



Research assistants: Scientific credit and recognized authorship

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Key points:

- Research assistants are frequently excluded from authorship for several reasons—including the perception that they merely provide paid administrative help.
- Authorship criteria should be based on the people who are both shapers and doers rather than the ICMJE recommendations which can be differently interpreted.
- The pressure for single-authored papers in some disciplines may lead to the exclusion of substantive contributors from authorship lists.
- The CRediT taxonomy is a preferable means of recognizing and rewarding authors but may find resistance of those unwilling to disclose exact contributions.
- Publishers can assist in recognizing all contributing authors by requiring affirmation that all who have significantly contributed are credited as authors.

Keywords: authorship, early-career researchers, research assistants

The employment of research assistants (RAs) is extremely common in academia. RAs are junior researchers—from undergraduate students to postdocs—employed for a variety of purposes, often including conducting literature reviews, data collection, analysis and so forth for a piece of publishable work. More than a few RAs aspire to an academic career. The common practice is to credit these individuals through a special mention in the acknowledgements section. However, this practice lacks transparency, does not consider the significant contribution some RAs make and has little to no bearing on their future careers. The currency of academia is published works—being recognized as an author. The best support for early career researchers would thus be to include them as an author when they contribute as an RA. But how should the topic of co-authorship be broached, and what constitutes enough of a contribution to warrant being designated an author?

Authors are listed in alphabetical order; equal authorship applies.

These are questions that the authors of this piece have asked themselves and each other as they were employed as RAs and, recently, as employers of an RA. In this article, we critically discuss the contributions of RAs in publishable works, how their efforts fit (or do not fit) within the definition of an author, and how their work can be recognized outside of authorship when they do not meet agreed thresholds. We recommend that all researchers familiarize themselves with the factors that constitute authorship, and that senior scholars openly discuss the matter with their RAs to provide clarity for both parties and enhance positive outcomes. At the heart of this should be the concern of scientific credit for research work.

WHAT IS AN AUTHOR?

Previous works have tried to define exactly what an author is and is not. For example, the widely cited ‘Vancouver rules’ created by the International Committee of Medical Journal Editors

(ICMJE, 2021) state that authorship credit is based on four criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
2. Drafting the work or revising it critically for important intellectual content; AND
3. Final approval of the version to be published; AND
4. 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.

Under these rules, an author must fulfil all four criteria, not simply a single unit. However, items three and four require relatively little work, and the contribution required to item two—writing, can be limited to critical revision of a drafted manuscript (see Helgesson (2011) for full discussion of these criteria). Still, we believe an author is something more fundamental than these rigid criteria might suggest. Just as concepts are operationalized in our research, this operationalization only narrowly captures what an author is. We contend that an author is a doer and a shaper—if an individual has helped to shape the paper through their own work, they should be awarded scientific credit and included as a co-author. In particular, we propose that only the first criteria mentioned above should be necessary and sufficient to provide the basis for an individual to be deemed a co-author. For instance, individuals who contribute to the design of the study (shapers), and analyse and interpret data (doers) should be awarded co-authorship status. Hence, such individuals might not have written a single word in the manuscript (not meeting the second criterion), but their contribution is pivotal for the execution of the study at hand. We, thus, contend that such contributions deserve authorship credit as the contributors have been ‘doers’ and ‘shapers’ of the piece.

Of course, this does not include reading a draft and offering comments, as the work resulting from the comment is implemented by the investigators. An author is a doer—conducting the scientific research that forms the published output. Nevertheless, while doing is a necessary condition for authorship, it is not a sufficient condition. If an individual could be substituted and the final published output remains the same, they should not be included. For example, if a survey is handed to an enumerator and then that individual collects 100 responses, they should not be included as an author because they have not shaped the final output. They have implemented the design handed to them by an investigator and could have been replaced by any other individual with the same final published output being produced. Thus, they are not an author, because they are not a shaper.

