

ORI CASEBOOK (ABRIDGED WEB VERSION)

STORIES ABOUT RESEARCHERS WORTH DISCUSSING

Instructor's Manual

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Introduction to the Instructor's Manual

James M. DuBois

The *ORI Casebook: Stories about Researchers Worth Discussing* provides stimulating material for case discussion, class debates, and role plays—various forms of face-to-face instruction on the responsible conduct of research (RCR). As noted in the Introduction to the ORI Casebook, the Casebook aims to do three things:

- To foster ethical problem-solving skills, including (1) identifying stakeholders, morally relevant facts, pertinent ethical norms or principles, and viable options, and (2) activating strategies for balancing competing principles.^{2,3}
- To promote the development of sensemaking skills, including “1) recognizing the complexities of your circumstances, 2) seeking outside help, 3) questioning your own and others' judgment, 4) dealing with emotions, 5) anticipating the consequences of actions, 6) assessing personal motivations, and 7) considering the effects of actions on others.”⁴
- To increase ethical sensitivity, that is, to widen a researcher's focus on many important dimensions of an ethical decision rather than concentrating on one primary point of interest.⁵

The articles in this Instructor's Manual will assist you in developing strategies to accomplish these aims. Each article was written by one or more leading RCR instructor. The articles are intentionally brief (2 – 3 pages). They indicate very different ways that the Casebook material can be used, for example,

- In role plays—with or without the assistance of a “trusted other” who coaches players through tough decisions
- In case discussions that use a decision-making framework.
- In case discussions focused on reflection questions
- In formal classroom debates

While several articles address foundational issues, most present an instructional strategy that you may want to adopt. These articles briefly describe the strategy; most refer you to further readings that provide

additional background and details on implementation. Many of these further readings are readily available online at no cost.

While this Instructor's Manual only briefly touches on many important issues, we believe it will answer many questions that novice ethics instructors may have. This is particularly important because the National Institutes of Health's policy on RCR instruction strongly encourages scientific mentors to become involved in face-to-face ethics instruction; it should not be the sole domain of professional ethicists. Nevertheless, there are "good practices" that can increase the likelihood of successful instruction.

The Contents of the Instructor's Manual can be viewed as a series of answers to important questions that instructors may have:

- *How do adults best learn conceptual material? To what extent should I let course participants shape the structure of our instructional sessions?*
 - See: Camille Nebeker, "Learner-centered teaching applied to responsible conduct of research (RCR) education"
- *How will I manage discussion groups? How large should groups be? Should I ever ask someone to stop speaking?*
 - See: James DuBois, "Facilitating small group ethics discussions"
- *What role does ethical theory play in ethics instruction? What resources exist for teaching ethical theory?*
 - See: David Resnik, "Teaching ethical theory"
- *Can RCR educational sessions effectively engage scientists and trainees from different disciplines? How should I staff such sessions?*
 - See: Kathryn Partin, "Facilitating a case study discussion among trainees in differing disciplines"
- *How can I avoid giving the impression that all ethical solutions are of equal value? Are there guidelines for justifying good ethical decisions?*
 - See: James M. DuBois, "A rational framework for ethical problem-solving"
- *Are there good habits researchers should develop when confronting ethical problems? What does the psychological literature say about this?*
 - See: Alison Antes, "An ethics instructor's guide to sensemaking as a framework for case-based learning"
- *How can I get the most out of the cases? Is it ok to change them?*
 - See: Elizabeth Heitman, "Changing the fact pattern in cases to explore diverse scenarios with one case"
- *Is it ok to structure a debate around a reflection question without any reference to the case study? How would I do this?*
 - See: Stephanie Solomon, "Leading debates on reflection questions"
- *The role plays do not include a script. How do I use them?*

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- See: Joan Sieber and Holly Bante, "Using role plays to foster problem solving"
 - *So many cases and role plays involve some form of wrongdoing. What kind of guidance can I give participants regarding how to respond to wrongdoing they observe?*
 - See: Gerald Koocher and Patricia Keith-Spiegel, "Strategies for responding to research wrongdoing"
 - *Some cases seem to fit more than one chapter's subject. How do I pick the best cases for the topic I want to cover?*
 - See: Holly Bante, "Index of RCR topics covered in the casebook"

As the various articles in this Instructor's Manual indicate, there is no one right way to use the Casebook. We encourage instructors to get creative in the ways they use the materials with the goal of eliciting the active engagement and critical thinking of everyone in the group.

ARTICLE 1

Learner-Centered Teaching Applied to Responsible Conduct of Research (RCR) Education

Camille Nebeker

Efforts to improve higher education led to a National Research Council report entitled *How People Learn* (HPL), which emphasizes the importance of “learning with understanding” and connects the science of learning to instructional practices that assist learners to become “self-sustaining, lifelong learners” (Bransford, Brown, & Cocking, 2000, p. 5).

Learner-centered teaching (LCT) can contribute to self-directed and lifelong learning skills and is characterized by active engagement of students/trainees in the learning process. With a learner-centered approach, the instructor serves as a co-learner and facilitator to advance inquiry and understanding of the subject matter (Allan, 2004; Huba & Freed, 2000; Weimer, 2002). This article describes a framework developed by Bransford and colleagues that includes a learner-centered approach and why the approach is relevant to RCR education.

Learner-centered teaching is heavily influenced by social constructivist ideology advanced over the past century by Dewey, Piaget, Vygotsky, Candy, Lave and Wenger (Merriam, Caffarella & Baumgartner, 2007; Singer, Neilsen, & Schweingruber, 2012). In the constructivist orientation, the instructor’s role is to “facilitate and negotiate meaning-making with the learner” manifested through methods associated with “experiential learning, reflective practice, situated learning and communities of practice” (Merriam, et al., 2007, p. 296). These methods are carried out using a variety of tools including case analysis, case building, role play, journal writing, collaborative group projects and interactive lectures; however, the use of lecture is typically limited to information the trainee/student cannot acquire independently (Bransford, et al., 2000; Weimer, 2002).

Studies conducted to evaluate the effectiveness of RCR instruction report that most RCR educators use the traditional teacher-centered format of lecture and discussion (Antes, et al., 2009; Antes, et al., 2010; DeBruin, et al., 2007; Plemmons, Brody, & Kalichman, 2006; Powell, Allison, Kalichman,

2007). A meta-analysis of responsible conduct of research (RCR) instruction revealed “ethics instruction is at best moderately effective as it is currently conducted;” however, results also confirmed that more effective instructional strategies were case-based and interactive whereby participants could practice socially contextualized problem-solving (Antes, et al., 2009, p. 397). These findings are instrumental in informing best practices for instructional design to advance RCR educational effectiveness and support integration of learner-centered teaching strategies for enhancing student/trainee understanding of ethical and responsible research practices.

To assist faculty in designing an optimal learning environment, Bransford, et al. (2000) proposed a framework that incorporates guiding principles informed by research on human learning and associated with improved student learning outcomes. The framework centers on four interrelated domains that collectively influence a learning environment. The following describes how this framework can be adapted to guide teaching of RCR.

Learner Experience

RCR instruction should promote an environment that fosters awareness of knowledge, attitudes, beliefs, cultural practices and skills that learners bring to the setting.

An important reason for acknowledging prior experience in RCR instruction is to understand existing perceptions and misconceptions that may compete with new knowledge and make learning more challenging (McGee, Almquist, Keller & Jacobsen, 2008). The implication for teaching RCR suggests incorporating opportunities to converse about student/trainees prior experiences throughout the course (e.g., determining authorship, establishing ownership of intellectual property, disclosing conflict of interest, recruiting research subjects, etc.), and discuss perceptions and understanding that have shaped the participant’s current perspectives.

Knowledge of Core Content

RCR instruction should attend to what is taught, why it is important, and how competence is defined and measured.

