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DISCUSSION DOCUMENT:

AUTHORSHIP

DISCUSSION

PROMOTING INTEGRITY IN RESEARCH AND ITS PUBLICATION

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VERSION 2: September 2019

AUTHORSHIP

Introduction

This document, based on the ***COPE Discussion Document*** titled ***What Constitutes Authorship?*** resulted from a review of the ***COPE Forum*** cases related to authorship, comments from **COPE** members related to the discussion document, and a desire to move past the stage of discussion to providing practical advice on addressing the most common issues around authorship. We are therefore providing specific guidance where there seems to be consensus and asking for further comments from **COPE** members in some areas.

Please send your feedback to: **Natalie Ridgeway, Executive Officer** at:
cope_execofficer@publicationethics.org

Definition

The term authorship can refer to the creator or originator of an idea (eg, the author of the theory of relativity) or the individual or individuals who develop and bring to fruition the product that disseminates intellectual or creative works (eg, the author of a poem or a scholarly article). Authorship conveys significant privileges, responsibilities, and legal rights; in the scholarly arena, it also forms the basis for rewards and career advancement. Various disciplines have norms, guidelines, and rules governing authorship; some of those rules preserve the lineage of ideas or works, assign credit for the conception, implementation and analysis of studies or experiments to validate theory or explain hypotheses, and the actual writing of work to disseminate knowledge. Authors are accountable for following discipline-specific guidelines when they engage in authorship activities; journal editors and publishers are accountable for making author guidelines transparent and appropriate for the medium and genre (scholarly books, journal articles, creative writing). At a minimum, authors should guarantee that they have participated in creating the work as presented and that they have not violated any other author's legal rights (eg, copyright) in the process.

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BACKGROUND

A review of the database of ***COPE Forum*** cases related to authorship *(https://bit.ly/2YnAsza)* highlighted some areas where authorship guidance could be further developed. These areas include authorship disputes involving multiple author groups in different institutions or countries, negotiation of the order of authors, involvement of third-party editing or medical communications companies, translated works, cases where authors threaten co-authors, reviewers, editors or publishers with legal action, and work submitted by student authors. Additionally, **COPE** has begun an expansion into universities and research institutes through a pilot program for institutional membership in **COPE,** which has resulted in broader discussions among **COPE** members about the education and mentorship of new researchers and the processes and responsibilities surrounding resolution of authorship disputes in submitted and published papers. Finally, **COPE** has developed its ***Core Practices*** for good publication ethics to include ***Authorship and Contributorship,*** which broadens the discussion about the differences between authoring and contributing to the scholarly records. This document reflects the increasing complexity of the business of scientific discovery and advancement.

CURRENT DEFINITIONS OF AUTHORSHIP

The number of authors on a publication varies from the sole author to the recent record set by a physics paper naming 5,154 collaborating authors *(https://go.nature.com/2xlD6KY).* Sole authorship is more common in the arts, humanities, and social sciences, whereas multiple authorship is most common in disciplines where large, multinational groups collaborate on long-term experimental projects. The most well-known authorship guidelines are those from the **ICMJE** *(https://bit.ly/1ruKdnU),* which have been widely adopted by biomedical journals. Editorial, professional, or academic organisations within different specialties have set out criteria and guidelines that members could adopt in their consideration of authorship. The minimum requirements for authorship, common to all definitions, are **1)** substantial contribution to the work and **2)** accountability for the work that was done and its presentation in a publication. It is important that authors know, understand, and adhere to the criteria for authorship within their respective disciplines. Acknowledgements may be used to denote contributions to the work that do not meet the criteria of authorship such as, supporting the study, general mentoring, collecting data, acting as study coordinator, and other related activities (eg, *(https://bit.ly/314njwK), (https://www.casrai.org/credit.html)* and *(https://bit.ly/2GAS8kF).*

See resources, on page 12, for additional links to guidelines.

COPE's guidance on ***Authorship and Contributorship*** as a ***Core Practice*** states:

"Clear policies (that allow for transparency around who contributed to the work and in what capacity) should be in place for requirements for Authorship and Contributorship as well as processes for managing potential disputes."

This reflects the importance of transparency in the published record in order to maintain trust in the integrity of scholarly publishing, particularly when editors are faced with authorship disputes. The responsibility for upholding authorship standards for any journal rests with the editor of that publication; however, editors must rely on the authors themselves to be truthful and transparent in their declarations of contribution. Although **COPE** advises that editors are not in a position to make determinations of authorship on a manuscript, **COPE's** resources help editors recognise potential authorship problems *(https://bit.ly/2zNgTWK)* and directs editors to relevant resources to assess and determine a course of action. Many cases of possible ethical misconduct in the ***COPE Forum*** case database reflect a lack of awareness of authorship responsibilities and the limitations of editors' efforts to resolve authorship disputes.

