

Training of trainers - Educational strategies in STEM IL

How to evaluate the quality of scientific journals

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INFORMATION COMPETENCE AS BOOSTER
FOR PROSPECTIVE SCIENTISTS



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Intro

In this presentation, I will introduce a reflection on the contents to be addressed with scientists who want:

- to choose a journal to publish an article
- and therefore, assess the potential journals

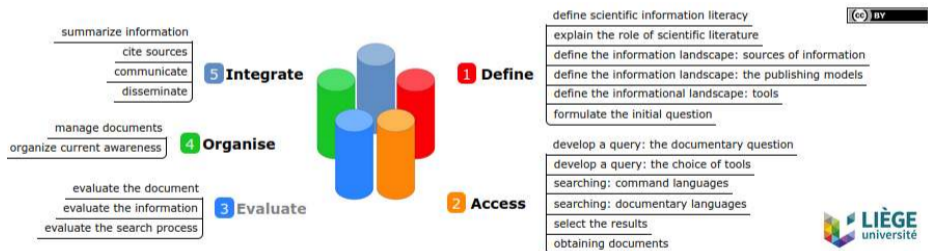
To do this, we need to:

- see what abilities we are talking about
- talk about processes
- talk about evaluation methods
- talk about criteria (including bibliometric tools)

How to choose a scientific journal was the subject of the first learning unit (LU1).

Scientific Information Literacy Framework

It is important to identify what is involved. For this, We use a framework to identify the relevant abilities.



BRAIN@WORK

Scientific Information Literacy Framework

For the first learning unit, the first pillar is involved

Presentation

Construction of the framework

1. Define

1.1. Define scientific information literacy

1.2. Explain the role of scientific literature

1.3. Define the information landscape: sources of information

1.4. Define the information landscape: the publishing models

1.5. Define the informational landscape: tools

1.3. Define the information landscape: sources of information

- 1 – explain that scientific literature is characterized by its validation process
- 1 – identify the types of documents (journals, books, etc.) specific to the discipline, list the main characteristics of these documents (including medium)
- 2 – explain the role of scientific publishers, editorial boards and reviewers in the scientific publication process
- 2 – describe the role of bibliometric tools in the ranking of journals
- – 3 list bibliometric indicators specific to the discipline
- – 3 estimate the role and limitations of bibliometric indicators

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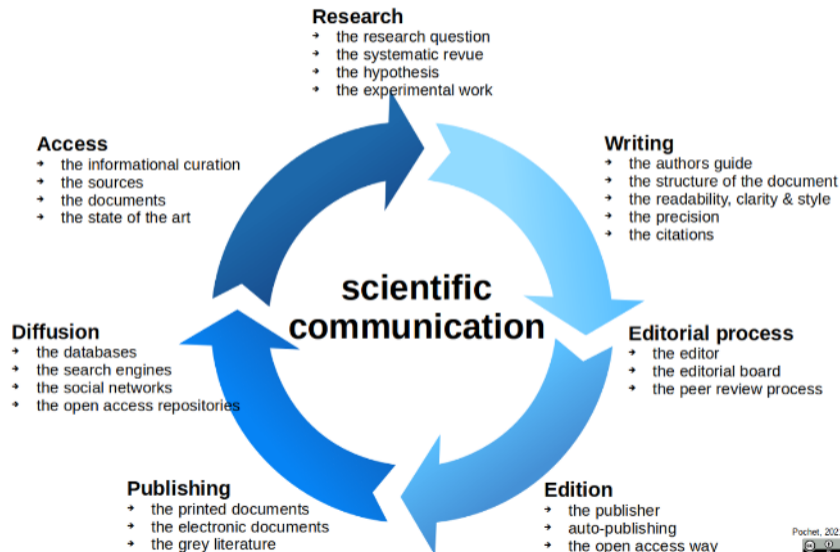
1.4. Define the information landscape: the publishing models

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1.4. Define the information landscape: the publishing models