In the knowledge domain, priority is placed on developing an understanding of the subject matter rather than awareness of associated facts. The evidence supports connecting content (e.g., collaboration, social responsibility, etc.) through “meaningful problem-solving activities” with the facilitator fostering interaction as to “why, when and how those facts and skills are relevant” for

learning to be enhanced (Bransford, et al., 2000, p. 23). The implication for RCR teaching supports learning generally about topics associated with ethical and responsible research practices with a more in-depth focus on topic areas most relevant to the learner's discipline. Likewise, instructional strategies that engage the participant through problem solving and modeling to construct understanding of RCR topics facilitates learning of core content and understanding application to practice. This domain also stresses the importance of a knowledgeable facilitator who is able to assist students in understanding and contextualizing the subject matter.

Assessment of Learning

RCR instruction should integrate ongoing formative assessment to make the learning process more visible for both the student and instructor.

“Learner-friendly” assessment is an essential aspect of the learning process and involves ongoing reflection and dialogue (Bransford et al., 2000, p. 24). Both knowledge and assessment domains suggest application of meta-cognitive strategies that promote sensemaking through self-assessment and reflection about what is understood, what is not understood and how the student/trainee is contextualizing the information to be meaningful (Bransford, et al., 2000). The implication for RCR teaching is to create opportunities for students/trainees to think about and discuss their understanding of a topic as well as how that understanding transfers to settings outside of the course. Assessment is easily incorporated within inquiry and skill-based instructional strategies (e.g., case analysis, problem solving, role play) that prompt analysis and discussion among group members. Mezirow (1991), in his writing about transformative education, strongly advocates for reflective practices stating it is “crucial that the individual learn to negotiate meanings, purposes, and values critically, reflectively, and rationally instead of passively accepting the social realities defined by others” (p. 3). Reflection and self-assessment strategies are particularly important when teaching RCR since the accepted rules and/or standards and norms being discussed during the course may conflict with realities within the student/trainees work environment. Instructors could, for example, ask participants to write an analysis of the cases, or to perform a role play, as primary forms of assessment in RCR courses.

Community Context

RCR instruction should include opportunities to connect learning contextually to enhance transfer of what is being learned to practice in the field.

A goal of learner-centered teaching is to create an environment for students/trainees to practice skills within an authentic context. Lave and Wegner (1991) emphasize the importance of connecting content to practice by situating learning within the community to enhance successful transfer. The implications for RCR involve instructional strategies grounded in the student/trainee's actual professional setting and/or through modeling an authentic/realistic experience where students/trainees can practice solving the ill-defined problems that are, for many, daily experiences that prompt the question "What should I do?" Both case analysis and role play are instructional strategies used to connect RCR content to the research setting.

Likewise, the reflection questions at the end of each chapter of the Casebook facilitate further connection between instruction and practice by asking the participant to consider the issues in relation to their personal experiences. Instructors may also consider asking participants to draw upon their own personal experiences and write an instructional case that illustrates an ethical challenge they have encountered and/or interview a researcher in their field to gather first hand understanding of how a topic (e.g., mentoring) is practiced within the discipline.

Conclusion

In summary, there is growing consensus regarding what is known about learning and how learner-centered teaching is effective in developing self-directed and autonomous learners, yet, limited evidence on what specific tools are most successful (Bransford et al., 2000; Singer, et al., 2012). The growing field of discipline-based educational research is beginning to assimilate and report research that supports learner-centered instruction in the sciences and may be relevant to RCR educators (Singer, et al., 2012). While applying these perspectives to RCR instruction may improve student learning, it can also be challenging. One challenge is it assumes students/trainees are independent, self-motivated and willing to accept some responsibility for their learning. These qualities are typically a starting point for developing autonomous learners (Candy, 1991) and may or may not be a characteristic of students/trainees who enroll in RCR. Likewise, integrating learner-centered instruction requires new skills for educators who have relied primarily on lecture to convey information. To avoid merely sharing opinions during case discussions, instructors may need to build a knowledge base through critical feedback or the assignment of readings.

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ARTICLE 2

Facilitating Small-Group Ethics Discussions

James M. DuBois

The following are questions and reflections on how to facilitate small-group, face-to-face ethics training sessions. Most reflections are equally relevant to the facilitation of case studies, debates, and role plays. Reflections represent the views of one instructor who acknowledges that there are many effective ways to educate and many different learning styles.

Do I want to use a framework to structure discussion?

The Instructor's Manual presents a variety of different ways of structuring discussions—including using a rational framework for ethical problem-solving, a sensemaking model, and formal debates. Using a formal framework has pros and cons. On the one hand, it can lend structure to discussions and help participants to identify ethically important aspects of a situation and to justify controversial or difficult decisions. Without a framework, discussion may wander and participants may wonder what was accomplished. On the other hand, using a framework in an overly rigid manner can come across as pedantic and may stifle creative problem solving.

One solution to this problem is to follow a framework fairly strictly once or twice to illustrate it and raise awareness of key issues to consider, but subsequently to allow free discussion of cases. Facilitators might then write participants' comments on a board within specific categories or summarize key components near the end of the discussion using the framework. Often times the key elements of a framework are things that people naturally tend to examine (even if only tacitly and unsystematically) when building ethical

Before leading a small group in discussion, consider:

- *Do I want to use a framework to structure discussion?*
- *Do I want to present participants with a list of reflection questions?*
- *How large should discussion groups be?*
- *What can I do when a group is too large?*
- *How can I promote active participation among all participants?*
- *How do I deal with the "overly enthusiastic" participants who dominate discussion?*
- *Do I share my own views? Do I correct "wrong" answers?*

arguments; therefore, it is usually possible to fit comments into the structure after the fact.

Do I want to present participants with a list of reflection questions?

The cases found in the ORI Casebook are followed by reflection questions. There are advantages to presenting participants with such a list of questions. The questions identify important issues. However, getting participants to ask the right question is itself an educational task. With more advanced groups, instructors may want to present cases without reflection questions, and try to get the participants to identify the key issues themselves.

How large should discussion groups be?

Multiple studies in multiple fields have found that the development of critical reasoning skills requires active learning. (See the Instructor's Manual article by Nebeker.) In small group case discussions, debates, or role plays, this means that participants should be actively engaged in dialogue—not passively listening. Therefore, groups should be sufficiently small to enable meaningful participation from all group members. In general, the guidelines for leading a successful focus group discussion are also valid for ethics discussions: 6–10 people. Such groups are usually large enough that diverse views will be represented, but small enough that a facilitator can elicit the views of each participant.

What can I do when a group is “too large”?

Instructors are rarely able to control the exact number of participants in an educational setting. However, when a group is too large to enable each participant to be actively engaged in discussion, they can split the class into several smaller groups (say, of 6–8 discussants or 2–3 role players). Ideally, you would have many small, quiet spaces (classrooms) for the various groups; in reality, you may have to cope with many groups talking at once—but this is preferable to having inactive participants who merely observe discussion.

When splitting groups, it is advisable to identify a group leader and to provide the group leader with some guidance, e.g., encouraging them to elicit active participation from each group member.

How can I promote active participation among all participants?

The following tips will help you to elicit active participation from everyone in your group:

- Keep groups small
- Prompt silent individuals—ask them, “What do you think?”
- Ask participants to write their own analysis of a case
 - This can be done before discussing the case as a group. Even if individuals do not share their answers, they will have actively engaged the questions
- Facilitate discussion—don’t lecture

How do I deal with the “overly enthusiastic” participants who dominate discussion?

It is not unusual to find that one individual responds to prompts or questions both consistently and quickly. While this shows active engagement, it can also interfere with the active engagement of others. Find polite ways of responding to those who dominate discussion:

“I love your enthusiasm. Who else wants to weigh in on this?”

“You’ve made several great contributions to the discussion. Let’s hear from a few people who have been silent.”

Most people will hear the subtle point being made; but some will not. If all else fails, ignore the waving hands and interruptions and address a new person. Realize that as the small group facilitator, you are not being rude by creating space for discussion—it’s your job.

Do I share my own views? Do I correct “wrong” answers?

Facilitators need to avoid two extremes. On the one hand, a facilitator can shut down discussion either by speaking too much (defaulting back to the lecture format, which may feel more comfortable to instructors) or by providing an authoritative answer that shuts down discussion. On the other hand, facilitators can let discussions wander or let erroneous information go uncorrected—for too long.