SUGGESTIONS FOR AUTHORS

Discussions about authorship assignment, especially when there is an imbalance of power between researchers, can be a difficult process. Student/faculty and mentee/mentor relationships are an example of this power imbalance. The **American Psychological Association** has suggested some tools to help students and researchers frame these discussions *(https://bit.ly/2ZgRKiD).* For students, a respectful negotiation of authorship is a learning experience that will prepare them well for future negotiations in collaborative work environments. Conversations around negotiating authorship should begin early in the life of a project, and changes in status and order may occur multiple times throughout the process up to the date of publication. Therefore maintaining a record of meetings, project agreements/contracts, and discussions can help to remind authors of the history of the agreements to date and to provide the framework for completing authorship contribution requirements for journal submission. Although authorship order is important for quantifying relative contributions to a project, the assignment of a responsible corresponding author is equally important to the journal production department and to readers who may wish to contact the authors in the future. The same suggestions can be used for authors working in multi-site collaborations or within other writing groups. A corresponding author must be willing to fulfil the obligations as stipulated by the journal (eg, respond promptly to editorial queries, act as correspondent for future enquiries about the integrity of the work).

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RESOURCES FOR AUTHORS

- **Negotiating authorship** *(https://bit.ly/2YbaHGX):*
  A score sheet for quantifying contributions to a project to determine order of authorship.
- **Negotiating order of authorship** *(https://bit.ly/2LKUKAJ):*
  Authorship tiebreaker scorecard used when 2 or more people achieve the same score on the authorship determination score sheet.
- **Contract among authors during project development** *(https://bit.ly/2Mo5Jzw)*
- **Contract among authors after publication/presentation agreed** *(https://bit.ly/2GzKgQk)*
- **NIH Guidelines for authorship contributions** *(https://bit.ly/314njwK)*
- **Working with third-party editing or medical communications companies:**
  The International Society for Medical Publication Professionals (ISMPP); *(https://www.ismpp.org)* developed guidelines for medical writers working with authors on company-sponsored research (known as **Good Publication Practice** or **GPP**). These guidelines form the basis for enhanced transparency in working with third-party medical writers and editors *(Battisti WP, Wager E, Baltzer L Bridges D, Cairns A, Carswell CI, et al.* Good Publication Practice for Communicating Company-Sponsored Medical Research: GPP3. Ann Intern Med.163:461 DOI:10.7326/M15-0288).
  Subsequently, the **American Medical Writers Association (AMWA)** and the **European Medical Writers Association (EMWA),** in conjunction with the **ISMPP,** released a position statement on the role and responsibilities of professional medical writers *(https://bit.ly/2lSgwqo).*

GUIDANCE FOR EDITORS

The specifics might vary somewhat by discipline, but all journals should have a basic policy on what they consider qualifies someone to be an author of a research paper (as opposed to someone whose contribution should be acknowledged). This policy should be stated clearly in the journal's information for authors. If the policy is based on the **ICMJE, CSE,** or some other group, that should be stated, along with any modifications. Journals should also consider requiring that all named authors sign a statement of authorship as a condition of publication. Such a statement should ideally include:

- Attestation that each signatory fulfils the authorship criteria laid out in the journal's authorship policy
- A declaration that no other individuals deserving of authorship have been omitted
- A statement of the contributions of each signatory (journals might also consider publishing this information)
- A declaration that the signatory takes responsibility for the integrity of those contributions.

If a journal requires other statements, such as declarations of competing interests, assurances that all non-author contributors agree to being named in the acknowledgements or that no non-author contributors have been omitted from the acknowledgements, those requirements should be stated. Journal policies should support editorial checks of all required forms to verify that author contributions qualify for authorship, signed agreements confirm all non-author contributors agree to be named, and all conflict of interest and funding statements have been received.

When authorship disputes arise, submissions can be halted in the review or publication process until the dispute is resolved. Editors are not in a position to fairly adjudicate disputes, nor should they capitulate to threats and bullying by the authors involved in those disputes. Although the editorial office typically communicates with the corresponding author, for purposes of transparency, it is good practice to cc all co-authors on correspondence related to authorship disputes or missing statements of competing interests and funding. During the submission process, editors have some leverage over authors who want to see their manuscripts published; they should clarify what statements or forms are needed to satisfy submission requirements and establish a firm date by which a response is required. It is then up to the authors to satisfy the journal requirements or withdraw the submission. When a paper has already been published and an authorship dispute emerges, the editor has an obligation to correct the scientific record through an erratum, corrigendum, or, in extreme situations, an editorial expression of concern or retraction.

