
Abstract

After completing this learning unit, you will be able to:

- Identify the comparison criteria of information sources;
- Compare the quality level of different types of informing; and
- Evaluate different bibliometric databases.

Keywords

Sources evaluation • Quality of information • Peer review • Bibliometric databases • Impact factor • Hirsh index • CRAAP test

Why is it important to evaluate resources?

Along with accessing, searching, and finding information, evaluating that information is vital.

When you research, you want to find the best information to support your ideas. This requires careful consideration of the information you find.

There are some key questions one should take into account:

- Is it a scholarly source and a peer review process is evident?
- Is this a primary, secondary, or tertiary source?
- Is this source current, or is the information it presents outdated?
- Is this source based on solid academic background research?
- Do you detect that the information in this source is biased?

Given the dramatic increase in the amount of scientific information, tools for assessing the quality of information have been created. We will present two kinds of scientific information: that, published in journals and that found in web resources.

7.1 Evaluation of Scientific Series Publications (Journals)

The scientific community around the world considers serial publications as the:

- Main means of scientific communication;
- Main documentation base; and
- Means of assessing scientific research.

Database makers are the publishers of serial publications, but also information intermediaries buying copyrights of the journals, organising them in a system and selling them as new information products. These are called databases (Biagioli 2002).

7.2 Peer Review Process

Peer-review (also known as refereeing) is the process journal editors use to ensure that the articles they publish meet standards of good scholarship. Academic papers (Table 7.1)

Journal articles, research papers and such like are examined by a panel of other scholars in the field (the author's peers). The panel may decide to accept the paper, recommend revision or reject it completely.

Any resource that passes the peer-review process can be considered to have the highest level of academic credibility—although of course you still need to consider other elements such as age, and relevance. Not all journals use peer-review. Some lecturers may specify that only peer reviewed resources are to be used in assignments. Some databases allow you to narrow your search to return only peer-reviewed results. Unfortunately this process differs from database to database. Sometimes this is as easy as simply ticking a box that says “Peer-reviewed”.

This table outlines many of their distinguishing characteristics (Fig. 7.1):

7.3 Bibliometric Databases

The most widely used bibliometric databases are: Web of Science (WoS) (1970) and Scopus (2000)—payable (through subscription); Google Scholar—Free.

They are called “bibliometric” because they index all bibliographic references and may be used to calculate a citations index.

WoS includes five databases: Science Citation Index Expanded (SCI-EXPANDED); Social Sciences Citation Index (SSCI); Arts and Humanities Citation Index (A and HCI); Conference Proceedings Citation Index-Science (CPCI-S); and Conference Proceedings Citation Index-Social Science and Humanities (CPCI-SSH). Books and a large variety of journals are not included in the WoS.

Table 7.1 Evaluate sources: evaluating articles (Libguides.uleth.ca. 2019)

	Scholarly journal	Trade journal	Popular magazine
Title	Descriptive and precise. The words “Journal”, “Transactions”, “Proceedings”, or “Quarterly” often appear in the title	Descriptive. Usually identify a particular industry or area of interest (e.g. “Architect’s Journal,” “Chemical and Engineering News”)	Less descriptive than trade or scholarly journal titles. May not indicate the magazine’s focus or intended audience
Author	Professors and other researchers who are considered to be authorities in their field of study	Professional journalists, freelance writers, or working professionals who are knowledgeable about a specific trade, profession, or industry	Professional journalists, freelance writers, or staff writers who often lack specialised training in the field in which they are reporting
Editor	Peer review process	No peer review; editors work for publisher	No peer review; editors work for publisher
Publisher	Scholarly organisations, professional societies, university presses	Professional societies, trade organisations	Commercial (for-profit) publishers
Audience	Scholars, researchers, and students with specialised knowledge of a particular field	Members of a particular industry, trade, or profession	The general public
Purpose	To report on original research; to provide in-depth, specialised information on a narrow topic; to facilitate communication between scholars	To provide practical information to industry professionals; to report on industry trends; to facilitate communication between working professionals	To provide general information; to express public opinion; to entertain the general public
Publication schedule and volume/issue numbering	Generally published monthly, bi-monthly, quarterly, semi-annually, or annually Volume and issue numbers are important to note for your citations	Publication schedules vary Record the date of publication and volume number for your citations	Often published weekly or monthly Record the date of publication and volume number for your citations
Writing style	Written in formal language. May contain academic jargon or technical terms	May contain industry-specific jargon or technical terms	Informal writing style; accessible to a wide audience
Bibliography	All references are carefully cited. Bibliographies are always present at the end of the article and can be very long (e.g., several pages of citations)	May include a short bibliography	Citations are not usually provided; the reader may have no way of verifying the information cited in the article

	Questions to ask:
Accuracy	<ul style="list-style-type: none"> • Is the information reliable? • Is the information error-free? • Is the information based on proven facts? • Can the information be verified against other reliable sources?
Authority	<ul style="list-style-type: none"> • Who is the author? • Does he or she have the qualifications to speak/write on that topic? • Is the author affiliated with a reputable university or organization in this subject field?
Objectivity	<ul style="list-style-type: none"> • What is the intended purpose of the information? • Is the information facts or opinions? • Is the information biased?
Currency	<ul style="list-style-type: none"> • When was the information published? • Is the information current or out-dated? • Does currency matter in this topic?
Coverage	<ul style="list-style-type: none"> • Does the information covered meet your information needs? • Does it provide basic or in depth coverage?

