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Responsible Conduct of Research Role-Plays: Peer Review

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Responsible Conduct of Research

Role Plays

Peer Review



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Using Role-Plays in Ethics Education

Role-playing can be a powerful learning experience and stimulate lively discussion and debate. However this active learning technique, which most people are unfamiliar with, can also make participants feel awkward and uncomfortable at first. The key to its use is to introduce and frame the technique to any group before starting.

Note to Moderator:

After the workshop participants should receive as a handout the section labeled “Resources.” That section also includes a summary of the role-play.

Introduction (2-3 minutes)

We generally start a session by talking about the technique and why we use it. We often label it as “experiential” or “active” learning as we talk about it. This introduction can be done relatively quickly and will improve the participation and comfort level of the group.

Points we make include:

- Role-playing is a type of active learning technique. As such, it promotes deep learning, long-term retention and can be very memorable and powerful
- Participants might feel awkward at first, but they are encouraged to participate as fully as possible. The more authentically they engage in their role the more they will learn
- There are no “right” answers in role-plays
- Participants are not being graded
- The purpose of the exercise is to provide an active learning experience in a safe setting where ethical issues can be explored without being about a real problem
- Because role-plays (or simulations) are participatory, educators believe that the information learned will be retained longer and will be more easily accessible in the future if it is needed
- This training will help participants be prepared to recognize and address ethical problems. By grappling with the sorts of ethical problems that arise regularly in professional life in this safe, non-threatening role-play setting, participants can think through the problem and gain some skills and tools to use should they ever encounter such a problem. We think of this as an “inoculation model.” By practicing these conversations you become “vaccinated” and thus better able to resist confusion and anxiety when questions of ethical research arise
- These scenarios are based on real situations that real people encountered (You cannot make this material up)
- After the role-play we will discuss the experience. We also will discuss the outcome of the real-life situation upon which the role-play is based, where possible
- For anyone who is truly too uncomfortable to try it out, we have an observer role. The observers are expected to take notes as they watch others do the role-play and then to provide comments back to the other participants in their group at the end of the process.

Instructions (3-5 minutes)

After introducing the technique, we give the group instructions and an overview of the procedures.

- 1) Materials should have been copied in advance on different color paper, so the roles are easy to distinguish. For example, the professor role might be on blue paper, the student on yellow paper, and the observer role on green paper. **Participants know only what is in their own roles, and have no information on what is in the other roles; that comes out as the session proceeds. Decide in advance whether you will be distributing the discussion starters with the roles. If you are, the discussion starters for each role (and only that role) should be on the same color paper as the role.**
- 2) Ask participants to divide into groups of two (professor/administrator and student) or three (professor, student, and observer). Each group must have one each of the two main roles (professor/administrator and student).
- 3) Announce that everyone will start together and end together. (This keeps the noise level down while directions are being given.)
- 4) When partners have been selected, hand out the roles and discussion starters. Participants are not obligated to use the discussion starters, but it does make the exercise less daunting for many.
- 5) Verify that every group has two or three people and that each one has a different color paper.
- 6) Ask participants to leaf through their materials: each should have role information and a role-play starter. Using the role-play starters is optional, not required. They are provided to help those who need a little guidance to ease into the role-play.
- 7) Announce the amount of time available. 10-15 minutes is plenty of time for these short scenarios.
- 8) Provide a bit of time for individual preparation. Suggest that participants make notes of what you want to find out, and what your first sentence will be.

Optional step:

If time and space permit, it can help focus the role-plays and make sure all aspects of the scenario are covered if you verbally review the key points of the scenario and the participants' role. To do this, take one group — all of whom are playing the same role — out into the hallway and keep the other together in the classroom. If there is only one discussion leader, appoint one member of one of the groups to read the role information aloud to the group while the discussion leader works with the first group. When the leader finishes briefing the first group, leave that group to discuss the role among themselves and go brief the second group and answer any questions they might have.

9) Start the role-play. Walk around the room, listening to various groups to get a sense of topics discussed and how the activity is proceeding. Stop the process after it appears that most have exposed the main dilemma and have spent a little time talking about how to approach it.

10) Make sure at the end of the session that participants receive the “Resources” sheets as a take-away handout.

