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## A classroom exercise for improving mentor/mentee relationships

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### ABSTRACT

**Background:** Responsible Conduct of Research (RCR) courses seek to heighten awareness of the importance of mentor/mentee interactions and other topics, but questions remain – e.g., how best to train mentors/mentees to establish such relationships.

**Description of Exercise:** This paper proposes an approach as a model to strengthen RCR education by more fully, and actively, rather than passively, engaging trainees. A classroom activity was developed that can enhance instructors' abilities to improve mentor/mentee interactions. The instructor divided classes into groups of roughly four trainees, and had them think of a good mentor they have observed, and to list traits/behaviors they liked. Groups then summarized discussions for the class. The instructors recorded and integrated responses. Each group then considered bad mentors, answering the same questions, and repeating the process regarding bad mentees and good mentees. The class then compared the four discussions. Trainees have commonly had both formal and informal mentors, seen both good and bad mentors and mentees, and often themselves served as mentors. Mentees thus connect abstract principles concerning mentorship to personal experiences; and reflect on their own interactions/roles, preferences, and rights/responsibilities.

**Conclusion:** This exercise suggests some benefits of recognizing personal/emotional, not just intellectual components in RCR, and has important implications for education, practice, and research.

### ARTICLE HISTORY

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### KEYWORDS

Ethics; integrity; responsible conduct of research training (RCR); education; trainees

## Background

Mentoring can enhance research conduct and integrity, ensuring that students know how best to approach research ethically, but questions about it remain. Mentors can transmit ethical and professional standards, both explicitly and implicitly, by setting and demonstrating standards of conduct (Berk et al. 2005; National Institutes of Health 2024). Education has long been seen as constituting a moral enterprise or practices (Dewey 2008; Long 1992), transmitting critical values both implicitly and explicitly, and developing moral character, responsibility and good judgment, by involving both intellectual and emotional factors. Yet, at times, mentors may act unethically, falsifying data, failing to give appropriate attribution to sources or coauthors, which trainees may observe (Saul 2023), or threatening sexual or other personal boundaries (Johnson and Huwe 2002). Recently, mentors' roles have received increased attention, including Responsible Conduct of Research (RCR) Training (National Institutes of Health 2024) that, the National Institutes of Health (NIH) stipulates, should include "mentor/mentee responsibilities and relationships" (National Institutes of Health 2024).

Research has examined how mentors perceive their mentoring skills (Alexander et al. 2025), and has begun to probe and/or discuss mentees' views, too, by highlighting challenges, emphasizing needs for mutual respect and communication, and recognizing problems and deficiencies with mentors, including lack of mentorship, mentors having insufficient time or training to mentor well, and needs for mentees to have passion and commitment (Straus, Chatur, and Taylor 2009). Challenges can also arise in assigning mentors. Written guidelines concerning each party's expectations, duties, and responsibilities and funding for mentees to visit mentors at other institutions may help (Keyser et al. 2008). Observers have argued that the mentee "drives the ship" and "should seek the help" of a "big-name" academic mentor (Tsai and Helsel, 2016) and "manage up" (Zerzan et al. 2009), by acting strategically. But many questions remain concerning how to do so.

Increasingly, trainees also feel strains, personally and professionally. Among students, 41% and 39% had anxiety and depression, respectively, compared to 6% of the general population (Evans et al. 2018). Most students with anxiety lack good work-life balance, and around half felt that their advisor did not provide “real” mentorship or ample support, or have a positive emotional impact.

Recent cutbacks in federal research funding heighten the importance of questions regarding the rights, roles and responsibilities of mentors/mentees (Badger et al. 2025). Trainees are especially vulnerable to such decreased support, and many grew up during COVID with lockdowns and online-only education. Mentors, too, are facing increased pressures, given recent cuts to university and government research funding, leading to employment insecurity and more competitive funding environments. Additional resources may assist graduate students, but recent NIH cuts may well reduce these (Evans et al. 2018).

