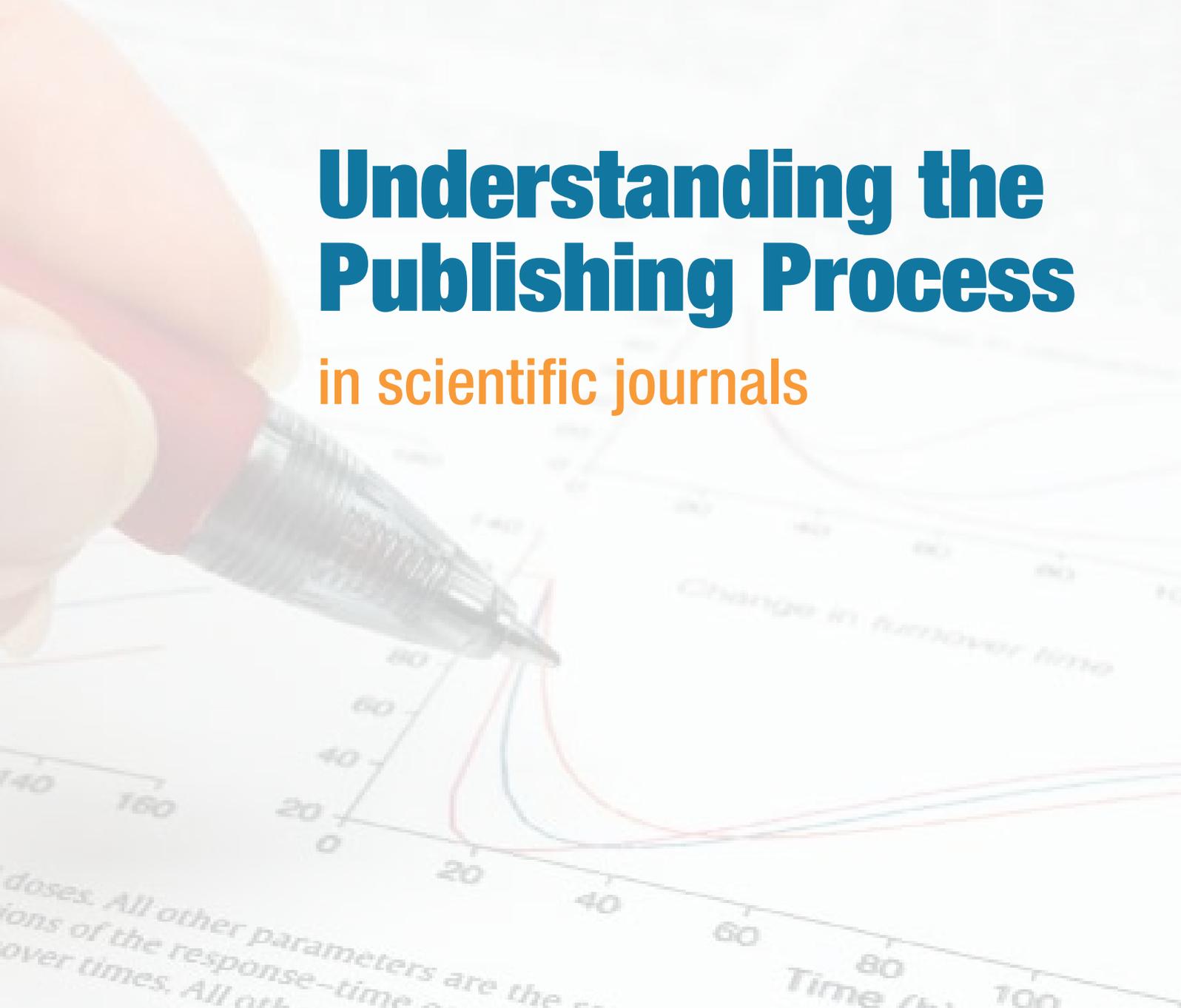


Understanding the Publishing Process

in scientific journals



www.elsevier.com/authors



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Elsevier's History

Elsevier, the modern publishing company, was founded in 1880. It has evolved from a small Dutch publishing house that was devoted to classical scholarship into an international multimedia publishing company with over 20,000 products for educational and professional science and healthcare communities worldwide. Elsevier takes its name from the original House of Elsevir, the family publishing house that was founded in 1580.



