

Publishing a Journal Article

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There is no tried and tested way of “publishing solid journal articles” that works for everyone and in every discipline or subdiscipline. Authors change their styles naturally during their careers, a style in vogue in a certain discipline for some years falls out of fashion later, and so on. Simplicity, however, always remains a virtue — the one true constant that should guide you throughout your research career. The following tips should help you develop your own publication strategy:

- **Choose the right journal.** First, decide your readership for the manuscript that you intend to write. If your work is narrowly focused, consider publishing in a highly specialized journal that has a section in which your paper would fit naturally. If the implications of your work are very broad, you should choose a less specialized journal, perhaps even a general-science magazine such as *Nature*. After choosing the journal, read and follow the editorial board’s instructions to authors.

Do not overload a journal’s editorial board by submitting many manuscripts in a short period. Those poor souls have to evaluate the novelty of each manuscript and decide on appropriate reviewers. The number of reliable and knowledgeable reviewers is only a small fraction of the number of authors.

Publish in a diversity of journals to reach diverse audiences, so that your overall work has a chance to be appreciated widely. This is an important strategy in an increasingly inter-disciplinary research world.

- **Review the literature.** Before writing your manuscript, spend some time reviewing the relevant literature. You have to create a context for your work. Context is not created simply by citing many papers. Instead, think of a story about your work to tell your disciplinary peers. Tell that story as the introductory part of your manuscript. The papers that appear in that story must be cited.

The literature review will also help you choose the right journal.

- **Choose the right size.** Should you write a letter, a short paper, or a full paper? Your choice depends only partly on the contents of the intended paper. Letters and

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short papers are generally appropriate to present either (i) work of momentous importance that must be published quickly, or (ii) incidental results that would add to the literature but are not of sufficient importance to merit publication as a full paper. Choice (i) is appropriate for high-profile journals and general-science magazines, whereas choice (ii) works best for specialized journals.

A full paper contains a lot of necessary detail. A small fraction of your fellow researchers will be highly interested in knowing all the details. Many full papers are read carefully only by graduate students. Make sure that you provide enough details so that your reader is not frustrated.

On very rare occasions, you may wish to publish a letter in a high-profile journal or general-science magazine, but still need to provide many necessary details that would lengthen the manuscript and perhaps blunt its impact. Even if you decide to submit a full-length manuscript, there may be raw data that is essential for reproduction of your results but would distract most readers. In either case, you could submit Supplementary Information that many publishers provide repositories for.

- **Learn to write well.** Perhaps, there is really only one effective way to learn to write well: by reading. Good writers are voracious readers. Memorizing rules may help you, but you will develop the instincts to write well by internalizing enough examples of good writing.

Before writing your first manuscript, read a good book on writing a composition that is not literary. The following books are strongly recommended: (i) E. Bender, *The Most Common Errors In English Usage And How To Avoid Them*, (ii) W. Strunk, Jr., and E. B. White, *The Elements of Style*, and (iii) E. Gowers, *The Complete Plain Words*. A sturdy dictionary of English usage is well worth your investment. Read such books often as you mature as a researcher.

- **Write an interesting manuscript.** Your manuscript must report novel research, to the best of your knowledge.

The parts of a paper that attract a reader most are its title, abstract, introduction, and the concluding section. If the title is not interesting and informative, potential readers will not bother to read even the abstract. The most that you can hope for is that the abstract will be widely read. If it is sufficiently inviting, a reader may then scan the paper for figures and maybe read the concluding section.

The following tips will help you write a manuscript that reviewers and readers will find exciting.

- Choose a descriptive, attractive and short title for the manuscript. This task requires some thought, as all three requirements should be met. Finalize the title after finishing the rest of the manuscript.