Discussion (30-45 minutes)

After the role-play the moderator should lead a discussion. Follow the discussion guidelines provided following the role-play. It’s also useful to plan for a few concluding remarks at the close of the session to consolidate the discussion.

Tips for Leading Discussions

Opening questions and guidelines for leading a discussion are provided below.

- After the role-play, discussion usually takes off on its own in light of the experience. However, if no one speaks right away, don’t worry.
- After you ask the opening question, wait at least 10 seconds to give people a little time to volunteer. When you are at the front of the class 10 seconds feels like eternity, but that amount of time allows participants to begin to gather their thoughts and work up the nerve to respond.
- If the discussion is really lagging at any point, a useful technique can be to ask participants to discuss whatever the proposition is with their neighbors. This “buzz groups” approach can build up enough confidence that people will start talking.



The Peer Review Process

If your audience includes students who are unfamiliar with the scientific publication process, explain the peer review process before beginning the role-play.

All research builds on previous research, and every research project aims to increase our shared knowledge. Thus, at the completion of a project, the researchers should share the project's results with others to enable them to build on those results. Normally the results of research in science and engineering are shared through the publication of scientific papers or articles written by the researchers. Before publication, a paper or article is called a *manuscript*. Researchers write a manuscript to report results of research project. They submit the manuscript for publication in a scientific journal or at a conference. Show an example of a published journal article.

Research communities strive to ensure the quality of publications through the peer-review process. In this process, a manuscript is reviewed by scholarly peers of the authors who are experts in the subject of the manuscript. Typically two to five "referees" review the manuscript. Peer reviewers determine whether the manuscript meets appropriate standards for publication: the manuscript should be original, the results should be significant, the subject should fall within scope of conference or journal, and the writing should be clear. A paper is particularly valued when it has been peer-reviewed before publication, because in general, researchers have greater confidence in the results reported in a peer-reviewed article than in an unreviewed paper. Peer review is also used by funding agencies, such as the National Science Foundation, to evaluate the quality of proposals for grants that support research projects.

Role-Play Discussion Guidelines: Moderator

General questions to ask:

After the role-play is over and the groups come back together, ask the participants what was going on in this interaction. Work to elicit the whole story, by alternately asking those who played each role what their concerns were:

- For those playing the student, what were their concerns?
- Ask those playing the faculty member how they understood the situation.

Then summarize for the group the essential facts of the two main roles. It can be helpful to make a two-part list on an overhead or chalkboard while you are eliciting information, noting the concerns of the faculty member and the concerns of the student.

If there were recurring themes in the groups you picked up while the role-play was under way, work those into your discussion. Ask the group how closely the two versions that emerged in discussions match. If they do align, what was the most helpful in eliciting information and establishing trust, leading to a useful and constructive discussion? If they do not match (you may have some groups in each category), what kept the two versions from aligning? Was information missing? What kept it from coming out?

Other general questions to ask:

- What were the most helpful things that were said?
- What do people on each side wish the person on the other side had asked or said?
- Who should take the next step here? Why?
- Is there a good outcome to this situation?
- What elements might make it more or less likely to come out well?

If you had any observers, ask them what they saw going on; see if anyone picked up signals the participants missed. What were they? What difference might it have made if the missed signal had been caught? Ask the group to identify the issues that are presented in this role-play.

Specific questions to ask (with some information to guide responses and discussion):

What are the ethical obligations of a peer reviewer of a manuscript that is submitted for journal publication?

Should the professor have declined to review this manuscript because of a conflict of interest?

When a professor is asked to review a manuscript submitted for publication, is it ethical for the professor to give the task to a graduate student?

Yes, provided that the professor obtains the permission of the journal editor and justifies the student's competence to serve as a reviewer. The editor should consent to a change of reviewers. The editor might ask the professor and student to serve as joint reviewers. The professor is *not* allowed to share the manuscript indiscriminately with all members of a laboratory group.

May the reviewer of an unpublished manuscript use its ideas to stop an unproductive line of research?

Time and materials should not be wasted on research projects will not generate useful results. The guidelines of the Society for Neuroscience allow the reviewer to stop a research project that is likely to be unproductive. See <http://www.sfn.org/index.cfm?pagename=responsibleConduct>

May the reviewer of an unpublished manuscript use its ideas to start a new line of research?