Elsevier's history reflects a series of collaborations in the effort to advance science and health. These publishing collaborations with a group of scientific visionaries — ranging from Jules Verne to Stephen W. Hawking — created the foundation of scientific and medical publishing.

Further reading: www.elsevier.com/heritage

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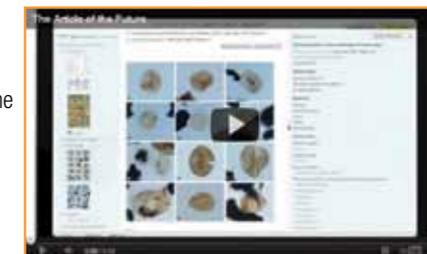
Innovation

Article of the Future

Through the Article of the future project, Elsevier is developing a number of publishing innovations which can be relevant to you.

Depending on the journal, the following innovative features are available: For instance, authors can now add their own discipline-specific and rich content such as interactive plots, chemical compounds, or interactive maps. Furthermore, new possibilities such as graphical abstracts and highlights enable users to more efficiently skim articles.

The context element offers authors opportunities to add a range of valuable connections to the published article, for example related research data sets, author information and research groups. Commonly used entities in the article can also be tagged and linked to databases, e.g. Genbank and Protein Data Bank, and context can also be pulled from these databases into the articles. While many of the new content and context features will apply to all journals, others will be domain-specific.



Further reading:

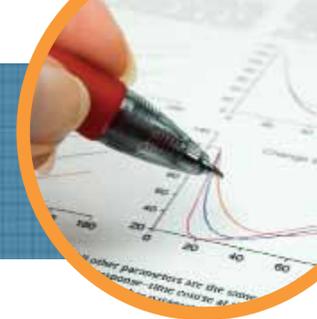
www.articleofthefuture.com

Article-based publishing

In 2010 we began introducing article-based publishing for journals, making final and citable articles available online faster, and improving their findability. Articles will be published as soon as possible without waiting for an issue to be compiled; they will appear in an "Issue in Progress".

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How to write a scientific article

Introduction

The task of writing a research article can be daunting. You may have completed groundbreaking research, but unless the article is correctly written, at best publication will be delayed and at worst will never be published. The purpose of this article is to try and give the reader an overview of how to write a well-structured research article for publication. It is principally aimed at new authors and is generic enough to encompass all disciplines.

Do I need to write a research article?

This might seem like an obvious question, but it is one worth asking yourself. Editors and reviewers are looking for original and innovative research that will add to the field of study. Ensure that you have enough numbers to justify sound conclusions. If the research you are going to report relates to a larger study, perhaps it is better to produce one important research article, rather than a number of average incremental articles. In deciding where to send your article, consider the reader. Does your article address a question of international or mainly local interest? If the latter is true, it may be better placed in a national journal than in an international one.

The structure of an article

Scientific writing follows a rigid structure. A format developed over hundreds of years and considered to be the most efficient means for communicating scientific findings to the broader research community. Moreover, the format has the advantage that it allows the article to be read at several levels. Some people will refer to just the title, others may read only the title and abstract, while those who want a deeper understanding will read most, if not all, of the article.

Most disciplines use the format of title, authors, abstract, keywords, introduction, methods, results, discussion, acknowledgments, references and supplementary material. Though the headings are standard for most journals, there is some variation, so it is essential to read the guide for authors of the journal you intend to submit your article to prior to writing.

Section	Purpose
Title	Clearly describes contents
Author	Ensures recognition for the writer/s
Abstract	Describes succinctly what was done
Keywords	Ensures the article is correctly identified in abstracting and indexing services
Main text	
<i>Introduction</i>	Explains the hypothesis
<i>Method</i>	Explains how the data were collected
<i>Results</i>	Describes what was discovered
<i>Discussion</i>	Discusses the implications of the findings
<i>Acknowledgments</i>	Ensures those who helped in the research are recognized
References	Ensures previously published work is recognized
Supplementary material	Provides supplementary data for the expert reader



What type of manuscript?

