



Online Ethics Center
FOR ENGINEERING AND SCIENCE

Discussion Tools: Other Methods

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Year

2022

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Descriptions of other discussion tools that promote active learning in research ethics education

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Current Events

Both popular and academic media frequently report on issues in science and technology that explicitly, or at least implicitly, raise challenging ethical questions. Simply requiring students to find a recent story of interest will often result in little or no overlap even with a class of 30-40 students. The instructor could do this, but it is at least as useful, and probably more useful to engage students in bringing in the current events for discussion. One approach is to assign individual students to select a current event (e.g., within the previous 6 months) and then come to class prepared to talk about the news story as well as provide their perspectives on the ethical dimensions. The current event is used to introduce an issue, explore the ethical, scientific, and other considerations it raises, and perhaps discuss approaches to addressing the problem or issue raised.

Email Discussions

While the value of discussion in person is widely recognized, the advantages of email or discussions should not be missed. When student groups are assigned to, for example, conduct an analysis of a case, construct a response to a question, or design a policy for authorship, then the necessary discussion could occur either in class or through email (or any of a variety of other collaborative technologies such as wikis). Some of the advantages of this format are:

- Increased chance for everyone to participate.
- Increased chance for everyone to be heard.
- Increased time to reflect on answers and discussion.
- Increased opportunities to investigate relevant resources.

- Decreased chance for the views of individuals to be minimized because of gender or racial stereotypes.
- Decreased barriers to participation for people for whom discussions occur in a non-native language.

Guest Faculty

Almost any form of research ethics discussion can be significantly enhanced by including representation of diverse perspectives of other senior researchers or faculty. While this could be accomplished by inviting the guest faculty to take full responsibility for a specific lecture or topic, it will often be more useful to simply invite them to bring their perspectives and experience to the discussion. The key is that the purpose of their presence is to bring real world experience to the table, rather than to provide the framework per se for discussion or presentation of the particular topic.

Some possible roles for such faculty guests could include:

- Participate as a facilitator or resource to small group discussions.
- Respond to ongoing lecture or discussions on an ad hoc basis.
- Serve as a respondent to selected questions or presentations by the course instructor or students.
- Participate as part of a panel of guest faculty to reflect on personal experiences.

Journal Publications

The published literature in most academic disciplines frequently includes publications that are directly relevant to the ethical conduct of research. In all cases, the discipline specific nature of these publications maximizes their relevance for discussions not just in the classroom, but in the context of research.

Such publications can take several different forms, and are likely to be found in most fields:

- Research that has been found to be fraudulent.
- Editorials or commentaries about, for example, publication practices.
- Reviews or surveys to highlight questionable practices.

Resources

- [Retraction Watch](#)
A site that tracks articles that have been retracted from research journals and tells the story behind the retraction.
- [Nature Careers](#) occasionally publishes news articles related to research ethics, and new and noteworthy stories around research ethics and practice.
- [Science Careers](#) has some very interesting editorials looking at issues of research ethics on a regular basis.

Editorials and Commentaries

- Farmer P (2002): Can transnational research be ethical in the developing world? The Lancet 45(4):47-49.
<http://survivreausida.net/a6534-can-transnational-research-be-ethical-in-the.html>
- Stone WR (2003): Plagiarism, Duplicate Publication, and Duplicate Submission: They Are All Wrong! IEEE Antennas and Propagation Magazine 45(4): 47-49.

Research on Questionable Practices

- Long TC, Errami M, George AC, Sun Z, Garner HR (2009): SCIENTIFIC INTEGRITY: Responding to Possible Plagiarism. Science 323(5919):1293-1294.
<http://www.sciencemag.org/cgi/content/short/323/5919/1293>
- Martinson BC, Anderson MS, de Vries R (2005): Scientists behaving badly. Nature 435:737-738
<http://www.nature.com/nature/journal/v435/n7043/full/435737a.html>

Question-Based Lectures

A fundamental premise of active learning is that students generate, not just receive, new approaches and understandings. One approach to help achieve this goal is to use a lecture format, but to structure the lecture around questions rather than

simply delivering content. For example, an entire lecture about authorship could be based on engaging students in conversations to answer questions such as:

- What does it mean to be an author of an academic publication?
- Why is authorship important to academics?
- What are the criteria for authorship?
- If there is more than one author, what is the significance of the order of authorship?
- Are there written guidelines or rules for authorship? What are they? Are they typically followed?
- Other than authorship, how can credit be given to someone who has made an important contribution?
- What can be done to minimize the risk of disputes about authorship?
- What can be done if you have a dispute about authorship?

