Promoting a research culture with integrity: the role of faculty/lab leaders/mentors

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8th WCRI 2024 Athens | Greece

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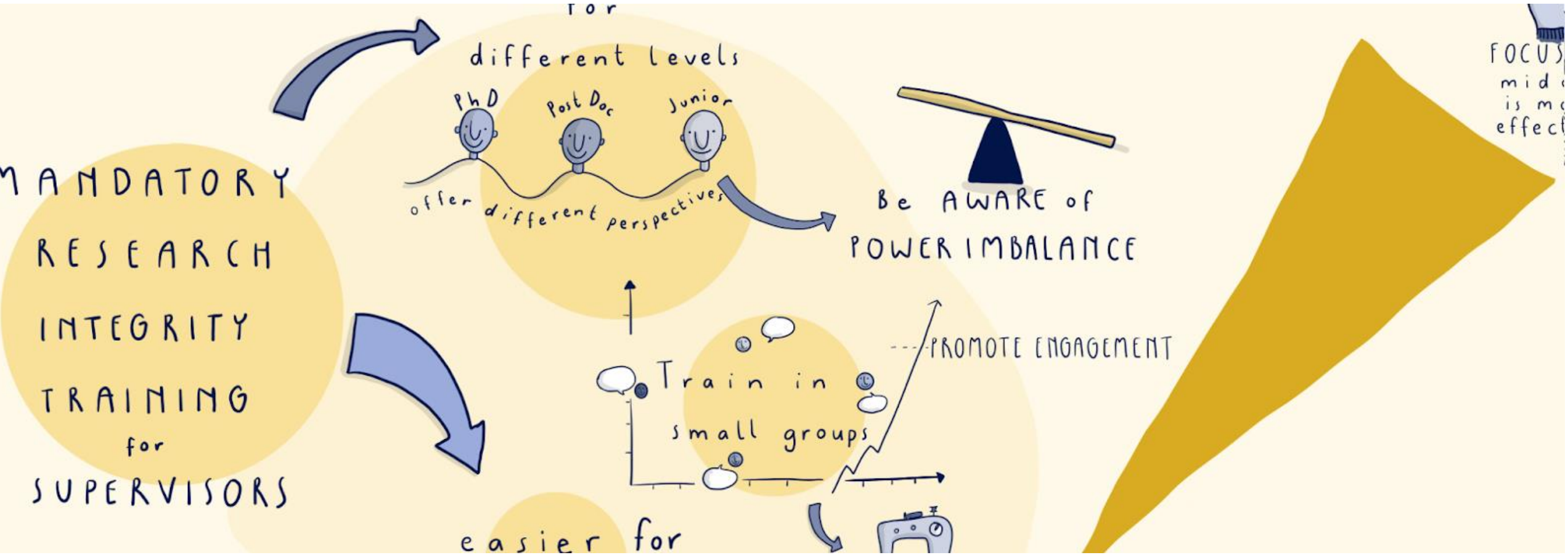

3 programs for faculty engagement

	Facilitator	Co-learner
Curriculum to support faculty to teach RCR in the research environment	X	
Deliberative Lab Communication		X
Labs That Work curriculum	X	X

WORKSHOP CURRICULUM

CODE

Relevant professional code(s) of conduct

CHECKLIST

Checklist of items to be covered at defined points in the career of trainees

CASES

Real or fictional scenarios with ethical dimensions

IDP

Individual development plan, including roles and responsibilities of trainee and mentor

POLICY

Development of group policy to formalize definitions, roles, and responsibilities for responsible conduct in an area of particular importance to the research group

Plemmons, D.K., Kalichman, M.W. Mentoring for Responsible Research: The Creation of a Curriculum for Faculty to Teach RCR in the Research Environment.*Sci Eng Ethics* **24**, 207–226 (2018). https://doi.org/10.1007/s11948-017-9897-z

This project was funded by the Ethics Education in Science and Engineering program of the National Science Foundation (1135358)

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Implementation

Presentations

Participating faculty presented the workshop ten times across seven different research institutions

Workshop Participants

A total of 91 individuals attended one of the ten workshops, averaging just over nine people per workshop, with a minimum of four and a maximum of 14.

Evaluation

Evaluations

Evaluations after the conclusion of the workshops were completed by 71 (78%) of the participants.

