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# UNIT 1 LITERATURE SEARCH AND BIBLIOGRAPHIC SERVICES

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## 1.0 OBJECTIVES

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After reading this Unit, you will be able to:

- explain the meaning of the word ‘literature’ in this context;
- elaborate the term ‘literature search’;
- describe the search technique involving subject approach and author approach;
- discuss about the bibliographic services especially ad hoc bibliography; and
- compile a bibliography following subject approach as well as author approach.

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## 1.1 INTRODUCTION

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Since our childhood days we have heard the term ‘literature’ and learnt that literature comprises of prose, poetry, drama, fiction, etc. In this context, the meaning of literature is different. By the term ‘literature’ we mean here the whole body of writings on all subjects, covering all types of documents, produced in all languages from antiquity to the present by people from all parts of the world. The definition is undeniably awe-inspiring and the amount of literature produced so far is mind-boggling. You must know that the production of literature has not stopped. It is continuing at an ever increasing rate and cumulating.

Take for example, *Chemical Abstracts*. It is an abstracting periodical started in 1907. As on date, its database called *CA Plus* has more than 34 million records and is increasing at the rate of 3,000 records per day [Chemical Abstracts Service].

In the case of chemistry, the situation may look alarming. In many other areas, the growth rate of literature is even faster than chemistry. Of course, the growth rate of literature is not so alarming in social sciences, arts and humanities. On the whole, the quantum of literature being generated in all fields everyday is huge. This literature is continuously cumulating making literature search more and more challenging. Let us now dwell on 'literature search'.

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## 1.2 LITERATURE SEARCH

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Literature search simply means searching the literature related to a particular topic. This literature is available in varied forms such as journal articles, books, theses, patents, standards, etc. Searching journal articles related to a particular topic by going through all relevant journals is an impossible task. Suppose, you intend to search journal articles on library classification. There are numerous library science journals in the world being published in different languages. Because of language barrier, you will not be able to read the articles published in all journals, neither will you get all the journals in one place. The question obviously arises what is the solution.

Researchers in the world faced this problem long ago. As a result solutions have also been found out in the form of abstracting and indexing periodicals as well as reviewing periodicals. Most of these sources are now available in electronic form as well which can be searched online with great speed.

For literature search you are to follow a well-defined path. Otherwise you may simply wasting your time and energy achieving practically nothing. To avoid such a situation you are to follow the well-established search technique.

### 1.2.1 Search Technique

For literature search there are two approaches: subject and author. We shall first discuss the subject approach which is normally followed for literature search. The author approach will be dealt with at the end. This approach though comparatively less used, at times yields very good results.

### 1.2.2 Subject Approach

In the following sub-sections we shall discuss the technique involved in subject approach step by step.

#### Step 1 Request for literature search

It may come in person or in the form of a written communication like an e-mail, SMS, a letter, a telephone call, etc. It is to be checked from the query whether the **purpose** and **scope** are clearly mentioned. Depending on the purpose, the search will take its course. If the purpose is to prepare a lecture, the search will be simple. A few textbooks on the topic may suffice. On the other hand if the purpose is to conduct research, a thorough literature search will have to be undertaken. Here we are considering literature search for conducting research.

**Scope** is another very important factor. It takes into account the *topic* in clear cut terms, and the coverage in terms of the *period*, the *geographical area*, the *languages*, and the *forms of documents*. Let us discuss these points one by one.

**Topic** – Suppose from the query, the topic appears to be ‘airways’. Just from the term you should not jump at the conclusion that the topic pertains to aviation. It may pertain to medicine as well, since in medicine ‘airways’ means ‘the passage by which air reaches the lungs.’ At times you may receive request for such topics as ‘chimaera’ or ‘*Ziziphus ziziphus*’ the meaning of which is not known to you. In such cases you need to consult a dictionary, an encyclopaedia or any other standard reference source that may give you the information. You may note that for Latin names like *Ziziphus ziziphus*, general dictionaries may not be of much use. You should take the help of the Internet or an expert.

You must be aware of the term called **reference interview** denoting interviewing the information seeker. You may interview the information seeker if s/he is available. If the information seeker is a high ranking official, say, the vice-chancellor of a university or the director of a laboratory, it may not be easy for you to approach her/him for interviewing. In such a case, it is better to contact the person through her/his personal secretary or by writing a letter.

You need to take care of **synonyms** as well as **related terms**. Many terms especially chemical compounds have more than one synonym. For example, the drug called ‘diazepam’ has a number of brand names like calmpose, paxum and valium. They are also known as tranquilizers or sleeping pills. You may find literature using any of these terms.

Another important point that is to be taken into account is the date of origination of the topic. If we take a topic like supergravity that originated in 1975, there is no use searching for literature prior to this date.

In short, we may say that, for literature search we need to take into account not only the term given by the researcher, but also the synonyms, related terms as well as the date of origination of the topic.

**Period** – The topic for literature search may be dating back to one hundred years or more. In such a case you will have to ask the researcher as to the time period that should be covered. In certain cases even the researcher may not have a clear idea as to the volume of literature available on the subject. Take for example, **pesticide poisoning**. The sources you may consult are *Pubmed*, *Web of Science* and the like that might indicate that there is huge amount of literature on the topic. You inform the researcher about this. The researcher may restrict the time period to the last 15 years. That will reduce your search a great deal. For historical topics the time period covered is usually long. For example, if someone’s PhD topic is on “Development of School Libraries in Orissa in Post-independent India”. Here the time period starts right from 1947 onwards. For a subject of recent origin like ‘retroconversion of library catalogues’ the time period will be quite short. In some topic the period is distinct. Examples: Development of programming languages in 21<sup>st</sup> century; Tamil poetry in independent India; etc.

**Geographical area** – In all literature search geographical area is not involved. If you are conducting literature search on ‘work done on supergravity since 2001’, you will have to search world literature. On the other hand in the literature search on ‘flora of Himachal Pradesh’ the geographical area is distinct. In certain cases, the geographical area may not be explicit in the query. Take for example, the topic ‘theft of books in rural libraries – a study’. In this case the researcher might

have in her/his mind a particular state or a district of India, and this will be clarified on enquiry.

**Languages** – Literature on any topic is produced in many languages of the world. Abstracting and indexing services of the world cover literature from numerous languages. You may note that *Chemical Abstracts* covers documents in 50 languages of the world. In literature search, the question that crops up is whether to cover literature in all languages of the world, or only in a few languages or only in one language, say English. In this case, the reply is to be sought from the researcher. If the researcher is interested in literature published in various languages of the world, then the literature can be easily gleaned as abstracting and indexing services of the world make sincere efforts to cover literature from various languages.