Criterion one of the Vancouver rules above also states that a ‘substantial contribution’ is required. Such a vague statement leaves the principles open to interpretation. We contend that all

doers and shapers should be included as authors, no matter how small the individual contribution, as long as they meet both criteria of doing and shaping. Finally, with regard to items three and four of the Vancouver rules, we view these as clerical matters. An individual should not be denied authorship because they have not seen the last version of a manuscript, or they cannot be reached to account for all aspects of the work.

While the discussion of what an author is, is illuminating, recent contributions have suggested we move away from a focus on authors to a focus on contributors. Brand et al. (2015) introduce the CRediT Project, which establishes a contributor role taxonomy. The 14-term classification includes every aspect of the research process, from conceptualization through to writing, as well as additional contributions, such as funding acquisition and project administration. The CRediT Project recommends that all journals adopt the taxonomy and that all contributors should be listed according to their individual input. Such a taxonomy neatly solves the issue of assigning scientific credit to research work, and leaves assigned authorship as an issue of secondary importance. This approach clearly demonstrates the contribution of authors as ‘shapers and doers’. Even without the declaration of the contributor role taxonomy in the published work, the implicit adoption of this taxonomy could open avenues for more clarity and better understanding of when co-authorship can be bestowed upon RAs and Early Career Researchers (ECRs) particularly. Importantly, here we stress that the CRediT Project taxonomy is a key first step to move beyond the rigid Vancouver Rules and it can be seen as an instructive guideline to determine co-authorship and contribution given its more comprehensive and inclusive criteria. Moreover, the adoption of this taxonomy can rightfully enable contributors to receive systematic credit for their work. For instance, RAs who are instructed to engage in data collection can gain recognition for their effort. In such circumstances, RAs are certainly not reaching the bar for authorship as while they are ‘doers’—and have contributed to data coding—they have not been ‘shapers’. Hence, while co-authorship will not be feasible in this case, attribution for the work of junior scholars is reasonable. This will allow RAs and ECRs to accumulate recognition and provide concrete evidence of their practical experience and contributions.

Nevertheless, we do envision that the complete switch from ‘authors’ to ‘contributors’, per the CRediT Project taxonomy, might create disputes regarding reluctance to disclose and identify exact contributions. While the goal of the taxonomy is to simplify the allocation of contributions, the actual procedure of doing so might not be so straightforward. For instance, scholars might initiate disagreements of whether a contributor has contributed *enough* to a specific role. Even though some contributions can be clear-cut and easily agreed upon, some might involve additional negotiation and discussion. This can thus impede rather than alleviate contribution allocation. Therefore, we contend that a middle-ground approach can be beneficial to overcome obstacles to establishing contribution and co-authorship. Our conceptualization of authors as ‘shapers and doers’ eases that recognition for scientific work, as it allows scholars to

clearly identify co-authors on the project but also to properly acknowledge key contributors in a fashion that reduces the likelihood of conflict. When disputes do emerge, most advice concerning what to do if a disagreement arises focus on an awareness of what constitutes authorship (as we have just discussed) so that disputes do not arise in the first place (Cooke et al., 2021). If they do arise, the inclusion of impartial third parties seems to be the primary option for conflict resolution (see Faulkes (2018) and Strange (2008) for further discussion).

ON THE ISSUE OF RAs AND CO-AUTHORSHIP

RAs can contribute to published research outputs in a number of ways—from an original research idea, to data collection, analysis, literature reviews, funding searches and more. RAs are usually paid for their services and regularly receive an honourable mention in the acknowledgements' section of the published piece. RAs can then note that they have been hired as an RA to show they have research experience. But, is this all they deserve? If they have helped to shape a published piece through their work, is an honourable mention fair recompense for their contribution? Should they not be included on the authors' list?