Rather than saying, “that’s wrong,” a preposterous idea might receive a response such as, “O.K., but can you imagine any problems that might result if we consistently made such decisions?” If the participant cannot imagine problems, peers will usually be willing to offer assistance, enabling the facilitator to refrain from criticism. In general, substantive interventions by the facilitator during group discussion should be limited to providing

information that is needed by the group to address the case adequately (e.g., knowledge of regulations or standard practices) or tying things together following group discussion.

For Further Information^{1,2}

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ARTICLE 3

Teaching Ethical Theory: Significance, Strategies, and Resources

David B. Resnik

One of the crucial choices that instructors of courses in the responsible conduct of research (RCR) face is how to teach ethical theory. While few people question the need to teach some ethical theory so that students can understand how to make well-reasoned ethical decisions, there are different opinions about how much theory is necessary and how it should be taught.

Approaches to Teaching Ethical Theory

Because theory is abstract and often far removed from real-world problems, students may lose interest in theory and fail to appreciate its relevance to RCR. To overcome this difficulty, some instructors decide to sprinkle theoretical discussions throughout the course on an “as needed” basis, drawing on abstract concepts and principles only when necessary to deal with concrete issues. For example, one might introduce different approaches to individual rights (e.g., Kantian vs. utilitarian) when teaching students about the protection of human participants in research. Or one might explore different accounts of the moral status of animals when discussing animal experimentation. One potential problem with this approach is that it tends to be ad hoc, and important ideas may be overlooked or presented inadequately.

Others provide an introduction to ethical theory at the beginning of the course and draw on insights from ethical theory in the discussion of cases in subsequent sessions. A potential problem with this approach is that students may feel that they are getting bogged down in philosophical debate at the beginning of the course and they may fail to see where it is going.

A third option combines both strategies: teach theory briefly upfront and then introduce it again as the need arises.

Regardless of whether one chooses to teach theory upfront or throughout the course or some combination of the two, the following key points should be covered at some point:

- The importance of ethics in the conduct of scientific research;
- The idea of scientific ethics as a type of professional ethics;
- The relevance of various professional codes and guidelines;
- The difference between ethics, law, politics, and religion;
- Different ethics disciplines: applied ethics, normative ethics, meta-ethics, and empirical ethics (i.e., psychological and sociological research on ethical norms, reasoning, attitudes, and judgment);
- Some basic ethical traditions, such as utilitarianism, Kantianism, virtue theory, natural law and natural rights;
- Agreement and disagreement in ethics, i.e., moral relativism vs. moral universalism;
- Ethical principles or values pertaining to science, e.g., honesty, openness, objectivity, fair sharing of credit, respect for colleagues and students, social responsibility, and so on.
- Stepwise methods for ethical decision-making, such as defining the problem, gathering information, exploring options, and balancing ethical principles or values.

Recommended Readings

It can be difficult to find suitable resources for teaching ethical theory because most RCR textbooks, monographs, and edited volumes do not include much discussion of ethical theory. A notable exception is

Adil Shamoo and David Resnik's *Responsible Conduct of Research*, 2nd edition (New York: Oxford University Press, 2009).

The first two chapters of this book provide a brief overview of scientific ethics and ethical theory and decision-making.

There are many different books on the market that provide an overview of ethical theory, but these books may not be appropriate for a course in RCR, because they are designed to be used in introductory courses in philosophical ethics and include a great deal of material that may not be necessary to cover in an RCR course.

One of the best introductory texts in ethics is:

James Rachels' *The Elements of Moral Philosophy*, 7th edition (New York: McGraw-Hill, 2011).

This popular book has been used by many philosophy professors for several decades. Another excellent book is:

Louis Pojman and James Feiser's *Ethics: Discovering Right and Wrong*, 7th edition (Belmont, CA: Wadsworth, 2011).

Either of these books could be recommended to students who want to do further reading in ethical theory.

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ARTICLE 4

Facilitating a Case Study Discussion among Trainees in Differing Disciplines

Kathryn Partin

As science becomes an increasingly interdisciplinary endeavor, it is more common to find trainees from Biomedical Sciences working side by side with trainees from disciplines such as Anthropology, Computer Sciences, and Engineering. Case studies are a great way to address discipline-specific differences in professional norms and help prepare trainees for the growing trend toward interdisciplinarity, but they can also be an effective way to focus in on discipline-specific nuances that will become important to trainees. Given a choice, *should an instructor choose to segregate students in a course by discipline, or teach in an interdisciplinary context?* Panelists at a recent RCR instruction conference answered this question with a resounding “yes”—yes, engage in disciplinary and in interdisciplinary discussion, because each presents important learning opportunities (DuBois & Bante, 2011).

The Need for Disciplinary Expertise

There are some good reasons for segregation of students by discipline. Perhaps the most compelling is that then one can select a case discussion facilitator who is best qualified to know and teach the professional norms to those trainees. Some believe that RCR instruction taught by a science professional, rather than or in addition to an administrator or an “ethics” instructor, may be more accurate, more credible, and therefore more impactful (Integrity in Scientific Research, 2002) (NIH, 2011). It is common for trainees to push the boundary of any given scenario, wanting to know how the outcome would be influenced by technical details associated with the scenario (“What if the PI did not have IACUC approval for the study as performed?”, or “Would it matter if the plasmid had a viral promoter or a bacterial promoter?”). If the discussion leader gets stumped, s/he risks losing all credibility and the impact on trainee learning is lessened.

Further, the relative significance of specific core competencies is far greater for some disciplines than others, and teaching to a single discipline easily allows one to spend more time discussing the competencies that are likely to

impact the trainee in that discipline. Conflict of Interest is one such example. Trainees in Biomedical Engineering, who are likely to participate in the development of a device that will be marketed, may need to be much more knowledgeable in intellectual property rights and management of financial conflict of interest than will a typical trainee in basic Neuroscience, for example.

The Case for Interdisciplinary Discussion

While disciplinary discussion is valuable, a case can also be made for interdisciplinary training. First, with limited instructional resources, interdisciplinary training can be efficient. Interdisciplinary education sessions can meet the needs of many different departments and divisions to provide RCR instruction at the same time. Second, as noted above, scientific practice is rapidly growing more interdisciplinary (A New Biology for the 21st Century, 2009). RCR instruction that requires individuals from different disciplines to address the same cases and problems may allow participants to recognize quickly differences in vocabularies, assumptions, norms, and common practices. Finally, just as studying a new language helps one to understand better the grammar and idiosyncrasies of one's mother tongue, so too the norms of one's home discipline become clearer through contrast with other disciplines.

Strategies for Success in Interdisciplinary Settings

We have found that facilitators should first earn credibility by clearly establishing their professional expertise in one discipline, even if most of the trainees are from other areas. Having the instructors carefully explain their professional experiences at the beginning of a class or case study is very helpful. Focusing on a more general theme of graduate or postdoctoral training experiences ("I once had a student who..." or, "Of the 50 graduate committee I have served on, it seems that...") establishes the facilitator's credentials as an experienced mentor and helps promote professional respect.

There are a few areas that the facilitator must pay close attention to in an interdisciplinary course, including the areas of publication and data acquisition, ownership and retention. Publication practices vary widely outside Biomedical Sciences. For example, in Physics it is quite possible to have a publication with >2000 authors. What is the responsibility of one author to be sure that the data have integrity in such a scenario? The importance of authorship order is also quite variable: in one branch of Chemistry the coveted spot is first author, whereas in another subdiscipline,

similar to the Biomedical Sciences, the coveted slot is the last author position. Not only would one risk losing credibility, but one could also actually misinform the trainees, if one is not aware of these differences.

Another area of substantive differences has to do with the topic of data acquisition, ownership and retention. It is important to establish a definition of “data” that includes typical biomedical data, but also could encompass mathematical models or theorems, computer software, anthropological field notebooks, and technical specification validations, for example. By broadening the definition one allows trainees to understand how to use the term, “data”, and more importantly, “lab notebooks”. Initially, students outside of Biomedical Sciences might protest that they don’t deal with data and don’t have laboratory notebooks. With a broader definition they come to realize that these are included in a case discussion about data sharing, for example, and therefore they remain more engaged in the discussion.

