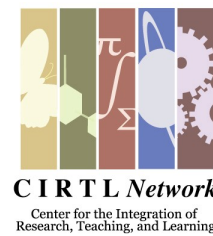


Improving the Skills of Research Mentors

Monica Plisch

Associate Director of Education and Diversity, APS



Developers of the original
training materials:

Jo Handelsman
Christine Pfund
Sarah Miller Lauffer
Christine Maidl Pribbenow

Developers of the physics
training materials:

David Ernst
Eric Hooper
Catherine Mader
Christine Pfund
Monica Plisch
Alejandro Rodriguez-Wong
Chandra Turpen



- Think of two things about yourself that are not directly related to your work (examples on right)
- Turn to your neighbor, share with each other
- Imagine mentors starting their relationships this way

- Speaks more than one language
- Rides a bike or bus to work
- Played on a sports team in high school or college
- Grew up in a town with a population of less than 30,000
- Is a first generation college graduate
- Collects vacuum cleaners
- Has a relative who has or is serving in the armed forces
- Is a parent

1. Introduction to Research Mentoring Training materials
2. Effectiveness of mentor training
3. Example activities
4. Curriculum implementation

Defining Research Mentoring

Using one's own experience to guide another person through an experience that requires personal and intellectual development.

The primary research mentor(s) plays a critical mentoring role.

And it is a **privileged** position.



Research on the Importance of Good Mentoring Relationships

- Students being mentoring report fewer non-persistence decisions (Gloria & Robinson Kurpius, 2001)
- Most important factor in degree attainment was positive mentoring experience (Solorzano, 1993)
- Mentoring increases persistence in science, career satisfaction and productivity (reviewed in Sambunjak, Straus and Marusic, 2010)
- The desire to pursue a PhD or MD/ PhD is influenced by a strong mentee-mentor relationship (McGee and Keller, 2007)
- Mentoring and research training cannot be separated from scientific research for anyone in postdoctoral or graduate student positions and should not be considered as separate objectives (National Academy of Sciences, 2005)

Physics Research Mentor Training Curriculum



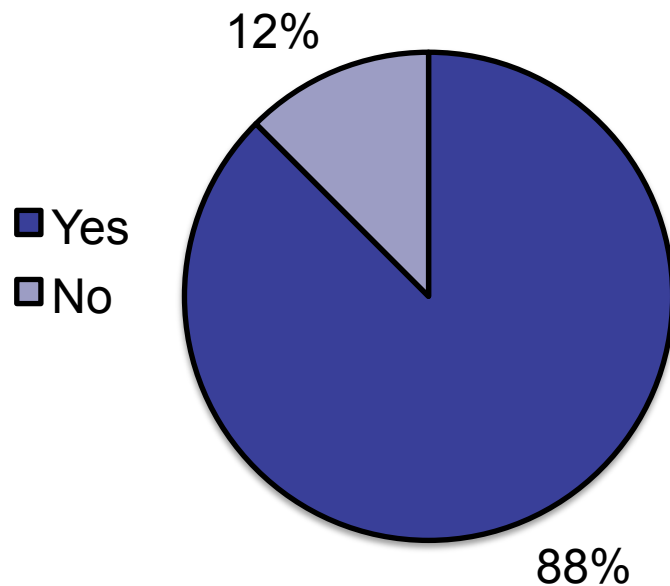
Sessions	Topics
Week 1	Getting Started and Project Design
Week 2	Establishing Expectations
Week 3	Maintaining Effective Communication
Week 4	Assessing Understanding
Week 5	Fostering Independence
Week 6	Mentoring Challenges and Solutions
Week 7	Addressing Diversity
Week 8	Dealing with Ethics
Week 9	The Elements of Effective Mentoring
Week 10	Developing a Mentoring Philosophy

