

The Scientific Editor: An Advocate for Transparent Research

Jenna Jakubisin and Kristin S Inman

If you were to ask a room of editors how they landed a career in scholarly publishing, you might hear a common theme: “I fell into it.” Whether by serendipity or design, a career in this field offers opportunities to do meaningful work, acquire new knowledge, and nurture a fondness of the written word. But at the same time, it’s a vast and constantly evolving ecosystem. What new or emerging opportunities exist? Scientific editing, for one! Specifics will vary depending on the journal, but in general the scientific (also called science or technical) editor’s role is to work with the handling editors to facilitate the publication of high-quality, highly citable manuscripts that are clear, consistent, and transparent. In this article, Jenna Jakubisin and Kristin Inman discuss scientific editing at their respective publications, highlighting its tremendous value to both authors and journals.

Instituting a Scientific Editor Position: How Does Scientific Editing Benefit Journals?

*Radiology*¹ is the flagship journal of the Radiological Society of North America (RSNA), published regularly in-house since 1923. In a typical year, we receive about 3000 submissions. The scientific editor position was created in 2017, an effort spearheaded by the journal’s editor and approved by RSNA’s board of directors. The initial goals were simple but ambitious:

- **Goal 1: Support the journal’s deputy editors.** Technical edits had previously been performed by deputy editors (our busy subject matter experts). The use of a Scientific Editor allows them to focus on scientific content rather than language editing.
- **Goal 2: Help improve the language and reporting of science.** At *Radiology*, we think of the scientific editor as the author’s advocate. The scientific editor helps authors to

better communicate the meaning of their research. This includes translating complex science to clinical practice and summarizing for various audiences, including policymakers, regulators, and readers outside the field. Furthermore, a close read at an early stage may help prevent major issues that could delay publication or result in an erratum down the line.

The scientific editor role at RSNA has since expanded. In 2019, we hired a Scientific Editor: Subspecialty Journals. In 2022, we added a second Scientific Editor for *Radiology*. Table 1 provides a broad overview of scientific editing and compares it with what is commonly covered by other roles at a journal or publisher.

What Does the Scientific Editor Role Offer the Author?

Environmental Health Perspectives (EHP),³ a diamond open-access journal, has long included a scientific editor review for manuscripts considered for publication to ensure consistency of reporting, transparency of methods, and adherence to journal guidelines and standards. Whereas the peer reviewers focus on, among other things, the quality of the science and the impact of the work, *EHP*’s scientific editors evaluate the *manuscript* and how it is written, with consideration for how accessible the content of the paper is—from the description of the scientific rationale that motivated the study to the complete reporting of methods in a reproducible manner to thorough and clear reporting of results. In addition to journal-specific formatting, we review the paper for any issues that may have a significant influence on the ability for the science to make a meaningful impact in the field. Table 2 provides examples of questions the Science Editor considers for each section of a manuscript.

What Are the Challenges of Including a Scientific Editor in the Publication Process?

One challenge of the scientific editor role is that it straddles two different functions: peer review (pre-acceptance) and editorial (post-acceptance). Scientific editing typically takes place before the manuscript is accepted and may involve collaboration with editorial board members (e.g., deputy or associate editors) and authors. To help ensure consistency throughout the publishing process, *Radiology*’s scientific

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Table 1. Comparison of scientific editing with other common editing roles