SUBMISSION GUIDELINES

Editors must have clear guidelines for authors, which go beyond referencing and formatting requirements, published in their journals. The guidelines should include the definition of authorship, ethical expectations for the planning, conduct, and reporting of the research, the responsibilities of authors during the review and publication process, and the requirement for attestations of work performed by authors, originality of the work, declarations of competing interests, and funding/support. Any restrictions on number of authors, co-first authorships or corresponding authors, or general requirements about how to present group authorships or acknowledgements of contributions must be clearly stated in the submission guidelines. Journal policies about group or consortium authorships might include clarification on any requirements for one author to act as a guarantor of the entire paper. If a named consortium is the agreed author, there should be one named individual in the consortium to act as a corresponding author; contact information for the corresponding author could be listed in a footnote. Copyright ownership and signature processes might require clarification for group authors. If all members of a named consortium are not authors on the paper, this should be clarified with a listing of author and non-author contributions in an end-note or acknowledgement section.

Specific requirements for supplemental material such as trial registration, institutional review board or ethics committee approvals, patient consent for medical case reports, availability of data, and copyright permission for use of instruments or other materials, must also be clearly stated in the guidelines.

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PRE-PUBLICATION AUTHORSHIP DISPUTES

When disputes arise over any of these requirements during the submission or review process (ie, prior to a decision on the manuscript), the editor can refer to the following **COPE Flowcharts** to make a decision on the final disposition of the submission.

- ***How to Recognise Potential Authorship Problems:*** *(https://doi.org/10.24318/cope.2019.2.22)*
- ***Suspected Ghost, Guest or Gift Authorship:*** *(https://bit.ly/2E28akf)*
- ***Corresponding Author Requests Addition of Extra Author Before Publication:*** *(https://doi.org/10.24318/cope.2019.2.8)*
- ***Corresponding Author Requests Removal of Author Before Publication:*** *(https://doi.org/10.24318/cope.2019.2.9)*
- ***What to do if you Suspect Systematic Manipulation of the Publication Process*** *(https://doi.org/10.24318/cope.2019.2.23)*

When there is an unresolved question about authorship or competing interests in a submitted paper, the editor should delay the review and production processes until a satisfactory resolution of all unresolved issues has been reached. Establishing firm deadlines involved in such disputes may prompt authors to respond quickly.

POST-PUBLICATION AUTHORSHIP DISPUTES

It is fairly common practice today that articles are published online ahead of print before being incorporated in an issue. If an authorship dispute occurs during this interval, editors should refrain from publishing the article in an issue until the authorship dispute is resolved. When authorship concerns arise following publication of an article, the editor must investigate the issue in a systematic manner. Simple corrections of name spellings, affiliations, or credentials may be corrected at the discretion of the editor without consultation with all named authors, although for transparency sake, all authors should be notified of a correction to their article. Changes in authorship order, or addition or removal of an author require consent of all listed authors; editors should have in place some mechanism such as a requirement for all authors to agree in writing to the proposed change. Failure to disclose competing interests by any author should be handled by a more formal mechanism and may require further investigation or involvement of the affiliated institution. **COPE** advises that concerns raised by whistleblowers, either directly *(https://bit.ly/2JX65eK)* or via social media *(https://bit.ly/2ynxOi0)*, should not be ignored or dismissed without investigation.

Editors can refer to ***COPE Flowcharts*** for advice on how to handle post-publication authorship concerns:

- ***How to Recognise Potential Authorship Problems:*** *(https://doi.org/10.24318/cope.2019.2.22)*
- ***Suspected Ghost, Guest or Gift Authorship:*** *(https://doi.org/10.24318/cope.2019.2.18)*
- ***Request for Removal of Author After Publication:*** *(https://doi.org/10.24318/cope.2019.2.11)*
- ***Request for Addition of Extra Author after Publication:*** *(https://doi.org/10.24318/cope.2019.2.10)*
- ***What to do if you Suspect Systematic Manipulation of the Publication Process:*** *(https://doi.org/10.24318/cope.2019.2.23)*

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CONSIDERATIONS FOR ACADEMIC AND RESEARCH INSTITUTIONS

It is important that journal editors and institutions maintain open communications to the extent permissible by law when investigations of authors are needed. Editors or institutional integrity officers might initiate an investigation, but successful resolution of the required corrections to the literature requires clear messages from both sides. Journal editors should focus on the integrity of the scholarly record and not take actions solely to punish authors for misconduct; punishment is within the purview of those institutions that employ authors. The journal editor's concern over misconduct of any sort is to evaluate how that conduct affects the scholarly record. The most common types of authorship misconduct necessitating review by institutions include plagiarism; stolen, fabricated or falsified data; disputes involving multiple authors, groups, institutions, and countries; and undisclosed conflicts of interest.