The reviewer must be careful to avoid plagiarism: in particular, the reviewer should avoid publishing the new ideas in a paper before the authors do. If possible, the reviewer should cite a preprint or conference version of the manuscript. If the manuscript has not been published in any form, however, then the reviewer might decline to review the manuscript and instead contact the authors.

Why are the identities of the peer reviewers kept confidential?

When the name of the reviewer is kept confidential from the authors, the editor can expect that reviewer to be candid about weaknesses of the manuscript. In some disciplines (outside science and engineering), reviewing is *double-blind*: the reviewers do not know the names of the authors. Double-blind reviewing prevents reputations of the authors from affecting the reviewer's judgment, but also impedes a reviewer from noticing a conflict of interest.

Why are the ideas in an unpublished manuscript considered confidential?

First, the manuscript's authors have the right to first publication of their ideas and results; the reviewer should not divulge these results before the authors do. Second, from the viewpoint of other researchers, the reviewer should not take unfair advantage of the authors' ideas before publication, which announces the ideas to everyone simultaneously.

Principles that apply to peer review:

The reviewer is obligated to:

- return a thorough report promptly
- apply professional judgment competently

- evaluate the manuscript's strengths and weaknesses fairly
- suggest improvements to the manuscript
- avoid conflicts of interest with the authors of the manuscript
- honor the confidentiality of the manuscript's contents
- report suspected plagiarism and duplicate publication

Conflict of interest

If the professor has an antagonistic relationship (or a close personal relationship) with one or more of the authors, then there is a conflict of interest. When a conflict of interest exists, personal factors may compromise the reviewer's objectivity; even if the reviewer strives for objectivity, the editor and the authors might be unable to trust the reviewer's judgment.

Alternative Formats:

A: After the discussion, ask for two volunteers, and do the role-play again, in a "fishbowl" format where the audience observes one pair proceed through the scenario that the group just discussed. Stop the action every now and then and ask for suggestions from the audience on what might be done differently to improve the outcome. Ask the role-players to back up a bit in the interaction and try to incorporate that advice as they move forward again. See if there are differences in how the interaction goes. What lessons can be learned?

B: Before the discussion, pass out the roles and have each person prepare individually. Ask for two volunteers to come forward to do the role-play in a "fishbowl" format, and then follow with the discussion portion.

RESOURCES

Role-Play Summary

This scenario is based on “What is Responsible Peer Review?” http://ccnmtl.columbia.edu/projects/rcr/rcr_authorship/case/index.html#2, which is based on the “Confidentiality vs. Mentor Responsibilities: A Conflict of Obligations” scenario, <http://onlineethics.org/reseth/appe/vol3/conflictobligations.html>, which is based on a real incident.

This scenario highlights several issues in the peer review of manuscripts submitted for publication:

- Conflict of interest in the role of the reviewer
- Confidentiality of information in the manuscript
- Role of the adviser in the professional development of a graduate student

Although this scenario is not based on a single actual incident, each of the scenario’s elements occurs frequently in research in science and engineering.

When a research subfield is small, a journal editor may be unable to avoid choosing a reviewer who has a conflict of interest with an author of a manuscript. The conflict of interest may bias the judgment of the reviewer. A conflict may be particularly difficult when the reviewer and the author compete with each other for priority in making discoveries or advances in the subfield. In this case, the reviewer might be tempted to delay publication of the rival author’s manuscript by recommending extensive revisions. A reviewer who has a serious conflict of interest should decline to review the manuscript and should return it promptly to the editor. The reviewer may nominate alternate reviewers.

Busy professors who are asked to review manuscripts often refer the reviewing task to one of their graduate students. The task enables the student to learn about the publication process, and to learn how to evaluate a manuscript, under the supervision of the professor. Before referring the reviewing task, however, the professor should obtain the consent of the journal editor to a change in the reviewer. The editor may have had a specific reason for selecting the professor as the reviewer.

A reviewer may wish to apply the ideas in the unpublished manuscript in his or her own research projects. Although the Society for Neuroscience guidelines, for example, allow a researcher to stop an unproductive line of research based on the manuscript’s findings, in general, a reviewer should not take advantage of the manuscript’s ideas before they are published.



