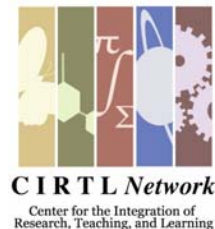


Improving the Skills of Research Mentors

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Wisconsin Center for Education Research
Center for the Integration of Research, Teaching and Learning
Institute for Clinical and Translational Research
University of Wisconsin, Madison



Session Goals

- Learn about the importance of effective research mentoring and its core elements;
- Explore one model of research mentor training and evidence of its effectiveness;
- Experience a few elements from our research mentor training curricula;
- Share practical tools and strategies that you can implement immediately to become a more effective mentor;
- Learn how to implement a research mentor training at your own institution using existing materials

Introductions

- Think of 2 things about yourself that are not directly related to your work (see list on right for examples)

- At your tables, share what you wrote

- Imagine mentors starting their relationships this way

- » Rides a bike or bus to work
- » Speaks more than one language
- » 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
- » Plays a musical instrument
- » Collects vacuum cleaners
- » Has lived abroad
- » Has more than two siblings
- » Has a relative who has or is serving in the armed forces
- » Is a parent

Defining Research Mentoring

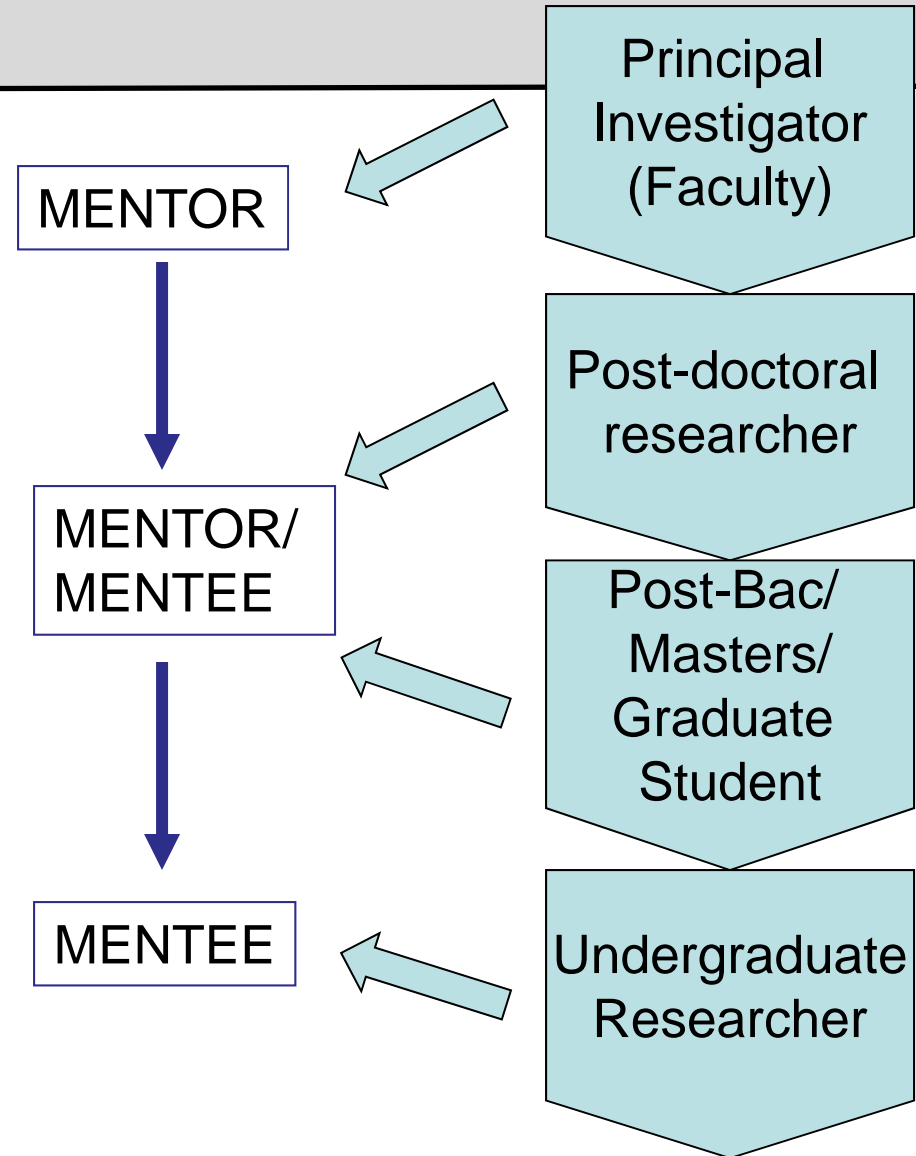
Using one's own experience to guide another person through an experience that requires personal and intellectual growth and development.