	Handling Editor*	Peer Reviewer	Scientific Editor†	Manuscript Editor or Copy Editor
Stage in publishing process	New submission or revision; pre-peer review	Peer review	Peer review (likely to be accepted)	After acceptance, before page proofs
Role	Evaluates the impact and quality of the science, and whether it is within the scope of the journal	Per ICMJE, provides an unbiased, independent, critical assessment of the manuscript ²	Author advocate; improves language and communication of the science; helps authors ensure compliance with journal guidelines	Reader advocate; liaises with authors and journal staff; may serve as “project manager” responsible for quality assurance and on-time publication
Scope of edit	Big-picture view; usually decides whether a manuscript is rejected or sent for peer review	Big-picture view as well as a critical review of the methods, reporting, and interpretations; includes comments to author with guidance, examples, and recommendations for improvement; may include requests for additional experiments or a recommendation to the editor to reject	Big-picture view; critical analysis; includes comments to author with guidance, examples, and recommendations for improvement	Line-by-line edit to prep document for publication; revises language for usage, flow, and clarity; eliminates biased language and jargon; responsible for figures, tables, supplemental material, and article metadata
Areas of focus	Scope; impact and novelty of work; clarity of presentation‡	Impact and novelty of the work; scientific rigor; clear and transparent presentation; correct study design to answer study question; appropriate interpretation of findings; adequate citation of relevant publications	Adherence to word count; appropriate title; correct overall structure, statistical test information, and data presentation; methodological transparency; clear and consistent reporting; compliance with ICMJE guidelines	Consistent terminology and presentation of data; person-first language; table formatting; accurate funding information, conflict of interest disclosures, and reference numbering; correct grammar and syntax
Goal	Ensure quality of the science and appropriateness of the article for the journal	Ensure scientific quality	Ensure high editorial quality	Ensure high editorial quality

Abbreviation: ICMJE, International Committee of Medical Journal Editors.

*Describes the role of the Scientific Editor at *Radiology* and *Environmental Health Perspectives*.

†Handling Editor may refer to Deputy Editors, Associate Editors, and in some cases Editors-in-Chief.

‡Although Handling Editors do not focus on the writing, poor writing quality can preclude peer review.

Source: modified from https://pubs.rsna.org/page/radiology/blog/2022/4/ryblog_04202022

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Table 2. Science Editor (SE) considerations.

Paper Section	Items the SE Reviews
Abstract	<ul style="list-style-type: none"> • Are the methods, results, and conclusions in the abstract representative of the entire paper? • Are the conclusions presented in a way that are not likely to be misinterpreted?
Introduction	<ul style="list-style-type: none"> • Are statements describing scientific knowledge appropriately phrased and properly attributed? • Does the introduction provide a scientific rationale and objectives?
Methods	<ul style="list-style-type: none"> • Are materials and methods described in enough detail to ensure transparency and facilitate repeatability?
Results	<ul style="list-style-type: none"> • Do the results reported in the text match what is shown in the figures and tables? • Are results fully reported (e.g., not cherry picked)? • Do the authors provide the summary data for figures, as appropriate?
Discussion	<ul style="list-style-type: none"> • Are the conclusions appropriate for the findings described in the study (e.g., not overinterpreted)? • Do the authors discuss the conclusions in the context of relevant studies? • Do the authors address the limitations of their study?

editors, manuscript editors, and proofreaders use the same resources (e.g., the *AMA Manual of Style*, Stedman's Medical Dictionary, in-house style manual). *Radiology* also developed a proprietary Scientific Style Guide⁴ as an author resource. *EHP* science editors hold weekly meetings with the editor-in-chief and deputy editors, as well as quarterly

meetings with our associate editors to discuss manuscripts and ensure we are providing a consistent voice to the author.

Another challenge is the need to balance quality and timeliness. Scientific editing inserts another step in an already long process. Authors may become frustrated (and rightfully so) with the time it takes to perform a quality review and make additional revisions. They may also question the need for a scientific editor if the manuscript is being peer reviewed. At *EHP* and *Radiology*, we acknowledge that our peer reviewers are volunteers, and that the thoroughness of peer review can vary depending on the manuscript, the reviewer's experience, and even the time of year. The scientific editor review ensures a level of consistency among manuscripts with respect to clarity, consistency, accessibility, and transparency of reporting.

What Qualities Make for a Successful Scientific Editor?

Ideally, a scientific editor will have a Master's or PhD degree in a scientific discipline, or a solid understanding of the scientific method and statistics. A scientific editor needs excellent communication skills, the ability to think critically and to problem solve independently, a keen attention to detail, and a track record of meeting deadlines. Finally, true of any career in scholarly publishing, an abundance of patience and a sense of humor will go a long way!

Conclusion

The clear communication of science is more important than ever.⁵ The scientific editor plays an important role in the life cycle of a manuscript by helping to ensure the study findings can be replicated by the scientific community. Furthermore, by making information accessible and understandable to a broad audience, the scientific editor contributes to an article's discoverability and impact.

References and Links

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