Key Elements of Research Mentor Training

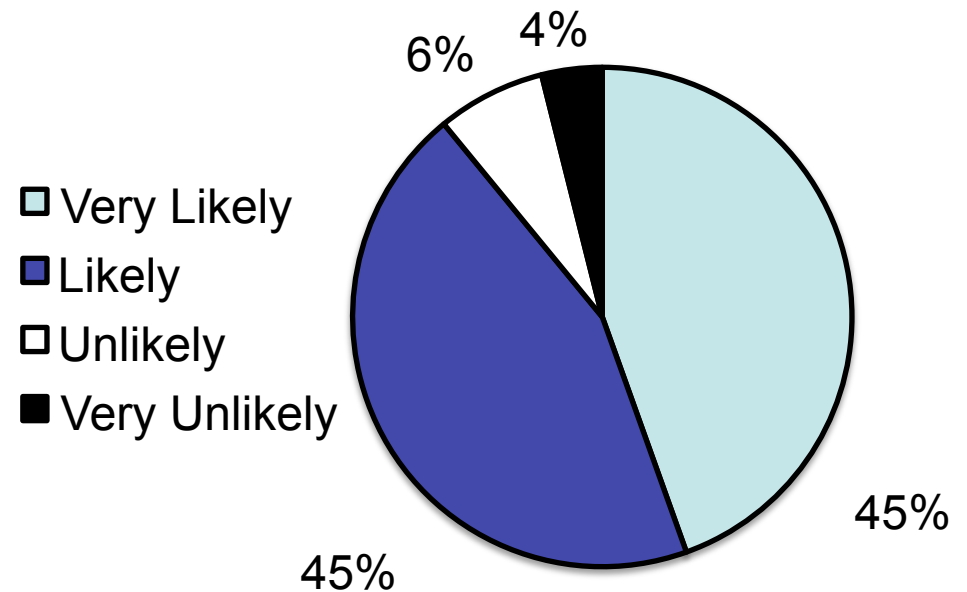
- Process-based using case studies and group problem-solving
- Addresses common challenges in mentoring:
 - How to give effective feedback to mentees
 - How to help mentees navigating hierarchy in lab (socialization, insider knowledge)
 - How to accurately assess knowledge and skills (understanding)
- Provides a forum to share the collective experience of mentors across a range of experiences

Mentor Satisfaction with Training

Was the 8 hour training a valuable use of your time?

