQ) field.

To access the file on-line, we have to type FILE MeSH.

Database has a Tree structure consisting of 15,000 MeSH Headings which are Hierarchically arranged (15 major categories) as below

- Anatomy (A)
- Organism (B)
- Diseases (C)
- Chemicals & Drugs (D)
- Analytical, Diagnostic, and Therapeutic Technics and Equipment (E)
- Psychiatry and Psychology (F)
- Biological Sciences (G)
- Physical Sciences (H)
- Anthropology, Education, Sociology and Social Phenomenon (I)
- Technology, Industry, Agriculture (J)
- Humanities (K)
- Information Science (L)
- Named Groups (M)
- Health Care (N)
- Geographicals (Z)

Subdescriptions are made as below

| | |
|------------------------|----------------|
| Nervous System | A8 |
| Central Nervous System | A8.186 |
| Brain | A8.186.211 |
| Brain stem | A8.186.211.132 |

Specificity

Articles are indexed and retrieved using the most specific MeSH Headings available.

Articles on the olfactory mucosa will be retrieved by using the specific heading OLFACTORY MUCOSA, not by the more general heading NASAL MUCOSA.

Papers on broken legs will be found under the headings LEG INJURIES and FRACTURES, not under the headings LEG and FRACTURES.

Depth

MeSH Headings are used to cover the central aspects of each article as well as other significant information discussed in the article. A concept merely mentioned in passing will not be indexed. Indexers scan the entire article: they do not index from only the title or the abstract.

Indexers assign an average of 10 MeSH Headings per article for journal literature citations. This allows searchers a variety of access points to each citation. Books, serials, and audiovisuals cataloged for the CATLINE and AVLINE databases generally have fewer MeSH Headings per record.

Main Point

Subjects that are the main point of an article are designated by an asterisk(*). MeSH Headings with an * are available for online searching and appear in Index Medicus. See Under headings may be searched online with an * but never appear in Index Medicus. If a subject is discussed, but is not the main point of the article, it does not have an * MeSH Headings without an * are available for online searching but do not appear in Index Medicus.

Check Tags

Several MeSH Headings are looked for routinely in every article by indexers. These are called "check tags" and are concepts of potential interest regardless of the general subject content of the article. Check tags include designations for human, animal, human age groups and gender.

Check tags are used the way any other MeSH Heading is used for online searching. However, some check tags (e.g. HUMAN, ANIMAL and FEMALE) are never considered the main point of an article (*), and therefore will never appear in Index Medicus.

Subheadings

Subheadings (also known as Qualifiers) are headings used in combination with MeSH Heading to "qualify" the MeSH Heading. They describe frequently discussed aspects of a subject. Concepts that are considered Subheadings include Etiology, Pathology, Physiology, Metabolism and Adverse Effects. Often a MeSH Heading Subheading combination is the most specific way to describe a concept. e.g. EYELIDS/surgery is preferred to the two separate MeSH Headings EYELIDS and SURGERY.

Chemical Terms

There are over 5,000 chemical and drug MeSH Headings in Category D of MeSH. In addition, there are more than 50,000 Supplementary Chemical Terms in the

MeSH vocabulary. These Supplementary Chemical Terms are available for online searching as Name of Substance (NM), but they do not appear in Index Medicus.

Hints for Interpreting the Annotated MeSH

The Medical Subject Headings Annotated Alphabetical List publications is used by indexers, catalogers and searchers to select MeSH Headings. MeSH Headings (with their tree numbers) and Subheadings (Qualifiers) are listed alphabetically and may be followed by an informative annotation and cross references. Information that may be in an annotation includes notes on the use of Subheadings with specific headings, the scope of a heading in a brief form, history of the heading, specific indexing instructions and suggestions for helpful related concepts.

Tree Numbers

One or more tree numbers are shown for each heading.

LH-FSH RELEASING HORMONE
D6.472.709.429+ D12.644.556.592
D12.776.641.650.410

A + after a number indicates more specific headings are indented beneath it in the Tree Structures and therefore it is explodable.

Date

The two-digit number is the date that the heading entered the system. If no date is given the absence indicates the heading was in the system as a MeSH Heading before 1965.

EARACHE
C9.218.350 C23.888.592.612.20
(83)

Parenthesis around the date indicates that the heading is a SEE UNDER heading.

LARYNGEAL MUSCLES
A2.633.528 A4.329.604
(79)

Cross References

See- "Entry term"- A Synonym or near synonym - appears in small type. It may be used for online searching - the computer substitutes (maps to) the proper MeSH Heading.

CHILDBIRTH see LABOR
G8.520.769.326

SEE UNDER - "Minor descriptor"- A specific concept found under a more inclusive concept. It may be used for online searching

CRISSCROSS HEART
C14.280.400.220 C16.131.457.220
do not use/congen
(87)

See under HEART DEFECTS.
 CONGENITAL

If searching online, use CRISSCROSS HEART. If looking in Index Medicus, look under HEART DEFECTS, CONGENITAL.

SEE RELATED - Additional heading(s) suggested for consideration in selecting search terms.

HUNGER
F1.658.293.391
see related FASTING
 FOOD DEPRIVATION
 STARVATION

As would be evident from the foregoing description, literature search is essentially a process of "information retrieval". The term "Information Retrieval" was coined by Carolin Moors in 1950 who described it as "searching and retrieval of information from storage, according to specification by subject". Retrieval of information from storage, according to specification is an important objective in the process of communication between human beings.