Good practice in research:

Authorship

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Introduction

This document is part of a series from the UK Research Integrity Office giving guidance on particular aspects of academic, scientific and medical research. It focuses on good practice in the authorship of research publications. The guidance covers issues relevant to all disciplines of research but does not put forward a 'one-size-fits-all' approach.

The aim is not to be prescriptive, but to highlight particular challenges relating to authorship and to foster discussion on what might constitute good practice in this fundamentally important part of the research process. As with all of our publications, it is underpinned by 'lessons learned' from UKRIO's confidential Advisory Service on the conduct of research, which has operated since 2006 and covers all disciplines, from the arts and the humanities to health and biomedicine.

Research organisations will be able to use this guidance to raise awareness of the practicalities of good authorship practices, and also as material for staff and student development and training. It can also be used as a reference tool by organisations who wish to create specific policies on authorship or revise existing policies, or who need guidance on how to resolve problems and disputes. The document complements existing guidance on authorship and does not seek to replace it.

Advice and guidance from UKRIO is not mandatory but instead reflects and reinforces best practice. As with all of the guidance that we provide, it is up to organisations and researchers to decide how best to implement it and in a way that suits their particular research environment.

Footnote to the first edition

This document will be periodically revised to reflect developments in authorship and publication ethics, new examples of good practice and additional 'lessons learned' from UKRIO's Advisory Service and other work.

UKRIO welcomes feedback from researchers, research organisations, editors and publishers to inform the future development of this guidance. To contact UKRIO or to seek our advice on authorship, publication ethics or other issues of research practice, visit our website www.ukrio.org .

1. Why authorship matters

Correct authorship of research publications matters because authorship confers credit, carries responsibility, and readers should know who has done the research. Denying authorship to somebody who deserves it denies recognition and academic credit since publications are used to assess academic productivity. Including an undeserving author is unfair since this person gets credit for work they have not done. Omitting a deserving author from an author also list misleads readers (including journal editors) and may mask conflicts of interest.

2. Problems with authorship

Authorship difficulties or disputes fall into three categories:

- **Guest, gift or honorary authorship** is when somebody who has not contributed substantially to a research project or publication, and does not meet accepted authorship criteria for the discipline, is listed as an author. Motives for adding a guest author vary (hence the different names for this problem) and include offering favours to friends, hoping to increase the chance of acceptance by including a respected researcher, and listing senior researchers (e.g. department heads) by custom or on request.

- **Ghost authorship or denial of authorship** is when somebody who has made a substantial contribution to a research project or publication, and who therefore meets accepted authorship criteria for the discipline, is omitted from an author list or denied the opportunity to contribute to a publication. As with guest authorship, motives for ghost authorship and denial of authorship vary and include disagreements between researchers, attempts to distance work from a commercial sponsor and make it appear independent, and academic rivalry.

- **Disputes about the ordering of authors** – the requirements and status of first, last and corresponding author, although generally poorly defined, are often considered important. Although conventions vary between disciplines (e.g. some use alphabetical listing and there is considerable variation in conventions about last authors), the credit or reward attached to different positions in the author list often vary. Therefore disputes may arise about the order in which authors are listed on publications.

3. Role of institutions

Research institutions need to consider (and perhaps develop policies on):

- How to encourage good practice in authorship.

- How authorship disputes (of all kinds) are handled.

- What types of authorship problem constitute research misconduct.

Promoting good practice in authorship

Authorship rules and conventions need to be learned, preferably at an early stage in a researcher's career. This may happen through mentorship and informal interactions with supervisors and other researchers or from formal training. Since authorship conventions vary significantly between disciplines, policies and training should generally be organized on a faculty or departmental level. However, institutions should set out broad expectations for researchers in their institutional code of practice for research or equivalent document. These expectations should not attempt to define authorship across every discipline but instead communicate basic principles and standards that are applicable to all fields. An example of such a statement can be found in UKRIO's *Code of Practice for Research: Promoting good practice and preventing misconduct*.