**Forms of documents** – If you go through the list of references given at the end of the learned publications, you will notice that there are citations pertaining to journal articles, monographs, reference books, conference documents, patents, standards, theses, etc. This clearly indicates that researchers are interested in all sorts of documents that are relevant to their research area. From abstracting and indexing periodicals devoted to the subject, you may get various forms of documents containing the information. At times, you are also to examine abstracting and indexing services devoted to various forms of documents such as theses and patents.

In **Step 1**, we have talked about the topic and the scope. Once we have clear idea about the topic and its scope, we can take the next step.

**Step 2** – In most cases, the objective of literature search is to compile a **bibliography** for a researcher. If that is also your objective, then you should follow the following path.

There are numerous published bibliographies on various subjects. To find out whether or not there is a published bibliography on the topic, you are to examine the following sources:

- i) Besterman, Theodore. *A World Bibliography of Bibliographies and of Bibliographical Catalogues, Calendars, Abstracts, Digests, Indexes and the like*. 4<sup>th</sup> ed. 5 vols. Geneva: Societas Bibliographica, 1965-1967. Print.
- ii) *Bibliographic Index: Cumulative Bibliography of Bibliographies, 1937-*. New York: Wilson, 1938. Print.
- iii) *Index Bibliographicus*. 4<sup>th</sup> ed. The Hague: Federation Internationale de Documentation, 1959. Print.
- iv) Kalia, D. R., and M. K. Jain. *Bibliography of Bibliographies on India*. Delhi: Concept, 1975. Print.

You may observe that the first source is dated 1967, the third source 1959, and the 4<sup>th</sup> source 1975. Moreover, the scope of the fourth source is restricted to India only. Hence, these sources will not contain any bibliography on the topics that originated after these dates. Therefore, for recent topics, it is wise to consult *Bibliographic Index*. For pre-1975 bibliographies sources mentioned in points (i), (iii), and (iv) will be of great help. Apart from these four sources there are

other sources as well which can be found out by consulting the World Wide Web, OCLC, DELNET, etc.

Now you are facing two possibilities.

**Possibility 1** - Consulting the sources you may locate one or more bibliographies. You can get those, make copies and supply it to the researcher. The bibliography you have located may not be up-to-date. Suppose the bibliography has covered the literature up to 1980. In this case you need to update the bibliography up to recent times. For this you must follow the procedure described under *Possibility 2*.

**Possibility 2** – In the aforesaid sources you have failed to locate any bibliography. Now, you need to go through secondary sources pertaining to the subject. To find out secondary sources on any particular topic you must consult the following:

- i) *Walford's Guide to Reference Materials*. Ed. A. J. Walford, et al. 8<sup>th</sup> ed. Vol. 1 – Science and Technology; Vol. 2 – Social and Historical Sciences, Philosophy and Religion; Vol. 3 Generalia, Language and Literature, the Arts. London: Library Association, 2000. Print.
- ii) *Abstracting Services*. 2<sup>nd</sup> ed. Vol. 1- Science, Technology, Medicine, Agriculture; Vol. 2 – Social Sciences, Humanities. The Hague: International Federation for Documentation, 1969. Print.

Apart from these two, there are other sources as well. For example, *Ulrich's Periodicals Directory 2012* (50<sup>th</sup> ed. N.J.: ProQuest, 2011) also lists secondary periodicals under various subjects. It is not necessary for you to go for exactly the edition mentioned above. If you find latest or previous editions that will also serve your purpose to a great extent.

After you have gone through these sources, any one of the situations as stated below may arise.

- i) Secondary periodicals are available exactly on the topic.
- ii) Secondary periodicals are available on the subject as well as on the broader subject.
- iii) No secondary periodical is available on the subject, but available on a broader subject.
- iv) No secondary periodical is available on the subject, not even on the broader subject.

Let us take the situations one by one.

**Situation (i)** – Of the secondary periodicals available on the topic, if there are reviewing periodicals, they should be consulted first, since each article in a reviewing periodical is accompanied with a long bibliography which may be considered more or less an exhaustive bibliography on the topic belonging to a particular period. If a recently published review article pertaining to the query is available, the problem of literature search is solved to a great extent. If the review article is old, the bibliography accompanying the review article may be supplemented by picking up relevant references from the abstracting and indexing periodicals. It is to be noted that all secondary periodicals available on the subject are to be consulted while compiling a comprehensive bibliography.

**Situation (ii)** – Suppose, the field of search is helminthology. There is an abstracting periodical called *Helminthological Abstracts* [Wallingford, Oxon: CAB International Information Services, 1990-.] which is directly devoted to the topic of search. There is *Pubmed* [Bethesda, MD: National Library of Medicine, 1966-.], an electronic secondary source devoted to medicine, and also *Biological Abstracts* [Philadelphia: Biosciences Information Service of Biological Abstracts, 1926-.]. For literature search on the topic *Helminthological Abstracts* is to be searched first, followed by the other two since no service is totally comprehensive. Hence, what is missed by one is likely to be covered by the others.

**Situation (iii)** – Let us take the case of holography. It is ‘a method of producing a three-dimensional image of an object by recording on a photographic plate or film the pattern of interference’ (holography). The subject corresponds both to physics and photography. Hence, secondary services on physics and photography are to be consulted to compile the bibliography. It is to be noted that holography was discovered by the Hungarian physicist Dennis Gabor in 1947. Hence, the search will have to be carried out from 1947 onwards. For this purpose we can search *Physics Abstracts* [London: Institution of Electrical Engineers] and *Photographic Abstracts* [London: Royal Photographic Society of Great Britain] up to 1987 as the publication ceased in 1987, and for the later period *Imaging Abstracts*. [Elmford, N.Y.: Pergamon Press, 1988-.].

**Situation (iv)** – Take the subject UFO. It is the short form of ‘unidentified flying objects’. If you get a request to compile a bibliography on the topic, you may get little help from abstracting services. *International Aerospace Abstracts* [N.Y.: Technical Information Service, American Institute of Aeronautics and Astronautics, 1963-.] may not be of much help as research articles on the topic are few. If you are connected to the Internet, you may search Google Scholar, Web of Science, and SCOPUS. You may note that for searching Web of Science and SCOPUS, you will have to pay for it. If you have the facility to consult the printed version of *Science Citation Index* [N.Y.: Thomson Reuters, 1963-.] in a library then you can consult it free of charge. On UFO you find mostly newspaper reports and few articles in newspapers and journals. Hence, searches in indexes to newspapers like *Index to the Times of India* [Mumbai: Times of India, 1973-.] and periodicals like *Readers’ Guide to Periodical Literature* [Minneapolis: Wilson, 1905-.] are likely to give you better results.