- Full articles / Original articles: the most important papers. Substantial and significant completed pieces of research.
- Letters / Rapid Communications/ Short communications: quick and early communication of significant and original advances. Much shorter than full articles (check limitations). Not just a “preliminary report”, because that can make it impossible to publish the full report later.
- Review papers / perspectives: summarize recent developments on a specific topic. Highlight important previously reported points. Not the place to introduce new information. Often by invitation.

Self-evaluate your work. Is it sufficient for a full article? Or are your results so thrilling that they should be shown as soon as possible?

Ask your supervisor and your colleagues for advice on manuscript type. Sometimes outsiders can see things more clearly than you.



Style and language

It is important to refer to the journal's Guide for Authors style. Some Authors write for their article with a specific journal in mind, while others write the article and then adapt it to fit the style of a journal they subsequently choose. Regardless of your preference, some fundamentals remain true throughout the process of writing a scientific article. The object is to report your findings and conclusions clearly, and as concisely as possible; try to avoid embellishment with unnecessary words or phrases. The use of the active voice will shorten sentence length. For example, *carbon dioxide was consumed by the plant...* is in the passive voice. By changing to the active voice it can be shortened to *the plant consumed carbon dioxide...* The following shows how tenses are most often used in science writing:

For known facts and hypotheses, the present tense should be used.

'The average life expectancy of a honey bee is 6 weeks.'

When you refer to experiments you have conducted, the past tense should be used.

'All the honey bees were maintained in an environment with a consistent temperature of 23°C.'

When you describe the results of an experiment, the past tense should be used.

'The average life span of bees in our contained environment was 8 weeks.'

Journal specific guidelines

For a complete overview of information related specifically to your journal of interest, go to the Author Information Pack, which includes the aims & scopes, IF, Guide for Authors and editorial board listings as well as abstract and indexing services covering the journal (e.g. PubMed, Scopus, EMBASE).

www.elsevier.com/authors/informationpack

Authors

The listing of authors should only include those who have made an intellectual contribution to the research, who will publicly take responsibility for the data and conclusions, and who have approved the final version. The order in which the names of the authors appear can vary from discipline to discipline. In some fields the corresponding author's name appears first.

Title

A title should describe the article's content clearly and precisely, and allow the reader to decide whether it would be appropriate to consult the article further. The title is the advertisement for the article – a poorly titled article may never reach its target audience, so be specific. Omit unnecessary words such as 'A study of', 'Investigations of', 'Observations on', etc. Do not use abbreviations and jargon. Indexing and abstracting services depend on the accuracy of the title, extracting keywords from it that are used in cross-referencing.

In short, effective titles

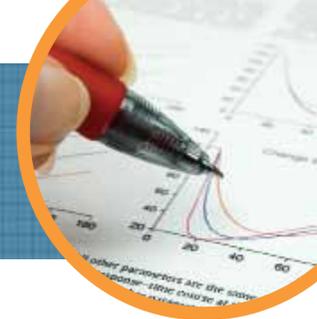
- Identify the main issue of the paper
- Begin with the subject of the paper
- Are accurate, unambiguous, specific, and complete
- Are as short as possible

Keyword list

Most journals request a keyword list; this list provides the inclusion of important words, in addition to those already present in the title. Appropriate choice of keywords will increase the likelihood of your article being found by other researchers. These words are used by the indexing and abstracting services. Many Elsevier journals will also require authors to choose a subject classification during the online submission process. This classification helps editors to select appropriate reviewers.

Abstract

The abstract should summarize, in up to 200 words, the problem, the method, the results, and the conclusions. The title is the simplest statement about the content of your article. In contrast, the abstract allows you to elaborate on each major section of the article. The abstract should give sufficient detail so that the reader can decide whether or not to read the whole article. Together, the title and the abstract should be able to stand on their own, as they are processed further by indexing services. For this reason it is advisable not to include references to figures or tables, or citation of the reference in the abstract. Many authors write the abstract last so that it accurately reflects the content of the article.