It may seem like a daunting task to learn the ethical nuances of a discipline other than yours. Usually, however, the colleagues from the departments from which these diverse trainees arise are grateful to you for helping their trainees meet their federal requirements for RCR instruction, and are very willing (even eager) to attend the case study discussions. In that case, one can introduce the colleague as the resident expert in that discipline, explicitly articulating one’s own area of expertise, and deferring to the colleague for technical expertise in the other discipline. When the discussion leads to an area of difference, it becomes a great teaching moment to identify the difference and emphasize why the trainees need to talk with their advisors about what the professional norm in their discipline might be. This allows the instructor to “hand off” the training back to the mentors, but brings the particular item to the forefront in the trainees’ minds. It also provides an excellent opportunity to discuss professional norms in the context of federal definitions for research misconduct, and why FFP must be determined to seriously deviate from norms in that particular discipline in order to be considered research misconduct. This discussion can be emphasized by talking about discipline-specific differences in the treatment of a data outlier, and the odd fact that a treatment of an outlier might be considered acceptable in one discipline but misconduct in another. This usually gets trainees’ attention!

Summary

Case studies are a great teaching tool to provide new information, to engage trainees, and to leave them poised to think about complex ethical issues in the future. The discussions can be equally effective when the trainee population is composed of folks from the same discipline or from different

disciplines. As research becomes more interdisciplinary, ethical dilemmas will often span such working groups. Interdisciplinary RCR instruction can succeed, but it does generally require additional preparation of instructors and the participation of instructors from multiple disciplines.

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ARTICLE 5

A Rational Framework for Ethical Problem Solving

James M. DuBois

In his recent book, *The Righteous Mind*, the social psychologist Jonathan Haidt reviews data supporting two claims about ethical decision-making. First, “intuitions come first, strategic reasoning second” (p. 52).¹ That is, under ordinary circumstances, we quickly decide what is right or wrong; later, when required to do so, we produce reasons to support our decision. Second, “friends can do for us what we cannot do for ourselves: they can challenge us, giving us reasons and arguments... that sometimes trigger new intuitions...” (p. 47). That is, we rarely see the flaws in our own thinking and rarely reject our initial intuitive decision; however, engaging friends in critical discussion can lead us to change our minds, and this can influence future intuitions.

Small-group discussion of cases provides an excellent opportunity to challenge our intuitions, subjecting them to group reasoning processes, which can reduce the influence of bias. Whereas the sensemaking approach presented by Alison Antes in Article 6 provides guidance on how individuals can make good ethical decisions, this framework provides a kind of scaffolding for rational discussion in small-group settings. It is called a “rational framework” because it is meant to aid reasoning processes by identifying ethical concerns that are broadly recognized as important in secular, rational ethical discussions.²

Ethical problems often lack one best solution. However, even when there are multiple acceptable solutions, there are also multiple unacceptable solutions. Using an ethical decision-making framework can help groups to agree upon parameters for ruling out options.

The proposed framework involves two components: *analyzing cases* (identifying key components that should not be ignored); and *justifying decisions* when multiple values or commitments appear to conflict (as is often the case when situations are sufficiently complex to merit ethical deliberation by a group).

Analyzing Cases

Ethical situations typically share four elements in common. Each element can give rise to challenges or problems that need to be addressed. The following identifies some of these using the context of a substance abuse clinical trial.

- **Stakeholders.** Problems can arise when individuals who have a stake in a decision have competing interests. For example, a physician investigator might have a primary interest in generating scientific knowledge while a patient-participant might have a primary interest in receiving therapy.
- **Facts.** Problems can arise when people disagree about facts relevant to the ethical evaluation of a decision. For example, while all parties might agree that informed consent is important, they may disagree whether the participants have the capacity to consent, or disagree about which risks are sufficiently likely to merit disclosure.
- **Norms.** Problems can arise even when individuals agree upon general ethical principles (such as the Belmont principles of respect for persons, beneficence, and justice). First, principles or values may conflict, requiring people to balance their concerns or establish priorities; for example, efforts to include participants in the interest of justice may involve exposing them to risks. Second, some individuals and groups are committed to rules that are not shared by others; for example, an Institutional Review Board may have a blanket rule against paying substance abusers cash; participants may experience this as discriminatory.
- **Options.** Problems can arise when people see too few options, e.g., to enroll participants if they demonstrate decisional capacity or to exclude them. Other options might include offering educational interventions that can enhance understanding and exploring the use of a protocol that involves surrogates at certain points in the study.

These four elements of the analytic framework can be remembered with the mnemonic device, “So Far No Objections” or SFNO—the first letter of each word in the framework.

Problems arising from different dimension of the ethical situation merit different responses. Balancing stakeholder concerns may require transparency, discussion, and negotiation—sometimes even formal mediation. Clarifying facts requires access to best available data and often the best guesses of experts.

The remainder of this article addresses considerations that may guide deliberations when disagreements revolve around competing interests, values, or norms.

Justifying Decisions

A group of leaders in public health ethics have suggested that the following criteria may help guide deliberations when decision will involve compromising an interest, value, or principle. For example, an Institutional Review Board policy that is meant to protect participants may also risk infringing on their autonomy or excluding them from participating in potentially beneficial research. In such cases, the following questions may help groups to test the reasonableness of policies.

- **Necessity.** Is it necessary to compromise the value in question? Could the goal be achieved through other means?
- **Effectiveness.** Will the policy be effective in achieving the intended goal?
- **Proportionality.** Is the intended goal sufficiently important to justify compromising the value at stake?
- **Least infringement.** Is the policy crafted in such a way that the value at stake is compromised as little as possible? Have alternative solutions been explored?
- **Transparency and proper process.** Have decisions been made in a transparent manner, using proper processes? Were stakeholder groups consulted? Did appropriate people participate in the decision-making?

Ordinarily, if any one of these tests is failed then the policy should be rejected or revised.

When applying these sorts of considerations, it is also prudent to consider whether special factors exist: Does society grant to one individual or group the authority to make the decision? Are there any “moral absolutes” or legal rules that set boundaries for the deliberation? Do fiduciary relationships exist, establishing a priority of interests?

For Further Information

The rational ethical decision making framework is elaborated and applied to a research ethics case in:

“Solving ethical problems: Analyzing ethics cases and justifying decisions,” in James M. DuBois (2008). *Ethics in mental health research. Principles, guidance, and cases*. New York, NY: Oxford University Press.³

The Oxford University Press has generously allowed this chapter to be posted online at www.emhr.net for use at no cost. What follows is an overview of the key elements.

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ARTICLE 6

An Ethics Instructor's Guide to Sensemaking as a Framework for Case-Based Learning

Alison L. Antes

Ethical judgment and decision-making shape motivations, communication, actions and interactions that foster integrity. In recent years, highly publicized professional misconduct has increased discourse and research about ethical behavior, and ethics instruction has become the central method for addressing an apparent lack of ethical awareness and judgment of individuals across professions.

Mumford and his colleagues proposed and provided empirical support for the sensemaking model as it applies to ethical decision-making, including the underlying cognitive processes and strategies and use of the framework as a basis for ethics instruction.¹

In summary, sensemaking explains how individuals make meaning of complex, ambiguous, high-consequence situations. These situations must be interpreted, examined, and acted on. In sensemaking, the experience will be interpreted through an existing personal and professional lens where self-perceptions, goals, and values operate. Additionally, emotions surface, existing experiential knowledge must be accessed and applied, and predictions about potential outcomes of the situation and decision alternatives must be considered. Therefore, from a sensemaking perspective, ethical learning and development hinge on promoting skill at recognizing, interpreting, and thinking about ethical problems and building case-based knowledge about ethical problems.

Case-Based Learning

¹ Instructors interested in their instructional research are encouraged to consult Brock, Vert, Kligyte, Waples, Sevier, & Mumford, (2008); Kligyte, Marcy, Sevier, Godfrey, & Mumford, (2008); Kligyte, Marcy, Waples, Sevier, Godfrey, Mumford, & Hougen, (2008); and Mumford, Connelly, Brown, Murphy, Hill, Antes, Waples, & Devenport, (2008). Reviews of the sensemaking framework are presented by Waples and Antes (2011) and Thiel, Bagdasarov, Harkrider, Johnson, & Mumford (2012).