At times you may get request to compile a bibliography on such a topic that renders you clueless. In such a situation you should try to consult Google Scholar (free of charge), Web of Science (on payment basis), and SCOPUS (on payment basis). If you have facilities to consult printed/CD-ROM version of citation indexes, i.e. *Science Citation Index*, *Social Science Citation Index*, and *Arts and Humanities Citation Index*, you should consult the relevant index. There is every chance that your searches will yield positive results.

**Multifocal topics** - Often there are requests for bibliographies for such topics which are multifocal, e.g. Pesticide poisoning of birds. Here pesticide pertains to chemistry, poisoning pertains to toxicology, and birds pertain to zoology. For a comprehensive bibliography on the topic you are to consult *Chemical Abstracts* for pesticides, *Pubmed* for toxicology, and *Biological Abstracts* for birds. For birds you may also consult *Zoological Record* brought out by Thompson Reuters. If possible, you should also consult Web of Science, SCOPUS, and Google

Scholar. It is expected that in every source you will find something new and relevant.

The bibliography that is compiled using secondary sources is always backdated by some months or years. The abstract which you are seeing in the latest issue of an abstracting periodical today might belong to an article published months ago or even years ago. There are some abstracting periodicals which are running very late. Therefore, you need to go through the literature that have been published during the last one year. For that you are to take Step 3.

### **Step 3 – Search for the latest literature**

In Step 2 the searches were restricted to secondary sources. In this particular step the search will be restricted mainly to primary sources, i.e. primary periodicals, conference proceedings, festschrift volumes, theses, patents, standards and specifications, research monographs, encyclopaedias and other reference tools. It is to be noted that primary sources are scattered in different libraries all over the world. Without the Internet it is almost impossible to trace them. For every item being discussed in Step 2, you need to take the help of the Internet. Now, let us discuss all these items one by one.

**Primary periodicals** – In this case, the first job is to identify the primary periodicals which you are to search physically or through the Internet. The best way to identify the primary periodicals will be as follows:

While conducting literature search you have to record the bibliographical details of every item in 5” X 3” cards following a standard format. These cards are considered to be of standard size and are easy to handle. If you have a bibliography of 100 plus items, it will be considered a good sample to undertake the following activity. Recording of the bibliographical details of the documents on cards is a manual method. It is being suggested here because it will be very easy for every one to follow this method. The information can be recorded in a computer also, in that case you are suppose to create a database to obtain various items of information.

Arrange these cards according to the forms of the documents. If the bibliography pertains to a science subject, it is most likely that 70 to 80 per cent of the cards will belong to periodicals. In the case of humanities or social sciences about half of the cards may pertain to books and the rest to other forms of documents.

Suppose you have 75 per cent cards pertaining to periodicals. Now, arrange these cards according to the titles of periodicals. You will be surprised to see that about 60 to 70 per cent cards belong to a few periodical titles only. These are the periodicals whose latest issues are to be searched physically in the library or in the Web to find out the latest articles on the topic. The periodicals which have accounted for only one or two articles may not be easy to search because they will in most cases belong to alien fields.

A glance through the remaining cards will tell you which other forms of documents have figured in the cards. You need to search those forms of documents which have appeared recently.

**Conference proceedings** – Every year innumerable conferences are taking place on various topics throughout the world. Even in our country about a dozen

conferences are held in a year in the field of library and information science alone. Conference proceedings include the papers (in some cases only abstracts) accepted for presentation. Among these papers quite a number of original papers also exist. Hence, the conference proceedings which are received by libraries on the given topic should also be searched for the latest literature. They can also be searched in the Web. To find out the availability of conference proceedings of the given subject in any library, you need to search DELNET, OCLC and similar online catalogues.

**Festschrift volumes** – To honour well-known professionals living or dead festschrift volumes are brought out. Some of these volumes are devoted to a particular subject, others contain articles on diverse topics. The festschrift volume brought out in honour of A. K. Dasgupta was devoted to national bibliographical control. [Raju, A. A. N. and L.S. Ramaiah, eds. *National Bibliographical Control: Problems and Perspectives: Essays for A. K. Dasgupta*. New Delhi: Allied, 2003. Print.] The festschrift volume brought out in honour of S. Parthasarathy was on library and information systems. [Raghavan, K. S. and K.N. Prasad, eds. *Library and Information Systems from Alexandrian Heritage to Social Networking: Essays in Honour of S. Parthasarathy*. New Delhi: Ess Ess Publications, 2009. Print.]

These volumes include many articles (from around 20 articles to more than 100 articles). The articles are of varied quality which include research and learned articles. For locating these volumes you need to consult DELNET or OCLC catalogues or the like.

**Research reports** – A huge number of research reports are brought out every year by various research organisations especially those engaged in aerospace, nuclear and defence research. These reports are also primary sources of information. In our country Bhabha Atomic Research Centre and a number of other agencies bring out research reports. The problem with research report is that there is no global bibliographical control of these reports. Individual countries like US have some control. You may search the Web and get information about some reports. For research reports from US, you may search NTIS database <http://www.ntis.gov/search/index.aspx>.

**Patents** – All developed and many developing countries bring out patents. These countries usually have got only one patent office, therefore, there is no problem with bibliographical control. The number of patent applications filed in a year is mind boggling. According to *WIPO Statistics Database*, June 2010 there were 5.94 million pending patent applications in the world in 2008. There are numerous abstracting and indexing services devoted to patents. For locating latest patents on a topic you should examine *Derwent World Patents Index* [Philadelphia: Thompson Reuters] which is comprehensive, and other important patent databases. World Intellectual Property Organization (WIPO) also provides information services on patents from all over the world.

**Standards and specifications** – Unlike patents, the number of standards produced in a year is small. Most countries have standards organisations that bring out standards. Contacting them or consulting their websites, information about latest standards can be obtained. In India, Bureau of Indian Standards bring out national standards.



**Theses** – These are also primary sources of information. *University News*, a weekly news journal brought out by Association of Indian Universities, New Delhi may be consulted for information on latest theses produced from India. The journal has a separate section where latest theses produced from India are listed.

**Monographs and treatises** – Often these publications also contain primary information. For locating latest monographs and treatise, you may consult the Web with the keywords ‘monograph’ and ‘treatise’.

**Accession lists** – These lists are published by various libraries which give information about latest monographs, treatises, research reports, standards and specifications, theses, etc. procured by the library.

**Self Check Exercise**

**Note:** i) Write your answers in the space given below.

ii) Check your answers with the answer given at the end of this Unit.

1) How will you ascertain the ‘topic’ of literature search from the query avoiding ambiguity?

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2) Enumerate the sources you will consult to find out the latest literature.

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3) What are multifocal topics?