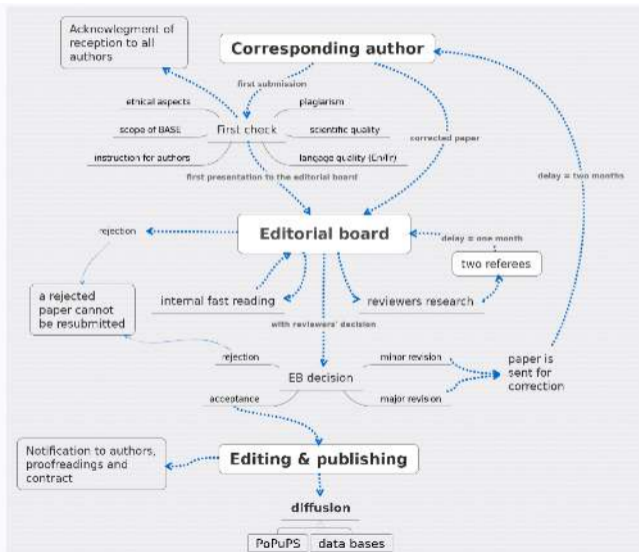
- 1 – describe the role of publishers and the costs of scientific publishing
- 1 – explain the principles of open access
- 2 – question the costs of scientific publishing (Article Processing Charges...)
- 2 – explain the excesses of scientific publishing (hybrid publishers, predatory publishers, etc)
- 3 – describe archiving and copyright policies
- 3 – Assess the relevance of new modes of scientific communication (researchers' blogs, research notebooks, preprint distribution, etc.)

Scientific literature is processes



Pochet, 2021

Editorial process: it is important to fully understand it



Editorial process: it is important to fully understand it

Understanding the different steps is essential to:

- know how to submit an article
- identify what is important for this journal
- understand the specific process of a journal (time frames, people involved, validation process...)

Learning outcomes (for LU1)

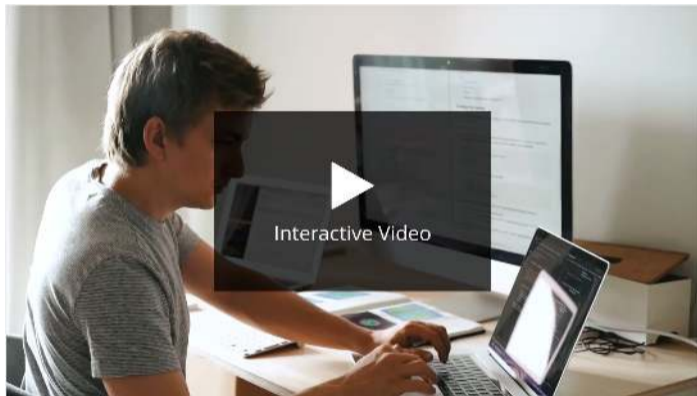
At the end of this learning unit learners will be able to:

- find scientific journals by topic or discipline
- evaluate the quality of scientific journal
- identify the news issues in research assessment practices
- acquire effective strategies
- acquire awareness about habits and behavior in this field

For an author, how to choose a scientific journal is an important part of the scientific publication process. It affects:

- the visibility of the scientific production (databases, territories...)
- the final quality of the document
- the prestige (but this is a mistake)

Learning method : Problem Based Learning (presented by Mario Rotta)



Based on a case study:

“Paul is a young researcher who works as research fellow at public Research Center in a European Country...”

1. Find scientific journals by topic or discipline

The “easy” part. We have at our disposal a variety of tools:

- journal catalogs
- the titles of “usual” journals in a research field
- the titles of journals that appear after a documentary search

Some examples

DOAJ

SUPPORT ▾ APPLY ▾ SEARCH 🔍

SEARCH ▾ DOCUMENTATION ▾ ABOUT ▾ LOGIN →

THE DIRECTORY OF OPEN ACCESS JOURNALS

Find open access journals & articles.

Journals Articles

In all fields ▾ **SEARCH**

80 LANGUAGES	130 COUNTRIES REPRESENTED	12,289 JOURNALS WITHOUT APCs	17,466 JOURNALS	7,182,128 ARTICLE RECORDS
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Decorative vertical column of colorful geometric shapes on the right side of the page.

Some examples

The screenshot displays the Electronic Journals Library (EZB) website. At the top left is the EZB logo with the text "Elektronische Zeitschriftenbibliothek". To its right is the text "Electronic Journals Library". A search bar contains the text "Journal | ISBN" and a "search" button. Below the search bar is a "Journal List by Subject" table. On the right side, there is a section titled "The full texts of the journals are" with two rows of status indicators: "freely available" (with three green circles) and "not accessible" (with one red circle and two white circles). Below this is a "Terms of use" link.

