



Chapter-6

Reference and Information Sources

After studying this session, students will be able to:

- ◆ *Understand the concept of an information source;*
- ◆ *Study the need of information sources;*
- ◆ *Learn about various types of information sources;*
- ◆ *Study the characteristics of Primary, Secondary and Tertiary sources of information with examples;*
- ◆ *Learn about the evaluation of an information source.*

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6.0 Introduction

The source of information on any subject is the literature produced on it. The term 'literature' was earlier defined as the published writings in a particular style on a particular subject. The growth rate of information is exponential. Studies show that



the rate of the growth of literature in science is doubling every 5.5 years. In social science, the quantum of literature is doubled every 8 to 12 years. The literature produced now is diverse, complex and multilingual in nature. It is becoming more interdisciplinary, and diverse in formats and platforms available. The technologies and tools to store and access this information are also getting updated quickly. So, any literature produced on any subject becomes the source of information which is used by people as per their varying needs.

Traditional information sources are books, periodicals and newspapers. Major part of all transactions of information is taking place through these media. But the advent of online information sources in the last decades of 20th century and its proliferation through internet, redesigned the information landscape. The present decade witnesses a large number of handheld devices by which one can easily search and retrieve information available in different formats. Unpublished information is also a great source for scholars where pertinent pieces of information are exchanged informally. So, people use various sources of information as per their specific needs.

6.1 Need for Information Sources

We are living in an information society where creation, distribution, usage, integration and manipulation of information is considered the most important activity. The information becomes a resource as well as one of the most valuable commodities. To prosper in any field of human life, one requires the right information at the right time. We may say, the one who possesses the right information holds extreme power. The ability to know what information is needed, where it is available; how it can be retrieved and used make one competent in the information society. Companies, institutions and even countries, developed sophisticated information management systems to control and access the most valuable resource called information.

When we think about information professionals or simply librarians, who handle these huge packets of information in multiple formats, it is assumed that he/she should hold two qualities. The knowledge about the area of study and the skills to process and retrieve the relevant sources of information effectively. The users with varied information needs and those who are not conversant with searching and retrieval techniques require proper guidance to find the accurate information stored in different information sources.

The above discussion shows why people need information and how library professionals can or must guide them to find the relevant source of information.



6.2 Types of Information Sources

Information sources are broadly divided into two parts, based on their physical characteristics: documentary sources and non-documentary sources.

Documentary sources: Documentary sources of information are basically "documentary" in nature. They are derived from or pertaining to documents and are records relating to individuals or groups of individuals. These records have been generated by people in the course of their daily lives.

Examples: Encyclopaedias, dictionaries, manuals, textbooks, etc

Based on the originality of the materials, documentary sources can be categorized into three categories. They are:

- i. Primary Sources (e.g. periodicals, diaries, research reports, etc.)
- ii. Secondary Sources (e.g. reference books (dictionaries, encyclopaedias, indexes, bibliographies, etc.) and
- iii. Tertiary Sources (e.g. bibliography of bibliographies, directories, etc.)

The definition of primary and secondary sources may vary depending upon the discipline. Sometimes, a primary source may be considered secondary. It means there is no clear cut demarcation among the categories. We will learn in detail about this in the further sections.

Non-documentary sources: Non-documentary sources include (i) formal and (ii) informal sources. Formal sources include research organisations, societies, universities, government departments, etc. Conversation with colleagues, visitors and attendance at professional meetings, etc. come under the category of informal sources.

6.3 Information Sources as Reference Sources

To understand the concept, let us take the example of a book, which is the basic source of any information. There are two categories of books: those which can be read through for information or education or inspiration and *the ones which are meant to be consulted or referred to for a definite piece of information*. The second category is called a reference book. Examples include encyclopaedias, dictionaries, yearbooks, handbooks, etc. So, a book is an information source but some books, which are meant to be consulted or referred, are termed as reference books or sources.

It is interesting to note that all reference sources are information sources, but all information sources are not reference sources. A reference document must be written



by people or organizations with authority in the field. A good library must have a well-organized collection of reference sources. The concept of a reference source is defined in the following section.

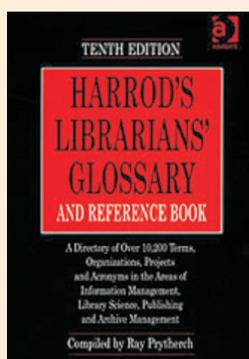
6.4 Reference Sources: Definition

Although the materials in a reference collection vary in its format, to understand the concept historically, here we consider the definition of the term in connection with the most common format, i.e., a reference book.

The ALA Glossary of Library and Information Science (1983) gives the following definitions of a reference book.