It is unrealistic to expect to enforce a uniform policy about how to determine authorship and the order of listing authors that would apply over a range of disciplines. However, it may be possible to reach agreement on good practice within fields such as life and health sciences (including medicine), physical sciences or humanities, and this should be reflected in policies and training generated at the faculty or departmental level.

The guidelines and conventions relating to each field are generally set out by the relevant learned societies and journals. Institutional policies and practices should align with these guidelines and training should ensure that researchers at all levels are familiar with them.

Although conventions vary between disciplines, as noted above, some general guidance and policies may be possible and can be included in an institution's code of practice for research. For example, all researchers should be encouraged to discuss and agree authorship strategies at an early stage in their research. Authorship disputes can usually be avoided if criteria for determining authorship and order of listing are agreed at the research planning stage. Researchers should also be encouraged to document such agreements. In many cases, informal written documentation, e.g. in a note or email, is sufficient and it is not necessary (or helpful) to adopt a quasi-legalistic approach to such discussions between colleagues. Institutions might support this process by offering training or template documents and making this a routine part of research planning and documentation.

When research is funded by external organisations, especially commercial companies, more formal authorship agreements may be required. These may also cover aspects such as intellectual property rights, data ownership, rights to publish, and requirements to review publications. Institutions should attempt to protect researchers from inappropriately restrictive or coercive contracts that, for example, prevent researchers from publishing work or make unreasonable demands for authorship. Advice on, and scrutiny of, contracts can be sought from the research support office, legal services or equivalent departments.

Difficulties may arise in interdisciplinary projects when it is unclear which conventions should apply. In such circumstances, researchers should be advised to follow the requirements of the target journal or publisher. For example, a project about the use of computers in schools might be reported in either a computer science or an education journal. The research team should first agree their publication strategy (i.e. the number of publications and the target journals or conferences) and then follow the authorship conventions of these journals or conferences. It is therefore highly desirable to include an agreement about the publication strategy in the initial planning stages of such projects.

Conventions about authorship appear to vary more between disciplines than between regions. For example, nearly all medical journals endorse the authorship criteria recommended by the International Committee of Medical Journal Editors (ICMJE) and these guidelines are widely (though not universally) accepted among medical researchers internationally. However, pressures and incentives for inappropriate authorship may vary in different countries. For example, in some countries, listing the head of department or institution as an author is commonplace, and viewed as a courtesy, regardless of their contribution to the research. Researchers working on international projects need to understand that collaborators' behaviour may be motivated by different incentive systems; for example, in some countries first authors receive monetary rewards.

As noted in UKRIO's *Code of Practice for Research*, researchers should try to anticipate any issues that might arise as a result of working collaboratively and agree jointly in advance how these might be addressed, communicating any decisions to all members of the research team. In particular, agreement should be sought on the specific roles of the researchers involved in the project and on issues relating to intellectual property, publication, and the attribution of authorship.

The *Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations* advises that:

> 'Collaborating partners should come to agreement, at the outset and later as needed, on standards for authorship and acknowledgement of joint research products. The contributions of all partners, especially junior partners, should receive full and appropriate recognition. Publications and other products should state the contributions of all contributing parties.'

Handling authorship disputes

Given the rather loosely defined conventions coupled with the clear rewards of authorship for academics, disagreements about authorship are inevitable (although many can be avoided if authorship criteria are agreed at the start of every research project). Research institutions therefore need policies for resolving such disputes.

While institutions may be wary of having a formal process, the alternative is to use *ad hoc* arrangements to resolve authorship disputes when they inevitably arise. At the departmental level, this can lead to disputes going unresolved or to concerns about a lack of thoroughness and transparency. At the institutional level, those charged with resolving disputes may feel they lack guidance and support, while the inconsistency in process when resolving different disputes could lead to accusations of bias and outcomes being challenged by dissatisfied researchers. A formal dispute resolution process does not have to be heavy-handed or legalistic; indeed, a proportionate approach based on arbitration will often be the most suitable method.