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### 1.2.3 Author Approach

Though not very popular, author approach is also an effective approach for the compilation of a bibliography. In this case, the technique of compilation of a bibliography is as follows:

- i) Find out the name of an author who contributes papers on the subject to which your topic belongs. It will be very good if the author is a prolific writer. If you cannot find a name, then ask the researcher. S/he will be able to supply you one or more names. You also can search the Internet with the name and the topic. A number of websites will be in view with the same name. From that you are to choose that one which tallies with the author's name and the topic.
- ii) Now, find a paper contributed by the author on the topic.
- iii) Get the copy of the paper.
- iv) Check the references/bibliography given in the paper. In all probability most of the articles cited in the paper will pertain to the topic you are interested in.
- v) Prepare entries for all the relevant items in 5"x3" cards.
- vi) In most of the entries you will find the name of the authors. It is likely that most of the authors figuring in the entries pertain to the field to which your topic belongs.
- vii) Now find out the papers by these authors. References appended to all these papers in most cases will belong to your topic.
- viii) Prepare entries of all the relevant papers, and merge them with the earlier entries. You will find that in many cases entries are duplicates.
- ix) Remove the duplicate entries.
- x) In these entries you will find some new authors. Follow the steps (vii) to (ix) for the new authors.
- xi) Continue the process till no new author is found.
- xii) Your bibliography will be highly relevant and cover most of the relevant items.

Let us take a concrete example to demonstrate the compilation process.

**Step 1** – Suppose, you have received a request from a researcher to compile a bibliography on webometrics. This is a comparatively new field and the term connotes metric study of the Web and its components. Suppose, you know that R. Jeysankar has published a paper on webometrics. Searching the Web with **R Jeysankar Webometrics** you will find the bibliographical details of the article as Jeysankar, R., and B. Ramesh Babu. "Websites of Universities in Tamil Nadu: A Webometric Study". *Annals of Library and Information Studies* 56(2009): 63-68.Print. And you will also find the following articles under the heading **References**. The entries here have been reproduced with minimal changes.

- 1) Paisley W, The future of bibliometrics. In: Borgman (CI). *Scholarly communication and bibliometrics*. (Sage: London), 1990, p.281-299.
- 2) Rousseau R, Situations: An exploratory study, *Cybermetric*, 1(1) 1997 Available at :<http://www.cindoc.csic.es/cybermetrics/articles/vli/lpl.html> (2008, Nov 28).
- 3) Almind T C and Ingwersen P, Informetric Analysis on the World Wide Web: Methodological Approaches to “Webometrics”, *Journal of Documentation*, 53(4) (1997) 404-426.
- 4) Rodriguez I and Gairin J M, ‘Volarando el impacto de la informacion en Internet: Alta-Vista, et “Citation Index” de la Red’, *Revista Espanola de Documentacion Scientifica*, 20(2) (1997) 175-181.
- 5) Larson R R, ‘Bibliometrics of the World Wide Web: an exploratory analysis of the intellectual structure of cyberspace’. In: Hardin, Steve (ed.). *Global complexity: information, chaos, and control. Proceedings of the 58<sup>th</sup> ASIS Annual meeting, Baltimore, Maryland*. Medford, NJ: Learned Information Inc.ASIS. (1996), 71-78.
- 6) Bjerneborne L and Ingwersen P, Toward a Basic Framework for Webometrics, *Journal of the American Society for Information Science and Technology*, 55(4) (2004) 1216-1227.
- 7) Cui L, Rating health Web sites using the principles of citation analysis: A bibliometric approach, *Journal of Medical Internet Research*, 1(1) 1999 Available at :<http://www.jmir.org/1999/I/e4/index.html> (Accessed on 30 Nov 2008)
- 8) Vreeland R C, Law libraries in hyperspace: A citation analysis of World Wide Web, *Law Library Journal*, 92(1) (2000) 9-25.
- 9) Thelwall M, Conceptualizing documentation on the web: an evaluation of different heuristic-based models for counting links between university web sites. *Journal of the American Society for Information Science and Technology*. 53(12) (2002) 995-1005.
- 10) Boudories M A, Sigrist B and Alevijos P, Webometrics and the self-organization of the European Information Society, (1999). Available at :<http://hyperon.math.upatras.gr/webometrics/>. (2008, Nov 30).
- 11) Ibid.
- 12) Ingwersen P, The calculation of web impact factors, *Journal of Documentation*, 54(2) (1998) 236-243.
- 13) Thelwall M, Result from a Web Impact Factor Crawler, *Journal of Documentation* 57(2) (2001) 177-191.
- 14) Srivastava D and Kumar R P, Webometrics: An overview. *Information and Knowledge Management in Health Sciences: Newer Perspectives. MLAI 2004*. National Convention held on 9-22 December 2004 at Dr A L M Post Graduate Institute of Basic Medical Sciences, University of Madras, Chennai, (2004), p.197-202.

- 15) Smith A G, A tale of two web spaces: comparing sites using Web Impact Factors, *Journal of Documentation*, 55(5) (1999) 577-592.
- 16) Thelwall M, A research and Institutional Size Based Model for National University Web Site Interlinking, *Journal of Documentation*, 58(6) (2002) 683-694.
- 17) Notess G R, Search Engine statistics: relative size showdown. Available at: <http://www.notess.com.search/sites/size.shtml>. (2008, Nov 30).
- 18) Chu H, A Webometrics Analysis of ALA Accredited LIS Schools' Websites, 8<sup>th</sup> International Conference on Scientometrics and Informetrics. Proceedings-ISSI-2001-Vol.1, Sydney, 16-20 July 2001.
- 19) Noruzi A, Web Impact Factors for Iranian Universities, *Webology* (2)1, (2005).
- 20) Thelwall M, Web Impact Factors and Search Engine Coverage, *Journal of Documentation*, 56(2) (2000) 185-189.
- 21) Thelwall M, The top 100 linked pages on UK university website interlinking, *Journal of Documentation*, 58(1) (2002) 585-593.

There are in all 20 articles of which 19 articles pertain to various facets of webometrics. From the title of the first article it is not clear whether or not the first article belongs to webometrics. Prepare cards for all these 20 articles following a standard format. Refer to the examples of various types of entries which have been given in this Unit under Section 1.3.2. Once the cards have been prepared following standard format you can arrange them alphabetically. Let us call these as the 1<sup>st</sup> set of cards. Tracing so many papers on webometrics just from one article is a sort of an achievement. Locating all these articles from secondary services would have taken more time and may be all the articles would not have been traced.

**Step 2** – Now, try to get all these articles and go through the section **References**.

**Step 3** – From the References you select the articles that belong to webometrics. Prepare cards for all the webometrics articles selected from all the papers. Arrange them alphabetically. Let us call these as 2<sup>nd</sup> set of cards.