Jamali et al. (2020) surveyed 1,600 ECRs and found that 'a significant minority (around 150)' think that their efforts in co-authored papers lack appropriate recognition and a substantial portion of respondents (about half) pledge for 'clear rules' and 'a system that is based on the level of contribution rather than on seniority' (Jamali et al., 2020, p. 150). Clearly, there is a demand for more transparency and a set of principles to be acknowledged and adopted that would help RAs and ECRs in their work.

Consider the following scenario. An RA is hired to complete a literature search and to write a draft literature review for a social science research article. Prior to the initiation of the task, no discussion of authorship is mentioned by the researcher, but, for this effort, the RA will receive some pecuniary compensation. Upon completion of the above-mentioned tasks, the researcher recognizes that their RA has found important references for the article and written a very thorough and engaging literature review that is later used (in an edited version) for the publication. In addition to completing the task, the RA has provided the researcher with important insights from the existing literature that would be valuable for shaping other sections of the article. Is this enough of a contribution to merit co-authorship? We argue, yes.

There is generally little discussion within academic institutions and graduate school courses on whether RAs should be included as co-authors. Junior scholars are aware that they need to contribute to an original work to be considered as an author, but the specifics are often unclear. A recent survey of almost 6000 researchers from different fields reports that 'drafting the paper, interpreting results, and analysing data' are the three top contribution types that deserve authorship (Guglielmi, 2018). Yet, this survey also demonstrated that there are substantial differences across disciplines: for instance, the data showed that 'social

scientists tend to assign less value to contributions such as proposing ideas' (Guglielmi, 2018). A particular source of ambiguity stems from understanding what exactly constitutes an 'original and substantial contribution'. Oftentimes the threshold is vague, and the lack of clear and established guidelines impedes awareness of when co-authorship could be offered or negotiated.

The lack of clarity and consensus is a major impediment for junior scholars, who are often hired as RAs, to navigate when and under what conditions they can be considered co-authors. However, the very unpredictable nature of research collaborations should not prevent scholars from openly discussing possibilities for co-authorship with their RAs at various stages of the process. For instance, in our scenario above, the researcher could discuss co-authorship with the RA given the excellent work they did, but there is no guideline or rule to oblige the researcher to do so. Some universities provide recommendations on authorship credit, but these are often vague and unenforceable. A white paper by Taylor & Francis (2017, p. 4) shows that only 18% of researchers from the humanities and social sciences reported to have received some training or guidance from their institutions in determining academic authorship.

Furthermore, the power asymmetry embedded within the researcher-RA relationship suggests that the RA may abstain from attempting to negotiate co-authorship. The reality is that many junior scholars are often unaware of 'the rules of the game' and inexperienced in identifying the appropriate conditions under which they may have a claim to authorship. Such asymmetries may be even more acute when RAs are located in the Global South and their employer in the Global North (Bisoka, 2020). In these contexts, international RA contracts may constitute a significant opportunity for employment and career advancement. The fear of losing this and future opportunities by engaging in controversial discussions over authorship and scientific credit for research work, for example, may create conflicts that could jeopardize RAs' career prospects. Additionally, North-South interactions are often seen as extractive. RA engagement may include payment for data collection and administrative tasks without the consideration of RA skills development in key areas such as authorship of scientific studies.

With a lack of clarity, RAs from all around the globe are likely to complete an appointed task without broaching the idea of co-authorship. But, what if the idea had been mooted? In this instance, it is possible that the RA would increase their allotment of effort to the project and may contribute in previously unforeseen ways, such as introducing new ideas, analysing information, offering to write sections of the manuscript and driving the project forward. In this way, the RA would potentially increase their contribution and impact on the piece.