> *"It made me aware of issues I was not addressing."*

> *"Learned new ideas. Got me thinking about things I would not have thought about."*

> *"I knew this was important, but I felt uncomfortable designing/training through a workshop. Now I believe I could do this."*

> *"Excellent workshop! Very useful, interesting mind-engaging, hands-on exercises were very practical and interesting."*

Kalichman, M.W., Plemmons, D.K. Intervention to Promote Responsible Conduct of Research Mentoring. *Sci Eng Ethics* **24**, 699–725 (2018). https://doi.org/10.1007/s11948-017-9929-8

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Online Ethics Center
FOR ENGINEERING AND SCIENCE

HOME / INSTRUCTOR'S

Instructo
Leaders a

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Cases

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Parent Collection

Parent Resource
Instructor's Guide to Prepare Research Group Leaders as RCR Mentors

DOI
https://doi.org/10.18130/9bcz-s746

Rights
Use of Materials on the OEC

Discipline(s)
Research Ethics
Teaching Ethics in STEM

Topics
Case Study Method

Instructor Materials

Description
A discussion around the use of cases in teaching RCR, part of the Instructor's Guide to Prepare Research Group Leaders as RCR Mentors.

Body

NOTES TO THE INSTRUCTOR:

- You should feel free to choose your own case for this section, or choose several, giving each small group a distinct case to discuss. Given the time constraints of both this workshop and most lab meetings, it would be best for the cases to be relatively uncomplicated, though still nuanced.
- While this curriculum provides a basic case analysis scheme, if you use case analyses regularly, you likely know there are several ways of analyzing cases, and many frameworks out there to assist your students, depending on how you use / what you want the students to learn from using the cases. Some of those are included in the resources section of this curriculum; you could provide a couple of different evaluation schemas to determine if one is more appropriate for a particular discipline, or career stage, than another.
- If you're using an agenda which includes an over-lunch discussion of a case, as the agenda in this instructor's manual shows, we used the 15 minute window just before lunch to go over the case studies section of the syllabus, coming back to the question "How might cases be introduced into the research environment?" in the after-lunch discussion.
- It is important that the larger group discussion about the case(s) not become simply a discussion of the case per se, but that it also include a conversation about how useful this kind of discussion can be with their students. We found that our groups were eager to discuss the elements of the case, but we had to explicitly articulate the usefulness of such case discussions as tools for integrating ethics into their research environments.

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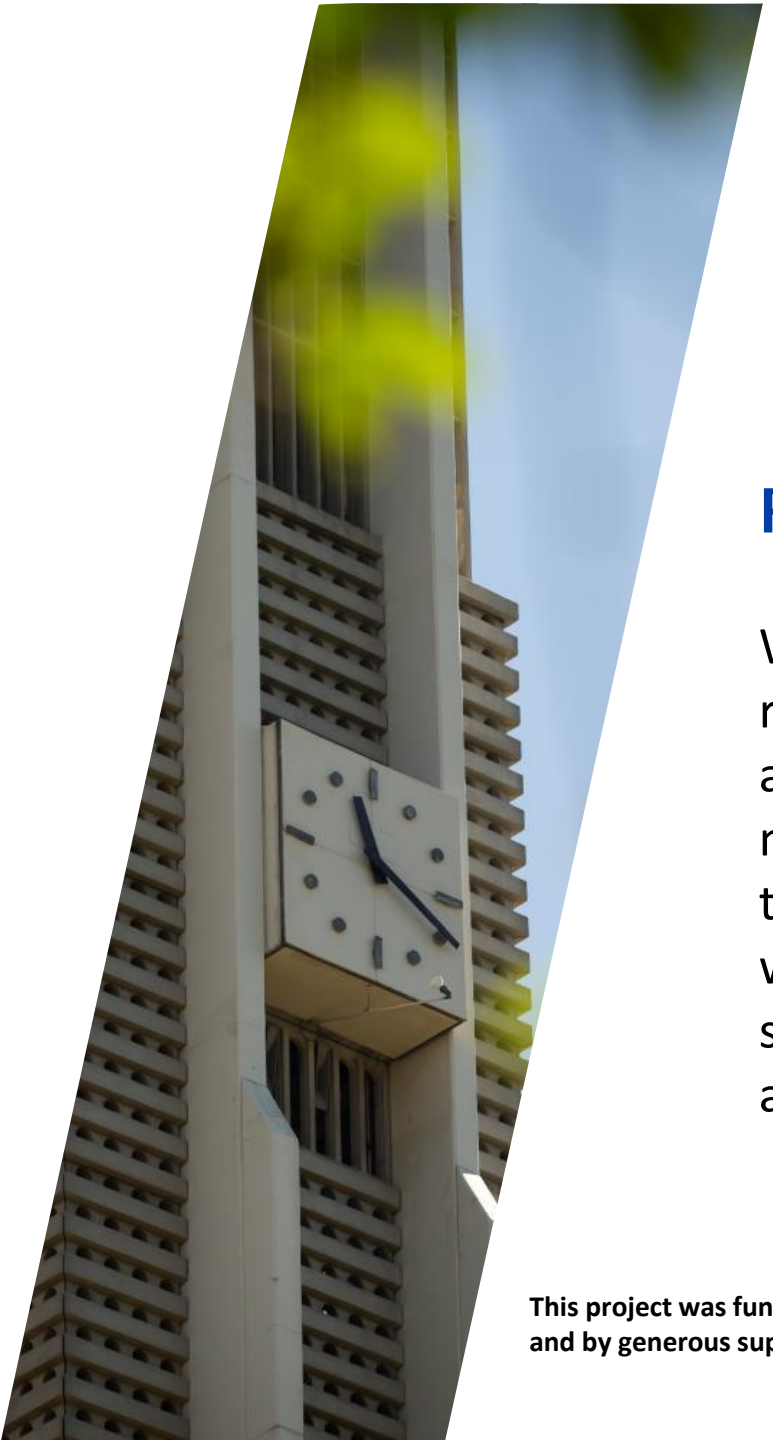