Within the realm of scientific research training and career development, the primary research mentor(s) plays a critical mentoring role.

And it is a **PRIVILEGED** position!



Research Mentors



The Importance of Good Mentoring Relationships

- Students being mentored 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 Ph.D or M.D/ Ph.D 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 (NAS 2005)
- Good mentors foster independence so that mentees can go on to be successful on their own, establish themselves, and differentiate themselves from their mentors (NEJM, 1994)

Entering Mentoring Curriculum



Seminar Topics: 1 hour each

- Establishing a good relationship
- Communication
- Expectations
- Understanding
- Diversity
- Ethics
- Independence
- Developing a Mentoring Philosophy

Developed to train the graduate student, post-doc and faculty mentors of undergraduate researchers in biology

Key Elements of Research Mentor Training

- Process-based using case studies and group problem-solving
- Aimed at awareness-raising
- 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 have productive progress reports/ check-in meetings
 - How to accurately assessing knowledge and skills (understanding)
- Provides a forum to share the collective experience of mentors across a range of experiences

Expectations: Core Session Activities

1. Discuss roles research mentors are expected to play
2. Discuss a case study about misaligned expectations between and mentor and mentee
3. Brainstorm ways to align and communicate expectations
4. Review and begin drafting a mentor-mentee compact

Example Case Study: The Slow Writer

Jaxson, a third year graduate student in my group is adept at doing research but is a very slow writer. Last fall, I set multiple deadlines that Jaxson missed, while another student in my group wrote an entire thesis chapter, submitted a paper and conducted research. Over winter break, Jaxson had a breakthrough and produced a fairly reasonable first draft of the results section of his first paper but he has barely begun work on the other sections. To avoid delays in publication, I have taken the lead in writing the manuscript based on his work. However, in order to graduate with a PhD, I realize he must write his dissertation as well as the next manuscripts himself. Setting deadlines for sections of the manuscript clearly hasn't worked. Communicating the importance of manuscripts to the research endeavor hasn't worked. Encouragement hasn't worked. Veiled threats don't seem professional. Other than being patient, what should I do?

Diversity: Core Session Activities

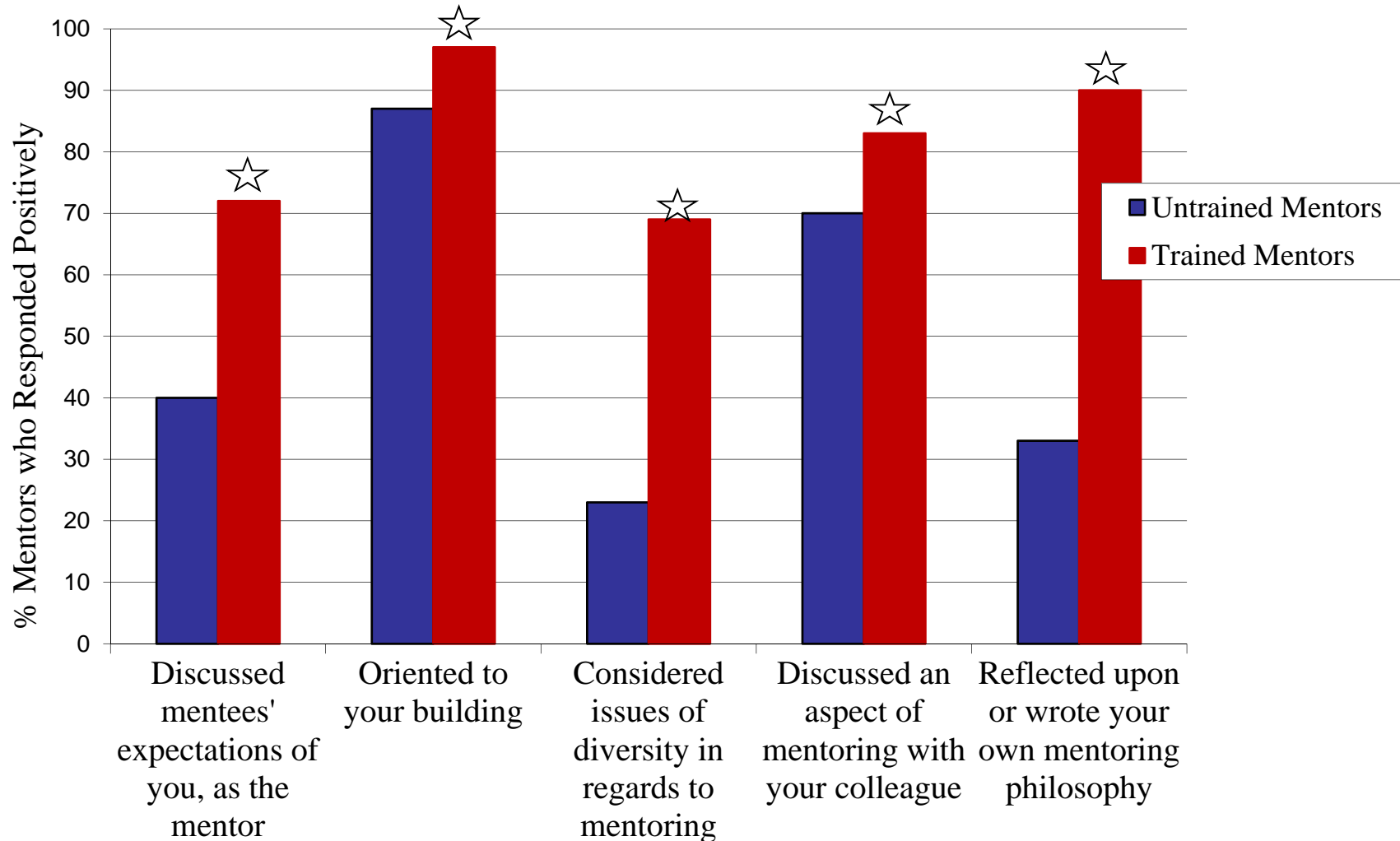
- Discuss ways in which diversity can impact a mentoring relationship
- Discuss a set of case studies exploring various dimensions of diversity
- Read the results of several studies on bias, prejudice and stereotype threat and apply the result to mentoring practices