- i. A book designed by the arrangement and treatment of its subject matter to be consulted for definite items of information rather than to be read consecutively
- ii. A book whose use is restricted to the library building

An all-inclusive definition was later given in the *Harrod's Librarians' Glossary and Reference Book* as "any material, published work, database, website, etc. which is used to obtain authoritative information."



Harrod's Librarians' Glossary and Reference Book is a directory of over 10,000 terms, organisations, projects and acronyms in the areas of Library Science, Information Management, Publishing and Archive Management. The latest edition (10th) was published in 2005 by Ashgate Publisher, Yorkshire, and edited by Ray Prytherch. The book is considered one of the most important sources of reference for the library profession.

Source: <http://www.ashgate.com>

The reference materials organised in a library shall be supplemented by additional resources available in alternative or multiple formats and also available in free or open domains or on a virtual reference environment.

6.5 Types of Reference and Information Sources: Characteristics and Examples

We may see that most of the reference sources are coming under the category of secondary and tertiary sources of information. Together, we can call these sources as reference and information sources. We will study in detail the characteristics of all these documentary sources of information.

As an introduction, examine the image given below (Figure 1), where three manifestations of the same event are represented as three sources of information: primary, secondary and tertiary.

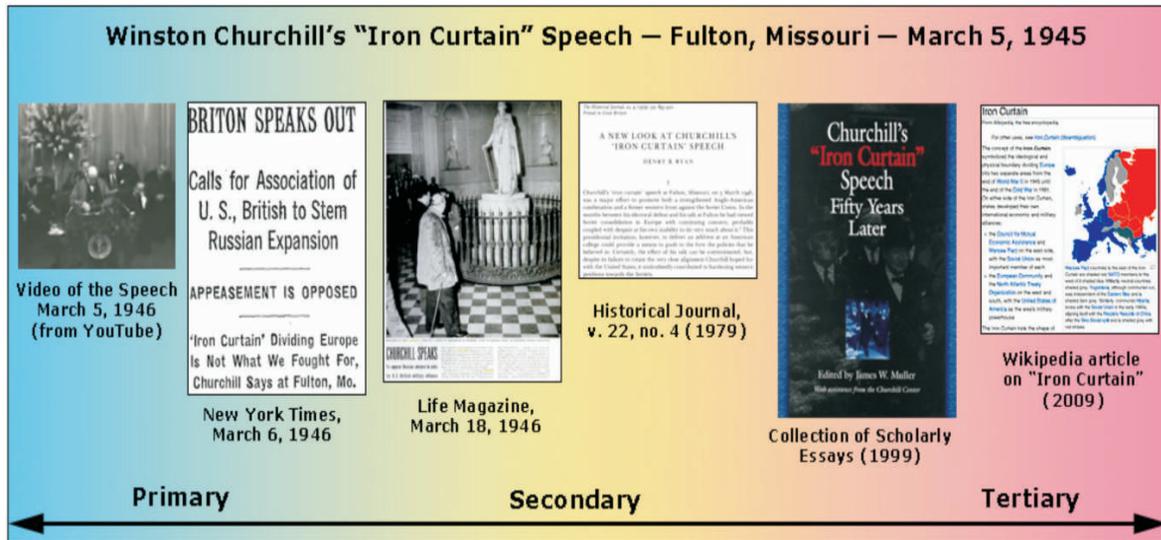


Figure 1: Flow from primary to secondary and tertiary resources: A time line

The video and newspaper story on Winston Churchill's "Iron Curtain" speech were primary sources of information on the event. A magazine report and a journal article written on the same event based on the primary sources are considered as secondary sources of information. Whereas, the speech as part of a book and a Wikipedia article, both help researchers to find primary and secondary sources, thus, these are considered tertiary sources of information.

A detailed study of all the three types of reference and information sources is given in the following sections.

6.5.1 Primary Sources

Primary Sources are first hand and original materials. This type of information is from the time period involved and has not been filtered through any interpretation. They are usually the first formal appearance of results in physical, print or electronic format on which other researches are based. They present original thinking, report a discovery, or share new information. Primary sources are unorganized or uninterpreted sources, which are rather difficult to use by themselves.

