Why do the rules and conventions of academic publishing keep changing, and how can researchers stay current?

One of the roles we have at ThinkSCIENCE is to help researchers understand the intricacies of academic publishing. To do this, we keep ourselves up-to-date on the rules and conventions of publishing and on the latest industry initiatives. This allows us to help researchers follow the rules and take advantage of some of the newest initiatives, making writing and publication as smooth and trouble-free as possible.

- By *rules*, we mean, for example, adhering to the latest ethical standards in research and publication (e.g., avoiding plagiarism, inappropriate image manipulation, and duplicated publication; resolving authorship issues; describing potential conflicts of interest).
- By *conventions*, we mean using writing conventions and expressions appropriate to your specific subject area, and writing up your research within a standard framework/structure.
- And by *industry initiatives*, we are referring, for example, to using the most appropriate writing tools available (Word, LaTeX, EndNote, XML, Overleaf, etc.), choosing the best publishing route for you at a given time (pre- or post-publication peer review, subscription or open access publication, etc.), and understanding how your role in the academic community can be characterized (CRediT, C-score, Peer Review Citations, etc.).

We're sometimes asked:

“Why do the rules, conventions, and methods/models of academic publishing keep changing?

And how can researchers manage to stay current?”

Both are interesting and important questions, particularly because the penalties for not adhering to certain rules and conventions can range from minor (e.g., delayed entry to peer review because you didn’t provide all the ethics statements needed at submission) to dire (e.g., being sanctioned from publishing with a journal for misconduct or being suspended from receiving government funding for a stated period).

In this article, we’ll address both of these questions. We’ll look briefly at why changes to rules and conventions keep happening (and who motivates the changes), and then how you can keep up to date on the latest changes and initiatives.

Question 1: Why do the rules, conventions, and methods/models of academic publishing keep changing?

The rules, standards, and conventions we follow when publishing our research are worked out through discussions (both formal and informal) among five main groups: authors, institutions, publishers, journal editors, and facilitators. Let’s look at the interests of each group and how they affect the ultimate set of rules decided.

The perspective taken here is necessarily broad. We know that the reasons for researchers to write up (or not) particular results are varied and nuanced, as are the motives for members of each of the groups described. By examining groups in aggregate, though, a clearer picture of broad trends becomes evident.

Authors

Researchers write academic articles for several reasons, but mostly not for direct financial gains.

Instead, good papers contribute to the advancement and wellbeing of society, raise the profile of the authors, and open additional opportunities in the form of grants, consultancies, tenure, and other career improvements (which can, of course, have financial benefits).

It is important to researchers that their manuscripts be (a) relatively easy to prepare and submit, (b) reviewed as quickly as possible, (c) published as quickly as possible, and (d) distributed to the right readership.

An example of how authors’ needs drive changes to the rules and conventions

To speed up manuscript review and reduce the time to publication as authors want, many journals ask authors to prepare their manuscripts in a highly structured format, exactly as laid out in lengthy guidelines for authors. By following a clear format, authors can be sure they provide all the required information in the required format right from the outset.

In the health sciences especially, authors often must follow clear reporting guidelines for different study designs (see the EQUATOR Network for more than 280 reporting checklists) and attest that research ethics have been followed. See for example, the comprehensive submission guidelines for PLOS Medicine. Many journals state in the guidelines that delays may occur in the submission process if the submission guidelines are not fully met and some say they will return the manuscript before peer review for reworking if the guidelines are not followed.

Even aside from ethics statements, authors in various disciplines must follow strict rules in order to publish (e.g., mandatory disclosure of data for research funded by the U.S. Department of Energy, a new policy that took effect in October 2015).

Authors may perceive changes to the rules for manuscript preparation as taking up more of their time, but these moves are designed to ensure the quality of research published as well as speed up time to publication.

Institutions

Institutions, including universities, hospitals, and research-focused companies, frequently see scholarly publication by their members as a way to increase the institution's standing in the research community.

For many universities, this is the primary outward-facing function of faculty: to publish research that improves the institution's image and standing. This helps to attract well-qualified students and faculty, to secure government funding, to encourage alumni to donate, and broadly to grow the strength and health of the university. For other institutions, and particularly among research-focused for-profit companies, publication by members is not central to the goals of the institution but can help in recruitment and retention of key research staff, in securing intellectual property agreements, and in participating in standards-setting within industry.

Because a key benefit that institutions receive from researcher publications is prestige, institutions have a vested interest in supporting authors to publish heavily, along with a balancing interest in ensuring that the publications are high quality. These high-quality publications should reflect high-quality research, which can have significant value to the institution (e.g., the University of California has made more than 500 million dollars from patent rights).