Electronic Journals Library

Journal | ISBN [Advanced Search](#)

Journal List by Subject

Subject	Entries
Agriculture and Forestry, Horticulture, Nutritional and Domestic Science	4076
Anthropology	1673
Archaeology	1446
Architecture, Civil Engineering	2415
Art History	2186
Biology, Biotechnology	6384
Business and Economics	15565
Chemistry and Pharmacology	3436
Classics, Byzantine Studies	572
Computer Science	3796
Education	3653
Electrical Engineering, Electronics and Communications Engineering	1478
Energy Technology	1065
English, American Studies	1045
General and Interdisciplinary Journals	3436
General Science	1805
Geography	1307
Geosciences	2381
German, Dutch and Scandinavian Studies	482
Health Sciences	1671
History	5327
History of Education	461
Jurisprudence	6217
Librarianship and Information Science	1447

The full texts of the journals are

- freely available
- not accessible

[Terms of use](#)

Some examples

Who's ChronosHub? What's Journal Finder Beta? Privacy Policy

FAQ Help

Journal Finder BETA

Find the relevant journal for your article

Bookmark this page

ChronosHub

Subject areas Show all (331)

- Multidisciplinary
- Agricultural and Biological Sciences
- Arts and Humanities
- Biochemistry, Genetics and Molecular Biology
- Business, Management and Accounting
- Chemical Engineering
- Chemistry
- Computer Science

Journal Lists

- Scopus
- Web of Science
- DOAJ

1 Search 2 Select 3 Submit

46442 Result(s) Cannot find your journal?

Select funder(s)

Select institution

#Tear: Revista de Educação, Ciência e Tecnologia

Publisher: [Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul \(IFRS\)](#) | ISSN: 2238-3079 | e-ISSN: 2238-4079

[Visit Publisher homepage](#) [Visit journal homepage](#) [View author guidelines](#) [View aims and scope](#)

Indexed in DOAJ

Some examples

The screenshot shows the JournalGuide website interface. At the top left is the logo "JournalGuide" with the tagline "PREMIER JOURNAL EXPERTS". To the right of the logo are navigation links: "Search", "Services", "My Searches", "My Journals", "FAQ", "Log In", and a green "Sign Up" button. The main heading in the center reads "Find the best journal for your research." Below this is a search form with a "Search journals by:" label and five tabs: "Paper Match", "Journal Name", "Publisher", and "Category". The "Paper Match" tab is selected. Under this tab, there are three input fields: "Manuscript title (or top keywords)" with a sub-label "Manuscript title", "Manuscript abstract (or supporting keywords)" with a sub-label "Manuscript abstract", and "Scramble abstract". A red "SEARCH" button is positioned to the right of the input fields. The background of the page is a blurred image of a library or study area.

Data update: Journal Impact Factor is not currently displayed on JournalGuide. [Read more here.](#)

A growing journal database across all academic fields

Search, filter, sort, and compare journals from more than 46,000 titles

2. Evaluate the quality of scientific journals

To evaluate quality, the first reflex is to use bibliometric tools: Impact Factor, Snip, H index...

But..

A bit of history ...

1928

Publish or Perish, concept used for the first time in: Marsh C., 1928. Scholarship in Sociology. *Sociology and Social Research*. **12**, 323–340.

after WWII

Increase of research and of scientific publication:

- commercial publishers
- English language
- international journals

1969

Eugene Garfield (ISI) Publishes the **Science Citation Index** with **Impact Factor** ranking to help librarians identify which journals to purchase

A bit of history ...

then ...

- purchase by some^a publishers of titles with **impact factor**
- constitution of catalogs of “**prestigious**” journals by these publishers
- publishers (and journals) have gradually become “**a must**” for researchers
- progressive confusion between “**prestige**” and “**quality**”

^aElsevier, Springer, Wiley, Taylors, Blackwell...

About impact factor!