Examples:

- i) Artifacts, an object made by a human being, typically one of cultural or historical interest (e.g. coins, plant specimens, fossils, furniture, tools, clothing, etc.);
- ii) Audio recordings (e.g. radio programs);



- iii) Diaries/journals;
- iv) Internet/digital communications on email, list-server, online social networks, SMS, online chat transcripts;
- v) Interviews (e.g., telephone, online interviews (via e-mail or via chat technology));
- vi) Articles published in peer-reviewed journals or publications;
- vii) Letters;
- viii) Articles in newspapers written at the time;
- ix) Serial publications (Periodicals): These include journals, transactions, proceedings or similar works, which appear regularly and continuously in numbered sequence, e.g., Nature, Historical Journal
- x) Oral history (i.e., records of interview, legal proceedings)
- xi) Original documents (i.e. birth certificate, will, marriage certificate, trial transcript);
- xii) Patents;
- xiii) Standards;
- xiv) Research monographs; (separately published reports on original research)
- xv) Photographs;
- xvi) Proceedings of meetings, conferences and seminars, symposia;
- xvii) Records of organisations, government agencies (e.g., annual report, treaty, constitution, government document);
- xviii) Speeches (i.e., transcripts or recordings);
- xix) Survey Research Statistics (e.g., market surveys, public opinion polls);
- xx) Video recordings (e.g., live events, television programs);
- xxi) Works of art, architecture, literature, and music (e.g., paintings, sculptures, inscriptions on tombstones, musical scores, buildings, novels, poems);
- xxii) Ephemera (e.g., brochures, pamphlets, postcards, program sheets, advertisements);
- xxiii) Website (i.e., sites, blogs, social networks).

6.5.2 Secondary Sources

Secondary sources are interpretations and evaluations of primary sources. They are not evidences, but rather commentary on and discussion of evidences. These types of



information are either compiled from or refer to primary sources of information. Generally, they are accounts written after the fact with the benefit of hindsight. These are the original sources having been modified, selected or reorganized (or repackaged) so as to serve a definite purpose or group of users. Secondary sources are easily and widely available as compared to primary sources. These also serve as bibliographical keys to primary sources. The user may consult the secondary sources first which will lead him/her to specific primary sources.

Examples:

- a) Bibliographies;
- b) Indexing and abstracting periodicals;
- c) Reviews; Treatise;
- d) Biographical works;
- e) Commentaries, criticisms;
- f) Dictionaries, encyclopaedias, handbooks, tables, formularies;
- g) Magazine and articles published in newspapers (this distinction varies by discipline);
- h) Monographs (books excluding fiction and autobiography);
- i) Textbooks.

6.5.3 Tertiary Sources

Tertiary sources consist of information which is extracted from primary and secondary sources. These will aid the user of information in the use of primary and secondary sources of information. Most of the tertiary sources do not contain subject knowledge. The prime function of a tertiary source is to aid the searcher in the use of primary and secondary sources of information. Out of various kinds of sources, tertiary sources are the last to appear.

Examples:

- a) Bibliography of Bibliographies; (list of bibliographies which direct readers to useful bibliographies through subject or name of an individual, place, institution, etc. e.g., bibliographic index, cumulative bibliography of bibliographies)
- b) Chronologies;
- c) Directories; (a list of names and addresses of persons, organisations, manufactures or periodicals, e.g., World of Learning, Ulrich's International Periodicals Directory)



- d) Guidebooks (Guides to literature, guides to libraries and guides to organisations);
- e) Lists of research in progress;
- f) Indexes, abstracts, bibliographies used to locate primary and secondary sources;
- g) Manuals;
- h) Fact books;
- I) Databases

We can find a large number of examples for each category mentioned above.

6.6 Comparison across Disciplines

As mentioned earlier, depending upon the discipline or context, the definition of primary and secondary sources may vary. This concept is exemplified in figure 2.

SUBJECT	PRIMARY	SECONDARY	TERTIARY
Art and Architecture	Painting by Picasso	Article critiquing art pieces	ArtStor Database
Chemistry/Life Sciences	Einstein's diary	Monograph on Einstein's life	Dictionary on Theory of Relativity
Engineering/ Physical Sciences	Patent	NTIS Database	Manual on using invention
Humanities	Letters by Martin Luther King	Website on Kings' writings	Encyclopedia on Civil Rights Movement
Social Sciences	Notes taken by clinical psychologist	Magazine article about the psychological condition	Textbook on clinical psychology
Performing Arts	Movie filmed in 1942	Biography of the director	Guide to the movie

Table: Comparison of information sources across disciplines

The table shows the gradual transformation of an information source, through the ages, from primary to secondary and tertiary.



6.7 Evaluation of Reference and Information Sources

We can't assume that all information we are getting from different information sources are authoritative, objective, reliable or timely. One should evaluate it critically before use. A researcher must evaluate all information sources used by him to determine its value with respect to his/her information needs. There are many evaluation criteria which can be applied to find out the value of an information source.

In the viewpoint of a library professional, evaluation criteria provide guidance and rationale for selection decisions. Before including an information source into the reference collection of a library, the value of the source must be evaluated based on the set criteria. General criteria applied to both print and electronic reference and information sources are given below. To evaluate each criterion, some specific questions shall be asked.