Plagiarism calls into question the authorship of a manuscript because the author of the new work is not actually the author of the original idea or text. When plagiarism is detected in a submission or a published article, there is general agreement that this is unacceptable behaviour and something must be done. **COPE** has developed flowcharts to assist editors in the assessment and resolution of cases of plagiarism in submitted manuscripts *(https://bit.ly/2MvdTpY)* and in published manuscripts *(https://bit.ly/2GGKpSi),* Although verbatim plagiarism is routinely detected using increasingly sophisticated software, assessment of the degree of plagiarism and any mitigating factors requires the expertise of the editor. Plagiarised submissions should be rejected with clear statements from the editor about the reasons, but **COPE** does not recommend sanctioning authors by forbidding future submissions. Whether or not the editor chooses to inform the institution is up to the editor. Processes such as notifying all authors of the reasons for rejection are acceptable and may result in educating/influencing co-authors.

In cases of stolen, fabricated, or falsified data, editors are more likely to involve institutions because of the difficulty in determining data or intellectual property ownership. Typically, large grants are awarded to an institution and not the principal investigator; therefore, institutions have an interest in protecting the data as a part of any grant award. When multiple institutions or author groups are involved, institutional investigations may not lead to complete resolution of the problem. One institution may not be able to investigate adequately outside of their own jurisdiction, and editors will have to use their own judgement in such cases.

Individuals who may be vulnerable to harassment intimidation, threats or other forms of coercion, such as students and junior faculty, need an institutional environment in which they can bring their concerns about research and authorship to the administration without fear of retribution. Institutional offices of research integrity and grants administration are an important part of a system to educate new researchers and protect whistleblowers.

Journal editors may receive requests from institutions or authors to correct or even retract an article after publication. Most editors will want to see all the evidence in support of the correction and weigh the request against their own journal policies as well as consult with the publisher and editorial board members. It is important to remember that authors, journals, and institutions are likely to have access to legal representation in any dispute. Traditionally, journals have policies not to make any corrections to the literature when there is an open (unresolved) legal case involving any of the participants.

FUTURE DEVELOPMENTS IN AUTHORSHIP

Publications are a major metric by which academics are valued and thus are essential for hiring, tenure, promotion, and grant funding. However, we have come a long way from the time when every person on a byline would have *"written"* a part of the paper. One proposal to take these changes into account is to move entirely to a contributorship model as proposed in the contributor roles taxonomy *(CRediT: https://www.casrai.org/credit.html).* A taxonomy may only suit some disciplines and much work will need to be done to refine the roles and any differentiation between authors and non-author contributors, if the idea is to be accepted.

What is clear is that authorship is a fluid, evolving concept and as it evolves so will the ethical challenges associated with it.

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RESOURCES

Discipline specificity for author guidelines:

SCIENCES

International Committee of Medical Journal Editors (ICMJE)

The **ICMJE** authorship criteria are widely accepted by biomedical journals, although there may be some additional clarification or interpretation of the term *"substantial contribution"* in the first criterion.

The **ICMJE** recommends that an author should meet all four of the following criteria:

- *"Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND*
- *Drafting the work or revising it critically for important intellectual content; AND*
- *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." (https://bit.ly/1ruKdnU)*

Authorship guidelines by *McNutt et al (https://bit.ly/2SYLbij)* further adapt the **ICMJE** guidelines making *"writing/revising"* an **OR** not an **AND** (cf **ICMJE**), and are being adopted by many journals.