Main text

Introduction

The introduction should be brief, ideally one to two paragraphs long. It should clearly state the problem being investigated, the background that explains the problem, and the reasons for conducting the research. You should summarize relevant research to provide context, state how your work differs from published work and importantly what questions you are answering. Explain what findings of others, if any, you are challenging or extending. Briefly describe your experiment, hypothesis(es), research question(s), and general experimental design or method. Lengthy interpretations should be left until the Discussion.

Methods

(Materials and Methods or Experimental Methods, etc.) The key purpose of this section is to provide the reader enough details so they can replicate your research. Explain how you studied the problem, identify the procedures you followed, and order these chronologically where possible. If your methods are new, they will need to be explained in detail; otherwise, name the method and cite the previously published work, unless you have modified the method, in which case refer to the original work and include the amendments. Identify the equipment and describe materials used and specify the source if there is variation in quality of materials. Include the frequency of observations, what types of data were recorded. Be precise in describing measurements and include errors of measurement. Name any statistical tests used so that your numerical results can be validated. It is advisable to use the past tense, and avoid using the first person, though this will vary from journal to journal.

Results

In this section you objectively present your findings, and explain in words what was found. This is where you show that your new results are contributing to the body of scientific knowledge, so it is important to be clear and lay them out in a logical sequence. Raw data are rarely included in a scientific article; instead the data are analyzed and presented in the form of figures (graphs), tables, and/or descriptions of observations. It is important to clearly identify for the reader any significant trends. The results section should follow a logical sequence based on the table and figures that best presents the findings that answer the question or hypothesis being investigated. Tables and figures are assigned

numbers separately, and should be in the sequence that you refer to them in the text. Figures should have a brief description (a legend), providing the reader sufficient information to know how the data were produced. It is important not to interpret your results - this should be done in the Discussion section.

Discussion

In this section you describe what your results mean, specifically in the context of what was already known about the subject of the investigation. You should link back to the introduction by way of the question(s) or hypotheses posed. You should indicate how the results relate to expectations and to the literature previously cited, whether they support or contradict previous theories. Most significantly, the discussion should explain how the research has moved the body of scientific knowledge forward. It is important not to extend your conclusions beyond what is directly supported by your results, so avoid undue speculation. It is advisable to suggest practical applications of your results, and outline what would be the next steps in your study.

Conclusions:

- Present global and specific conclusions
- Indicate uses and extensions if appropriate
- Suggest further experiments and indicate whether they are underway
- Do not summarize the paper: The abstract is for that purpose
- Avoid bold judgments about impact

Pitfalls to be aware of while writing an article: summary

- Statements that go beyond what the results can support
- Unspecific expressions such as "higher temperature", "at a lower rate". Quantitative descriptions are always preferred.
- Sudden introduction of new terms or ideas
- Speculations on possible interpretations are allowed. But these should be rooted in fact, rather than imagination.
- Check the organization, number and quality of illustrations, the logic and the justifications.

Acknowledgments

This section should be brief and include the names of individuals who have assisted with your study, including, contributors, suppliers who may have provided materials free of charge, etc. Authors should also disclose in their article any financial or other substantive conflict of interest that might be construed to influence the results or interpretation of their article.

References

Whenever you draw upon previously published work, you must acknowledge the source. Any information not from your experiment and not "common knowledge" should be recognized with a citation. How citations are presented varies considerably from discipline to discipline and you should refer to the Guide for Authors for the specific journal. Quotes that appear in the article, if long, should have their own indented paragraph. Otherwise, if they are in the natural flow of the article they should be within quotation marks. In both cases they should include a reference. The references section at the end of the article includes all references cited in your article. This section is in contrast to a bibliography, common in books, where works read but not necessarily cited in the text are listed. The manner in which references

are presented also varies from journal to journal and you should consult the journal's guide for authors.