Cases provide rich, contextualized examples in the form of stories or scenarios that present learners with the chance to “experience” and think about events that add to one’s experiential knowledge (Kolodner, 1992, 1997). To utilize cases for sensemaking instruction, several considerations are paramount, including supporting instructional content, case content, and case analysis.

Supporting Instructional Content

If learners are to engage in complex sensemaking processes, they must recognize that ethical issues and appropriate responses are not clear or simplistic. Rather, they are emotionally trying, cognitively demanding, and socially relevant as many individuals are affected. Framed this way, ethical considerations underlie nearly every professional decision. Overall, ethical problems and situational factors are complex, and people naturally succumb to inaccurate judgments and faulty decision-making (while thinking that they are invulnerable), thus breaking down this misconception prior to learning is essential (Waples & Antes, 2011).

Case Content

Government agencies, research institutions, and professional societies provide ethical rules and principles for the conduct of research, but they are incomplete guides for making ethical decisions because decisions must be made in context. Thus, discussion of field-specific rules and principles should be embedded within case content, e.g., through the case narrative, reflection questions, or group discussion.

Case Analysis

Learners must actively work with and analyze case content. Mumford et al. (2008) demonstrated the effectiveness of ethical decision-making strategies as the basis for case analysis in sensemaking instruction. Ethical decision-making strategies are cognitive tools that encourage people to actively and deliberately think about case information (e.g., causes, goals, outcomes) and execute key sensemaking processes. Thus, strategies become the focus of case analysis.

After presenting case content, prompt questions can be used to guide how learners think about cases. The number and specificity of prompt questions presented influences the amount of guidance provided for learner analysis. Instructors should adapt and vary case analysis prompts according to learner

expertise, specific case content, and to maintain learner engagement. The ethical decision-making strategies, including explanations of underlying sensemaking processes, learning objectives, and example prompt questions are presented in Table 1. In contrast to many traditional ethical problem-solving frameworks, the sensemaking process is less concerned with the cognitive task of identifying an ethically correct decision and more concerned with engaging psychological factors that enable the individual to make and implement good decisions in the face of challenging factors that accompany many real life ethical decisions—such as ambiguity and emotional upset. Thus, the sensemaking approach asks participants to question their own judgment, analyze their motives, manage their emotions, and seek help from others.

Table 1 provides instructors with a list of questions that can guide participants through the various sensemaking strategies. These questions will be useful to instructors not only in facilitating case discussions, but also in facilitating role plays. As instructors observe role players growing frustrated, they may ask them to pause and consider their emotions and explore strategies for managing them. When role players appear overly confident in their judgments, instructors may pose questions aimed at getting individuals to question their judgment and examine their motives. Like any skill, facilitating the sensemaking process in the classroom is learned with practice. Instructors who are new to the process may find it helpful to print Table 1 and use it as a handy “how to” guide.

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Table 1. Case Analysis Employing Sensemaking Strategies

Ethical Decision-Making Strategy	Description of Sensemaking Processes	Analysis Learning Objectives	Example Prompt Questions
Recognizing Circumstances	Thinking about, and awareness of, origins of problem, individuals involved, and relevant principles, goals and values	<ul style="list-style-type: none"> ✓ Identify problems in the situation at multiple levels ✓ Recognize relevant ethical principles ✓ Determine goals, norms, and values operating at multiple levels ✓ Recognize people/parties involved ✓ Determine restrictions, obstacles, or boundaries on decision options 	<ul style="list-style-type: none"> ▪ What are the problems in this situation? Which problems are the most critical? ▪ What are the causes of the problems in this situation? Which causes are controllable? ▪ What principles apply in this situation? ▪ What aspects place limitations your decisions? ▪ What are the goals involved in this situation? ▪ How do the problems, goals, and/or causes operate at multiple levels?
Managing Emotions	Awareness of one's emotions, their effects on thinking and decision making, and regulating emotional reactions	<ul style="list-style-type: none"> ✓ Identify and label experienced emotions ✓ Evaluate influence of emotions on thinking ✓ Employ behavioral and/or cognitive emotion regulation strategies 	<ul style="list-style-type: none"> ▪ What are your emotional reactions to this situation? ▪ How do you think that the emotions you feel could influence your decision making? ▪ Will your emotions influence you in a positive manner? In a negative manner? ▪ What can you do to manage your emotions?
Questioning One's Judgment	Considering that one's interpretation of the problem(s) and decisions may be biased or based on faulty assumptions and recognizing the problems that people often have with making ethical decisions	<ul style="list-style-type: none"> ✓ Scrutinize personal misconceptions, biases, and assumptions and their potential influences on ethical decision-making ✓ Consider faulty thinking about the problem(s), people, and potential responses ✓ Examine unreasonable rationalizations or justifications of one's decisions/actions 	<ul style="list-style-type: none"> ▪ What aspects of the situation could be different than they appear on the surface? ▪ What parts of the situation might you be interpreting or thinking about incorrectly? ▪ What part of your thinking could be faulty or based on faulty assumptions? ▪ What errors or mistakes might you make in this situation? ▪ What beliefs or ideas held about the situation might negatively influence your thinking? ▪ How might your social or professional relationships influence your thinking?
Considering Others	Being mindful of others' perceptions, perspectives, and concerns, and the likely impact of one's actions on others socially and professionally	<ul style="list-style-type: none"> ✓ Consider people (internal and external to group) affected by current situation and possible decisions/actions ✓ Evaluate others' personal and professional perspectives and how these influence reactions ✓ Consider potential misconceptions, and faulty assumptions of others and how these influence interactions ✓ Examine social and professional relationships, including their implications 	<ul style="list-style-type: none"> ▪ What individuals and/or groups are involved in this situation and how? ▪ Who will be affected by your decisions and how? ▪ What are the opinions and perspectives of other people in this situation? ▪ How are others feeling in this situation? ▪ What are possible misconceptions of others? ▪ What might you be overlooking in considering others in this situation? ▪ What are the reactions of people, or what might their reactions be? ▪ What are the social and professional relationships of people in the situation?
Anticipating	Thinking about	<ul style="list-style-type: none"> ✓ Forecast and assess possible 	<ul style="list-style-type: none"> ▪ What are the likely short-term outcomes of

Consequences	many possible outcomes, such as consequences for others and both short- and long-term outcomes of possible decision alternatives	<p>outcomes (short-/long-term, positive/negative, internal/external) of the situation and possible decision alternatives</p> <ul style="list-style-type: none"> ✓ Consider and judge effects on different parties and constituencies, including internal and external ✓ Examine consequences at different levels, including personal, group, organizational level ✓ Consider changes in emotions, perspectives, and reactions to decisions or actions ✓ Determine and evaluate feasibility of alternatives ✓ Examine tradeoffs and timing of actions 	<p>this situation if it is not addressed? What are the likely long-term outcomes of this situation if it is not addressed?</p> <ul style="list-style-type: none"> ▪ What are several ways you might address this situation? How feasible are these options? ▪ What are the likely short-term outcomes of your ideas for addressing the situation? Likely long-term outcomes? ▪ What do you see as possible negative and/or positive consequences of this situation? ▪ What will be likely consequences internal to the group or institution? What will be likely consequences external to the group or institution? ▪ Which outcomes in this situation are controllable? Which cannot be changed? ▪ What consequences might you be underestimating or overlooking?
Analyzing Personal Motivations	Considering one's deeply rooted personal motivations, values, and goals and how they might affect one's decision making	<ul style="list-style-type: none"> ✓ Appraise personal motivations, desires, and needs, including possibility of making self-interested or unethical choices ✓ Reflect on possible rationalizations or biases one might inappropriately apply in one's reactions to the situation and possible actions ✓ Contemplate influence of personal desires and motivations on ethical decision-making 	<ul style="list-style-type: none"> ▪ What are your personal motivations and goals in this situation? ▪ How might your personal perspective, motivations, and/or goals influence your ethical decision-making in this situation? ▪ How might your thinking be self-interested or unfair? ▪ What beliefs or ideas held about yourself might negatively influence your thinking? How? ▪ What beliefs or ideas about others might negatively influence your thinking? How?
Seeking Help	Consulting a mentor, supervisor, peer, or institutional resource; learning from others' behaviors in similar situations	<ul style="list-style-type: none"> ✓ Acquire additional or missing information to understand situation and possible decision alternatives ✓ Seek advice, support, guidance from appropriate resources ✓ Obtain knowledge and information to address limitations in knowledge/expertise 	<ul style="list-style-type: none"> ▪ From where might you seek additional information? ▪ Where might you obtain unbiased, objective information? ▪ Whom might you ask for advice or input? ▪ Is there anyone whom you want, or need, to seek out for guidance? ▪ What resources do you think will be helpful? ▪ What gaps in expertise or information need to be addressed? ▪ What worked (or failed) in past experiences?