The following general principles may be considered:

- Disputes concerning authorship may come to the attention of an institution through a variety of means: informal channels, formal complaints to supervisors or managers, or allegations of research misconduct. Depending on the nature of the dispute, institutions may wish to instigate a process of arbitration. The involved parties should agree in advance on the suitability of the arbitrator and to adhere to the conclusions of this process.

- Institutions should also consider when a formal research misconduct investigation is a more appropriate route than arbitration, deciding on a case-by-case basis. Concerns about authorship can arise that might present as misconduct but which result from misunderstandings or disputes between individuals. It may be possible to arbitrate such differences and this route should be considered where appropriate.

- When allegations are of a serious nature, or where mediation and/or arbitration has been refused or proved unsuccessful, then formal processes should be initiated. Equally, an arbitrator may conclude that the matter cannot be resolved through arbitration and that the institution should initiate a misconduct investigation.

- Anybody undertaking to arbitrate an authorship dispute should be impartial but familiar with the area of work and the accepted authorship conventions that should apply. They should declare any (past or present) working relationships with involved parties and other potential conflicts of interest, so the institution can determine whether they are properly impartial.

- Many criteria for authorship hinge on whether researchers have made an intellectual contribution to a project rather than a purely technical one. Anybody attempting to resolve an authorship dispute therefore needs to understand the research techniques employed and the current "state of the science" so they can judge the originality of an approach.

- Junior researchers may feel unable to challenge authorship requests or decisions by more senior colleagues, or may fear the consequences if they do. It may therefore be helpful to establish (and publicise) a system to enable researchers to question authorship decisions they regard as unfair or coercive without repercussions. This might include seeking guidance from research ethics committee members; from department- or school-based research integrity advisers or 'champions'; or from the institution's research integrity officer, all of whom could give advice on what systems existed to consider the researcher's concerns and what actions s/he might take. It could also include institutional 'whistle blowing' mechanisms, which could then feed into dispute resolution processes or other procedures, as appropriate.

- Authorship disputes sometimes arise because of a lack of awareness of relevant guidelines and conventions; therefore, mentoring and training may be helpful. Such training should emphasize not only the relevant policies and guidelines but also the importance of agreeing authorship criteria and discussing it at an early stage in every research project, and providing guidance for researchers at all levels on how to achieve this.

- Authorship problems sometimes only surface after publication. In such cases, the researchers or their institution may need to contact the journal where the work was published. Changes to a

published author list do not necessarily require retraction of a publication but can generally be achieved through a correction. However, if the wrongful authorship constitutes misconduct, or if there are other problems with the publication, then retraction may be necessary. The Committee on Publication Ethics (COPE) has produced guidance for journals on how to deal with authorship disputes, these are available in the following flowcharts:

- o [Changes in authorship: Request for addition of extra author after publication](#)

- o [Changes in authorship: Request for removal of author after publication](#)

- When institutions determine that authorship has been incorrectly allocated, then they should inform the relevant journal(s), regardless of whether the cause was honest error, a disagreement between researchers, or misconduct.

When does inappropriate authorship constitute misconduct?

Research institutions should have systems in place to handle cases of alleged research misconduct. These systems must include definitions of misconduct. As described above, conventions on authorship vary between research areas, therefore defining the authorship behaviours that constitute misconduct is even more challenging than for other behaviours such as plagiarism. Given these difficulties (and, perhaps also given the prevalence of authorship disputes) some institutions will not consider cases of disputed authorship and therefore do not classify them as misconduct.