Supplementary material

Typically raw data are not included in a scientific article. However, if you believe the data would be useful, they can be included. Increasingly this is becoming more common as journals move to an online environment and the cost of including supplemental material is lowered. Supplementary material can include raw data tables, video footage, photographs, or complex 3D models. If you have more than one set of materials to include, give each a separate number e.g. Appendix 1, Appendix 2, etc. For full guidelines on supplementary material submission, please visit

www.elsevier.com/artwork

Further reading

- Davis, M. (2005) *Scientific Papers and Presentations*, 2nd Edition, Academic Press
- Grossman, M. (2004) *Writing and Presenting Scientific Papers*, 2nd Edition, Nottingham University Press
- Clare, J. and Hamilton, H. (2003) *Writing Research Transforming Data into Text*, Churchill Livingstone
- Legendijk, Ad (2008) *Survival Guide for Scientists; Writing - Presentation – Email*, Amsterdam University Press



Language editing and quality

How important is the quality of the English language in an article?

The findings reported in an article may be cutting edge, but poor language quality – including errors in grammar, spelling or language usage – could delay publication or could lead to outright rejection of the article, preventing the research from receiving the recognition it deserves.

With ever-increasing standards of excellence in both research and publishing, it is in an author's best interest to make sure the article is in its best possible form when submitted for publication - that includes the quality of the written English, adherence to the Guide for Authors and the presentation of factual, accurate data.

In fact, we hear from numerous editors that the poor quality of English masks the possible academic merit of some articles and they will return the article to the author. Editors find it increasingly hard to find reviewers for articles and so there is an increased pressure to send articles to review out in good English.

What impact does language quality have on the peer-review process?

Once an article enters the peer-review process, it will be evaluated by both reviewers and editors on its academic content and merit.

The responsibility of providing an article written in a reasonable standard of English, and structured with adherence to the Guide for Authors, lies with the Author. Editors and reviewers are not responsible for making language corrections.

Well-structured articles with correct language usage help ensure that the

peer-review process runs smoothly by allowing editors and reviewers to focus on academic merit, and could result in the faster publication of research.

What should authors do before submitting an article?

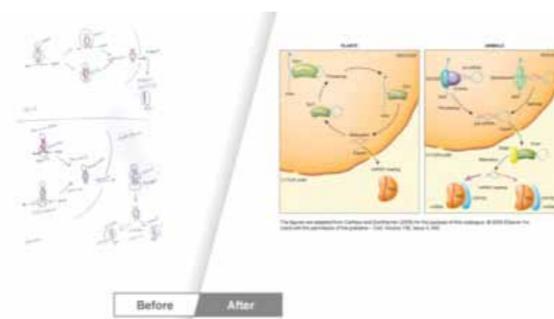
We suggest authors consider using a language editing service to improve the English language usage and quality of an article. A number of language editing companies provide their services to authors at competitive rates. Details can be found at www.elsevier.com/languagepolishing

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Revision before submission – checklist

Reasons for early rejection: content (aims and scope)

- Paper is of limited interest or covers local issues only (sample type, geography, specific product, etc.).
- Paper is a routine application of well-known methods
- Paper presents an incremental advance or is limited in scope
- Novelty and significance are not immediately evident or sufficiently well-justified

Reasons for early rejection: preparation

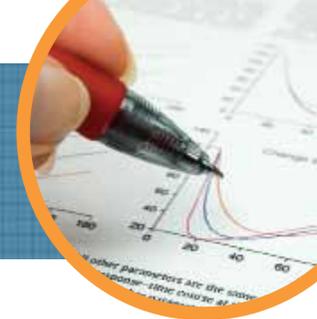
- Failure to meet submission requirements
- Incomplete coverage of literature
- Unacceptably poor English

What should you check?

- Is your work of interest to the journal's audience?
- Does the work add significant value to an existing method?
- Is the perspective consistent with the journal?
- Are the conclusions drawn from the justified results?
- Does your work add to the existing body of knowledge? – Just because it has not been done before is no justification for doing it now. And just because you have done the study does not mean that is very important!

What should you check?