Note. Adapted and expanded from Mumford et al., 2008; Waples and Antes, 2011.

ARTICLE 7

Revising, Tailoring, and Updating Published Cases

Elizabeth Heitman

Case studies in research integrity give students a valuable opportunity to explore common and unfamiliar ethical challenges before they encounter them in real life. As discussed in the Casebook's introduction and in DuBois' Instructor's Manual chapter on an ethics problem-solving model, two important learning objectives in using case studies in RCR education are for students to be able 1) to identify ethical issues and questions in practical research contexts, and 2) to discern how facts and contextual features shape ethical questions and options for action.¹ This second skill includes the ability to distinguish which aspects of a case are ethically relevant and why, and the moral imagination to consider how new information may yield new interpretations and make different outcomes possible.

The real-world cases and role plays provided in the Casebook illustrate a wide range of research contexts, regulations, and personal and professional relationships likely to be unfamiliar to many research trainees. Because they are intended to help students develop discernment, ethical sensitivity, and moral imagination alongside ethical reasoning and decision-making skills, the cases often portray ignorance, poor communication, and errors of judgment regarding subtle and complex issues in research integrity. The stories also portray how emotion, power dynamics, and social expectations can affect researchers' decision-making as much or more than does their understanding of the professional standards, institutional policies, and governmental regulations that are the traditional core content of RCR instruction.

The reflection questions that accompany each case story are designed to foster students' discernment by calling attention to issues that they may initially overlook. Many of these questions also prompt students to distinguish between ethically relevant and extraneous information, and to discuss how relevant facts affect the ethical questions and options. Such discussion also presents opportunities to consider "*what if?*" scenarios, in which students are challenged to analyze the impact of alternative background information or courses of action.

Changing a case's fact pattern to identify key distinctions in subsequent discussion is characteristic of case discussion in legal education, where students are taught to draw analogies between new cases and established precedents and to distinguish relevant similarities and differences between them as the basis of a legal ruling. Discussing and debating "what if?" is a particularly effective technique for developing students' moral imaginations and ability to distinguish ethically relevant information in new circumstances.² By raising their own "what if's" and intentionally changing certain elements in the Casebook's stories, RCR instructors can enhance their students' overall insight and tailor general lessons to address institutional or discipline-based problems.

Science students will quickly recognize that making strategic changes to the details of a case narrative is like testing a scientific hypothesis by adjusting an experiment's variables. This approach is often simple to demonstrate by changing the scientific techniques and processes central to the case. For example, in Case 2.1, "Were These Slides Falsified?", how might the ethical analysis differ if the apparently identical x-ray results were the product of a less-specific test or less-precise instrument? How might the options for action differ if the other researchers' were not unanimous that the second film looked like a copy of the first, or if there were several films that seemed identical? Such revisions can illustrate not only the practical dimensions of research integrity, but also the way professional judgment, tolerance of uncertainty, and expectancy bias influence perceptions of ethical and unethical practice.

Modifying characters' disciplines or research settings can illustrate the power of good policy as well as the gaps and inconsistencies that still exist in practice between professional standards, institutional policies, and formal regulation. For example, in Case 1.2, "How Much of a Contribution Did They Really Make?", how would the case unfold if the journal in question required a detailed description of each author's contributions as part of the final, printed article? Similarly, changing settings can clarify how the availability of institutional resources affects individual researchers' integrity and adherence to ethical standards. For example in Case 6.3, "It Slipped My Mind...", how might events have changed if the Research Contracts Office, Finance Office, and IRB at the PI's university had had an integrated system for review and reporting potential conflicts of interest, or if the PI had overseen the research in the private company's testing facility, outside the university system?

Changing characters' rank, degree, discipline, age, gender, or socio-cultural background can illustrate the sometimes subtle influence of professional and social roles as well as power differentials in academic research settings. For

example, how might the scenario in Case 2.1 be interpreted differently if Helen were Henry or if Julie were John? How might Julie's insistence on the legitimacy of her work be viewed if she were always cheerful and eager to please; if she had left the PhD program after being injured in a lab accident or because she and her post-doc husband had had twins; or if she had always been a technician with no academic aspirations?

Revising the fact patterns and reflection questions of published cases may also be valuable as new scientific developments change the research landscape. Although the larger ethical issues portrayed in the Casebook are unlikely to be resolved in the near future, cutting-edge cases may become less powerful over time. For example, Case 5.3, "Reusing Cells for the Good of Future Research" focuses on current controversies over informed consent practices for biobanking and stem cell research. As standards emerge on both consent for possible future research with tissue samples and on the ethics of creating pluripotent stem cells, it may eventually be advisable to use new, less familiar research protocols as the framework for examining requirements for informed consent. Targeted modifications can also transform published cases on established fields to address emerging scientific developments and policies in new disciplines such as neuroscience and synthetic biology.

Finally, instead of the instructor revising a case's content, another instructive technique is to have students retell the original story from a different point of view. The vignettes in the Casebook are told by an omniscient – and presumably impartial – narrator; relating events from the perspectives of individual characters would illustrate how personal experiences and underlying concerns can shape interpretations of and responses to events. Similarly, retelling the story from the perspective of an outside observer or stakeholder not mentioned in the original narrative (e.g., a lab technician, an NIH program officer, a non-scientist spouse, a research participant) can illustrate how academic culture, group identity, and inside knowledge influence reasoning and behavior. This approach has much in common with role play, and is particularly worthwhile for more senior research trainees, who can bring their own experience to the narrative and its interpretation.

The lessons of a good case study often unfold in unexpected ways. In the course of an animated discussion, characters described in a single sentence can suddenly develop strong personalities, histories, and motivations that typically reflect the experience and concerns of the group. In some circumstances, students' interpretations of case narratives may overwhelm the didactic aims of their instructors as well as the intent of the case's original author. Instructors should welcome this opportunity to help students explore their perceptions and assumptions, and how these fit in a

broader ethical analysis and decision-making process. Moreover, students' impassioned discussion of specific cases may not only help instructors expand their case repertoire for future classes, but also help seasoned faculty may deepen their own ethical sensitivity and moral imagination when teaching with cases that spark students' interest.

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ARTICLE 8

Using Debate to Foster Deeper Understanding of Controversial Policy Topics

Stephanie Solomon

As an instructor of a semester-long RCR course offered to doctoral and postdoctoral clinician/researchers, I have begun to incorporate debates into my classes. While I have found debates an incredibly useful pedagogical tool for engaging students in RCR issues, there are two aspects of this approach that require reflection: the content of the debate and the structure of the debate.

Content

Deciding when RCR content is amenable to debate and how to formulate a topic into a debatable question is one of the greatest challenges I have encountered. Two criteria that play a large role in developing fruitful debate questions are a high level of controversy and clear policy implications.

