

A Bottom-Up Approach to Building a Culture of Responsible Research and Practice in STEM

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What innovative RCR program(s) or promising practices have you implemented?

The NSF-funded project is based on workshop modules during which graduate students develop lab- or department-specific guidelines to be discussed and potentially be adopted by labs or departments. During graduate student ethics workshops, graduate students discussed ethical issues they had encountered in their research and, based on an analysis of existing ethics codes, developed their own context- and lab-specific guidelines that serve as a starting point to discuss and hopefully improve the department's ethical culture. The approach increased the graduate students' awareness of ethical issues related to lab culture and responsible conduct of research (RCR) and facilitated a department-wide discussion process.

The duration of the workshop modules can be tailored to the time available, discipline, and make-up of the research group, and is designed to work in a variety of contexts. Based on the findings from these workshops, the project team will develop a guide for running this module series, including a leader's guide, a set of case studies and discussion prompts, and detailed guidance on how to adapt these modules to a wide spectrum of contexts.

What are the most important goal(s) of your innovative RCR programs or promising practices?

The goal of this project is to raise graduate students' and faculty's awareness of ethical issues in research labs and to improve the ethical culture of labs and departments.

Our findings point to a need to expand the focus of RCR education beyond traditional "RCR" topics to better include interpersonal ethical issues such as the quality of communication, issues of mentorship, power dynamics, and gender and diversity issues. The results stress the importance to empower students to recognize, discuss, and have the agency to act and engage in difficult conversations around ethics, building strong communication channels between research group members, and the need for better training and support for Principal Investigators in how to effectively mentor and support their students.

What evidence do you have to suggest that you are succeeding in achieving your goal(s)?

Five project workshops were run successfully at two different universities. The project team has tracked the progress of guideline development through the five departments, analyzed the guidelines, and gained useful feedback into the best way of structuring conversations between faculty and students, challenges in presenting the guidelines in a way that best leads to constructive conversations, and how the guidelines can be utilized by research groups on an ongoing basis.

Publications:

- Laas, K., Miller, C., Brey, E., Taylor, S., Hildt, E.: Infusing Ethics in Research Groups: A Bottom-Up, Context-Specific Approach, ASEE Advances in Engineering Education, Vol. 8; Issue 3, 2020.

- Hildt, E., Laas, K., Miller, C., Taylor, S., Brey, E.M.: "Empowering Graduate Students to Address Ethics in Research Environments", Cambridge Quarterly of Healthcare Ethics 28(3): 542-550, 2019.

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