Institutional Reengineering of Ethical Discourse in STEM (iREDS)

RATIONALE

We assert that if labs more routinely talk to each other about ethics, then lab members will be more likely to self-consciously behave in ways that are not only scientifically credible but also ethically defensible.

OBJECTIVES

To establish that a culture of ethics and communication is an integral facet of productive and good research.

To give research teams a structured and facilitated opportunity to intentionally and explicitly discuss the ethical dimensions of specific practices of projects within their labs.

This project was funded by the Cultivating Cultures of Ethical Stem Program of the National Science Foundation (SES-1540440) and by generous support from the Graduate Division of the University of California, Riverside

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DELIBERATIVE COMMUNICATION

"reasoned, uncoerced and transparent argumentation for and against decisions that are arrived at collectively."

Plemmons et al (2020). A randomized trial of a lab-embedded discourse intervention to improve research ethics. Proceedings of the National Academy of Sciences 117 (3) 1389-1394; DOI: 10.1073/pnas.1917848117

"Deliberative communication can be understood as an endeavour to ensure that each individual takes a stand by listening, deliberating, seeking arguments, and evaluating, while at the same time there is a collective effort to find values and norms on which everyone can agree."

Tomas Englund (2006) Deliberative communication: a pragmatist proposal, Journal of Curriculum Studies, 38:5, 503-520, DOI: 10.1080/00220270600670775

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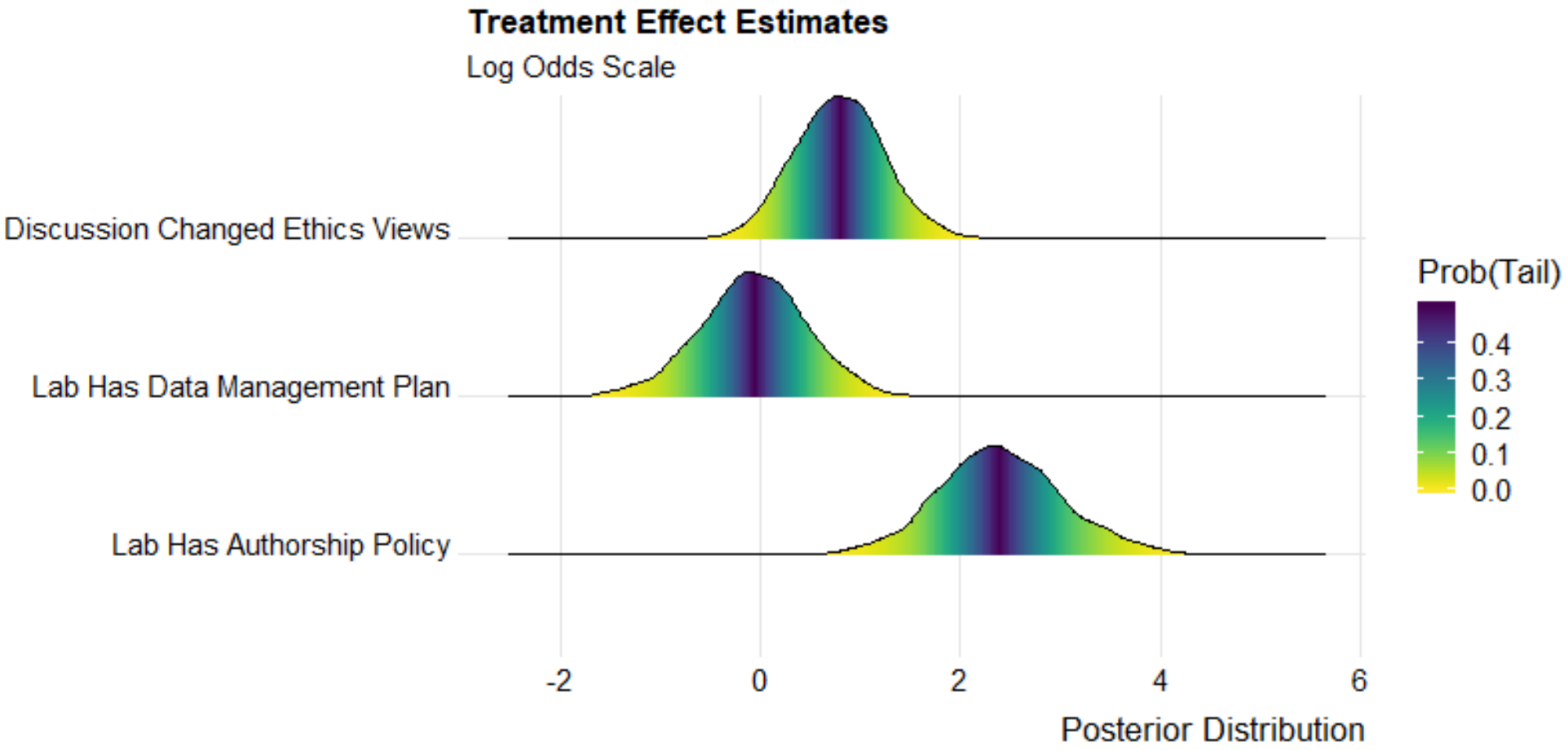
Direct Measures of Exposure to the Training



