Ethical Dilemmas in the Biology Undergraduate Classroom: Role-Playing Congressional Testimony†

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Students often struggle with weighing multiple sides of bioethical dilemmas. The assignment described here incorporates discussion of ethical dilemmas in an upper-level undergraduate biology course. Students are introduced to ethical dilemmas in genetics through discussion of issues in small groups. They are then polled as to what positions they take on each dilemma and are assigned to argue a side opposite of one of their choices. Each student receives a subpoena to appear before a Senate subcommittee to give testimony as an expert witness. This role-play provides students with a starting point and motivation for developing their argument as well as a way to distance themselves from their own opinions by acting as someone holding the opposite stance. At the end of the presentations, students are required to reflect on the experience.

INTRODUCTION

The American Association for the Advancement of Science calls for students to be able to “evaluate[e] ethical implications of biological research” and “apply the biology they are learning to … ethical … -related dilemmas” (1). This paper describes an assignment that uses role-playing to introduce ethical decision-making in an upper-level undergraduate genetics course. This assignment is distinct from case studies—the goal is not to have students conclude with the most ethical decision but rather to present students with challenging dilemmas with consequences at state, federal, or international levels.

This teaching strategy was developed in response to students struggling to separate themselves from their opinions when considering bioethics case studies or to see the full spectrum of ethical considerations possible. For instance, when asked to write a paper exploring multiple sides of a bioethics issue, most students only explored a narrow position with which they agreed and gave little attention to other perspectives. The ABCDE method of ethical decision making has students argue a side opposite to their held position (4). This strategy is incorporated and extended upon here by packaging the assignment as a role-playing experience to improve student buy-in.

Role playing as an expert witness provides the student motivation to argue the forced opposite position rather than simply presenting it as a speech. Having an assigned role reduces student apprehension about appearing to support a position with which they disagree. Students also must think as someone else, necessitating that they put personal beliefs aside to compose an argument from another viewpoint. Doorn and Kroesen (2) previously implemented role-playing when teaching ethics in engineering and identified three main objectives of the technique: “communication skills,” “micro-ethics,” and “broadening students’ perspectives.” They suggested each assignment would only address one of the three; this assignment addresses the latter but also reinforces communication skills.

In this role-playing assignment, students are subpoenaed to appear before a US Senate subcommittee to give oral testimony on a bioethics topic as an expert witness. Students are assigned a particular role and position to take and are provided with some initial questions to prompt their responses.

PROCEDURE

Pre-assignment

Students were given a handout detailing several ethical topics and related dilemmas (Appendix 1). They read them and discussed questions in small groups for 15 minutes. The other topics were discussed during lab or as homework. Velasquez et al. (6) proposed five questions to guide an ethical response; students were encouraged to answer these questions as part of their discussion of each dilemma. Additionally, students were asked, “What sorts of information are needed to make a decision?” While students only needed to list types of evidence they should seek at this point in the assignment, the question encourages them to become independent thinkers by requiring them to gather information before coming to a conclusion. Evidence produced by this type of research is required later in the assignment.
After discussing dilemmas, students were polled (3) as to which side or sides of an issue they favored (Appendix 2). Questions were multiple-choice, and answers were therefore limited.

**Subpoenaed assignment**

Each student was assigned a topic and position opposite to a side he or she had chosen when polled (Appendix 3), and each assigned position was unique to a class of 24 students. Although they knew they would be assigned a position to defend, students did not know they would be arguing against the opinion they reported. The assignment was printed to look like a subpoena from the United States Senate (similar to that found at http://www.senate.gov/artandhistory/history/common/investigations/pdf/Pecora_MitchellSubpoena.pdf), calling the student to “testify” as expert witnesses before the Senate Committee on Commerce, Science, and Transportation: Science Ethics Subcommittee and present “evidence” (a bibliography) to the subcommittee. Each student was also given a role that is a real position at a company, institution, or government agency and the title of “Dr.” Students had four weeks to craft a six-minute argument supporting their assigned position, following the guidelines and rubric (Appendix 4).

On presentation day, the instructor played the part of the Subcommittee Chair, and one or two other professors played members of the committee. The lab teaching assistant acted as bailiff. Students were asked to dress as though they were testifying before Congress, and the professors and TA dressed the part as well. Students who chose not to engage with the role play were not penalized, because it is important that “transformative play” be optional (5). Tables were arranged at the front of the classroom such that students who were presenting (witnesses) sat at one table, which was partially facing the class (audience), while Congress members sat at another, which was facing the witnesses. The bailiff called witnesses to testify in groups of two or three at a time. Members of each group addressed the same dilemma, but each witness within that group had been assigned a different position. Witnesses presented one at a time, and then a Subcommittee member asked a question of each one.

Students gave their presentations during a lab period to allow everyone to speak on the same day. With a smaller number of students or more time, witnesses could be asked to engage each other in discussion or the audience could be allowed to ask questions of the witnesses. The assignment could be reimagined as a letter written to the Subcommittee rather than oral testimony.

**Peer review and reflection**

Audience members were required to evaluate the presentation of each witness using a simplified version of the official rubric in order to encourage the audience to pay attention. As a written debriefing activity, students were asked to reflect on how this assignment affected their stance and their ethical decision-making ability in general (Appendix 5). If time allowed, audience members could discuss the topic once the witnesses have finished.

**CONCLUSION**

The role-playing assignment described here introduces students to the complexities of ethical decision making while providing them with a motivation for arguing a stance opposite to their own. Most students had fun getting into their roles. Students found that asking themselves what someone in their assigned role would do (Appendix 5) made it easier to understand what position they were to support and where to start. Although the topics and roles described here were fashioned for use in a genetics course, dilemmas could be redesigned for use in other courses in biology or other disciplines.

**SUPPLEMENTAL MATERIALS**

- Appendix 1: Topics and dilemmas
- Appendix 2: Polling questions
- Appendix 3: Student roles
- Appendix 4: Guidelines and rubric
- Appendix 5: Student reflections

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**REFERENCES**