- The abstract should also be written at the end. An abstract is a miniature stand-alone paper that should convey the most important details of the work as well as the chief results without reference to the rest of the manuscript. An abstract must not be written as an advertisement of the manuscript. Avoid phrases such as: “In this paper” and “is/was studied/examined/presented/investigated”.
- The introduction must contextualize the research being reported. Review the literature and then create a context.
- Break up your manuscript into sections and subsections. Every section and subsection must have a transparent theme.
- The concluding section should not merely recount the work you did and the results that you reported in the previous sections. The concluding section should contain specific and broad conclusions that could be distilled from the results in the previous sections. In addition, do indulge in some speculation as to the implications of those conclusions.
- Avoid excessive use of jargon. Precision is important for scientific communication, but too much of jargon restricts the intelligibility of your manuscript to only a tiny group of people.
- Resist the urge to acronymize, although two or three acronyms per manuscript may help to shorten it, particularly if they are in common use. Acronyms with more than 4 letters must be avoided. The best acronyms are pronounceable. Provide the full form of an acronym the first time it is used.
- An ideal sentence is short, with no more than two verbs and three punctuation marks. Put every verb and its subject noun close to each other. Pay attention to number and tense. Do not often split infinitives. Never use dangling modifiers. Avoid an excess of superlatives and intensifiers.
- The practice of “elegant variation,” commonly taught in creative-writing courses, must be avoided. Use only one word for an entity or action, and imply just one entity or action by one word, throughout the manuscript. There are no exact synonyms. In any given context, there will be one and only one best word, and you must find it.
- Punctuate properly. Commas, semi-colons, and colons have different uses, and must not be used interchangeably. Use quotation marks only for direct quotations; otherwise, simply italicize. Exclamation marks must be used only for exclamations, not to highlight a surprising result.
- Show your enthusiasm by using the active voice, although the passive voice may be adopted carefully for a few sentences in order to create a specific effect. Often, a sentence becomes more forceful when an adjective is eliminated in favor of a related verb. Do not avoid incidental humor or wordplay, but make sure that such constructions are not obscure.

- Avoid the temptation to recount the history of science in your manuscript, unless you can write with the same accuracy as a historian of science.
- Do not be verbose. Do not lose focus. Come to the point as soon as possible, so that the reader’s valuable time is not wasted.
- Do not be unnecessarily terse either. Imagine that your paper is being read by a first-year graduate student. Put yourself in that reader’s shoes and evaluate the intelligibility of your manuscript.
- Resist the temptation to write: “It can be easily shown that....”, or “It is trivial/obvious to show that...” Also, avoid using the adjective “well-known”. Such constructions are either superfluous or insulting to the reader. Do not use the adjective “so-called”, except pejoratively. Use “respectively” sparingly. Do not use “model” and “system” in more than one context in your manuscript.
- All items in a list must belong to the same part of speech; e.g., all must be nouns, or all must be adjectives.
- Define every symbol when it is first used in the manuscript. Make a table of all mathematical symbols and their meanings that you use in the manuscript. Use this table to ensure that only one symbol is used for a quantity. (This table will not be a part of your manuscript for most journals, but it will help you keep your notation straight.) Thus, do not use the symbol i both as an index with integer values and to stand for $\sqrt{-1}$.
- Your notation should be such that scalars, vectors, and tensors should be clearly distinguishable from one another. Provide units for every quantity with units; SI units are highly preferred except in some specialized communities.
- Number every mathematical expression that you set apart from the running text.
- A picture is worth a thousand words. Do not avoid putting schematics, graphs, and other types of diagrams to explain your work. But, every figure must be highly relevant to your manuscript. All lettering should be in sufficiently large characters to be legible even when the figures are reduced to the size preferred by the chosen journal.
- Do not provide complicated figures that only you can understand easily. Often dense 3D graphs are confusing to the reader; consider replacing a dense 3D graph by a few 2D graphs that bring out significant relationships.
- Figure captions and legends must contain all necessary information for another researcher to reproduce your work.
- If you reproduce a figure from a published work, cite the source; in addition, you may have to obtain copyright permissions from the author(s) and the publisher of the source.

- Do not expect reviewers to conduct literature searches on your behalf and to provide missing references.
 - Never copy a citation from some other paper; indeed, never cite a publication whose hardcopy or pdf you do not possess.
 - When you cite a book for a specific experimental fact, theoretical proof, etc., include the relevant page numbers from that book.
 - Justify your choice of the journal by citing at least one relevant paper published in that journal not long ago. Unless your work is truly groundbreaking, you should be able to thus match your manuscript to the journal.
- **Treat reviewers with respect.** Reviewers donate their valuable time in reviewing. Remember that the number of reliable and knowledgeable reviewers is only a small fraction of the number of authors. Reviewers usually determine whether or not a manuscript is accepted. They have to take time from their own work to review your manuscript. They will not be well disposed toward your manuscript if it is badly written.

Unless a review is both perfunctory and negative, do not dismiss it casually. Verify every assertion made in the reviews, before revising your manuscript and writing rebuttals or responses.

When writing a rebuttal or response, reproduce the review, say in italicized fonts. Insert your remarks in Roman letters after every sentence or paragraph in the review. Mention your agreement or disagreement with the reviewer, with support from literature, and identify the steps taken by you while revising the manuscript. A point-by-point rebuttal or response lessens the burden on the reviewer as well as on the editorial board.

Be polite even when rebutting the reviewer. If a review is very helpful in letting you present your work effectively, make sure to acknowledge it in the revised manuscript.