Resources on Responsibilities of Peer Reviewers

American Chemical Society guidelines

<http://pubs.acs.org/instruct/ethic.html>

Cain, J. (1999). Why be my colleague's keeper? Moral justifications for peer review. *Science and Engineering Ethics*, 5, pp. 531–540.

Smith, A. J., (1990). The task of the referee. *Computer*, 23, 65–71.

Society for Neuroscience: Responsible Conduct Regarding Scientific Communication

<http://www.sfn.org/index.cfm?pagename=responsibleConduct>

Responsible Conduct of Research: Responsible Authorship and Peer Review

http://ccnmtl.columbia.edu/projects/rcr/rcr_authorship/introduction/index.html

Responsible Conduct of Research Resources

Columbia University

<http://ccnmtl.columbia.edu/projects/rcr/>

Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, *On Being a Scientist: Responsible Conduct in Research*, National Academy Press, Washington, D.C., 2nd ed., 1995.

<http://www.nap.edu/readingroom/books/obas/>

ORI Introduction to the Responsible Conduct of Research,

http://ori.dhhs.gov/publications/ori_intro_text.shtml

Online Ethics Center, National Academy of Engineering

<http://onlineethics.org>

Research Ethics Modules, North Carolina State University,

<http://www.fis.ncsu.edu/Grad/ethics/modules/index.htm>

Macrina, F. L. (2005). *Scientific Integrity: An Introductory Text with Cases* (3rd ed.). Washington, D.C.: American Society for Microbiology Press.

Shamoo, A. E., & Resnik, D. B. (2003). *Responsible Conduct of Research*. New York: Oxford University Press.



Professor Role

What follows is an outline of your role. You will need to improvise to some extent – be creative but try to stay within the bounds of what seems realistic.

The executive editor of the *Journal of Wondrous Research* has asked you to review a manuscript submitted for publication in the journal. For this journal the review process is single-blind, so you know that the manuscript comes from the laboratory of your rival S. A. Wong at Desert State University. In glancing through the manuscript, you discover that although the theoretical ideas are novel and promising, the manuscript has numerous flaws: the description of the experimental method looks internally inconsistent, the illustrations lack labels, and the statistical analysis appears to be incorrect.

You want to refer the manuscript to your third-year doctoral student, to give the student experience in reviewing a manuscript (under your supervision) because reviewing is an important professional duty. This manuscript seems like a good opportunity because it demonstrates many potential mistakes that can be made in writing up research results. In addition, you think that two theoretical ideas in the Wong manuscript might help your student overcome some obstacles that have blocked the student's progress for the last three months. The first idea indicates that your student's current approach is not likely to succeed, and the second idea suggests a better direction for your student's research.

This morning you sent a brief e-mail message to your student about the Wong manuscript, and you asked the student to come to your office in the afternoon. The message stated:

[We should meet this afternoon to discuss a new manuscript from the Wong laboratory. I would like you to review the manuscript for publication, and I also think that some of the ideas in the paper may be useful to help you advance your research.]

You plan to ask the student to serve as the reviewer of the manuscript as part of the student's professional development. You also plan to suggest an experiment to check whether the theoretical ideas might overcome the student's obstacle. You reason that although you are obligated to keep the identity of a peer reviewer confidential, the ideas themselves are not confidential; in fact, you had previously speculated that the theoretical ideas might be true.

You are confident in the abilities of your doctoral student. In many ways, the student is a good role model: the student always takes your advice seriously and implements your ideas diligently.

Professor Role-Play Notes:

- ✓ You want your student to review the manuscript to experience reviewing
- ✓ You want the student to use the manuscript's theoretical ideas to further the student's research
- ✓ You are mainly focused on the student's progress
- ✓ You respect this student and have a good relationship
- ✓ The Wong manuscript has some serious flaws, so it will probably need significant revision and therefore it won't be published soon

Plan for your meeting:

- ✓ Write questions that you will ask the student
- ✓ Follow-up questions that you might ask
- ✓ Questions that the student might ask you, and your answers

Starting the Role-Play

Professor: *How are you today?*

Grad Student: *I'm good. You asked to see me about a manuscript from the Wong Lab?*