However, such institutions should be aware that deliberate or reckless misrepresentation of authorship (i.e. excluding honest errors and differences of opinion) is defined as research misconduct or otherwise unacceptable research conduct by a number of bodies. This includes non-mandatory guidance, such as that from UKRIO, as well as contractually binding requirements on researchers and organisations, including *The Concordat to Support Research Integrity* and policies from Research Councils UK:

'Unacceptable conduct includes...Misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work where there has been no significant contribution, or the denial of authorship where an author has made a significant contribution'

Research Councils UK *Policy and Guidelines on Governance of Good Research Conduct* (2013-2017)

Accordingly, institutional policies must not ignore concerns about authorship, since abuse of authorship conventions is a violation of accepted standards for research and can amount, effectively, to plagiarism (for example, if somebody publishes another person's material without including them) or bullying. Institutions must also be prepared to respond to requests from journals to resolve authorship disputes even if this falls outside their system for investigating research misconduct.

The COPE guidelines emphasize that editors should not attempt to arbitrate disputed authorship (e.g. if somebody contacts a journal claiming they should have been an author on a publication). Such disagreements require evidence of each person's contribution to the work, which will not necessarily be available to the journal, but should be available to the institution. An institution can cooperate with a journal and resolve a

dispute either by internal discussion, or by appointing an independent arbitrator, or, when appropriate, by initiating an investigation into alleged research misconduct.

Since authorship disputes often reflect breakdowns in relationships between researchers, or differences in power (e.g. between senior and junior team members), it may be helpful to appoint an independent arbitrator to resolve them. The arbitrator should be somebody who is familiar with the research field but who has had no involvement with the project in question and has no conflicts of interest in relation to the individuals or institutions involved. All parties in the dispute should agree on the suitability of the arbitrator and agree to be bound by his or her ruling. An arbitrator should not be expected to rule on whether misconduct has occurred, but simply on the rights and wrongs of an authorship dispute. When allegations are of a serious nature, or where arbitration has been refused or proved unsuccessful, then formal processes should be initiated and the matter addressed under the institution's procedure for investigating allegations of research misconduct.

It is important to resolve authorship disagreements that occur either before or after publication, since disputes can prevent or delay publication and the published record should correctly reflect the researchers' contributions. As noted earlier, journals should be informed when it has been determined that authorship has been misrepresented, regardless of whether this resulted from honest error, disagreement between researchers, or misconduct.

While an individual disagreement about authorship may be the result of poor communication, varying conventions, or a genuine misunderstanding, institutions should be alert to consistent patterns of questionable authorship decisions and behaviour. For example, if a senior researcher is regularly included as an author on publications despite having had little or no direct involvement with the work (and against accepted authorship criteria), institutions should have mechanisms in place to question and investigate this, since this might represent abusive or coercive authorship.

4. Conclusions

Institutions should communicate basic principles and standards for authorship to their researchers, and encourage and facilitate the development, by faculties and departments, of more detailed authorship guidelines and policies suitable for its different research activities. These should reflect guidelines published by the relevant academic societies and journals. Once established, these departmental or faculty guidelines and policies should be widely promoted and incorporated into programmes for staff induction and training on responsible research conduct. All staff and students should also be aware of support available for discussing and resolving authorship questions and disputes. Institutions should have mechanisms to address disputes over authorship, ranging from arbitration to formal misconduct investigations, and make appropriate disclosures regarding the outcomes of these processes to journals and other involved parties.

Frequently asked questions

As noted earlier, this guidance note will be periodically revised to reflect developments in authorship and publication ethics, new examples of good practice, and additional 'lessons learned' from UKRIO's Advisory Service and other work.

The next edition will include a 'Frequent asked questions' section'. Accordingly, we invite researchers, research organisations, editors and publishers to submit common/recurring or notable questions, issues or problems relating to authorship in academic publications.

A sample question is given below. To submit your own, please contact us via info@ukrio.org or visit our website www.ukrio.org

What should the correct author affiliation be for a researcher when they move institutions before a paper is accepted for publication by a journal?

This is a common enquiry to UKRIO and to editors and publishers also. This suggests that the conventions are not widely-known; however, there is broad consensus on how to approach this issue.