**Step 4** – Merge second set of cards with the 1<sup>st</sup> set of cards. During merger you will find that there are duplicate cards for the same article in several cases. Remove those cards. The cards you have now are the 3<sup>rd</sup> set of cards.

**Step 5** – In the third set of cards you will find some new authors who were not there in the 1<sup>st</sup> and 2<sup>nd</sup> sets. Now with these articles you repeat the steps from 2 to 4.

Continue the process till no new article is found. The set of cards you will get finally will result in a good bibliography. It is quite likely that you have not missed any important article in the process. A bibliography with author approach can be compiled with ease using the proper citation index.

### Self Check Exercise

**Note:** i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of this Unit.

4) How will you compile a bibliography following author approach?

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### 1.2.4 Offline and Online Approach

Nowadays no literature search by an LIS professional can be purely offline or online. Almost always it is a combination of both. For understanding a concept like ‘charmed particle’, you may consult printed documents like dictionaries and encyclopaedias. If the reference sources at your disposal fail to provide any information on the concept you may consult your colleagues, or you may ask the inquirer. These are all offline searches. If you have the Internet connection at your disposal you can straightway search the meaning of the term using the Internet.

Going through the descriptions in the Internet you know it is an elementary particle, and the field of study pertains to physics. After having a clear idea about the concept, you need to know the scope in terms of the type of documents to be covered, time period to be taken into account, whether non-English language documents are to be covered or not, etc. All these are again offline processes. If the inquirer is available at hand, ask her/him direct; if not, ask her/him through telephone, SMS or e-mail. When all these questions are settled, you should search the secondary services like *Physics Abstracts*. Now you have two options. If you have the facility for online search, you can search *Physics Abstracts* online. Otherwise you are to search the printed issues of *Physics Abstracts* manually which will be a time consuming affair.

*Physics Abstracts* is available both in digital form (which may be searched online) and printed form for manual search. Certain databases like *Index Medicus*, an invaluable indexing service for medical information is no more available in printed form. Its printed version stopped publication in December 2004. Now for medical literature one has to search basically *Pubmed* or *Medline*. Both these sources are available online.

From above, it is clear that in certain cases we have options for manual as well as online search. But, there are cases where we do not have any option and we are to go for online search. For searching the latest literature, online search is a much better option as in many cases latest issues of online journals appear on the Web weeks before the printed form reaches the library. Not long ago for a comprehensive literature search one was obliged to search a number of abstracting and indexing services either in printed form or in database form. There were separate databases for pure and applied science, social sciences, arts and humanities. Now just by tapping only one online source you can search literature pertaining to any field under the sun. Searching any of these sources, you can capture a substantial amount of literature. However, for comprehensive coverage, you need to search all the three sources, i.e. SCOPUS, ISI Web of Knowledge, and Google Scholar Advanced. A glimpse of the three sources is given below.

**SCOPUS** [URL: <http://info.scopus.com/scopus-in-detail/facts/>] – It is a huge information source owned by Elsevier and is available on the Web for subscribers. That means you cannot search this online source without subscribing to it. This database covers literature pertaining to science, technology, medicine, social sciences, arts and humanities from all over the world. Eighty per cent of all SCOPUS records date back to 1823 have abstracts. In numerical terms it covers 18,500 peer reviewed journals of which 1800 are open access, 400 trade publications, 340 book series, and 4.9 million conference papers. In addition, it captures ‘articles in press’ from over 3850 journals. In all, the database has 47 million records.

**ISI Web of Knowledge** [URL: [isiwebofknowledge.com](http://isiwebofknowledge.com)] – This stupendous online source incorporates a large number of huge databases and is combined with web linking and owned by Thomson Reuters. This is also searchable on subscription basis. It is a citation indexing and search service. Its coverage encompasses the pure and applied sciences, social sciences, arts and humanities. It provides bibliographic content and the necessary tools to access, analyse, and manage R&D information. A notable feature of the source is that multiple databases can be searched simultaneously. The database includes 23,000 academic and science journals, 23 million patents, 110,000 proceedings, and as many as 9,000 websites. The coverage goes back to 1900 and incorporates over 40 million source items. It includes among others *Arts and Humanities Citation Index*, *Biological Abstracts*, *CAB Abstracts*, *Derwent Innovations Index*, *Global Health Database*, *Index Chemicus*, *INSPEC*, *Medline*, *Science Citation Index Expanded*, *Social Sciences Citation Index*, *Web of Science* and *Zoological Record*.

**Google Scholar Advanced** – This source is *free* and *quite effective*. The details about the database are not known. It provides various search options. The search can be conducted **with all the words, exact phrase, at least one word, without the words, where the word occurs** (in the title or anywhere in the article), **author, publication and date**. If you have an Internet connection in your home, training centre or work place, you can start doing literature search on your own using the aforesaid database.

**Case 1** – Sometimes you are to search a database with a number of words. Take for example the topic ‘Swine flu in India in 2009’. We search the database with the option **with all the words**. One of the articles retrieved is the following:

Origins and evolutionary genomics of the 2009 swine-origin H1N1 influenza A epidemic

**195.134.113.71 [PDF]**GJD Smith, D Vijaykrishna, J Bahl, SJ Lycett, M ... - Nature, 2009 - nature.com

... In vitro and in vivo characterization of new **swine**-origin H1N1 **influenza** viruses  
... Genesis of a highly pathogenic and potentially pandemic H5N1 **influenza** virus in eastern Asia ... Novartis Healthcare Private Limited; Hyderabad **India**. More science jobs. Post a job for free. ...

In the retrieved article you find that all the words including 2009 are occurring. In place of flu, influenza is occurring. The relevancy of the article retrieved is quite high.

**Case 2** – In the above case, you can see that the terms ‘swine’ and ‘flu’ have not occurred together. You want them to occur together. To achieve this we opt for the option **exact phrase** and get the following result:

1. The health belief model: A decade later

**umich.edu [PDF]**NK Janz, MH Becker - Health Education & Behavior, 1984 - heb.sagepub.com

... Overall, we have identified four investigations 10-13 published since 1974 that have

applied the HBM in attempts to understand vaccination behavior; three of these studies concerned **Swine Flu**, and one dealt with influenza. ...

2. **Swine flu**: A field study of self-serving biases

L Larwood - Journal of Applied Social Psychology, 1978 - interscience.wiley.com  
Self-serving biases were examined as an explanation for **swine flu** inoculation behavior. Subjects who had recently had the opportunity to obtain the shot were surveyed by questionnaire. As predicted, most persons held biased beliefs that their own health was superior to that

There are many articles, we are quoting just two. You may notice that in both the cases swine flu has appeared together.