Professor: *Yes, I was asked to review this manuscript, and after reading through it this morning, I think that it would be a good paper for you to review.*

Grad Student: *That sounds good to me. I have been looking for opportunities to gain experience as a reviewer.*

Professor: *This manuscript has a number of problems with it, so I'd like to see if you find the same problems that I found. Then we can talk about how to write a professional review ... The paper has some ideas that might help your research progress, so we can talk about them as well.*

Grad Student: *I should be able to work on it this week ... and I have been getting somewhat frustrated by the lack of progress on my dissertation research ...*

Professor: *That's exactly why I thought that this would be such a good opportunity for you.*

Grad Student: *It does sound good ... But, well, I was wondering if there might be an issue with having me review this paper? ...*



Student Role

What follows is an outline of your role. You will need to improvise to some extent – be creative but try to stay within the bounds of what seems realistic.

You are a graduate student in your third year of graduate study. You have completed most of the course requirements and passed the doctoral qualifying examination. Because you plan to pursue an academic career, you are looking for ways to gain experience with professional service duties such as reviewing manuscripts for publication.

You have worked steadily on your doctoral research project, making good progress. For the last three months, however, you have been unable to overcome an obstacle in your project. Although you feel frustrated, your research adviser has been supportive and has expressed confidence in your abilities.

This morning you received a brief e-mail message from your research adviser, who asked to see you in the afternoon. The e-mail stated:

[We should meet this afternoon to discuss a new manuscript from the Wong laboratory. I would like to you to review the manuscript for publication, and I also think that some of the ideas in the paper may be useful to help you advance your research.]

You know that Wong and your adviser are competitors in this research area, and you have systematically read the published papers from Wong's laboratory. You are familiar with their work and some of it has been useful to your dissertation research. You check the Wong laboratory's public Web site weekly to make sure that you know of any developments that might affect your work, but you did not see a preprint of the new manuscript posted there.

You recently attended a session on responsible conduct of research that highlighted ethical obligations in peer review. You wonder whether it is appropriate to take advantage of ideas in an unpublished manuscript. You also wonder if you can objectively review a manuscript that has ideas useful to your current dissertation work. You have never previously contradicted your adviser, whose ideas have advanced your research. In fact, you are somewhat intimidated by your adviser, whose research insights and judgment have nearly always been correct—and much better than your own intuitions.

Student Role-Playing Notes:

- ✓ You want to review the manuscript to gain experience in professional service
- ✓ You do want to learn about the ideas in the manuscript
- ✓ You are frustrated by the lack of progress of your research project
- ✓ You are concerned about objectivity and citation of the Wong work
- ✓ You trust your adviser and want to remain on good terms

Plan for your meeting:

- ✓ Write questions that you will ask your adviser
- ✓ Follow-up questions that you might ask
- ✓ Questions that your adviser might ask you, and your answers

Starting the Role-Play

Professor: *How are you today?*

Grad Student: *I'm good. You asked to see me about a manuscript from the Wong Lab?*

Professor: *Yes, I was asked to review this manuscript, and after reading through it this morning, I think that it would be a good paper for you to review.*

Grad Student: *That sounds good to me. I have been looking for opportunities to gain experience as a reviewer.*

Professor: *This manuscript has a number of problems with it, so I'd like to see if you find the same problems that I found. Then we can talk about how to write a professional review ... The paper has some ideas that might help your research progress, so we can talk about them as well.*

Grad Student: *I should be able to work on it this week ... and I have been getting somewhat frustrated by the lack of progress on my dissertation research ...*

Professor: *That's exactly why I thought that this would be such a good opportunity for you.*

Grad Student: *It does sound good ... But, well, I was wondering if there might be an issue with having me review this paper? ...*

Observer Role

- *Read both roles on the following pages.*
- *Watch the interview and take notes.*
- *If the conversation appears to be stopping early, encourage discussion on topics that still haven't been addressed.*

What issues and possible courses of action did the student and professor discuss?



In what ways did the student and professor communicate their ideas and concerns? Directly or indirectly? How did they indicate that they understood each other?

What aspects of the interaction would also be effective in a real situation? For what reasons?

What questions do you think could/should have been asked that were not? What do you think could have been said that was not?