- Read the Guide for Authors again! Check your manuscript point by point. Make sure every aspect of the manuscript is in accordance with the guidelines. (Word count, layout of the text and illustrations, format of the references and in-text citations, etc.)
- Are there too many self-citations, or references that are difficult for the international reader to access?
- Did the first readers of your manuscript easily grasp the essence? Correct all the grammatical and spelling mistakes.



Choosing the right journal, article formatting and cover letter

- Check aims and scope of the journal to see if your article is a good fit.
- Check if the journal is invitation only, because some journals will only accept invited articles.
- Submit only to one journal at a time. International ethic standards prohibit multiple/simultaneous submissions, and editors DO find out!
- Check the Guide for Authors which will include information on the types of article accepted, editorial team contacts, graphics specification, acceptable language and article length. See for journal finder: www.elsevier.com/authors
- Go through the abstracts of recent publications to find current hot topics: www.sciencedirect.com
- Ask help from your supervisor or colleagues. The supervisor (who is often co-author) has at least co-responsibility for your work.
- Articles in your references will likely lead to the right journal.

Format your article

In addition to being properly written, your article should be properly formatted.

- Most word processing formats are accepted (rtf, doc, docx or LaTeX is preferred).
- Please see your journal's Guide for Authors to check the style of the individual journal, and particularly the reference style. By submitting an article in the journal's preferred style, fewer changes will need to be made later on, reducing the possibility of errors being introduced. Visit www.elsevier.com/authors, select journal and click on Guide for Authors.
- Most formatting codes are removed or replaced when we process your article, so there is no need for you to use excessive layout styling. Please

do not use options such as automatic word breaking, justified layout, double columns or automatic paragraph numbering (especially for numbered references).

- You may use bold face, italic, subscript, superscript, etc., as appropriate.
- When preparing tables, if you are using a table grid, please use only one grid for each separate table and not a grid for each row. If no grid is used, use tabs to align columns (instead of spaces).
- When you create your article, as a general rule, please make sure it appears in the following order, although please check each journal's guide for authors for specific instructions.

Section	Purpose
Title	Clearly describes contents
Author	Ensures recognition for the writer/s
Abstract	Describes succinctly what was done
Keywords	Ensures the article is correctly identified in abstracting and indexing services
Main text	
<i>Introduction</i>	Explains the hypothesis
<i>Method</i>	Explains how the data were collected
<i>Results</i>	Describes what was discovered
<i>Discussion</i>	Discusses the implications of the findings
<i>Acknowledgments</i>	Ensures those who helped in the research are recognized
References	Ensures previously published work is recognized
Supplementary material	Provides supplementary data for the expert reader

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All submissions must be accompanied by a cover letter detailing what you are submitting and which journal you are submitting to.

Please indicate:

- The author to whom we should address our correspondence. (In the event

of multiple authors, a single corresponding author must be named.)

- E-mail address, contact address and telephone/fax numbers. (Corresponding authors receive PDF proofs by e-mail.)
 - It is also useful to provide the editor-in-chief with any information that will support your submission (e.g., original or confirming data, relevance, topicality).
 - Any conflict of interest in producing the research (e.g., funding resources).
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Elsevier Editorial System (EES) and peer review

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Our primary research journals are peer reviewed and independently edited by acknowledged experts in their fields. Reviewers are appointed by the journal editor.

Peer review has two key functions:

- To act as a filter by ensuring only good research is published to determine the validity, significance and originality of the work.
- To improve the quality of research submitted for publication by giving reviewers the opportunity to suggest improvements.
- Some journal editors will ask authors to provide the names of possible reviewers.

Different types of peer review

Type of review	Description
Single blind	Reviewer identity hidden from author
Double blind	Both reviewer and author remain anonymous
Open	Reviewer and author are known to each other

Reviewers will then make a recommendation to the editor to accept, accept with revisions or reject the article.