Emergence of a novel **swine**-origin influenza A (H1N1) virus in humans

TRSIA H1 - New England journal of medicine, 2009 - contentnejmorg.zuom.info  
... See p. 2605; editorials, p. 2666 and P. 2667; perspective, p. 2595; CME, P. 2691 original article

Triple-Reassortant **Swine** Influenza A (H1) in Humans in the United States, 2005–2009  
Influenza is known to infect several different hosts, including humans, birds, and pigs. ...

Cancer statistics, 2009

A Jemal, R Siegel, E Ward, Y Hao, J Xu, ... - CA: a cancer journal for ..., 2009 - Am Cancer Soc DOI: 10.3322/caac.20006 2009;59;225-249; originally published online May 27, 2009; CA Cancer J Clin Michael J. Thun Ahmedin Jemal, Rebecca Siegel, Elizabeth Ward, Yongping Hao, Jiaquan Xu and Cancer Statistics, 2009 ... This information is current as of June 4, 2010

**[BOOK]** Microwave engineering

**lavoisier.fr [HTML]**DM Pozar - 2009 - books.google.com  
WILEY- **INDIA** EDITION MB Microwave Third Edition DAVID M. POZAR STUDENT EDITION RESTRICTED! FOR SALE ONLY IN **INDIA**, BANGLADESH, NEPAL, PAKISTAN, SRI LANKA & BHUTAN ... The ABCD Parameters of Some Useful Two-Port Circuits. Circuit ABCD

**Case 3** – We are taking our earlier topic ‘Swine flu in India in 2009’ and searching with the option **at least one word**. When we are not sure under which word we shall find an entry, we use a number of words for our search. In this method many irrelevant items are also retrieved apart from one or two relevant items that help. The result of the search shows that in the first citation there is **swine influenza** and **2009**, in the second citation only **2009**, and in the third citation **India** and **2009** is there. Of the three citations, only the first one is relevant and the other two are irrelevant.

**Case 4** – The 4<sup>th</sup> option is **without the words**. You know that a huge tsunami hit Indonesia, Thailand, India, Sri Lanka and other countries on 26 December 2004. Suppose a researcher wants to study the literature on tsunami pertaining to India only. In such a situation s/he may frame her/his query as ‘Tsunami in India’ for the option **with all the words**, and Thailand, Indonesia, Sri Lanka , etc. for the option **without the words**. The search will retrieve only those items that pertain to India. Of course, if an item is dealing both with India and Thailand or India and any other country, that will also be retrieved.

**Case 5** – Now our topic is FIFA World Cup 2010, and option is ‘where the word occurs’. In this case we take ‘in the title of the article’. The result is as follows:

[Predicting the economic impact of the 2010 FIFA World Cup on South Africa](#)

**sa-investment.com [PDF]**HR Bohlmann, JH Van Heerden - International Journal of Sport ..., 2008 - Inderscience Int. J. Sport Management and Marketing, Vol. 3, No. 4, 2008 ... Predicting the economic impact of the **2010 FIFA World Cup** on South Africa ... Heinrich R. Bohlmann\* and Jan H. van Heerden ... Department of Economics University of Pretoria Pretoria 0002, South Africa E-mail: ...

**Case 6** – Now let us search using the option *Return articles written by .....* We choose the author as “M P Satija”. It retrieves many articles of M P Satija such as the following:

**[CITATION]** [Dewey Decimal Classification: a practical guide](#)

LM Chan, JP Comaromi, **MP Satija** - 1996 - lavoisier.fr Retour page d'accueil Chercher, sur, Tous les supports. Retour page d'accueil, Plus de 1.619.000 de titres à notre catalogue ! Notice. Prix indicatif 57.62 • Ajouter au panier. ...

**[PDF]** [Doctoral research in library and information science in India: some observations and comments](#)

**librijournal.org [PDF]****MP Satija** - Libri, 1999 - librijournal.org This article gives a state-of-the-art overview of library and information science (LIS) education in India as a back- ground to reviewing the doctoral research in the field. It traces the origin and growth of Ph.D. programmes in LIS in India and highlights the initiative and efforts of Dr ...

**Case 7** – Now we are using the option *Return articles published in ...* We choose here the journal *Annals of Library and Information Studies*. It retrieves many articles, some of which are as follows:



1. [PDF] Insdoc's contribution to bibliometrics

[isibang.ac.in](http://isibang.ac.in) [PDF] BK Sen, B Dutta, AK Das - ... of **library and information studies**, 2002 - drtc.isibang.ac.in

\* Paper presented at the XII IASLIC Conference, Trivandrum, 4–7 December 2001. ... Email: bksen@ndb.vsnl.net.in ... Email: bidyarthidutta@rediffmail.com, anupdas2072@hotmail.com ... ABSTRACT: Traces the history of bibliometric research, ...

2. [CITATION] TKM College of Engineering Library Automation System

TA Abdul Azeez - **ANNALS OF LIBRARY AND INFORMATION STUDIES**, 2004  
[BL Direct](#)

3. Use of internet based e-resources at Manipur University: a survey

S JOTEEN... - **Annals of library and information studies**, 2009 - cat.inist.fr  
Describes a survey on the use of the electronic information focusing on the Internet services by the users of Manipur University Library. Also examines the utilization, purpose, difficulties and satisfaction level of users about Internet based e-resource services provided by the ....

**Case 8** – This is the last option and relates to date. The option starts with *Return articles published between ...* Here you are to give the date, say 2008 and 2010. Along with this you can use some other options as well. Here we are using three options, i.e. Bibliometrics (1<sup>st</sup> option), Annals of Library and Information Studies (2<sup>nd</sup> option) and 2008 – 2010 (3<sup>rd</sup> option). The search retrieves the following article. It is to be noted that a number of articles on bibliometrics have appeared in the Annals during the period. One has been retrieved because other articles are missing in the database.

[HTML] Lotka's Law and authorship distribution in nutrition research in Bangladesh

[academia.edu](http://academia.edu) [HTML] SMZ Ahmed, MA Rahman - ... and **Information Studies**, 2009 - univdhaka.academia.edu

SM Zayed Ahmed's Papers: Lotka's law and authorship distribution in nutrition research in Bangladesh, A user-centred design and evaluation of IR interfaces, Computerisation of libraries in Bangladesh, Library and information science literature in.

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## 1.3 BIBLIOGRAPHIC SERVICES

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**Definition and scope** – Services in the form of a bibliography are termed as bibliographic services. Bibliographic services will cover supplying ad hoc bibliography on request, accession list, documentation list in the form of an indexing service or abstracting service which may also serve as current awareness service, selective dissemination of information service, etc. We shall cover in this Unit only compilation of an ad hoc bibliography. Other bibliographic services will be covered in subsequent units.