One variation on this approach is to structure the lecture around a single case, but instead of the lecturer asking the questions, the students are challenged to ask questions of the lecturer about what they need to know in order to best address the challenges presented by the case. In this way, the lecturer might deliver content similar to that in a traditional lecture, but it is provided in a sequence and fashion defined by the students.

Role Playing

A primary purpose of role-play exercises is for participants to imagine themselves actually facing the ethical challenges presented by the exercise. Students are asked to not just discuss a scripted case, but to take on roles as specific characters facing a conflict in the conduct of research. Because participants may take on roles other than their real positions, this is also an opportunity to see a case from the perspectives of others who may be engaged in a dispute. Role play exercises can be played out in a variety of ways, for example:

- Students are divided into small groups, each group receives a script providing background and starting points for one of the roles to be played, the groups are challenged to clarify their perspectives, positions, and approaches, and then students from different groups are paired up with the charge to carry out the role play exercise seeking resolution.

- Students individually receive scripts with background and starting points, and then are paired up with the charge to carry out the role-play exercise seeking resolution.
- A pair of students (or instructors) are invited to conduct the role-play scenario in front of the rest of the class.
- Student groups are assigned to create, and then play out, a script that includes several individuals (e.g., technician, grad student, postdoctoral researcher, and principal investigator) faced with a conflict, dispute, or ethical dilemma.

It should be noted that not all students will be comfortable with being placed in an "acting" role, particularly if asked to do so in front of the rest of their class. However, if presented appropriately, and used as only one of several different kinds of tools to promote discussion, role-play exercises can be both fun and useful.

Resources

- Loui MC and Gunsalus CK (2009): [Role Play Scenarios for Teaching Responsible Conduct of Research](#). Online Ethics Center.
- Rosnow RL (1990): Teaching Research Ethics Through Role-Play and Discussion, *Teaching Psychology* October 17 (3), 179-81.

Student Teaching

Another valuable approach to teaching research ethics is to transfer responsibility for the teaching to the students themselves. The approach is simple. Students are assigned to small groups and each group is given the responsibility to present on either a topic of their choice or an assigned topic. Contrary to appearance, this is not a way to decrease workload for the teacher. To be effective, it is essential that the teacher work closely with the students to identify key points to be covered, recommend useful approaches for teaching the particular topic, and supplement the "in class" discussion with additions, corrections, or clarifications as needed.

Surveys

One of the factors common to nearly all of the other approaches proposed for encouraging discussion is that participants must, in effect, admit publicly to their

views or perspectives. This has great value, but it has two limitations. First, few such discussions will adequately sample the views of all participants. Second, some nuances and/or outlier perspectives may be missed. Surveys provide a means to address both of these limitations.

The use of surveys in a course environment can include any or all of the following components:

- Students given responsibility for designing several survey questions to be used for assessing perceptions about a selected research ethics topic.
- Surveys distributed electronically or as print copies for completion by students before, during, and/or after a class meeting.
- Survey results tabulated by students and/or the course instructor.
- Survey results used by the instructor or student presenters to illustrate the range of student views.
- Instructor or student presenters use the survey findings as prompts for class discussion.

Resources

Kalichman MW (2005): Surveys as a tool for teaching scientific integrity. In: (Macrina FL) *Scientific Integrity*. 3rd edition, American Society of Microbiology Press.

Notes

The Resources for Research Ethics Education site was originally developed and maintained by Dr. Michael Kalichman, Director of the Research Ethics Program at the University of California San Diego. The site was transferred to the Online Ethics Center in 2021 with the permission of the author.

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Resource Type

Instructor Materials

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Resources for Research Ethics Education

Topics

Teaching Ethics

Discipline(s)

Research Ethics

Teaching Ethics in STEM