- A. Scope:** Scope denotes the purpose, coverage and currency of the information source.
 - i. Purpose:** Determining the purpose of information will help in deciding the usefulness of the information. The questions to be answered are, is it:
 - a. Designed to sell a project or service?
 - b. Presenting research findings?
 - ii. Coverage:** The depth of coverage is an indication of the value of information. The questions to be answered are,
 - a) Does the author refer to relevant information or data that was available at the time when the work was published?
 - b) Or, does the author use out-of-date information; or ignore information or data that was available at the time?
 - c) Did the author consider all aspects relevant to the topic?
 - d) Is the information complete, or is it a summary of other works?
 - iii. Currency:** Age or timeliness of the information is an important factor which determines the quality. The questions to be answered are,
 - a) When was the information published?
 - b) Is that information up-to-date? Have new discoveries been made, or have events taken place since the information was published?



- B. Relevancy:** The information source should be relevant to the information needs of the searcher. The questions to be answered are,
- Is the source related to the field of study?
 - Can the information source answer the questions related to the field of study?
 - Does the source fully or partially cover the search topic related to the field of study?
 - Does the information hold appropriate depth or level?
- C. Format:** The physical format of the information source. Whether the source is,
- Print/microform/multimedia/digital?
 - How is it designed? Physical makeup, illustrations, images, etc.,
- D. Authority:** The knowledge and credibility of the author is very important in the evaluation process. The questions to be answered are:
- Is the author a recognized authority in this field?
 - Is the publisher reputable in this discipline?
 - Are there other works by this author in this field?
 - Is he quoted by other authors?
- E. Treatment:** The manner in which the author treats the subject. The main factors to be evaluated under this are:
- Accuracy:** The questions to be asked are:
 - Is the information correct?
 - Does the author provide sources for statistical information?
 - Does the author cite his/her own sources?
 - Does it have a complete bibliography?
 - Is the data collected from a valid study using appropriate methodologies?
 - Objectivity:** The questions to be answered are:
 - Is the document written from an objective viewpoint?
 - Does the author show any bias?
 - Is there any omission from the coverage which reveals the bias?
 - Does the author try to sell something?



iii. **Audience:** Who is the targeted audience of the document? The questions to be answered are:

- a) Is the document intended for students, teachers, scholars, professionals or common people?
- b) What is the level of content? Detailed/specific or complex/simple?

F. Relation to similar works: The uniqueness of the document is evaluated. The extent of relation or similarity with other sources in the subject area is also tested. The availability of new editions is also an indicator of a good reference source, particularly in the field of science and technology.

G. Arrangement: The arrangement of data or content in the document should be logical and follow a standard sequence. Proper indexing must be given.

H. Ease of use: The source must be user friendly. It should be used by the intended audience without any problem in finding the required information. In the case of digital documents, searching capabilities and response time must be evaluated.

I. Cost: The cost of source must be genuine and justifiable. It is very important when a library selects a reference document for its collection. Licensing conditions (particularly for digital documents) must be verified before accession. The conditions must not violate the existing policies of the parent organization.

The above discussion showed that the information sources must be evaluated before using in order to identify its quality.

6.8 Summary

Importance of information in the present information society is unquestionable. Everyone in this society needs some kind of information for his/her living. Understanding the nature and importance of information sources and its management are essential for any library or information professional. Information sources are basically categorized into documentary and non-documentary. The categorization of information sources as primary, secondary and tertiary, based on their characteristics, helps to identify the sources easily. Primary sources are more accurate and current than secondary. Tertiary sources guide a searcher to primary and secondary sources. Most of the reference sources come under secondary and tertiary sources. An information source must be evaluated for its scope, currency, relevancy, authority, treatment, relation to similar works, arrangement, ease of use and cost.



6.9 Glossary

Documentary sources: Documentary sources are basically derived from or pertaining to documents and are records relating to individuals or groups of individuals that have been generated in the course of their daily lives.

Non-documentary sources: Non documentary sources of information are information provided by live sources such as through discussion with colleagues, visitors, participants of seminars and conferences, professional associations, learned societies and mass media.

6.10 Exercise

Short Answer Questions

1. Define a reference and information source.
2. Why do users require information sources?
3. What are the types of reference and information sources? Give examples.
4. Differentiate primary, secondary and tertiary sources of information.
5. Compare the types of reference and information sources across disciplines.
6. What are the basic evaluation criteria for reference and information sources?
7. What you mean by 'relevancy' of an information source?
8. Write three examples each for primary, secondary and tertiary sources of information.

Long Answer Question

1. Discuss the flow of reference and information sources from the state of primary to secondary and tertiary with examples.
2. Discuss the criteria for the evaluation of an information source.