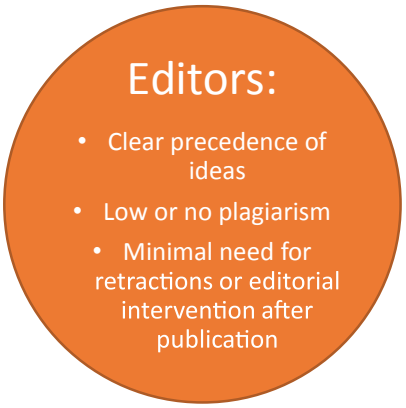
An example of institutionally driven change: arXiv

To improve the quality of both research and the publications flowing from that research, some institutions spend significant resources promoting open and transparent research.

For example, Cornell University is the primary supporter of arXiv, a pre-print service used by many mathematicians and physicists to encourage scientific discussion, gain broader readership, and ensure that research precedence is clear. To some extent, arXiv has facilitated an already existing culture of open sharing within these disciplines; to some extent, it has spread that culture, as seen through increasing usage by disciplines without such traditions of openness before publication.

The copyright agreement used by arXiv has forced many journals to alter their copyright agreements to not count pre-publication on arXiv as duplicate publication, lest they be unable to publish many important and seminal works. However, because submission to arXiv entails irrevocably granting a non-exclusive copyright to arXiv, some journals still do not allow submissions of manuscripts posted on arXiv (arXiv cautions authors about this).

Journal Editors



Journal editors are usually, first and foremost, academics who want their journals to be known for publishing accurate, relevant, and novel research papers.

Because of these goals and the structure of academia (particularly the dominant system of promotion and tenure via publication), journal editors are concerned mainly with finding novel and important papers, cultivating positive relations with authors and reviewers, and avoiding anything (such as retractions) that detracts from their journal's reputation and clouds the scientific record.

Examples of how journal editors drive changes to rules and conventions

At most publishers, journal editors have broad control over the guidelines for authors used by the journal, although these guidelines usually function within an existing template. For example, all IEEE journals use the IEEE style guide, but the aims and scope of each journal are set by the journal's editor. Similarly, many English-language social science journals will have their own specific guidelines but broadly follow the APA Manual of Style and require that any research

involving humans have been performed in accordance with international standards. Therefore, journal editors can decide some of the rules and conventions (e.g., reporting guidelines, ethical statements) they want their authors to follow. When an increasing number of journals see the benefits of certain changes and adopt them, these changes are more likely to become a part of the template for future guidelines.

Journal editors are also active in discussions of broader issues in academic publishing, such as how to strengthen publication ethics and handle ethical concerns, improve current manuscript submission and handling systems, and give authors and reviewers suitable credit for their work. Their input on these issues will help to shape the broader rules and conventions in the publishing industry.

Publishers

Although management of copyediting accepted articles and distribution of journals are two of the most visible things undertaken by publishers, there are many, many others. In fact, 96 activities are reported in the latest list.

Publishers value consistency and predictability in their business because this allows them to allot resources to production departments, printers, and so on. Because of this, publishers work closely with journal editors to ensure that the journals are published on a regular schedule, are of a high enough quality to attract readers and subscribers, and reflect well on the authors, editorial staff, and reviewers who produce the content.

One recent trend is for publishers to make accepted articles immediately available in electronic form even before they have been assigned to upcoming issues of print or online journals (i.e., "published online ahead of print" or "advance online publication"). This rapid publication, which can happen before or after copyediting or DOI allocation depending on the journal, benefits authors and readers without affecting the value of the article to the journal and publishers. (See the list at the end of this article for some innovative publishing platforms.)

An example of publisher-led change: ORCID

The ORCID system allows researchers to obtain a globally unique identification number for use in submitting to journals. This helps to distinguish between researchers with similar or identical names, ensuring that your work is attributed to you, rather than to someone else who shares your name (and vice versa). Some journals require authors to have registered for an ORCID before allowing them to submit.

The original system was based on the ResearchID system used by the publisher Thomson Reuters, which is still one of the main supporters of the ORCID system.

Facilitators

This group encompasses government agencies, companies, societies, and other interested parties who play a role in the scholarly publication ecosystem. Because this group is so varied, the interests of the members are also varied. For example, the Japan Society for the Promotion of Science (JSPS), which provides funding for a large amount of basic and applied science research in Japan, has the stated aim of "contributing to the advancement of science in all fields of the natural and social sciences and the humanities." This is quite a different purpose than that of COPE, the Committee on Publication Ethics, whose aim is to "[provide] advice to editors and publishers on all aspects of publication ethics and, in particular, how to handle cases of research and publication misconduct."

A point of common agreement for facilitators is that the rules of academic publishing should be clear. Whether it is by systematizing the rules (as COPE does), by enforcing the rules and rewarding those who follow them (as the JSPS does in Japan, with agencies in other countries filling a similar role), or by disseminating the rules (as ThinkSCIENCE does), facilitators act in concert to make the publication process clear, consistent, and predictable.

In some fields, such as medicine, facilitators also act to ensure that human and animal research subjects are treated ethically. For example, the World Medical Association is responsible for the Declaration of Helsinki, which governs medical research involving human subjects.