- Count a number of citations of papers of a journal
- Does not measure quality but number of citations
- Inequality between domains (biotechnology ++)
- Essentially Anglo-Saxon journals
- **Never give a level of quality of a paper/scientist!**

The best way is:

- Read papers
- use other sources of information about a scientist

They are other metrics (ISI keeps monopoly til 2004) based on citations

- Scopus metrics (Elsevier): Citescore (= Impact factor), H index, SRJ...
- Google metrics: Citations count, H5 index...
- Altmetrics (audience)

Linked issues are:

- the number of citations represents popularity not quality
- excellence (of a journal) is not a synonym for excellent!
- Open Science also makes the scientific process more transparent, inclusive and democratic
- financial issues (APC and paywall)
- Predatory publishers is also an issue (more than 10 000 journals!)

The problem is then mainly related to the research assessment

-> The confusion of prestige and quality!

An help about predatory publishers



Compass to Publish (Beta Version)

Are you suspicious of a journal's authenticity? Is it a predatory journal?

These are legitimate questions if you're invited to submit a paper that:

- promises your rapid publication;
- has procedures and/or policies that look suspicious;
- is outside of your area(s) of expertise.



Compass to Publish



helps you determine the degree of authenticity of open access journals requiring or hiding article processing charges (APCs) using a criteria-based evaluation.

aims to help the scholarly community to better understand predatory journals and publishers

offers a transparent methodology and weighing method



is not designed for open access journals that explicitly state that they do not require article processing charges (APCs)

does not evaluate the quality of a journal, but its degree of authenticity

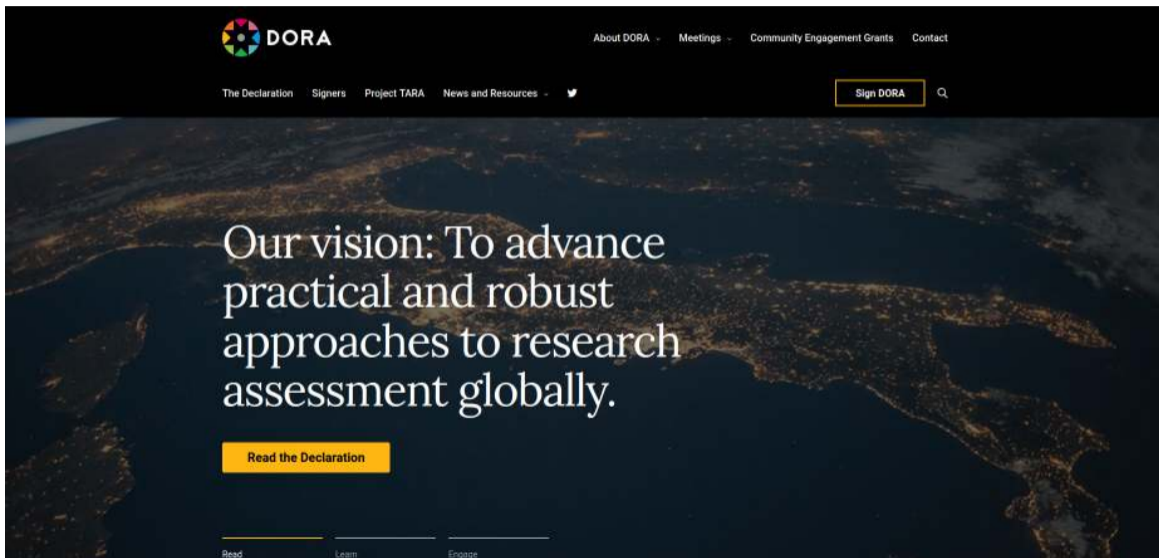
does not pretend to offer an exhaustive list of criteria for the identification of predatory journals

At the end, there are other points of attention in choosing a journal:

- Rights management (see Sherpa/Romeo)
- international recognition
- visibility (search engines and bibliographic databases)
- specificity (generalist or specialized, language...)
- type of distribution (eJournal, frequency, duration)
- authors' guide (length, structure, bibliographic style, illustrations...)