Council of Science Editors (CSE)

CSE describes authors as follows:

"Authors are individuals identified by the research group to have made substantial contributions to the reported work and agree to be accountable for these contributions. In addition to being accountable for the parts of the work he or she has done, an author should be able to identify which of their co-authors are responsible for specific other parts of the work. In addition, an author should have confidence in the integrity of the contributions of their co-authors. All authors should review and approve the final manuscript." (https://bit.ly/2Z8btRH)

SOCIAL SCIENCES

American Sociological Association

The American Sociological Association includes the following in its **Code of Ethics:**

"(a) Sociologists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have contributed. (b) Sociologists ensure that principal authorship and other publication credits are based on the relative scientific or professional contributions of the individuals involved, regardless of their status. In claiming or determining the ordering of authorship, sociologists seek to reflect accurately the contributions of main participants in the research and writing process. (c) A student is usually listed as principal author on any multiple-authored publication that substantially derives from the student's dissertation or thesis."
(https://www.asanet.org/sites/default/files/asa_code_of_ethics-june2018.pdf)

PHYSICS

The American Physical Society has recently updated and expanded its **Guidelines on Ethics** *(https://bit.ly/2NqaLvP)* to include detailed guidance on the ethical conduct and reporting of research.

Ethical Principle on Authorship:

Although there is no universal definition, authorship creates a record of attribution, establishes accountability and responsibility with respect to the work, and is key in establishing careers. Authorship should be limited to, and should not exclude, those who have made a significant contribution to the concept, design, execution, or interpretation of the research study. Authors should be able to identify their specific contribution to the work.

Recommended Implementation:

1) The award of authorship should balance intellectual contributions to the conception, design, analysis, and writing of the study against data collection and analysis, and instrument and software development. Those who have made limited contributions should be listed in the acknowledgements section. If no substantial task directly related to the research can reasonably be attributed to a particular individual, then that individual should not be credited with authorship. It is recommended that each author's contributions be listed in the acknowledgements section or in a supplementary information file.
2) To avoid disputes over attribution of authorship, it is helpful to decide at the start of writing the paper who will be credited as authors, as contributors, and who will be acknowledged, and validate the choices with the research team.
3) Large collaborations should have clearly defined authorship policies as part of their governance process.
4) All authors must agree to publication of a manuscript and take public responsibility for the full content of their paper. The multidisciplinary nature of much research can make this difficult, but this can be resolved by the disclosure and discussion of individual contributions.
5) Appropriate processes for reviewing and ensuring the accuracy and validity of reported results should be established for all collaborations.
6) Corresponding and presenting authors should ensure that all co-authors of the work have approved the content of manuscripts and presentations.

HUMANITIES AND OTHER DISCIPLINES

Authorship within the humanities, law, and theology is still very much a product of the writing process, and usually by a single individual. Any other form of contribution such as generation of ideas, commenting on a draft, or technical assistance is listed in the Acknowledgements. Traditions in the humanities also differ from some disciplines in the social and natural sciences in terms of the relationship between supervisors and students in authorship with respect to graduate work. Frequently, students are sole authors of graduate-related research and supervisors and committee members are acknowledged for the supervision and mentorship that they have provided to the student authors.

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FURTHER READING

1. *International Committee of Medical Journal Editors. Defining the role of authors and contributors. https://bit.ly/N7uoq3*
2. *Council of Science Editors. CSE's white paper on promoting integrity in scientific journal publications: 2.2 authorship and authorship responsibilities. https://bit.ly/2NyQz8B*
3. *American Physical Society. APS guidelines for professional conduct. https://bit.ly/2u8uzJV*
4. *American Sociological Association. Code of ethics and policies and procedures of the ASA Committee on Professional Ethics. https://bit.ly/2KP589z*
5. *PhD On Track. Co-authorship. https://bit.ly/2zlDkW0*
6. *Committee on Publication Ethics. Authorship, contributorship, who's doing what, and what do we need? COPE Forum 3 June 2013. https://bit.ly/2KDKgCZ*
7. *How to Handle Authorship Disputes: A Guide for New Researchers. Albert T, Wager E. https://bit.ly/2KWD1IO*
8. *Report on the International Workshop on Contributorship and Scholarly Attribution https://bit.ly/2Nyl4vx*
9. *Credit where credit is due. Allen L, Scott J, Brand A, Hlava M, Altman M. https://go.nature.com/2u8ZFBd*
10. *COPE Authorship Cases: https://bit.ly/2MltUP3*

AUTHOR CONTRIBUTIONS

Conceptualisation:
Charon Pierson revised the 2014 discussion document that was originally conceptualised and written by Zoe Mullan on behalf of ***COPE Council.*** *We describe contributions to this project as follows:*

2014 Version:
Writing and conceptulisation:
Zoe Mullan

Writing – review and editing:
Ginny Barbour, Michael Wise, Charon Pierson, Deborah Poff, Cindy Carter

2019 Version:
Writing – original draft preparation:
Charon Pierson

Writing – review and editing:
Charon Pierson, Howard Browman, Trevor Lane, Heather Tierney

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