

Authorship (RCR-Basics)

Introduction

There are often variable and conflicting conventions, practices, expectations, and even policies that are not always directly stated yet are often assumed to be universally known and understood.

Learning objectives

- Describe primary criteria used to determine who should be listed as an author on a scholarly publication
- Describe the range of acceptable authorship practices, including different conventions used to determine the order of authors.
- Discuss the circumstances under which an acknowledgment may be appropriate.
- Describe the ethical responsibilities of an author.
- Discuss challenging and problematic authorship practices

The Importance of Authorship

Authorship is the way that the research community identifies those who should be both recognized and credited with a specific contribution to the work, and held responsible and accountable for the information contained in publications.

Allocation of Credit

Criteria for Authorship

The closest thing to a universally agreed upon criterion for authorship is that everyone who makes a significant intellectual contribution to the new information that is the core of a paper should be considered a potential author. Problems contained in this criterion include the meaning of the terms new and significant.

Expectations differ widely with regard to authorship. Authorship should be based on intellectual rather than material contributions.

Among the most widely discussed current authorship standards are those provided by the Intercalation Committee of Medical Journal Editors (ICMJE 2017). This organization recommends that authorship be based on these criteria found in Figure 1:

ICMJE's standards can be found [here](#).

Authors may be unaware of the authorship guidelines put forward by their discipline, and even when they are aware of them, they may disagree with the criteria and refuse to comply with them. ****A more transparent, but not necessarily less problematic, strategy is to describe the specific contributions of each author.**

Other Forms of Giving Credit

Recognition of contribution does not necessarily mean authorship is given in the form of acknowledgment. Acknowledgements are often placed in a footnote or near the end of the manuscript. Those listed may include, but are not limited to, funding sources, providers of rare or unique research materials, technical assistants, language and technical editors, and supervisors or administrators.

Author Order

Again, universal definite rules for author order are generally lacking. The order may reflect the extent or nature of one's contributions, for example, who did the "most" work, who had the primary or key idea, or who wrote the first draft of the manuscript. **Historically, the head of the research team, normally the most senior researcher, was listed first.** As with authorship criteria, author order is usually determined by the head of the research group and/or the first author based on perceptions of the significance of the order within the particular research community, and ideally in consultation with other coauthors.

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work;

Drafting the work or revising it critically for important intellectual content;

Final approval of the version to be published; and

Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Figure 1: Authorship Criteria

Common Conventions

In many fields, the first author is the individual who earns the most credit by having taken primary responsibility for the intellectual core of the work (lead or primary author). On occasion the primary author responsible for the work's intellectual core is listed last.

Fundamental research findings tend to be linked with the name of the first author. Because the meaning of the author order is rarely stated directly, readers may award significance based on their assumptions about the order.

Corresponding author

The individual designated to receive the bulk of a paper's reprints and whom those interested in obtaining a printed or an electronic copy of the paper should contact. This person may or may not be the submitting author, the senior author, the first author, or the last author.

Senior Author

Normally the head of the research team, is often the corresponding author, and in some disciplines, the last author. As a result, in some disciplines, it is assumed that the last author position carries significant status whether or not it is the authors' intention.

Figure 2: Author order

Because of the complexities associated with determining what a particular author list means, some journals use asterisks (or another similar strategy) attached to each author's name as a means for more specifically spelling out the relevant person's contribution to a project.

Discussing Authorship

Authorship is generally essential for professional advancement, trainees need to understand the process and its implications. Discussions about authorship criteria, order, and responsibilities should be held on an ongoing basis and be revisited with changes in direction for personnel.

All research team members should discuss co-authorship of publications early in the research process in order to identify and clarify expectations and assumptions. At the same time, the power differential within the research team and the overriding role and responsibility of the head of the team in deciding on the professional development of junior members and the interests of the team as a whole, may sometimes influence the determination of authorship. For example, the perception that someone "needs" a publication and an emphasis on credit rather than responsibility may be in conflict with standard authorship practices.

A Case Study

Mr. Palant, a graduate student, is a member of a research group headed by Dr. Steel. He has developed an exciting new research methodology but is experiencing some difficulties related to his thesis project. Dr. Dunn is a postdoctoral fellow in the same group who believes that she may have found a solution to Mr. Palant's difficulties. Dr. Dunn designs and carries out a small pilot study based on Mr. Palant's work, and the results lead her to draft two papers.

The first paper describes the rationale and methodology that Mr. Palant developed as part of his thesis project. Dr. Dunn includes Mr. Palant's name on the author list for this paper. However, Dr. Dunn does not place Mr. Palant's name on the second paper. Even though the methods were initially developed by Mr. Palant, Dr. Dunn claims that it is her original work and she wants the paper to stand out in a journal with just two authors (herself and Dr. Steel).

