Description

Scholarly manuscripts usually have several authors. New collaborations across scientific disciplines and geographical borders have led to an increase in the number of multi-authored papers in the last few years, making the proper attribution of contributor roles a major topic.

Who Did What?

There are many ways a researcher can contribute to a scientific publication starting from designing and carrying out the experiments to analyzing the data or writing the article. Traditionally, the first author contributes most—and also receives most of the credit—whereas the roles of subsequent authors are not that well defined. In many research areas, the last author receives as much credit as the first one, because he or she is assumed to be the driving force behind the research. However, this is only an informal practice and the assumption is not always true.

Actually, the sequence in which the author names appear on a manuscript can be decided in many ways, by contribution, alphabetical order, seniority, or other criteria, depending on the case. This makes it difficult for outsiders to properly interpret author lists, both in terms of reflecting actual contributions or for future assessments by evaluation committees. Colleagues, editors, academic institutions, and funding agencies are therefore increasingly interested in seeing more detailed information about individual contributions to research projects. Ranking the first or second author in a two-author manuscript is straightforward, but this gets more complicated as the number of authors increases.

Guest Authors and Ghost Authors

The criteria for authorship attributions have been discussed at length, but unfortunately, two unwanted practices have been identified during the last few years: The first one is *guest authorship*, which occurs when an author's name is included in the authoring list although they did not contribute to the research or the preparation of the manuscript. Some scholars—especially young, inexperienced researchers—often include well-respected names in their manuscripts to confer additional credibility on their results and improve their chances of publication in a high-impact journal.

The second phenomenon is referred to as *ghost authorship* and comes about when individuals who significantly participated in the preparation of a manuscript are not included in the final author list. The reasons are manifold, for example, when a professional writer is employed by the principal authors, or when political or organizational affiliations might suggest a conflict of interest. By omitting some authors' names, the paper affiliations look more neutral.

CRediT and OpenRIF

Many journals now require contribution disclosures upon article submission—some in structured form, some in free-text form. At the same time, funders are developing new ways to track the results of their investments. The Consortia Advancing Standards in Research Administration Information (CASRAI),

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an international, nonprofit standards body based in Canada, has now created a standardized list of author contributions called CRediT, which allows different journals to make use of the same list of contributor descriptions (instead of free-text descriptions), thus facilitating data analysis across various publications. CRediT has already been integrated into electronic submission systems, such as Editorial Manager. The classification implemented by CRediT is not limited to traditional authorship roles but also includes other types of contributions to published work. All participants should be listed, whether they formally appear as authors or are named in the acknowledgments. An individual contributor may be assigned multiple roles, and a given role may be assigned to multiple contributors.

Another tool that can assist researchers and funders in the difficult task of giving authors and collaborators proper credit for their work is the contribution ontology being developed in the context of OpenRIF, the Open Research Information Framework, which is an open-source organization dedicated to developing and promoting infrastructure that can help the scientific community to link and classify data about academics and their contributions to research. In combination with other initiatives, such as ORCID, SHARE, or DataCite, OpenRIF aims at creating a more transparent information platform for scholarships.

All these strategies will surely be a great support for researchers, funders, and academic journals, avoiding misinterpretations and reducing the number of arbitrary author contributions in scholarly publications. The implementation of these tools is an important step forward in the promotion of successful multidisciplinary scientific collaborations.

Category

1. Publishing Research
2. Understanding Ethics

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