To find out more about peer reviewing or to become a reviewer visit www.elsevier.com/peerreview

After your article has been accepted

Once your article is accepted for publication, it will be published online on SciVerse ScienceDirect as an article in press and allocated a Digital Object Identifier (DOI). The DOI means articles can receive citations immediately. Further information is available on www.doi.org

Articles in press will be assigned to an issue at a later date. You are able to track the status of your article throughout the publication process by visiting <http://authors.elsevier.com/trackpaper.html>

Recently we began introducing article-based publishing, making final and citable article available online faster, and improving their findability. Articles will be published as soon as possible without waiting for an issue to be compiled; they will appear in an " Issue in Progress". More information: www.elsevier.com/abp

The process is outlined below:

Registration:

- Giving your article a unique reference number
- Checking your article for completeness
- Checking your artwork for clarity and usability
- Sending the corresponding author an acknowledgment e-mail with the reference number that can be used to track the article
- Sending the corresponding author a Journal Publishing Agreement

Production:

- Ensuring your artwork is added properly
- Creating a proof copy to be sent to the corresponding author for final review

Publication:

- Correcting any errors you identify on the proof copy
- Making the article available as an article in press online on ScienceDirect
- Giving your article a volume number, issue number and page numbers
- Sending the final copy to the printer
- Distributing the printed journal to subscribers

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During the time between your article's acceptance and its final printing we will ask you to:

- 1 Complete a Journal Publishing Agreement
- 2 If printed offprints are required, complete an offprint order form
- 3 Review a proof copy to check for errors and answer queries

Production process

Production

When the completed article is ready to enter the production process, it is copy-edited in the style of the journal, typeset, and structured for online publishing. The artwork is sized and scanned according to the required specifications and a page proof is generated for you to carry out a final check.

Proofreading

As soon as your article has been typeset, page proofs as a PDF file will be sent to the corresponding author (If we do not have an e-mail address, article proofs will be sent by post.) This usually happens 4-5 weeks after we receive your complete article.

Accurate proofreading and clear marking of corrections are essential for the production of a quality article. Please note that careful proofreading is solely your responsibility. Please mark any necessary corrections in a distinct manner. Elsevier will do everything it can to have your article corrected and published as quickly and accurately as possible. Therefore, it is important to ensure that all of your corrections are sent back to us in one communication.

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- Websites: The right to post a pre-print version of the journal article on Internet websites including electronic pre-print servers, and to retain indefinitely such version on such servers or sites for scholarly purposes (with some exceptions such as The Lancet and Cell Press. See also our information on electronic preprints :

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Example of retracted article

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Cross Check

Investing in plagiarism-detection software

Cases of suspected plagiarism (or duplicate submission) are rarely limited to the same journal or publisher. More often than not, multiple journals and publishers are involved. Software solutions, therefore, ideally require cooperation between (all) publishing houses. The service is called CrossCheck. It involves software from iParadigms, known for providing plagiarism software to the academic world. CrossRef members co-operate to maintain a single database of published articles (perhaps later also to include submitted articles) against which checking can take place.





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Impact Factors and other quality measures

Impact Factor

The Impact Factor is the most widely referenced quality measure amongst academic publications. It is defined as the ratio between citations and recent citable articles published in a journal; the average number of citations received per published article. The following is an explanation of how Thomson Reuters calculate Impact Factors.

Calculating Impact Factors

Citations in 2010 to articles published in:

2009 187 total citations
2008 318 total citations

Sum 505

Number of articles published in:

2009 54 total articles
2008 46 total articles

Sum 100

Calculation:

$\frac{505}{100}$ Total citations to articles published in 2008 and 2009. 100 Number of articles published in 2008 and 2009

The 2010 Impact Factor for the journal is 5.050

Impact Factors vary greatly by subject discipline and comparison is only meaningful within the same subject category or group.

h-index

The h-index rates a scientist's performance based on his or her career publications, as measured by the lifetime number of citations each article

receives. The measurement is dependent on both quantity (number of publications) and quality (number of citations) of an academic's publications.

If you list all of a scientist's publications in descending order of the number of citations received to date, their h-index is the highest number of their articles, h, that have each received at least h citations. So, their h-index is 10 if 10 articles have each received at least 10 citations; their h-index is 81 if 81 articles have each received at least 81 citations. Their h-index is 1 if all of their articles have each received 1 citation, but also if only 1 of all their articles has received any citations.

How is the h-index different from the Impact Factor?

