Technicians and Publications: Fair Attribution Guidance

Technicians provide the University and its external customers with expertise that is vital for the functioning of our research community and the publication of high-quality research. They generate data using advanced techniques and state-of-the-art instrumentation, materials, devices and systems; have significant involvement in the conception, design, and implementation of experiments; perform data analysis and interpretation; and carry out the development, design, production, assembly, and application of specialised equipment.

When technicians make an intellectual contribution to research that results in a publication, they deserve to be recognised in the same way as any other contributor, either through co-authorship or direct acknowledgement as appropriate. However, despite the essential and highly skilled nature of their work, technicians are often not included in conversations surrounding experimental planning and authorship, and their hard work often goes unrecognised within scholarly output. This not only makes time management a challenge, but the lack of recognition can also negatively impact career progression.

This guidance document aims to highlight some of the benefits of including technicians in authorship discussions from the outset of a research project; provides guidance on what types of work constitute authorship or acknowledgement; and suggests steps that researchers can take to ensure that their technical colleagues are getting the recognition that they deserve.

The benefits

Involving technicians in authorship discussions, and recognising their work in publications by co-authorship or by formal mention in the acknowledgments section, provides benefits to the individual, the Principle Investigator, the University, and the wider research community, and is a traceable and easily demonstrable record of an individual's scientific contributions. Here are just a few of the potential wider benefits:

Accuracy and transparency

If technicians are generating data for a research project, involvement in experimental planning and authorship discussions from the outset will minimise the risk of data misinterpretation, and help ensure that the methods they used to generate the data are accurately described. This in turn increases transparency and ensures reproducibility in the resulting publications.

Technicians should have the opportunity to participate in drafting the parts of the paper that apply to their contribution, and give final approval to the wording and conclusions drawn before publication. This is particularly relevant to the services provided by core facilities, where their services may be cited, but they are often not actively involved in the writing and proof-reading process after the dataset has been given to the researcher.

Offering a different perspective

Technicians, by their very nature are practical problem solvers. Involving a technician in the experimental planning stage of a project invites a new perspective into the discussion, and makes for a more creative, efficient, and productive research environment.

Evidencing Continual Professional Development

Recognition of a technician's work in publications provides a record of their professional achievements. This can be used as evidence for Continual Professional Development if the technician is Professionally Registered, and can help to guide career discussions during an appraisal. Furthermore, if a technician is moving on to another fixed-term Research Technician position or wants to study for further postgraduate qualifications, recognition of their work in publications provides evidence of their prior research experience.

Providing evidence of the University's research support strategy

Recognition of technicians in publications provides valuable supporting evidence of the University's strategy to support research and enable impact, which is an integral part of its REF environment statement and

template (REF5a/b). It demonstrates that the University is cultivating a professional technical network that plays a significant role in the delivery of high-quality research.

Inclusion

Involving technicians in authorship discussions and giving credit where credit is due, increases staff morale and fosters a culture of inclusivity and mutual respect between colleagues, irrespective of career pathway.

Promoting our Core Facilities

Our University's Core Facilities are often run by, or rely on the expertise of highly skilled and experienced technicians, but their substantial research contributions are often overlooked. Charging for Core Facility services is a necessary part of the process; however, cost recovery should not preclude authorship or acknowledgement in publications resulting from their work. Acknowledging the contributions of Core Facilities to research and accurately describing their work in resulting publications strengthens the professional reputation of a Core Facility and its technicians. This results in a reputational and financial benefit to the University as a centre of research excellence and a provider of high quality, state-of-the-art facilities and services.

What constitutes authorship or acknowledgement?

It is important to recognise the contributions of technical staff to the advancement of scientific research in all instances, but the type of recognition that is most appropriate will vary dependent upon the nature of the contribution. The following guidance has been written to assist you in deciding what kinds of work would constitute either authorship or acknowledgement in a research publication.

The examples we show here are not exhaustive. You could refer to CASRAI's CRediT (Contributor Roles Taxonomy) resource for suggested contributor role definitions and if you are still unsure on the level of contribution, COPE has a wealth of useful information on authorship and contributorship. This guidance document should also be considered alongside the University's Authorship, Contribution and Publishing Policy, and the authorship policy of the relevant journal and its publisher.

Authorship

If a technician makes a substantial intellectual contribution to the work and demonstrates accountability for the accuracy and integrity of the resulting data, then they should be included as a co-author on any resulting publications as would any other contributing scientist. Examples of the type of work that would constitute authorship include, but are not limited to:

- designing experiments, custom equipment, software, or script
- developing new data generation or analysis methodology
- interpreting data
- significantly redeveloping existing methodology or equipment to suit new sample types or research questions
- a bespoke service provided by Core Facility staff that includes the any of the above examples

Please refer to Section 5 of the University's Authorship, Contribution and Publishing Policy for more information on Authorship and Contributor Best Practice.

Acknowledgement

All other contributions to the work, should be recognised with a formal acknowledgement of the individual technician and/or the Core Facility in the acknowledgements section of the resulting publication. Examples of the type of work that would constitute an acknowledgement include, but are not limited to:

- performing instruction-led acquisitions of data or routine sample preparations
- monitoring and maintaining experiments or equipment
- laboratory supervision of a research student
- a standard service provided by Core Facility staff

Please refer to Section 6 of the University's Authorship, Contribution and Publishing Policy for more information on Acknowledgements in Publications.

How can I help?

As a researcher, there are a few things that you can do to ensure that your technical colleagues are getting the recognition that they deserve:

1. Plan

If you are planning a new grant proposal, research project, experiment design, or analysis that will require the assistance of a technical colleague, think about the nature of the work that you need them to do, and what level of recognition (Authorship or Acknowledgement) is appropriate for that type of work.

2. Talk

Have a conversation about how you view their role in the work, so that they know what will be expected of them, and how much of their time you will require. During these conversations you may find they have additional skills that you were unaware of that would be beneficial to your project.

3. Review

Plans can change. You may find that the nature of your technical colleague's contribution has changed as the project has progressed. If this is the case, refer back to points 1 and 2.

4. Involve

Ask your technical colleague whether they would like to be involved in writing the manuscript. If they have designed a method or generated data, they will want to know that it has been accurately reported.

5. Inform

All co-authors will be contacted by an editor during the peer review process, but this communication does not extend to acknowledgements. Communicate the outcome of the peer review process to all of the people who have been formally acknowledged. If the paper has been accepted for publication, they will want to celebrate with you!

In summary

Encouraging conversations about authorship and acknowledgement between researchers and their technical colleagues serves to clarify the roles, responsibilities, and expectations of the individual technician; ensures that they are fully accountable for their contributions to the University's research output; and empowers them to take an active role in the reporting and interpretation of their work.

Recognising a technician's contributions to research results in significant benefits to the individual, the Principal Investigator, and the University as a whole, and ensures that their hard work is visible to people inside and outside the organisation.

Acknowledgements

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Royal Microscopical Society. *Core Facilities Publication Policy*. [Online]. [Accessed 28 July 2020]. Available from: https://www.rms.org.uk/network-collaborate/core-facilities-publication-policy.html

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