Fig. 7.1 Literature review—finding the resources: evaluating sources (Libguides.library.cityu.edu.hk. 2019a, b)

SCImago Journal and Country Rank is a portal that presents the visibility of scientific journals; it includes indicators on the scientific development of countries. These indicators are generated by the Scopus database and show the visibility of the journals included in the 1996 database. The portal is developed by SCImago, a research group in Spain (Scimagojr.com 2018).

Publish and Perish (Harzing 2007) is free software that enables you to perform bibliometric analyses in Google Scholar and Microsoft Academic, <https://academic.microsoft.com/>.

Download from the page: <https://harzing.com/resources/publish-or-perish>.

The results obtained from the three databases can be very close, although only the publications included in that database are taken into account.

7.4 Clarivate Analytucs—WoS

7.4.1 Impact Factor

Impact factor, or Journal Impact Factor, is a measure of the frequency with which the “average article” published in a given scholarly journal has been cited in a particular year or period and is often used to measure or describe the importance of a particular journal to its field.

Impact factor was originally developed by Eugene Garfield, the founder of Institute of Scientific Information, which is now a part of Clarivate Analytics.

Journal Impact Factor can be found in the Journal Citation Reports or the JCR, as it is commonly known (Libguides.exeter.ac.uk. 2019).

Journal Impact Factors are the measure of the frequency with which the average article in a journal has been cited in a particular year.

For example, the Journal Impact Factor for a journal in 2015 is calculated by taking the number of citations made in 2015 to the articles published in the journal in 2013 and 2014 and then divided by the total number of articles published in that journal in 2013 and 2014.

Impact Factors are:

- Used to measure the importance or rank of a journal by calculating the times its articles are cited; and
- A quantitative tool for evaluating the relative importance of a journal.

7.4.2 LibGuides: Journal Impact Factors: Home

Libguides.exeter.ac.uk. (2019). *LibGuides: Journal Impact Factors: Home*. [online] Available at: <https://libguides.exeter.ac.uk/journalimpactfactors> [Accessed 5 Feb. 2019].

7.4.3 H-index, HIRSH Index

The H-index is the largest number of articles per author, with at least one of them (Hirsh 2005).

Methods of calculation:

Automatic: the bibliometric platforms Web of Science and Scopus, and “Publish or Perish” software for Google Scholar.

7.5 Conclusion

The consequences of applying this bibliometric indicator may, depending on the context, be beneficial or, on the contrary, destructive.

Eugene Garfield concluded in (2005) on how its application: “Like nuclear power, the impact factor is a mixed blessing. I expected it to be used in a constructive way, but I admit at the same time that in the wrong hands it can be abusive.”

7.6 Web Resources Evaluation

Along with accessing, searching, and finding information, evaluating that information is vital. You can use the **CRAAP Test** to ask questions about websites, books or articles.

The **Search Tips** page suggests ways to limit your searches to reliable sources (Fig. 7.2).

Top-level domain tells you from what type of institution the information comes (Libguides.library.cityu.edu.hk 2019a, b):

- **.com**—a commercial site (may be trying to sell a product)
- **.edu**—an educational institution (usually reliable but may not if it is a personal web page of a member of the institution)
- **.gov**—a government department or agent
- **.net**—network access provider
- **.org**—a non-profit organisation (may or may not be biased).

C	Currency: The timeliness of the info
R	Relevance: How the info fits your needs
A	Authority: The source of the info
A	Accuracy: Reliability and correctness of the info
P	Purpose: The reason the info exists

Fig. 7.2 CRAAP test (Google CRAAP test 2019)

After they decipher the messages and present their message to the other groups, students will try through discovery learning to find connections between the messages and make inferences about the next lesson.

Review of previous knowledge

Concepts such as: *Library catalogues; information sources; classification* will be briefly defined and described. The teacher will ask students to make connections between these concepts and the messages of the wise men.

Teaching activities

Through a heuristic conversation, the teacher will guide the students' activity to discover the curricular content of the lesson.

To compare three types of journals (**Scholarly Journal, Trade Journal, and Popular Magazine**), the teacher will divide students into three groups. Groups will receive worksheets that will contain the comparative table structure and analysis criteria. A group will receive information about the three types of journals in sophisticated and complex language, another group will receive written material in a more accessible manner, from an Information Literacy manual, and the third group will use the Internet as a source of information.