The main difference is that the h-index refers to the performance of an individual scientist.

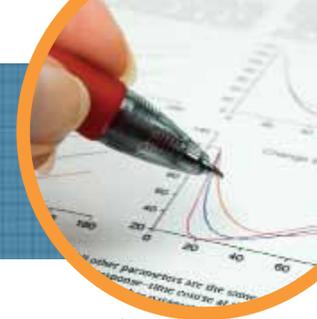
- The h-index is based on lifetime citations received by a scientist's articles. The Impact Factor is based on only 2 years' worth of citations.
- Both rankings measure the average performance of an individual scientist or a journal. Some articles will receive many more citations, and some fewer, than the ranking figure.

Usage

Usage is a new concept for measuring journal value and impact. It can be defined as how often the full-text article is downloaded or viewed. Counting Online Usage of Networked Electronic Resources (COUNTER) is attempting to standardize usage reporting and develop a Usage Factor metric.

Libraries already use usage statistics heavily to evaluate their collections and spending. Authors are also interested to see how much their work is downloaded. For more information visit www.projectcounter.org

To find out more about these journal measures and others, please visit www.elsevier.com/wps/find/editorsinfo.editors/biblio



SNIP and SJR journal metrics: new perspectives in journal evaluation

The SNIP and SJR metrics help authors to answer key questions such as:

Where should I publish my paper?

What is the quality of a particular journal?

How can I ensure that the papers I've written gain the widest possible attention and visibility?

About SNIP and SJR

SNIP, or Source-Normalized Impact per Paper, is defined as the ratio of a journal's citation count per paper and the citation potential in its subject field. It aims to allow direct comparison of sources in different subject fields. Citation potential is shown to vary not only between journal subject categories – groupings of journals sharing a research field – or disciplines (e.g., journals in Mathematics, Engineering and Social Sciences tend to have lower values than titles in Life Sciences), but also between journals within the same subject category. For instance, basic journals tend to show higher citation potentials than applied or clinical journals, and journals covering emerging topics higher than periodicals in classical subjects or more general journals.

SNIP corrects for such differences. Its strengths and limitations are open to critical debate. All empirical results are derived from the Scopus abstract and indexing database. SNIP values are updated twice a year, providing an up-to-date view of the research landscape.

SJR, or SCImago Journal Rank, is a prestige metric based on the idea that

'all citations are not created equal'. With SJR, the subject field, quality and reputation of the journal have a direct effect on the value of a citation.

SJR is a measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from. It is a variant of the eigenvector centrality measure used in network theory. Such measures establish the importance of a node in a network based on the principle that connections to high-scoring nodes contribute more to the score of the node. The SJR indicator, which is inspired by the PageRank algorithm, was developed for extremely large and heterogeneous journal citation networks. It is a size-independent indicator and it ranks journals by their 'average prestige per article' and can be used for journal comparisons in science evaluation processes.

Why use SNIP and SJR in addition to Thomson's Impact Factor?

SNIP and SJR add another dimension to assess and rate a journal; they help you to validate the high quality and impact of your research outputs to your peers. Is the journal you intend to publish in really at the top three journals in your field? Is this the best journal to publish in, taking all these three metrics into account? SNIP and SJR help you get a clear picture on how to measure the scientific impact of a journal from various angles.

When are SJR and SNIP preferred for journal analysis?

- For journals that do not have Impact Factors
- When subject field differences may affect ranking, and not only quality
- When comparing basic and applied journals
- When investigating multidisciplinary fields such as nanotechnology

For more information on SNIP and SJR: www.journalmetrics.com

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ISI Web of Knowledge/Web of Science

Impact Factors are measured by Thomson Reuters using the ISI Web of Science database. More information on Impact Factor measurements can be found at

www.webofknowledge.com

MEDLINE and PubMed

MEDLINE is an online database of 11 million citations and abstracts from health and medical journals and other news sources. MEDLINE is searchable via PubMed, a service of the US National Library of Medicine that includes over 18 million citations from MEDLINE and other life science journals for biomedical articles. www.pubmed.gov

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