RCR courses seek to heighten awareness of the importance of mentor/mentee relationships and other topics, but these courses’ effectiveness and rates of meeting their objectives remain unclear (Resnik 2014). Among NIH-funded postdoctoral fellows, for instance, RCR training did not increase awareness of ethical authorship/publication guidelines or ethically appropriate responses to survey questions (Funk, Barrett, and Macrina 2007; Mastroianni and Kahn 1998). In another study, knowledge increased slightly, but not in ethical decision-making abilities or attitudes (Powell, Allison, and Kalichman 2007). RCR courses are also increasingly delivered online (Hoven, Mol, and Verhoef, 2023), potentially diminishing their effectiveness.

Crucial questions therefore arise regarding how RCR courses should best train mentors and mentees to recognize important aspects of these roles, to address the inherent emotional, not just intellectual, aspects of education and its moral aspects (Dewey 2008; Long 1992).

Anecdotally, in teaching RCR courses that students are required to take, trainees commonly appear bored, uninterested, and unengaged, dismissing the material as “soft,” not “hard” science, and seeing ethical mentoring and guidelines as obvious. Such required courses often do little to engage with what these trainees feel or experience.

From a theoretical perspective, learning, in general, is more effective when it is active, not passive, “actively engage[ing] learners with content and each other,” which results in “better conceptual structures and foster[s] skills needed for life-long learning” (Bonwell and Sutherland 1996; Haidet et al. 2004). Since trainees often in fact have considerable experience, and arguably expertise that they could potentially draw on with regard to being mentees and having mentors, an exercise was developed to help encourage and enhance awareness of challenges in these relationships. This commentary proposes this classroom activity and approach as a model that can potentially strengthen RCR education at other institutions, too, by engaging trainees more fully and actively rather than passively, and incorporating personal and/emotional, not just intellectual factors. To be clear, this is not a research study, but rather a commentary, offering a perspective on how these issues might be addressed more effectively, and suggesting directions for future practice and research.

## The exercise

The course instructor divided classes into small groups of around four trainees each, encouraging each individual to participate. The teacher then asked these trainees first to think of good mentors they have had or observed, and to name these mentors’ traits or behaviors that these trainees liked or thought were helpful. Each group then presented a summary of its discussion to the entire class. The instructor then wrote down the groups’ responses, integrating their points together.

The instructor then asks each group to think of bad mentors they have had or observed, and to name these mentors’ traits or the behaviors exhibited by them that they did not like, or thought were problematic. The groups then again presented their lists. Next, trainees answered the same questions about bad mentees, and, in a fourth iteration, about good mentees. The class then examine and compare the descriptors from each of the four discussions. The exercise took about an hour, with around seven minutes for each of the four breakout sessions, five minutes for each of the reports back to the class, and about 10 minutes for a final wrap-up/discussion.

This exercise has been conducted around 39 times at a major academic medical center, with the number of trainees involved each time ranging from 6–24, with a mean of ~20, including post-

doctoral trainees, medical students, nursing students, and graduate students in biology, public health, bioethics, or other related fields. These trainees had all worked with mentors in labs or on other types of research projects, and they commonly drew on experiences with several mentors they had and/or had observed.

## Responses to the exercise

Through this exercise, mentees considered in-depth the roles, rights, and responsibilities of mentors and mentees, not in the abstract, but by drawing on their personal experiences and observations, connecting abstract principles to the “real world,” by reflecting on both good and bad mentors and mentees they have seen, and on these trainees’ own interactions. Trainees commonly reported having had both formal and informal mentors, seeing both good and bad mentors and mentees, and often having themselves served as mentors. They appreciated the exercise as it enabled them to engage with these issues more actively. To be clear, the exercise asked these trainees to reflect on their “real life” roles, not roles they were merely playing in the classroom.

For problems they have perceived in these relationships, trainees initially often criticized mentors but, through the exercise, they generally came to reflect, and see more fully these interactions. Several themes tended to emerge, revealing symmetries and parallel processes between the two parties’ respective responsibilities, roles, accountabilities, commitments, and needs for both time and effort, and give-and-take. This classroom activity helped trainees recognize that challenges arise because mentoring involves multiple sets of skills, of which mentors and mentees may not excel at all, and that “one size does not fit all,” with mentors/mentees potentially varying in multiple dimensions – in individual preferences, personalities, needs and styles – in not only what each party does, but how much and in what ways, concerning both process and content, with emotional, not just intellectual factors, involved. Mentees often described needs for “good chemistry” and a “good fit,” and several sets of tensions, complications, and challenges, with responses ranging across the spectrum from openness to distance and harshness, from rigidity to flexibility, and respect to disrespect. Trainees struggled to define and operationalize many terms (e.g., what exactly “respect” means in scientific training, how much time/commitment each side should provide, and whether, when, and how such time and commitment should ever extend beyond the minimum).