Unless contradicted by specific journal or publisher policies, the convention is as follows:

- The affiliation that should be given is where the work was done, irrelevant of the current institution.

- The new institution is noted (often in a footnote; but see the requirements of the journal in question) as the address/ contact details of the author will have changed, but no further changes are made after the paper has been accepted.

- If the author changes institution again (i.e. after the paper has been accepted) they can be followed with their ORCID ID.

- If the journal or publisher in question gives specific guidance on this issue, this should of course be followed.

Example: a researcher conducts research at institution X and submits a paper for publication. S/he then moves to institution Y before the paper is accepted for publication. The affiliation given would be institution X, where the actual work was done, with institution Y's details noted (usually in a footnote).

Further reading:

'**Affiliation**

The corresponding author is responsible for ensuring all address, email, and telephone data are correct for all named co-authors. The affiliations of all named co-authors should be the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation may be given as a footnote.

No changes to affiliation can be made after the article is accepted.'

Taylor and Francis http://editorresources.taylorandfrancisgroup.com/authorship-guidelines/

'**Essential title page information**

- ***Title. Concise and informative***. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

- ***Author names and affiliations.*** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

- ***Corresponding author.*** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**

- ***Present/permanent address.*** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.'

Elsevier https://www.elsevier.com/journals/information-and-management/0378-7206/guide-for-authors

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Further reading

This section provides additional information on authorship and publication ethics. Some sources cover all disciplines of research, while others focus on a particular discipline. Many published guidelines and other documents on authorship focus on the health and biomedical science; however, these can often outline general principles which are relevant across multiple disciplines. This section will be expanded in future editions of this document.

Committee on Publication Ethics, 2003: *How to handle authorship disputes: a guide for new researchers* [online]. Available from: http://publicationethics.org/files/2003pdf12_0.pdf

Committee on Publication Ethics, 2014: *What constitutes authorship? COPE Discussion Document* [online]. Available from: http://publicationethics.org/files/u7141/Authorship_DiscussionDocument_0_0.pdf

Council of Science Editors, 2012. *White Paper on Promoting Integrity in Scientific Journal Publications* [online]. Available from: https://www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/

Harvard Medical School, 1999. *Authorship Guidelines* [online]. Available from: https://hms.harvard.edu/sites/default/files/assets/Sites/Ombuds/files/AUTHORSHIP%20GUIDELINES.pdf

International Committee of Medical Journal Editors, 2016. *Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly work in Medical Journals* [online]. Available from: http://www.icmje.org/recommendations/

Marušić A., et al 2014. *Five-step authorship framework to improve transparency in disclosing contributors to industry-sponsored clinical trial publications*. BMC Medicine. 2014, 12: 197-10.1186/s12916-014-0197-z [online]. Available from: http://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-014-0197-z

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2nd World Conference on Research Integrity, 2010. *The Singapore Statement on Research Integrity* [online]. Available from: http://www.singaporestatement.org/statement.html

3rd World Conference on Research Integrity, 2013. *Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations* [online]. Available from: http://www.researchintegrity.org/Statements/Montreal%20Statement%20English.pdf

The UK Research Integrity Office (UKRIO) is an independent charity, offering support to the public, researchers and organisations to further good practice in academic, scientific and medical research. We welcome enquiries on any issues relating to the conduct of research, whether promoting good research practice, seeking help with a particular research project or investigating cases of alleged fraud and misconduct.

Since 2006, UKRIO has provided independent, expert and confidential support across all disciplines of research, from the arts and humanities to the life sciences. We cover all research sectors: higher education, the NHS, private sector organisations and charities. No other organisation in the UK has comparable expertise in providing such support in the field of research integrity.

UKRIO welcomes enquiries on any issues relating to the conduct of research, whether promoting good research practice, seeking help with a particular research project or investigating cases of alleged fraud and misconduct.

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