If the topic is not controversial enough, then students will all align on one side of the question, or a division of positions (enforced by the instructor) will appear forced and arbitrary. I have had students voice the question, “Why is this even an issue”? Sometimes this is due to a lack of reflection on the complexity of the problem, but more often stems from a genuine feeling that debate on a particular topic is relatively settled. To be clear, this does not mean that issues that are not controversial within the scientific community are off limits, as many important RCR topics are divisive between the scientific community and the lay public. One example of this type of question is a possible debate about whether researchers have an obligation to consider the downstream implications for research (think of the atomic bomb), or whether research has inherent social value from which the public necessarily benefits. This latter situation (general consensus in a class of researchers, but not in general public) can yield powerful debate topics, but also require more buy-in from the class and more investment from the instructor to provide background reading and supplemental information. Several barometers can be utilized to gauge the level of “controversy” for a debate topic: one where there remains debate in the academic literature, one

where there is genuine division in the class (ascertained through a straw poll or other method), or one that is currently raising ire in the news.

The second criterion for an effective debate topic that I have found useful is to pitch the question at a level of generality that has implications for public policy rather than questions that specifically engage the “right” action in an individual’s particular context. For example, an extremely successful debate that I have used surrounds the question, “Should there be a limit on how much people can be paid to participate in research studies?” While this question can be asked at a more concrete level, such as how much a particular type of person (a drug-user, a child, an economically disadvantaged person, a person in a developed country, etc.) could be paid for a particular type of study (level of risk, etc.), I find it more useful to ask the question at the policy level, and then let the students bring up particular circumstances that may have a bearing on a general policy. I find concrete situations are more amenable to case-study discussions.

Many of the “reflection questions” found in the ORI Casebook provide ideal content for classroom debates. The editors have identified at least one such question accompanying each case using asterisks.

Structure

There are numerous online resources for structuring a classroom debate. For example, www.research-ethics.org provides guidance on using debate specifically in the context of RCR instruction; several other websites provide general information on classroom debates:

- www.educationworld.com
- www.idebate.org
- <http://debatepedia.idebate.org/en/index.php/Category:Bioethics>

These sites offer numerous models of debates that could be incorporated into an RCR classroom. The first question that an instructor should ask is how much debate structure is appropriate in his or her particular classroom setting. In my experience, this depends on factors such as 1) the size of the class, 2) the level of general participation in the class, 3) the age of the students, and 4) the capabilities of the classroom in which the class takes place, among others.

Models for debates range from the most structured Lincoln-Douglas model, which assigns roles, time limits, and presentations, to the least structured which could merely entail having an informal discussion with the class about

the pro's and con's of an issue. I tend to utilize semi-structured debates, which are not so structured as to be patronizing to adult students, and not so open that they do not force students to reflectively articulate and organize their arguments. The models I find the most useful for the RCR context are the following:

- Four corner: Strongly agree, agree, disagree, strongly disagree (students move to corners of room), 5-10 min. to compile their reasons, present, option to change corners, finish with 4 strongest reasons for position²
- Debate of the masses³ : divide class into two halves: affirmative and negative, then assign half of each side to first affirmative/second affirmative and first negative/second negative. Then take turns with each person in each group providing an argument for (first affirmative) or against (first negative) or responding to the negative (second affirmative) or affirmative (second negative).
- Point and refutation⁴: divide into two groups, pro and con, and then take turns with each side presenting arguments and the other side refuting them.
- My method: I tend to break the class into two (with people who support each side of the argument on that side), then, in these smaller groups, students generate arguments on the board for their positions. Finally, I bring the class back together to present their arguments for each side, and then let an informal debate ensue.

I find that the level and type of structure that best fits a class is the result of trial and error, and there is no one right answer. When done right, debates can expose students to and invest them in unsettled and central issues in the field of research ethics, garnering greater participation and leaving a lasting impression on the importance of research ethics to policy, law, and their personal work.

² http://www.educationworld.com/a_lesson/lesson/lesson304b.shtml

³ <http://idebate.org/training/teaching-tools/debate-of-the-masses>

⁴ <http://idebate.org/training/teaching-tools/point-and-refutation>

Appendix: Suggested Debate Questions for RCR Core Areas

The ORI Casebook provides discussion questions following each case. Those marked with an asterisk * are questions that the Editors feel are most suitable for debate. Below are samples of debate questions drawn from the Casebook.

Authorship

- Do the authorship practices vary depending on the national culture of the researchers involved?
- Should every co-author be held accountable for the integrity of every aspect of a study or publication?
- Should journals require authors to publish a description of their individual roles on a project? Why or why not?
- Will standards for assigning authorship continue to evolve in years to come? Why or why not?

Research Misconduct

- Should Hua be expelled from the program or given a second chance to complete her degree?
- How appropriate was it for Sam to befriend this junior colleague?
- Do you think it is “sympathetic” or rather “insulting” to ask if culture may have contributed to Hua’s actions?
- Should Richard inform others in the lab of Allan’s accusation? Should he seek their assistance?

Collaboration

- How often do you think just one person is to blame for research misconduct that occurs in a lab?

Data Acquisition and Management

- If a researcher promised to use adequate measures to protect the confidentiality of medical record data, should s/he be required to get patient consent to access the records?
- Are human subjects protections the only reason why we might not acquire some knowledge, or is there “forbidden knowledge”—things we’re best off not knowing?
- Should society prioritize protection of research subject confidentiality over mandatory reporting?

Peer Review

-
- Must we avoid all conflicts of interest, or can some be managed?
 - Should clinical researchers be allowed to enroll their own patients in a study?
 - Can the conflict of interest be managed? If so, how?

Social Responsibilities

- Should scientists ever engage in social activism using their data? Or does science require one to remain objective and engage all sides of a debated issue?

ARTICLE 9

Role Playing as a Way to Develop Ethical Problem-Solving Skills

Holly Bante and Joan Sieber

The Value of Role Playing

The reason people fail to recognize and solve ethical problems is multifaceted. Assuming that they are people of good will, some may not take the time to stop and think through a dilemma; others may have limited knowledge of the problem, do not readily know where to look for information, and fail to consult with others. All of this is likely to reflect a hurried professional life in which the main goal is to get research done, and not to get sidetracked with complicated problems that (a) one does not notice, and (b) do not appear to have a solution, even if noticed. Who wants to deal with such ambiguity? Role playing is a great tool for teaching students that one must be willing to tolerate the initial ambiguity of such ethical issues since (a) there are dire consequences of failing to do so, and (b) such problems can actually be solved if one understands how to approach them. In short, one can learn how to identify, analyze, and resolve ethical problems in research.

Instructor-moderated role playing is a great way to inculcate the skills and motivation to engage appropriately in ethical problem solving. Role playing promotes self-directed student learning, utilizing essential cognitive processes to interpret, analyze, and derive meaning from the role play (Chan, 2012). For role plays to be effective, the instructor must provide feedback to students that strengthens skills and promotes self-awareness (Jackson & Back, 2011). It is through this highly engaging discussion that students develop problem-solving skills, transfer knowledge to new situations, and potentially retain information longer compared to more traditional pedagogy (e.g., lectures or instructor-directed case analysis) (McKeachie WJ & Svinicki M, 2006). Brummel et al have recently developed and evaluated nine role play scenarios that cover RCR topics with graduate students (Brummel, Gunsalus, Anderson, & Loui, 2010). Formative research suggests that aside from some participants feeling awkward acting in front of others, participants believed that role plays were a worthwhile activity, promoting a significant understanding of the ethical issues and greater appreciation of

divergent perspectives (Brummel et al., 2010). Instead of simply citing the “dos and don’ts” of research, role plays may foster a deeper understanding for the context of research integrity (Seiler et al., 2011).

Ethical problems arise while doing something else. Like all of the other distractions in life that can get in the way of important work, ethical problems are a fly in the ointment, and it is easy to dismiss them as simply one of life’s persistent annoyances, not a problem one must stop and figure out how to solve. Instructor-moderated role playing gives students an interactive opportunity to practice handling ethical problems appropriately and to recognize how to proceed when faced with similar problems on their own. Unlike case analyses, role plays permit students to practice interpersonal interactions especially when someone or something presents an obstacle to doing the “right” thing.

For further guidance on problem-solving approaches, refer to Article 10 by Gerald Koocher and Patricia Keith-Spiegel’s article on responding to wrongdoing and to Alison Antes’ Article 6 on sensemaking.