After completion of the tasks, students' results will be compared and difficult elements will be discussed. A metaphor will be used as a pedagogical approach to understanding the content of the learning unit.

To make the transition to the next sequence of the lesson, in which the criteria for evaluating sources of information will be discussed, the next exercise will be done. Students will be asked to draw a glove as beautifully as possible. Students will not be rushed in drawing. After each student finishes, they are asked to draw as many gloves as they can, as similar they can, on a new sheet of paper. The task will have a time limit of 45 s. The two products of each student will be compared, using criteria such as: aesthetic, number of products (gloves), and clarity. Analogy with sources of information will be made and the advantages and disadvantages of the main types of information will be discussed. The teacher together with the students will develop criteria to evaluate the sources of information and will analyse, according to these criteria, some sources of information. Further, by lecturing, the teacher will teach the content task related to bibliometric databases.

Review

Students will compare types of information depending on the type of electronic information source (**.com, .edu, .gov, .net, or .org**).

Applications

Each student will choose a relatively common illness/affection and will seek methods and treatment schemes using different sources of information.

They will compare the results obtained from research and compare the degree of congruence between the information found.

Evaluation

	A	B	C	D
1. What do you use to find out what documents the library has?	<input type="checkbox"/> Bibliography	<input type="checkbox"/> An index	<input type="checkbox"/> Directory	<input type="checkbox"/> Libraries OPAC - Catalogue
2. What is the best definition of "information literacy"?	<input type="checkbox"/> Ability to find relevant information	<input type="checkbox"/> Ability to read	<input type="checkbox"/> Ability to use the computer	<input type="checkbox"/> Ability to write
3. What are the primary sources?	<input type="checkbox"/> Academic	<input type="checkbox"/> First-hand proof	<input type="checkbox"/> Biographies	<input type="checkbox"/> Articles
4. Which situations are not reference collections in libraries?	<input type="checkbox"/> Encyclopedias and dictionaries	<input type="checkbox"/> Resources to define concepts	<input type="checkbox"/> Books that can not borrow	<input type="checkbox"/> Used to define the subject
5. To which data base Transilvania University has no subscription?	<input type="checkbox"/> Scopus	<input type="checkbox"/> Science Direct	<input type="checkbox"/> Web of Science	<input type="checkbox"/> ClinicalKey
6. Which are not Boolean Operators?	<input type="checkbox"/> AND	<input type="checkbox"/> NOT	<input type="checkbox"/> OR	<input type="checkbox"/> Asterisks (*)
7. To find more documents, how do we include synonyms?	<input type="checkbox"/> Using AND	<input type="checkbox"/> Using + sign	<input type="checkbox"/> Using OR	<input type="checkbox"/> Using NOT
8. Wildcard - Truncation. Which sign is Wildcard?	<input type="checkbox"/> *	<input type="checkbox"/> @	<input type="checkbox"/> =	<input type="checkbox"/> ?
9. What is NOT important when quoting and writing references?	<input type="checkbox"/> Granting other readers access to the source	<input type="checkbox"/> Recognizing the work of others	<input type="checkbox"/> Finding materials on the shelf	<input type="checkbox"/> Avoiding plagiarism accusation
10. Summary of an article is:	<input type="checkbox"/> full text	<input type="checkbox"/> information about how to find the article	<input type="checkbox"/> abstract	<input type="checkbox"/> article references
11. If you are told not to use the Internet you DO NOT use?	<input type="checkbox"/> OPAC	<input type="checkbox"/> Databases	<input type="checkbox"/> Google	<input type="checkbox"/> Nothing
12. "Treatment of cancer". Search strategy for a minimum number of documents?	<input type="checkbox"/> Cancer AND depression	<input type="checkbox"/> Cancer OR Depression OR antidepressants	<input type="checkbox"/> Cancer AND Depression AND antidepressants	<input type="checkbox"/> Cancer

13. To find the latest information on drug abuse, you should consult:	<input type="checkbox"/> A book	<input type="checkbox"/> A journal	<input type="checkbox"/> An encyclopedia	<input type="checkbox"/> A thesaurus
14. Using Google, you will NOT find:	<input type="checkbox"/> Sales catalogs	<input type="checkbox"/> Biographical information about famous people	<input type="checkbox"/> Books available from the library	<input type="checkbox"/> Information about companies
15. Which Internet domain is not correct?	<input type="checkbox"/> .edu = educational institutions	<input type="checkbox"/> .org = non-profit organizations	<input type="checkbox"/> .gov = government organizations	<input type="checkbox"/> .mil = million dollar organizations
16. To paraphrase you must:	<input type="checkbox"/> Change a few words and quote as if it belongs to you	<input type="checkbox"/> Put quotation marks and citations	<input type="checkbox"/> Use the idea without quoting	<input type="checkbox"/> Summarize the text with your words and quote

Correct answers: 1D, 2A, 3B, 4C, 5D, 6D, 7C, 8D, 9C, 10C, 11C, 12C, 13B, 14C, 15D, 16 D

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