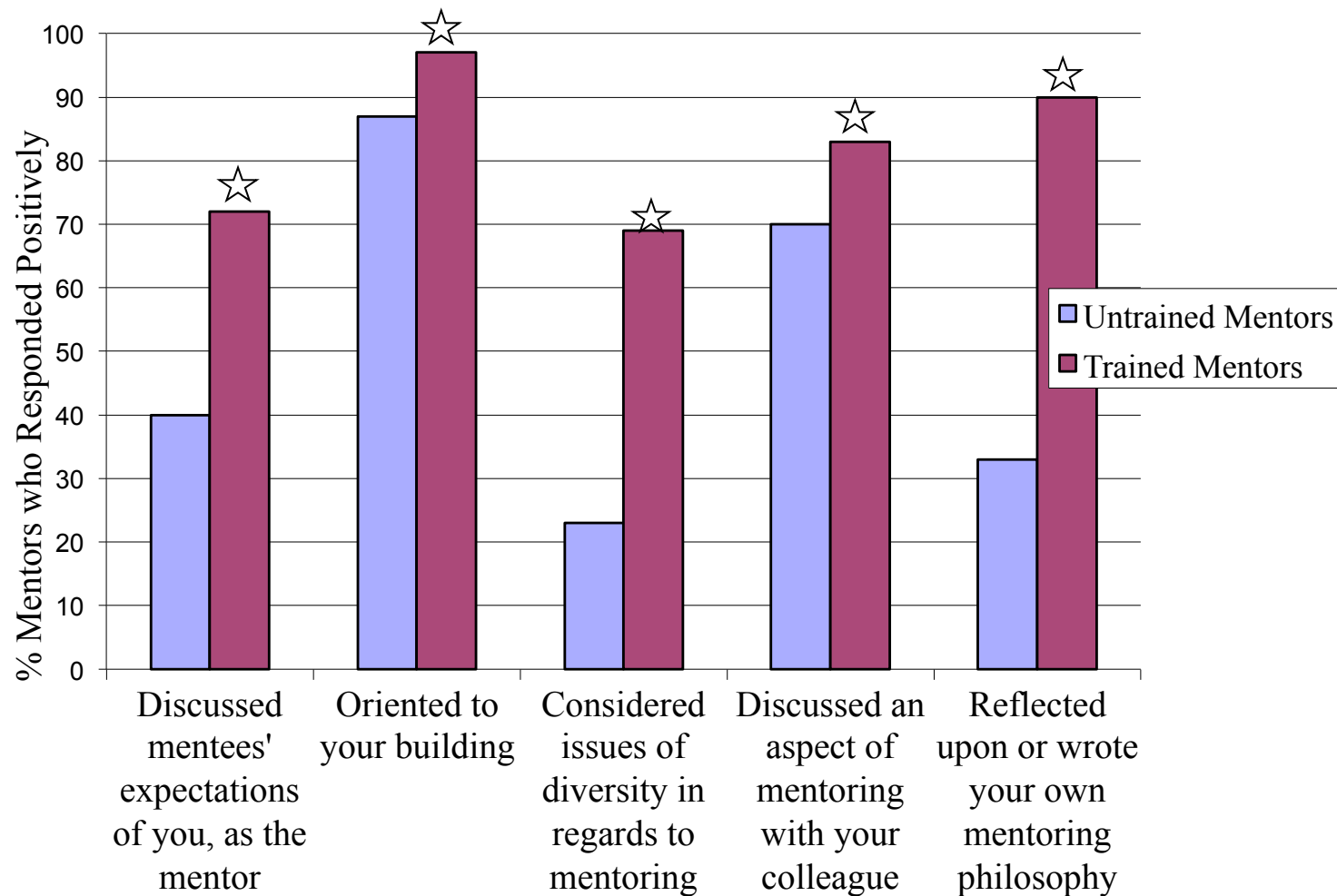


Would you recommend the sessions to a colleague?



Pfund C, *et al.* 2013. A Research Mentor Training Curriculum for Clinical and Translational Researchers. *Clinical Translational Science* 2013; 6:26-33

Changes in Behavior of Mentors



Establishing Expectations: Case study

Case Study: Mismatched Priorities (p. 26)

Jo was helping me collect data for a paper we hoped to submit for publication at the end of the semester. One of the last, key experiments we needed to run was a study of the temperature dependence of the sample's conductivity that required continuous data acquisition over about six hours. In order to have a long block of time available to us, I scheduled the experiment for a Saturday. Jo helped me get everything ready on Friday: we prepared all of our thin-film samples, soldered probes to the substrates, made certain we had a full liquid helium tank, calibrated the instrument, and gathered all of the other equipment we would need to conduct the experiment.

On Saturday morning I waited for several hours for Jo to show up but she never did. Finally I started the experiment myself. It wasn't a huge problem to have to do the experiment myself, but I was disappointed that Jo didn't show up. The next Monday, I expressed my disappointment, and her reply was, —The Pitchfork Music Festival was starting in Chicago, and I really wanted to go see this band playing there. I didn't know what to say.

Establishing Expectations: Mentoring Compact

- Communicate written and unwritten rules of research
- Can be a starting point for discussions between mentors and mentees about expectations
- Can include commitments by both the mentee and mentor

- Read example compact and begin drafting your own
- Discussion: What would you include in a mentoring compact with your students?

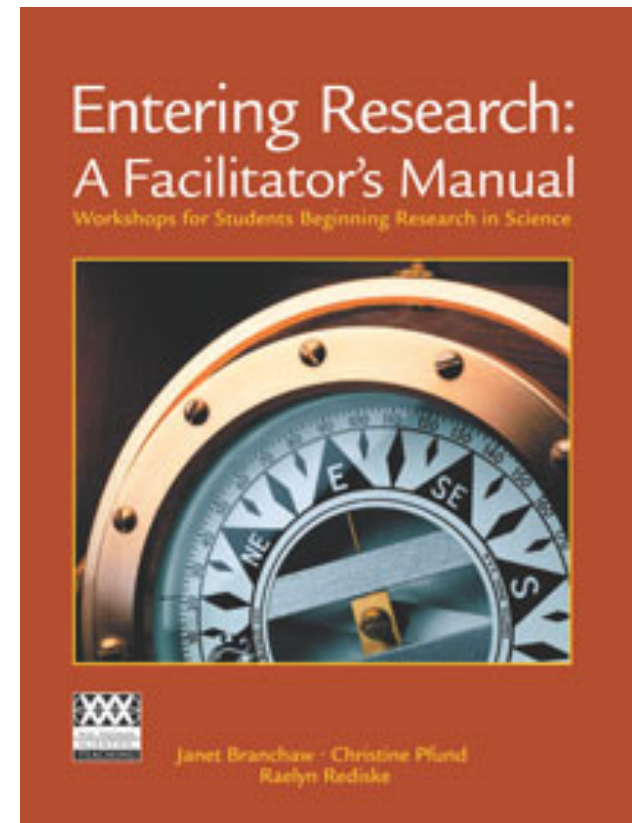
Implementing the Curriculum: Getting Started at your Institution

- Effective mentoring saves time and is more rewarding
- Evidence indicates research mentor training is effective
- Both beginning and experienced mentors learn strategies for more effective mentoring from the training
- Federal funding agencies are calling for evidence-based mentor training

Learning Goals for Mentees

Part 1: Students will find a research mentor, establish a mentoring relationship, write a research project proposal, and begin research.

Part 2: Students will make significant progress on their research project, present their findings in a public venue, and write a mini-grant proposing the next phase of their research.



What would you do next to use this
at your institution?

or

What would you want to learn more about?

Get the Physics Research Mentor Training materials at:

www.aps.org/link/mentor-training

Additional materials at:

www.researchmentortraining.org