This exercise highlights tensions with which mentees grapple between “dependence,” vs. “independence,” and being “needy”/“overly dependent” vs. “too independent.” Mentees have to determine how responsible to be to mentors vs. to themselves, how much to help advance mentors’ research priorities vs. follow their own interests, how much initiative to take vs. just following, and how to negotiate within the power dynamic.

Mentors differ in how much and what types of feedback they give to mentees (e.g., positive vs. negative). Mentees also vary in how much feedback they may want, or feel comfortable asking for, or receiving, and tend to seek a balance of both personal and professional support or encouragement.

Concerns arise about whether each party should ever share some aspects of their personal life and, if so, how much and when. Mentees also perceive needs for mutual expressions of gratitude/appreciation. These interactions emerge as dynamic, with suggestions that the better and more fully mentees perform their role, the more mentors may do so, too. Challenges surface in determining whether the “fit” with an assigned mentor is sub-optimal, and whether, when, and how to switch mentors without being perceived as a “difficult” trainee.

Afterward, trainees commonly report that this exercise heightened their awareness of mentors’/mentees’ roles, and needs for flexibility/negotiation. Another training program’s directors requested that this exercise be provided to its trainees, and this has been done four times. The director felt it also leads trainees to becoming far more aware of the importance and complexities of these relationships, and the need to take more initiative and responsibility for their work, and he and his trainees have reported that they have found it helpful/effective.

## Conclusions

While RCR required training for mentees has tended to rely on passive learning regarding what mentors and mentees should do (Berk et al. 2005; Waljee et al., 2020; Johnson and Huwe 2002; Keyser et al. 2008), this exercise underscores benefits of involving trainees more fully, by having them examine their own experiences, observations, feelings, and responsibilities (Stelter et al., 2021). This activity can enhance recognition of these personal/emotional and moral components of mentor/mentee relationships, and may help educators at other institutions to improve in their own contexts.

Ideally, mentors should bear the onus for providing optimal mentoring but, given competing faculty demands and realities of human relationships, mentees may also increasingly need to play active roles in establishing and maintaining optimal mentoring relationships, and being able to request changes in mentors if needed. These efforts are important, too, since today's mentees are often also themselves currently mentors, formally or informally, and will likely be so in the future as well.

Though educational materials have been developed for mentors, encouraging them to better fill this role, this exercise underscores needs to develop and assess approaches for trainees, too. Though much previous literature has concentrated on training mentors, this paper highlights how mentee training can also be enhanced. While prior literature described how mentees face challenges in finding mentors,<sup>8</sup> the present exercise illuminates how mentees may benefit from managing these relationships. It is commonplace to suggest that mentees “manage up” (Zerzan et al. 2009), but this exercise reveals challenges in doing so, and the ways that these relationships are not black-and-white, but subjective and nuanced.

This approach has important implications for RCR training, and for practice, research, and policy. The themes that emerged here underscore, for instance, how it may be helpful for mentors/mentees to co-author /cosign a document stating their specific respective expectations, roles, and responsibilities. The exercise here could also be conducted with mentors to enhance their appreciation of these complexities, by asking them to describe good and bad mentees and mentors that they have observed.

Though this was not a research study, trainees' responses suggest several challenges that the literature does not appear to have fully addressed, and that warrant investigation in future studies – e.g., rates and types of mentees' preferences, practices, perspectives, feelings and difficulties concerning these relationships. Key questions concern, for example, which factors facilitate or undermine the “chemistry” or “fit” in these relationships, how much mentees and mentors see interactions as reciprocal or dynamic, and how they negotiate these roles, or feel they must do so, whether they might benefit from assistance/training in these tasks, and if so, how, and whether participation in this exercise enhances mentees' short- and long-term views and approaches and aids their mentees now and in the future.

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