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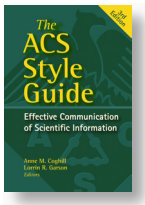
10 Secrets FOR SUCCESSFUL ARTICLE SUBMISSIONS



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1 Make a Significant Contribution

Researchers must decide when enough work has been done to make a significant contribution to a field. "Significant" is in the eye of the beholder, and sometimes reviewers and authors will differ markedly with regard to this judgment. The give and take between authors and reviewers is part of the normal process of science and undoubtedly improves the quality of published work. Clearly neither science nor scientific publishing are enhanced by a continual stream of short, incomplete descriptions of a research project. A publication should describe a project that is complete unto itself and represents a true advance in the field. (An exception to this rule occurs when a very unusual result is obtained that is of great interest and significance—in this case, publication as a preliminary note may be justified.)

2 Submit Your Findings in a Timely and Ethical Manner

Scientists also have an obligation to publish their research results in a timely manner. Unpublished research results constitute research not done in the eyes of other scientists. Unnecessary delays can result in duplication of efforts and may hinder the advancement of science. Under no circumstances should a manuscript be submitted and then held up in the revision or page proof stage for reasons not directly related to the research—for example, because of patent considerations.

Given the "publish or perish" mentality that sometimes exists, researchers may be tempted to maximize their number of publications by publishing many short, somewhat repetitive research reports. This practice serves no useful purpose for science or the investigator. In truth, the reputation of an investigator is ultimately determined by the quality of research done over an extended time. Beginning independent investigators are often told that a research reputation can be thought of as a product of quantity times quality of published work. If only one publication appears every 10 years, they may be advised, it had better be a good one. On the other hand, a large number of low-quality publications is not of benefit to the individual or the profession. Investigators may be tempted to publish the same material, or material only slightly different, multiple times. This practice is unethical. The manuscript should clearly describe prior work that has been done by the authors. It is the obligation of the corresponding author to inform the journal editor of any related manuscripts that have been submitted and/or published elsewhere, including preliminary communications and symposium volumes. There are no exceptions. Moreover, although the review process can be lengthy, under no circumstances should a manuscript be submitted simultaneously to multiple journals.

3 Provide Full Disclosure

Unfortunately, because of space limitations, the trend in publishing research results is to provide less and less detail. Although brevity is admirable, it is important that the results be described fully and accurately. Moreover, all of the results should be reported, not just those supporting the underlying hypotheses of the research. If necessary, most journals allow the possibility of submitting supporting documentation as supplementary information. Although this material does not appear in the printed version, it is readily available online. The rule of thumb is that sufficient information should be provided so that other investigators could repeat the experiments if they so desired. The necessity for providing sufficient detail has to be balanced with the need to conserve publication space. As might be expected, considerable variation exists in practice as to what this entails. The manuscript review process plays a tempering role, balancing these two factors.

Representative data and/or calculations are an important part of any scientific presentation. Obviously, not all of the data, derivations, and calculations can be presented. It is acceptable for the "typical data and/or calculations" that are presented to be among the best, but all the data should be included in the analyses. The reproducibility of the results is an implicit assumption for published work. However, first-rate research often involves difficult measurements at the edge of existing methodology, and the difference between signal and noise may be hard to distinguish. It is acceptable to report results for which this is the case, as long as the appropriate qualifications are clearly stated. A critical assessment of the research should be made by the investigator, including an error analysis. No one should be more critical of the research that is reported than the authors.

4 Acknowledge Authors Appropriately

Generally speaking, all authors of a publication should have made significant and substantial intellectual contributions to the work being reported. Unfortunately, this principle is often breached, as evidenced by manuscripts with tens, even hundreds, of authors. Some laboratories put the names of everyone in the laboratory on the published work, and some individuals put their names on every publication coming out of a laboratory, even if their participation was only nominal.

If a colleague prepared buffers or did routine computer programming, these contributions should be acknowledged, but they are not sufficient contributions for authorship. General discussion with colleagues or within research groups is rarely sufficient for inclusion in authorship. Despite some arbitrariness in defining what constitutes a significant intellectual contribution, the guiding ethical principle is clear and should be adhered to. Usually the question of authorship can be decided by discussion among the participants in the research. Occasionally, a third party may be required to adjudicate this issue. In any event, this matter should be fully resolved before submission of a manuscript.