Finally, we must also consider the incentives for the principal investigator to deny the RA co-authorship. In the field of political science at least (from which the authors hail), solo-authored items are more highly valued than co-authored ones. This is because single-authored publications send a more straightforward signal of the author's contribution than co-authored pieces (Gërkhani et al., 2021). In this way, evaluators on hiring committees, for

instance, do not face the complication of establishing the individual contribution of each co-author when making their assessments. Additionally, when pieces are co-authored, the fewer authors the better. Although this makes no difference to (UK) REF submissions, for example, there is a preference for fewer authors. In some disciplines, such as Physics, the average number of co-authors is nine, while in Medicine it is seven and in social sciences, four (Parish et al., 2018). Even then, out of the fields surveyed by Parish et al. (2018), social sciences are the least likely to publish collaborative journal articles. Under the pressure to keep author lists low, the bar is set higher for the contribution that an RA would need to make.

In summary, RAs can contribute to published pieces in many ways; however, the recognition of their efforts through honourable mentions in acknowledgments is letting down some of these aspiring academics, failing to pay them in the critical currency of academia – authored publications. This status quo has arisen for multiple reasons, including a lack of understanding about what constitutes authorship, power structures that prevent RAs from broaching the topic, and incentives/pressures on senior investigators to keep author lists low. We have argued that an author is a doer and a shaper. We have also presented the Vancouver rules on what constitutes authorship and the CRediT taxonomy that seeks to ensure all contributions to a published piece receive the credit they deserve, even when this does not constitute authorship.

There is no denying that authorship privileges have a strong impact on scholars' lives by determining appointments, promotions, tenure and contributing to self-actualisation. It is now widely appreciated that gaining a permanent position is harder than ever in academia. With this in mind, we make the following specific recommendations to all RAs, investigators who engage their services, and journal editors.

RECOMMENDATIONS

1. We encourage senior scholars to engage in critical reflection and open discussions with colleagues on co-authorship practices with RAs and ECRs. At the heart of this reflection should be the concern of scientific credit for research work.
2. We recommend that every RA/ECR's contribution is initiated with a discussion of whether co-authorship could be feasible and what co-authorship might entail. Such discussion would enable clarity at the start of collaborations and enhance potential positive outcomes.
3. Discussions about authorship should not end with the first encounter. The contribution of an RA is an evolving matter, and recognition of authorship is the same. We, therefore, recommend that discussions of authorship should continue until the end of the RA's engagement.
4. Authorship designation should be based on the premise of doing and shaping of a publishable piece. If a contributor fulfils only one criterion, or none, they should not be included as an author.

5. We encourage all journals to include a checkbox in the submission process stating, 'I confirm that all contributors, including research assistants, have been given appropriate credit in this submission'. Journals can also add a link to this paper or other in- or out-of-house resource. This will ensure that all scholars begin to engage with and start to take responsibility for scientific credit. It should also reduce retractions caused by author disputes.
6. We urge all journals to adopt the CRediT taxonomy and facilitate tagging so that all contributions to a published article can be recognized, irrespective of authorship. Linking these tags through to an ORCID will provide a public record of the individual contribution of researchers and aid in collaboration, outreach and career progression.

LIMITATIONS

As European early-career political scientists, we acknowledge that our insights predominantly stem from our experiences in the academic social science environment in the UK and Italy. We recognize that our experience to date may understate disparities, particularly in collaborations between scholars of the Global North and their RAs in the Global South. While a full consideration of these concerns is beyond the scope of this current article, we hope that future works can engage more thoroughly with this important issue.

We note there is a risk that RAs could receive no or inadequate remuneration in exchange for co-authorship. Pinpointing exactly when opportunity becomes exploitation is not possible within this piece. Yet, we do contend that this should not be an 'either-or' decision.

AUTHOR CONTRIBUTIONS

Authors are listed in alphabetical order; equal contribution applied to conceptualisation and writing (both original draft, and review and editing).

ACKNOWLEDGEMENTS

We thank Nicole Beardsworth, Eloïse Bertrand and Briony Jones for helpful comments. We would also like to thank Sophie Robinson and an anonymous reviewer for helpful comments that greatly improved this piece.

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