Online Ethics Center
FOR ENGINEERING AND SCIENCE

Checklists

Description

A checklist exercise in the Instructor's Guide to Prepare Research Group Leaders as RCR Mentors.

Body

NOTES TO THE INSTRUCTOR:

- Checklists can be useful as reminders to have conversations about diverse aspects of the conduct of responsible research. In teaching about checklists, you should ideally focus on the kinds of topics most appropriate to your audience. In all cases, you will have two primary questions to answer: (1) What should be covered on the checklist? and (2) When should the checklist be used? Three examples of this are shown below.

Checklist	What	When
Recordkeeping	Expectations for lab notebooks, passwords for electronic data, forms of data checking	When trainees first arrive

Authorship	Criteria for authorship, order of authorship, responsibilities of authors	When everyone arrives OR With group of potential authors when writing of manuscript begins
Regulations	What institutional and federal regulations govern your research	When members of group first arrive

There is a natural fit between checklists you might create with your trainee for specific research practices, and those you might create in the form of an individual development plan (IDP) or contract, which is one of the modules suggested for this curriculum. Here is an example of a document that bridges the checklist/IDP divide: http://ukrio.org/wp-content/uploads/UKRIO-Recommended-Checklist-for-Researchers.pdf. Further, there is a somewhat looser fit between checklists and group policies, also an optional module for this curriculum, with the latter perhaps deriving from the former. Here's an example of an instrument which might be characterized as a checklist/policy hybrid: https://www.apa.org/science/leadership/students/authorship-determination.pdf

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Much of teaching about research ethics can be handled effectively through one-on-one mentoring on an ad hoc basis. The fact that this happens all too rarely may simply be a matter of being overlooked. An easy solution is to create a reminder checklist for items particularly important to cover (e.g., see Gawande, 2011) as well as stages of training when those items might best be covered. A terrific example of how a checklist can be used in this way is the "Checklist for Research Students and their Supervisors at the University of Oxford" (2014). The goal is to ensure that practical issues will be addressed at appropriate times when training members of the research team.

The use of checklists as a tool for teaching about research ethics has many applications. So much of what we do as experienced researchers is done by rote; we no longer have to consciously think about what comes next. This is not true for our trainees. While the material to be covered in a checklist will vary by discipline,

some topics likely to be important for trainees in any discipline include the following:

1. Criteria for authorship
2. Recordkeeping
3. Standards for sharing
4. Ownership of materials (including plagiarism)
5. Risks of bias and how they can be addressed
6. Roles and responsibilities for mentors and trainees
7. Risks and benefits of collaborations
8. Writing of grants or protocols
9. Conflicts of commitment
10. Asking questions, consensus building, and whistleblowing

Checklists can be used not only as a reminder of key responsibilities, but also as detailed steps for particular tasks. For instance, this could be the steps necessary to do a specific experiment, or the steps necessary to calibrate a particular piece of equipment, or the expected elements to be to written in a lab notebook, or both the ethical and regulatory items to be addressing in securing Institutional Review Board approval for a study with human subjects. Examples of some of these uses are included among the resources for Checklists.
An optional tool to help in preparing a checklist is the “Checklist for Checklists” (2010) prepared by “Project Check” for the creation of medical checklists. As they note, the checklist is not a teaching tool or algorithm per se, though it can be useful to use with your trainees as a way to collaboratively develop a lab-wide checklist of responsibilities to be covered or reviewed.

Questions for Discussion

1. Are other items missing from the above list that are likely to be important for most if not all
disciplines?
2. What items might you want to add specific to your focus in science and engineering?

Exercise

- What, if anything, would be important to know in your research group about each of the above items?

- When would those items be best addressed?

Draft Checklist

Item	When to address?
1.	
2.	
3.	
4.	
5.	

Rights

Resource Type

Instructor Materials