### 1.3.1 Compilation of an ad hoc Bibliography

An ad hoc bibliography is usually compiled on request, in response to a pressing need, for the purpose of record, etc. Researchers badly need bibliographies to

know what has already been done in their field of work, who were the persons who have done the work, etc. An ad hoc bibliography is a dependable reference tool for the researcher. While applying for a job a scholar has to compile a bibliography of her/his own work to attach the same with the application form. The bibliography clearly reflects how many papers the scholar has published over the years, in which journals s/he has placed her/his papers, etc. From the bibliography itself an interviewer gets a good idea as to how active the scholar has been in her/his research activities, and the quality of the papers. In annual reports published by various academic and research institutions, a bibliography of the papers published by the institution is appended. It serves as a record for the institution and also helps to disseminate information about the papers published by the institution during the preceding year.

**Compilation** – The end product of literature search is a bibliography.

**Step 1** – Prepare cards for all the relevant items.

**Step 2** – Once the cards have been prepared you need to edit the cards to ensure that all the cards have been prepared following the standard format and consistency has been maintained.

**Step 3 – Arrangement of the cards** – The cards can be arranged alphabetically author-wise if the number is less. You need to think of alternate arrangement if the number is big, say one hundred or more. There are bibliographies that contain thousands of entries. In such cases you may ask the client as to how the bibliography should be arranged. The client may suggest chronological arrangement, subject-wise arrangement, classified arrangement, etc.

In chronological arrangement, under every year you may arrange the cards alphabetically author-wise. In subject-wise arrangement, under each subject, entries are to be arranged alphabetically author-wise. In classified arrangement also entries are to be arranged alphabetically author-wise under the ultimate class number. When a bibliography with a large number of entries is published in book form, author, subject, chronological and geographical indexes are provided as per the need.

### 1.3.2 Sample Entries

In the examples given below the entries are prepared according to the guidelines given in *MLA Handbook for Writers of Research Papers*. 7<sup>th</sup> ed. New Delhi: Affiliated East-West Press, 2009.

#### **Books**

Booth, P. F. *Report Writing*. 2<sup>nd</sup> ed. Kings Ripton: Huntinton, 1991. Print.

Gerson, S. J., and S. M. Gerson. *Technical Writing, Process and Product*. 2<sup>nd</sup> ed. New Jersey: Prentice Hall. 1997. Print.

Jordon, S., J.M. Kleiman, and H.L. Shimberg. *Handbook of Technical Writing Practices*. Vol. 2. New Jersey: Wiley, 1971. Print.

Krishan Kumar. *Reference Service*. 2<sup>nd</sup> rev. ed. New Delhi: Vikas, 1980. Print.

**Collected works See Festschrift volumes**

**Conference papers**

Pirie, N. W. "Note on the Simultaneous Publication of Papers of Two Different Levels of Completeness" *Royal Society Scientific Information Conference*, 1948. London: Royal Society, 1948. 419-422. Print.

**Course materials**

Sen, B. K. "Information Sources – Categorisation". MILL-101-Unit-5. New Delhi: Indira Gandhi National Open University, 2006. Print.

**Dictionaries**

Tracey, William R. *The Human Resources Glossary (English)*. 3<sup>rd</sup> ed. Florida: St. Lucie Press., 2004. 824p. Print.

Urdang, Laurence, ed. *The Random House Dictionary of the English Language*. College ed. Bombay: Allied Publishers, 1972. Print.

**Encyclopaedia articles**

"Titanic". *Britannica Ready Reference Encyclopaedia*. New Delhi: Encyclopaedia Britannica (India), 2005: 263-4. Print.

**Encyclopaedias**

*Odhams Colour Library of Knowledge*. London: Hamlyn, 1970. Print.

**Festschrift volumes**

Raju, A. A. N., and L.S. Ramaiah. *National Bibliographical Control: Problems and Perspectives: Essays for AK Dasgupta*. New Delhi: Allied, 2003. Print.

**Festschrift volume articles**

Parameswaran, M. "Kerala Studies Collections and the need for a Union Catalogue". *Books to Bytes: Library and Information Technology in the New Millennium: Essays in Honour of Prof L S Ramaiah*. Ed. N. V. Jagga Rao and M. Ramchander. New Delhi: Ess Ess Publications, 2000. 256-263. Print.

**Internet See World Wide Web**

**Journals**

*Annual Review of Information Science and Technology*. Maryland: American Society of Information Science and Technology, 1966-. Print.

*Indian Library Science Abstracts*. Kolkata: IASLIC, 1967-.Print.

**Journal articles**

Biswas, S.C., and S. Mandal. "Library and Information Science (LIS) Research in India vis-a-vis Research Methodology in LIS Curricula". *Vidyasagar University Journal of Library and Information Science* 6 (2001): 3-19. Print.

Kannappanavar, B. U., and M. Vijayakumar. "Fifty Years of LIS Research in India: Trends and Developments". *SRELS Journal of Information Management* 37.4 (2000): 267-300. Print.

“Swine Flu”. *Readers Digest* 50.8 (August 2009):148-161. Print.

**Newspaper articles**

Bagga, Bhavan. “Son’s Testimony Seals Father’s Fate”. *Mail Today* 3.4 (19 November 2009):16. Print.

**Patents**

Sen, Amlan, and Chin Guan Khaw. *Preheating System and Method for Silicon Dies* (WO/2009/085009). Geneva: World Intellectual Property Organization, 2009.

**Standards**

Indian Standards Institution. *The National Flag of India (Cotton Khadi) (Revised)*. New Delhi: Indian Standards Institution, 1964: 15

**Theses/Dissertations (unpublished)**

Das, Anup Kumar. “An Evaluative Study of Some Selected Libraries in India undergoing the Process of Digitization”. PhD thesis. Jadavpur University, 2008: 334. Print.

**World Wide Web**

N.B. After the usual entry add the word Web. Date. URL.

OECD. *State-of-the-Art Review on Environment, Security and Development Cooperation*. 2002. Web. 29 June 2009. <[http://www.iisd.org/pdf/2002/envsec\\_oecd\\_review](http://www.iisd.org/pdf/2002/envsec_oecd_review)>.

“Human Resources”. Web. 28 November 2009. <<http://en.wiktionary.org>>.

**Self Check Exercise**

**Note:** i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of this Unit.

5) Describe the different ways of arranging entries in an ad hoc bibliography.