Several Illinois labs and a number of other labs across the country piloted an amended version of the iREDS approach - retitled Deliberative Lab Communication, or DLC -- and found it to be both useful and effective:

“I think this hour was a better stimulus for better data management in my lab than a top-down approach.”

"I thought it was quite useful. I think data/code sharing is a topic many of us had thought some about in the past, but it was good to have an explicit discussion with everyone about this. I enjoy discussing the philosophy of how to do science, and I think it makes everyone more thoughtful.”

"At the end we also briefly talked about how to make use of what we learned in the hour spent with [the facilitator]…We will take up data management again in a group meeting… Some are recurring topics, others are new and have not previously been discussed."

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This collaborative project was jointly funded by Improving Undergraduate STEM Education, Innovations in Graduate Education, and Ethical and Responsible Research of the National Science Foundation (SBE 2220612/2220604)

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An Intentional Professional Leadership Curriculum
for Researchers at HHMI and Beyond
LABS THAT WORK

Core Concepts and Skills

HHMI Mission and Values

People advance science for the benefit of humanity and scientists are accountable

Responsible Conduct of Research

Conduct research at highest levels of integrity

Cultural Competency and Inclusion

Build relationships that transcend differences; understand how values, biases, assumptions influence behavior

Power and Incivility

Understand the role of power, how to get help, report problems, the critical role of bystanders

Leadership Skills

Manage the social nature of interactions in a lab

Take Action

Enhance communication, motivation, and problem-solving skills; lab members also prepare for leadership

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Lab Leader Discussion Guide

Program Reflection Questions

In a recent examination of students' thoughts on mentor/mentee relationships, one student noted: "A key component to feeling confident about being a mentee is realizing that the relationship is symbiotic. This provides a frame to contribute to your mentor's experience either through contributing to their work or promoting learning in terms of unknown knowledge. Recognizing the nature of the relationship makes me feel less guilty for seeking help as I now understand that it is a cycle that science development thrives on".

Wrighting DM, Dombach J, Walker M, et al. Teaching Undergraduates to Communicate Science, Cultivate Mentoring Relationships, and Navigate Science Culture. CBE Life Sci Educ. 2021;20(3):ar31. doi:10.1187/cbe.20-03-0052

In any one of your mentoring relationships, how clear are you on what you're contributing to that mentor's experience, and how clear are you on what they're contributing to yours?

Are her/his contributions meeting your needs?

How can each of the parties help sustain continuing mutual benefit?

RESULTS:

Qualitative Design

After completing LTW, we collected qualitative data from a subset of participants (N = 35) through virtual semi-structured in-depth interviews. Sample questions included:

- *"What did you enjoy about LTW?" (i.e., likability)*
- *"What did you find helpful about LTW?" (i.e., utility)*
- *"How would you adapt LTW?" (i.e., future directions)*

Improved Interpersonal Skills

"Another thing I liked was the personal scripts. I think that that's helpful to have that formalized."

"It tended to really stop us in our tracks…it changed the way we taught a lot of the teaching fellows. We noticed changes in how they phrased things. [LTW]…shifts things to a more positive, more optimistic light."

Increased Closeness

"My overall impression was that the content itself was a good vehicle for us to have discussions…We got to know each other on a different level [even though] we've worked together for quite a while" [and that] "was really valuable for the team."

Shared Understanding of Common Experiences

"…hearing other people list their values and what is important to them…it was like I had a better understanding of who they are and what they like and how they work...I think it gave us that space to let down the professional barriers…and be able to have a better understanding of each other."

S GUIDE TO PREPARE RESEARCH GROUP LEA

or's Guide to Pre
as RCR Mentors

DELIBERATIVE
COMMUNICATION