All sources of information, including metrics (never use only one), will guide the choice of the right journal

3. Identify the news issues in research assessment practices




The image shows the homepage of the DORA (Declaration on Research Assessment) website. The background is a dark satellite image of Earth at night, showing city lights. The DORA logo is in the top left corner. The navigation menu includes 'About DORA', 'Meetings', 'Community Engagement Grants', and 'Contact'. Below the navigation, there are links for 'The Declaration', 'Signers', 'Project TARA', and 'News and Resources'. A search bar with the text 'Sign DORA' and a magnifying glass icon is on the right. The main text reads: 'Our vision: To advance practical and robust approaches to research assessment globally.' Below this text is a yellow button labeled 'Read the Declaration'. At the bottom, there are three horizontal lines with the labels 'Read', 'Learn', and 'Engage' underneath them.


3. Identify the news issues in research assessment practices

The screenshot shows the DORA website header with navigation links: About DORA, Meetings, Community Engagement Grants, and Contact. Below the header are links for The Declaration, Signers, Project TARA, and News and Resources, along with a Sign DORA button and a search icon. The main content area features the title "San Francisco Declaration on Research Assessment" and a text block explaining the need for improved research evaluation. A language selection menu is visible on the right side of the page.

DORA

About DORA - Meetings - Community Engagement Grants Contact

The Declaration Signers Project TARA News and Resources - 

Sign DORA 

San Francisco Declaration on Research Assessment

There is a pressing need to improve the ways in which the output of scientific research is evaluated by funding agencies, academic institutions, and other parties. To address this issue, a group of editors and publishers of scholarly journals met during the Annual Meeting of The American Society for Cell Biology (ASCB) in San Francisco, CA, on December 16, 2012. The group developed a set of recommendations, referred to as the San Francisco Declaration on Research Assessment. We invite interested parties across all scientific disciplines to indicate their support by adding their names to this Declaration.

The outputs from scientific research are many and varied, including: research articles reporting new knowledge, data, reagents, and software; intellectual property; and highly trained young scientists. Funding agencies, institutions that employ scientists, and scientists themselves, all have a desire, and need, to assess the quality and impact of scientific outputs. It is thus imperative that scientific output is measured accurately and evaluated wisely.

The Journal Impact Factor is frequently used as the primary parameter with which to compare the scientific output of individuals and institutions. The Journal Impact Factor, as calculated by Thomson Reuters*, was originally created as a tool to help librarians identify journals to

العربية
Bahasa Indonesia
中文
Català
Čeština
Српски
Deutsch
Eesti keel
English
Español
Ελληνικά
Français

3. Identify the news issues in research assessment practices



[About DORA](#) [Meetings](#) [Community Engagement Grants](#) [Contact](#)

[The Declaration](#) [Signers](#) [Project TARA](#) [News and Resources](#) [Twitter](#)

[Sign DORA](#)



21,188 individuals and organizations in 156 countries have signed DORA to date.



4. Acquire effective strategies

Scientists have to think about the following questions:

- What defines the value of a scientific journal?
- How can you evaluate a scientific journal?
- Can publication aims, research assessment, open science influence the judgment? How?
- Which other factors can or should be taken into account?

5. Acquire awareness about habits and behavior in this field

At the end, they have to know that:

- The quality of a scientific article do not depends on the quality of the journal in which it is published
- Peer review is the quality control system for scientific research
- The bibliographic citation count of a scientific article varies according to the database considered
- Quartiles of scientific journals vary according to the subject area in which the journal is indexed
- A publisher's membership to the Committee on Publication Ethics (COPE) it offers an indication of the publisher's integrity
- A fraudulent or retracted scientific article can be highly cited
- The Aim and scope section of scientific journals offers key information for submission
- Self-citations influence the calculation of a journal's Impact Factor
- Open in Open Science refers to openness of scientific research data, methods and results
- The DORA Declaration is a declaration aiming to change the criteria for institutional assessment of scientific research
- The DOAJ (Directory of Open Access journals) is an essential source of information
- ...

5. Acquire awareness about habits and behavior in this field

The work has been correctly done if:

- The list of identified journals is extremely diversified, relevant to the research topic and takes into account the different subject areas and publication opportunities
- The identified journals are coherent with data and constraints included in the problem and includes various options for each element
- The scheme presented is clear and complete, distinguishes clearly between the various dimensions (what to evaluate, how to evaluate) adding additional parameters
- All the criteria adopted to attribute value to a journal and the values attributed are explicit
- The work is complete and extremely clear; the strategy applied identified with precision and easily repeatable

Thank you for your attention¹

¹these slides were created with a Markdown file, Beamer and Pandoc