- How should authorship issues related to the first paper be handled?
 - The original version of the first paper should likely be discarded. Under the supervision of Drs. Dunn and Steel, Mr. Palant should write a new paper describing his thesis work himself. It is essential that graduate students learn to explain their own research and do so in the format, style, and conventions of their discipline.
- How should authorship issues related to the second paper be handled?
 - Mr. Palant should be asked to work with Dr. Dunn to carry out that research, especially since it is closely tied to Mr. Palant's thesis. At the beginning of their collaboration, they should start discussing their expectations related to author responsibilities and order.
- Should Dr. Steel, the head of the research group, be listed on either paper? Why or why not?
 - It is hard to know without more information, in particular, the extent of her active involvement in the work. Assuming a relatively small research group, it is likely that Dr. Steel provided a "significant intellectual contribution" by actively supervising Dr. Dunn's and Mr. Palant's projects. This can qualify Dr. Steel to be an author assuming that other disciplinary or journal-based authorship criteria, if there are any, have been met.

Responsibilities of Authorship

The responsibilities of authorship flow from its purpose: **to share research findings**. Each author has a responsibility to review and edit the manuscript. In doing so, an author can maintain one's professional reputation by refining the correcting the manuscript for accuracy and completeness and take public responsibility for the manuscript. An authors responsibilities include confirming the following in Figure 3

The social responsibilities of the authors follow from the fact that the work is usually funded by the public and carried out in the name of society.

Other Authorship Challenges and Problems

Authors can be held responsible for the content of the work that they publish. It can be problematic if someone other than the individuals listed as authors writes the publication because hired or substitute writers may not accurately present the research or interpret the data. In such cases, the contributions of language and technical editors must be clearly recognized and acknowledged in the submitted manuscript.

More problematic are ghost authored articles where the identify of the actual writer is not provided. Ghost authorship is deceptive and must be avoided.

Also problematic is honorary or gift authorship, which is the proactive of adding to the list of authors the name of someone who has not made a significant intellectual contribution to the work. It is usually done to recognize the stature of the honoree, but in some instances, names have been added to gain favor with the honoree, or to increase the credibility of a submitted manuscript in the eyes of editors or reviewers. Even well-meant, honorary or gift authorship is deceptive and must be avoided.

Another problem is the lease publishable unit. This practice involves dividing a project into as many papers as possible, without an appropriate justification for doing so. It is more preferable to have a comprehensive discussion of a research project rather than a series of publications.

Duplicate publication, which involves either republishing a significant portion of a paper or the paper in its entirety, is a controversial issue. Republication is allowable under the scenarios listed in Figure 4.

Publication of rewritten material for a different audience is frowned upon when it is actually an attempt to receive undeserved extra credit for a single contribution to the body of knowledge. However, the public dissemination of information is to serve as a foundation for future research and also support public policy and personal decision making. Transparency and disclosure can mitigate some of the ethical concerns about duplicate publications. Such as indicating which publications are duplicates on a resume.

If you are to share a preprint, which is a more formal version of the informal and less extensive collegial critiquing of research report drafts among a small group of close colleagues. Preprints are drafts of research reports prior to the formal peer review

All relevant work is cited, both confirming and contradictory, in order to provide the reader with a full understanding of how the work relates to the existing literature within the field, and to recognize and acknowledge the work of others in the field.

All data are accurately and clearly presented.

Key underlying assumptions are clearly stated.

The work is described in sufficient detail so that in principle it can be replicated.

Potentially hazardous aspects of the research are clearly identified.

Conflicts of interest that may, consciously or unconsciously, bias the interpretation of the research findings have been disclosed to editors and readers.

Figure 3: Responsibilities taken via authorship

The work is being translated into another language.

The work is being published in an anthology or similar collection.

The material is rewritten and targeted to a different audience.

The authors are transparent with each respective publisher about the duplication and have addressed relevant copyright issues.

Figure 4: Scenarios in which republishing is allowable

and should be clearly labeled as such. Although it is just a draft and the list of authors may evolve, the same principles regarding authorship that apply to publication of a peer reviewed article should be taken into consideration before circulating or pasting a preprint.

Collaboration Case Study

Dr. Anderson is an associate professor who is the head of a research team. At a conference, he met a senior researcher from another country and their discussions led Dr. Anderson to propose a collaboration between their two research teams. After working on the project, the two teams are pleased with the results. They exchange several drafts of the manuscript describing their research findings. Dr. Anderson receives the final version of the manuscript and is surprised to discover that an additional name has been added to the author list: the department chair from the university in the other country.

- Is it appropriate to include the department chair in the author list if that person was not directly involved in the project?
 - Strictly speaking, no. In general, it is inappropriate to list a person as an author who was not directly involved on the project. However, the situation should lead to a discussion between the research teams about authorship assumptions, expectations, and practices.
- How should Dr. Anderson handle the listing of the department chair?
 - Dr. Anderson should speak directly with the head of the collaborating team and ask about the role of the department chair in the project and at the same time state his point of view on the issue. Together, the heads of the two collaborating teams should determine the next appropriate step, which may involve mentioning the department chair in the paper's acknowledgements section.
- If a student or postdoctoral fellow were in Dr. Anderson's position, what would the suggested course of action be?
 - A student or postdoc should seek advice from a more senior colleague. Regardless of one's career stage, tact and diplomacy are essential because international authorship practices vary. There are no universal standards or criteria for authorship, and accepted (and acceptable) authorship practices are evolving.