As funding bodies, some facilitators require that authors who receive research money from them publish their research outcomes under certain conditions. The Wellcome Trust and the European Commission's Horizon 2020 program are two examples. They require all the research they fund to be published open access. Therefore, publishers that want to publish these papers must be able to offer open access publishing.

Companies in the scholarly publication ecosystem often fill multiple roles. For example, ThinkSCIENCE is an Associate Corporate member of COPE, provides education services to institutions, and benefits indirectly when researchers receive funding from JSPS and other sources. Part of our remit as a company that smooths the publication of research is to ensure that we understand the latest rules. Toward this, we actively educate authors about the rules via workshops, Q&A Pros (our online question and answer system), feedback on individual research articles, and other activities.

An example of facilitator-led change: Overleaf

Overleaf is a platform that allows online, collaborative writing of documents in LaTeX. We've been using this system when we teach LaTeX for years (back when it was called WriteLaTeX), and so we've been able to see it as it has undergone significant changes.

Now, Overleaf does more than just allow authors to write LaTeX. For example, it allows direct submission to some publishers and can be used in some peer review.

Overleaf is one example of a type of newly emerging service. These services aim to help authors do more of the 'mark up' of manuscripts, which allows journals to turn submissions into published articles more quickly and accurately. If authors prefer not to do any of the markup, these services can still assist copyeditors in marking up the articles later in the production workflow.

Question 2: How can researchers keep current with the changes made?

With so many initiatives and updates around, we understand that it can be difficult for researchers to know which updates are vital to know—in general and in specific fields—and which are helpful to know. Here, we'll point you to some good information sources.

General information about publication ethics: COPE

COPE offers publishers and journals a forum to discuss and work out policies and procedures to improve ethics within publishing. At their website, you can find their latest guidance, including "International standards for editors and authors."

One of COPE's latest discussion topics concerns data sharing. A number of publishers are considering changing their data sharing requirements or have already changed them (e.g., PLOS), directly affecting authors submitting to their journals.

Scholarly and professional societies

Many scholarly and professional societies publish guidelines for their members to use. Some sets of guidelines have been adopted more widely, including those published by the American Chemical Society (3rd edition), the American Medical Association (10th edition), the American Psychological Association (6th edition), and the Modern Language Association (3rd edition).

Health research: EQUATOR, ISMPP, and ICMJE

EQUATOR began as an initiative by the National Health Service of the UK. The EQUATOR website contains an extensive set of guidelines that can be used to guide reporting of many different types of study. Additionally, they compile recommendations from many other groups, such as COPE, ISMJE (discussed below), and the European Association of Science Editors.

ISMPP, the International Society for Medical Publication Professionals, a not-for-profit organization, seeks to improve transparency and standards in the medical publication profession, among other initiatives. ISMPP is bringing about changes to the way we report industry-sponsored medical research, although the recommendations made are helpful to researchers in all areas of health care.

ICMJE, the International Committee of Medical Journal Editors, publishes guidelines and resources, including standardized forms for routine tasks, such as reporting conflicts of interest. It also recently published "Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals", aimed at authors and others involved in biomedical publishing.

Conclusion

The answer to the question of why the rules in academic publishing change so often is straightforward. At heart, the answer is this: "Everyone who participates in publishing has an interest in changing and updating the rules." The specific rules change over time as some things become easier (e.g., checking for plagiarism) and some things become less relevant (e.g., requiring that articles be submitted by post).

At ThinkSCIENCE, we're in the fortunate position of being able to keep abreast of changes and trends in academic publishing, and we're very happy to help if you have any questions or concerns.

Below are some developments and initiatives that we find interesting.

Recent developments, services, and initiatives in academic publishing

Note: This is a small sample of what we're reading about. Some of these things are likely to become more important over time, and some will be supplanted by new developments.

Overleaf: Simplifies collaboration and writing of LaTeX documents. Some publishers are allowing direct submission through Overleaf.

Think. Check. Submit.: General guidelines on selecting quality journals.

Rapid Science is developing a "C-score" to rate collaborator contributions for multi-author papers.

The Transparency and Openness Promotion (TOP) Guidelines are intended to "provide a template to enhance transparency in the science that journals publish."

Open Science Framework provides a framework for collaborative research (the TOP Guidelines are being worked out via Open Science Framework).

1science offers "[t]he complete open access, peer-review solution for librarians, researchers, faculty and students, in all academic disciplines."

Glass Tree offers "Academic publishing without the exploitation".

XML for authors is being encouraged by some publishers as a way to expedite publication.

GPP3, the third version of the Good Publication Practice for Communicating Company-Sponsored Medical Research, describes how to discuss and present industry-sponsored medical research.

F1000, Faculty of 1000 offers tools to help life scientists discover interesting work, write their own work, and then publish that work.

The Consortia Advancing Standards in Research Administration Information (CASRAI): promotes a number of endeavors to improve the research and publication process. One interesting program is the CRediT program, which aims to describe contributions beyond simple authorship.