The Mechanics of Role Playing using the Casebook

The role plays presented in this Casebook typically involve two or three persons: the problem solver, someone with whom the problem solver consults, and the “culprit”. First, the problem solver discusses the problem and how to approach it with a trusted colleague, and then the problem solver interacts with another person (typically, the culprit) to resolve the problem. However, the instructor can alter the progression of the role play, moving the trusted colleague to the second role performed rather than the first. Utilizing the trusted colleague role first allows the problem solver to think through the situation and what information is needed before the conversation occurs between the problem solver and culprit. Role playing the trusted colleague second offers the opportunity for the problem solver to troubleshoot and to work through scenarios of how to move forward, given that the conversation with the culprit has already taken place. The role of the trusted colleague is optional in some of the role plays, and its use and placement within the role play is at the discretion of the instructor.

Character names are not provided in the role plays, as individuals are encouraged to use their own name. Individuals are instructed to read the role carefully, assume an identity, and to be creative; they are encouraged to improvise but to do so realistically within the limits of the described role: the more authentic the characterization, the more one can glean from the role play. Scenarios and prompts are provided to generate dialogue; the brief prompts initiate conversation without dictating a unilateral response. After

one such brief enactment, which the rest of the class is observing, the instructor stops the role play and asks the class to comment on how it went, and whether there are other approaches the class would suggest. The instructor may invite a second enactment by a different set of actors, involving one of the suggested approaches.

The very presentation of the case focuses learners' attention on its importance. The ensuing group discussion develops learners' knowledge of the consequences of ignoring ethical issues that arise in the course of one's work. The instructor focuses the group's attention on recognizing alternative solutions to the problem, recommends sources of information that can help them decide on feasible solutions, and provides an interpersonal context where the complexities of working with others can be acted out and examined. For more discussion and debriefing suggestions for RCR role plays, visit

www.onlineethics.org/Topics/RespResearch/ResCases/RCRroleplays.aspx
(Online Ethics Center for Engineering & National Academy of Engineering, 2009).

Depending on the size of the class, the instructor may elect to have a larger class break into small groups, allowing a number of individuals to act out the roles within the small groups concurrently. Individuals who are not actively participating in a role are instructed to make notes of what they observe. Observations may include noting questions that are asked, issues that are raised, and solutions offered as well as how the two characters communicate and how that interaction can be improved. These comments may then be shared with both the immediate group and during the larger group discussion.

Initially, some students will not volunteer to participate as role players because they are concerned that they do not know the answer, or lack the skills to communicate about the problem. As role playing ensues throughout the course, students come to recognize that no one knows the answer until they have explored the issue, and that it is the very exploration process that is vital to finding a reasonable solution. Thus, role playing turns problem solving into an effective process, not a situation in which one fails to act because one does not immediately know THE answer. In fact, learners get to recognize that there are often many possible approaches, typically one better than another, or one approach that the particular student is more comfortable taking. Therefore, people are transformed into more effective ethical problem solvers.

The following lists learning objectives achieved through role playing within each RCR topic in the Casebook:

- To engender warranted uncertainty about how to respond, and even whether to respond. Students will learn to pause and contemplate the ethical issue, to consider alternative strategies, and even to recognize when to delay responding.
- To identify what may be at stake and what unknowns must be explored.
- To recognize that they may not know the true motives of the other parties and that they may need to be mindful of diverse possible motives as they seek a solution.
- To weigh alternative strategies in terms of the likely costs and benefits of each.
- To recognize and consider different approaches that others employ, the strengths and weaknesses of approaches, and their effectiveness for resolving the ethical dilemma.
- To consider the costs of not engaging or of taking easy, but unethical ways out of problems.
- To develop an appreciation for RCR issues, and through rehearsing and in-depth discussion, develop an arsenal of strategies to mitigate ethical issues when they occur.

Resources

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ARTICLE 10

Strategies for Responding to Research Wrongdoing

Gerald P. Koocher and Patricia Keith-Spiegel

What do researchers actually do when they suspect a colleague of cutting corners, failing to acknowledge a conflict of interest, neglecting proper oversight of research assistants, or “cooking” data? We wanted to find out how researchers actually behave in the real world and so we set out to do so with a survey of senior investigators. Our findings led us to suggest some strategies you may want to consider.

You Will See Naughty Stuff

Our research suggests that, if historical data hold, over the course of your career as a researcher more than 84% of you will encounter an incident of research wrongdoing and 53% of you will take some sort of action in response to noticing such behavior (Koocher & Keith-Spiegel, 2010). In an effort to provide supportive guidance based on what we learned in the survey, we produced a “user-friendly guide” to responding.

Making the Decision to Act (or Not)

A first step involves determining whether the behavior that concerns you qualifies as misconduct defined under federal law, or violates scientific and ethical values while not qualifying as legally actionable conduct. The behavior of concern might include: fabrication or falsification of data; plagiarism; failures to follow the rules of science (e.g., IRB policies); incompetence; carelessness; inadequate supervision of research assistants; dishonesty related to work as a researcher (e.g., embezzlement of grant funds); creating difficult or stressful work environments; publication and authorship disputes; or even honest mistakes.

The next step involves assessing the evidence. Do you have first hand data (i.e., direct observation, evidence, or disclosure) as opposed to hearsay or rumor? Make an effort to assess the credibility of the evidence, apart from any personal feelings you may have about the people involved.

Next, consider the context. Do the culture of the institution, your role, the suspected individual's role, and other circumstances lend themselves to informal or more official intervention? Also consider your own comfort with the potential consequences to you, to the suspected individual(s), and to the institution.

If you do decide to take action:

- Keep a record of what you know or suspect and what actions you take
- Consider consulting with a trusted long-standing colleague or mentor, who will respect your confidentiality, and secure that commitment before disclosing
- Consider all your options from informal to formal, inside the organization and outside. Given the array of possibilities, consider the potential risks, benefits, and likely consequences of each

Formal or Informal Pathways

We found that people often resisted intervening when they had close personal or physical proximity working relationships. This seems particularly unfortunate since you are more likely to notice when such individuals begin to go astray and may have more opportunities to intervene gently. If you decide to attempt an informal intervention:

- Adopt a non-adversarial tone
- Think of your role as an attempt at education and finding solutions, not as an attack
- Leave open the possibility that your suspicions could be unfounded
- Do not send an anonymous note, as this benefits no one and makes follow up impossible

Taking Formal Action

Although we strongly encourage a culture of prevention and informal influence to promote research integrity through leadership by example, informal intervention is not always the best course of to follow. Consider taking formal action when:

- The wrongdoing constitutes a crime that regulations or institutional policies require you to report
- A major case of misconduct would damage the reputation of one's workplace or potentially be ascribed to you

- Failure to act would significantly corrupt a significant body of knowledge relied on by others
- Inaction could result in serious harm to participants or future patients facing similar circumstances
- Not acting would ultimately diminish the public's trust in science

In addition, certain types of people do not lend themselves to informal intervention, and should be approached only after careful consideration of all the available options. For example:

- People with highly combative or excessively arrogant personalities
- Those known to have a track record of scientific misbehavior
- Individuals you suspect of being extremely incompetent, mentally ill, or substance-abusing
- Those with much to lose, who might feel prone to act out

Refer to our detailed *User-Friendly Guide* for a thorough analysis of all these steps, along with illustrative examples and strategies at each level.

References

- Keith-Spiegel, P., Sieber, J. S., & Koocher, G. P. (2010). *Responding to Research Wrongdoing: A User-Friendly Guide*. Available for download at:
<http://www.ethicsresearch.com/freeresources/rrwresearchwrongdoing.html>
- Koocher, G. P. & Keith-Spiegel, P. (2010). Opinion: Peers nip misconduct in the bud. *Nature*, 466, 438-440. doi:10.1038/466438a

INDEX OF CASES TO DELPHI SURVEY¹

Key:

C = Case

I = Introduction to chapter

R = Role play

Boldface = Primary topic

Numbers = Chapter #.Case #

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 - B. Text recycling; overlapping publication; & duplicative or salami publication..... **I1**
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- Addressing compliance with ethical standards within articles (i.e., IACUC, IRB)..... **C1.1, C5.1**
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