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## 1.4 SUMMARY

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This Unit is the first Unit of the of the Block entitled 'Conventional products and services', precedes with an introduction to the Block. The four units that comprise the Block are briefly discussed in the introduction to make the students aware of the contents of the Block. The connotation of literature in the context of literature search is explained. For literature search, usually two approaches are followed i.e. subject approach and author approach. The *subject approach* has been described in three steps. The first step discusses the *request for the search*. The relevant topics relating to the query such as *purpose* and *scope* of the query have been discussed. While discussing *scope* the factors that have taken into account are the *topic, period, geographical area, languages*, and the *forms of documents*. Reference interview has also been touched upon. Step two discusses the practical aspects of the compilation of the bibliography and searching secondary and tertiary sources. During the search process, more than one possibility may arise and several situations may crop up. Discussion throws light on the actions to be taken in all these cases. Multifocal queries which are not uncommon have also been discussed. Step three dwells on the search for the latest literature involving primary periodicals, conference proceedings, festschrift volumes, research reports, patents, standards and specifications, monographs and treatises. The *author approach* is also an effective approach for the compilation of a bibliography. It has been discussed detailing all the steps involved in the process. Bibliographic services are many and varied. In this Unit, compilation of an ad hoc bibliography has been discussed. Lastly, some examples have been provided for various types of entries.

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## 1.5 ANSWERS TO SELF CHECK EXERCISES

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- 1) Before undertaking literature search, you will have to be sure about the topic of the search. Suppose, from the query it appears that the topic is 'airways'. Just from the term you should not jump at the conclusion that the topic pertains to aviation. It may pertain to medicine as well since in medicine 'airways' means 'the passage by which air reaches the lungs.' In this case, to be sure about the topic you need to query the researcher. If the researcher is a doctor s/he will say that airways means the passage by which air reaches the lungs. From this it is clear that the topic belongs to medicine. Accordingly you can search the sources on medicine and prepare the bibliography.

At times you may receive request for such topics as 'chimaera' or '*Ziziphus ziziphus*' the meaning of which is not known to you. In such cases you should consult a dictionary, encyclopaedia or any other standard reference source that may give you the information. You may note that for Latin names like *Ziziphus ziziphus*, general dictionaries may not be of much use. You need to take the help of the Internet or an expert.

- 2) For searching latest literature, secondary services will not be of much use. Primary sources like primary periodicals, conference proceedings, festschrift volumes, research reports, patents, standards and specifications, theses, research monographs, etc. are to be consulted. They may be consulted in a library if some of them are available. The World Wide Web will have to be searched since many primary documents appear on the Web much before the same reaches a library.

- 3) Multifocal topics have multiple focuses. Often for such topics different secondary sources should to be consulted. Take for example, the topic ‘pesticide poisoning of birds’. Here, pesticide pertains to chemistry, poisoning to toxicology, and birds to zoology. For a comprehensive bibliography on the topic you must consult *Chemical Abstracts* for pesticides, *Pubmed* for toxicology, and *Biological Abstracts* for birds. For birds you may also consult *Zoological Record*. It will be better if you can consult Web of Science, SCOPUS as well as Google Scholar. Take another topic – ‘application of laser in communication, medicine, and engineering’. Laser belongs to optics, i.e. physics. There are three more subjects besides physics. For compiling a bibliography on this topic, you need to consult *Physics Abstracts*, *Compendex*, *Pubmed*, *Web of Science*, *SCOPUS*, and *Google Scholar*.
- 4) For compiling a bibliography with author approach, the following steps will be undertaken:
  - i) The name of an author who contributes papers on the topic will be found out. Attempt will be made to find out a prolific author. If the same cannot be found, then help of the researcher will be taken, who will be able to supply one or more names. The Web can also be searched with the name and the topic. A number of websites may be on the same name. In that case that particular name will be chosen which tallies with the author’s name and the topic.
  - ii) Now, a paper contributed by the author on the topic is to be located.
  - iii) A copy of the paper is to be procured.
  - iv) The references given in the paper will be checked.
  - v) Cards will be made for all the relevant papers. This will form the first set of cards.
  - vi) Now, papers contributed by all those authors figuring in the entries will be located, procured and scanned.
  - vii) Cards will be made for all the references appearing in the papers. This will form second set of cards.
  - viii) Cards of the first set and the second set will be merged and duplicate cards removed. This forms the third set of cards.
  - ix) New authors figuring in this set will be identified and the steps (vi) to (viii) will be repeated for them.

In this way the process will continue till no new author is found. The bibliography compiled in this way will capture all the major contributions in the field. Using the proper citation index, a bibliography with author approach can be compiled with ease.
- 5) The entries can be arranged alphabetically author-wise if the number is less. You need to think of an alternate arrangement if the number of entries is high, say one hundred or maybe more than one thousand. In such cases, you may ask the client as to how the bibliography should be arranged. The client may suggest chronological arrangement, subject-wise arrangement, classified arrangement, etc.

In chronological arrangement, under every year you may arrange the cards alphabetically author-wise. In subject-wise arrangement, under each subject, entries are to be arranged alphabetically author-wise. In classified arrangement also entries are to be arranged alphabetically author-wise under the ultimate class number.

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## 1.6 KEYWORDS

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- Ad hoc Bibliography** : It is a bibliography that is compiled in response to a request, a particular need or for a specific purpose. These bibliographies are one-off bibliographies. Sometimes these bibliographies appear in the form of books as well.
- Helminthology** : The field of study that deals with worms.
- Primary Periodical** : A periodical that publishes generally primary literature such as research papers, short communications, etc.
- Secondary Periodical** : A periodical providing information about primary sources of information in the form of abstracts, simple citations, etc. An abstracting, indexing or reviewing periodical is a secondary periodical.
- Webometrics** : It tries to measure the World Wide Web i.e. Web to unearth the number and types of hyperlinks, structure of the Web and its usage patterns. Björneborn and Ingwersen defines webometrics as “the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and informetric approaches.”

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## 1.7 REFERENCES AND FURTHER READING

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Chemical Abstracts Service. Web. 14 April 2010. <<http://www.cas.org/>>.

Chemical Abstracts Service. Web. 20 April 2010. <[http://en.wikipedia.org/wiki/Chemical\\_Abstracts\\_Service#Print-periodical](http://en.wikipedia.org/wiki/Chemical_Abstracts_Service#Print-periodical)>.

“Holography”. Web. 23 April 2010. <[www.answers.com/topic/holography](http://www.answers.com/topic/holography)>.

National Library of Australia. Catalogue. Web. April 2010. <<http://catalogue.nla.gov.au/>>.

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Stych, F. S. “Flow Chart Method”. *R Q* 5.4 (1966): 14-17. Print.

“Webometrics”. Web 26 April 2010. <<http://en.wikipedia.org/wiki/Webometrics>>.