A question that often arises concerns the order of the authors' names. This is not really an ethical issue, and practice varies from place to place. Most often the first author is assumed to have made the major contribution to the work, and the senior and/or corresponding author is listed last. However, many variations to this theme exist, such as putting the authors in alphabetical order. In some cases, the specific contributions of each author are described. Ideally, the order of authorship should be decided amicably among the authors, but perceptions sometimes differ between the individuals involved. Authors should not become obsessed with this matter. Ultimately, a researcher's scientific reputation rests on the totality of publications and the significance of contributions to the field.

It is often said that all authors are responsible for the entire content of a manuscript. This is a meritorious ideal, but unrealistic. Most manuscripts have multiple authors, and very often, a single author is responsible for only a portion of the work being presented. For example, the manuscript may contain a crystal structure, determined by an expert crystallographer; spectral data, determined by an expert spectroscopist; kinetic data, determined by an expert kineticist; etc. In cases such as this, a single author cannot be held responsible for all of the results presented. A more realistic assessment of what authorship implies is that each author should have read the manuscript carefully and understood the findings, but the technical responsibility is only for the area in which a given author has the appropriate expertise. The responsibility of the corresponding author is to ensure that all authors have approved the manuscript before submission and for all subsequent revisions.

Identify the Goal of Your Manuscript

Although there is no fixed set of "writing rules" to be followed like a cookbook recipe or an experimental procedure, some guidelines can be helpful. Start by considering the following questions:

- What is the function or purpose of this manuscript?
- Are you describing original and significant research results?
- Are you reviewing the literature?
- Are you providing an overview of the topic? Something else?
- Who is the audience?
- Why would they want to read your manuscript?
- What will you need to tell them to help them understand your work?
- How is your work different from that described in other reports on the same subject?
- What is the best format for publishing this manuscript—as a journal article, book, or book chapter?
- If you choose a journal article, which journal is most appropriate? *(Links to ACS journals can be found at pubs.acs.org.)*

Review Your Manuscript

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An extremely important step is to check the specific requirements of the publication and to follow them. Journals often specify a format, the number of pages, what software packages or file formats are acceptable, how to cite references, and many other aspects of manuscript preparation. Each journal also has a specific policy on prior publication. Requirements can vary from journal to journal. Understanding the requirements for the manuscript cannot be overemphasized.

8 Use Artwork Appropriately

As you write your draft manuscript, consider where structures, schemes, figures, and tables could be used appropriately to illustrate or support the material. Well-placed and well-designed artwork communicates information effectively, but too much artwork can be distracting.

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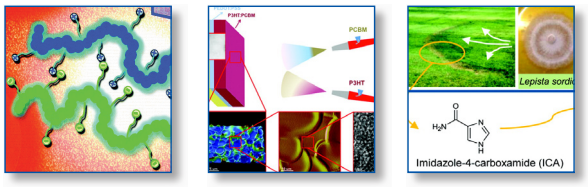

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9 Revise Your Draft

Once you have written your initial draft, the next step is a careful revision with an eye to organization, content, and editorial style, beginning with the following questions:

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- Have you explained terms, concepts, and procedures in a way that is appropriate to the audience you identified at the start?
- Is your material presented in a logical fashion, so that a reader can easily follow your reasoning?

- Is the manuscript too long? If so, what sections could be eliminated or possibly used as supporting information?
- Do some sections need to be expanded to further clarify the material?
- Are the sentences clear and unambiguous?
- Are all the words spelled correctly and technical terms used appropriately?
- Did you follow generally accepted conventions for communicating math and chemistry?
- Could you use another opinion? You may find it helpful to ask a colleague, preferably one who is not closely involved with the research on which the manuscript is based, and preferably a native English speaker, to read and comment on your draft.

10 Suggest Reviewers

When your draft manuscript is complete, check the journal guidelines again for information on how and where to submit your draft. Some editors request that authors suggest possible reviewers. By recommending reviewers who have relevant expertise, you could reduce the amount of time required for the review process.

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