Example Discussion Questions:

- Do you think everyone should be treated the same? Does treating everyone the same mean that everyone is being treated equally?
- How might a mentor's biases impact interactions with his or her mentee?
- How can you minimize the impact of bias?

EVIDENCE OF EFFECTIVENESS

Changes in Behaviors of the Mentors

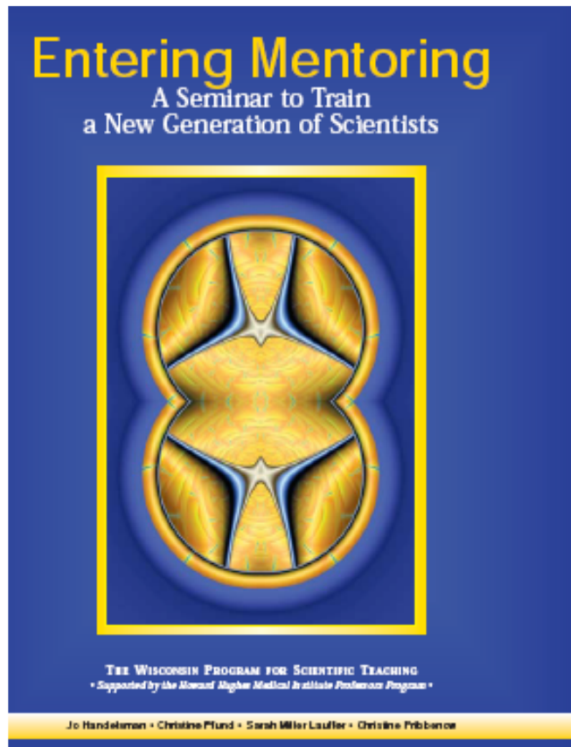


Pfund *et al.* Science 311, 473 (2006)

Research Mentor Training

- Originally used in biology (HHMI, PI: Handelsman)
- Adapted for use across science, technology, engineering, math, and social sciences (NSF #0717731, PI: Pfund) and clinical and translational science (CTSA) award mentors (NIH/NCRR ARRA UL1RR025011, PI: Dresner)
- Workshops and curricula have been developed for faculty mentors (NSF #0717731, PI: Pfund)
- The curriculum has been adapted for use in a synchronous, online venue through the NSF-funded Center for the Integration of Research, Teaching and Learning (CIRTL) Network (NSF DUE-0717768, PI: Mathieu)
- CIRTL and APS partnered to adapt the curriculum for physic mentors.

Research Mentor Training Adaptation



<http://www.researchmentortraining.org/>

Adaptation Team

David Ernst, Vanderbilt

Eric Hooper, UW-Madison

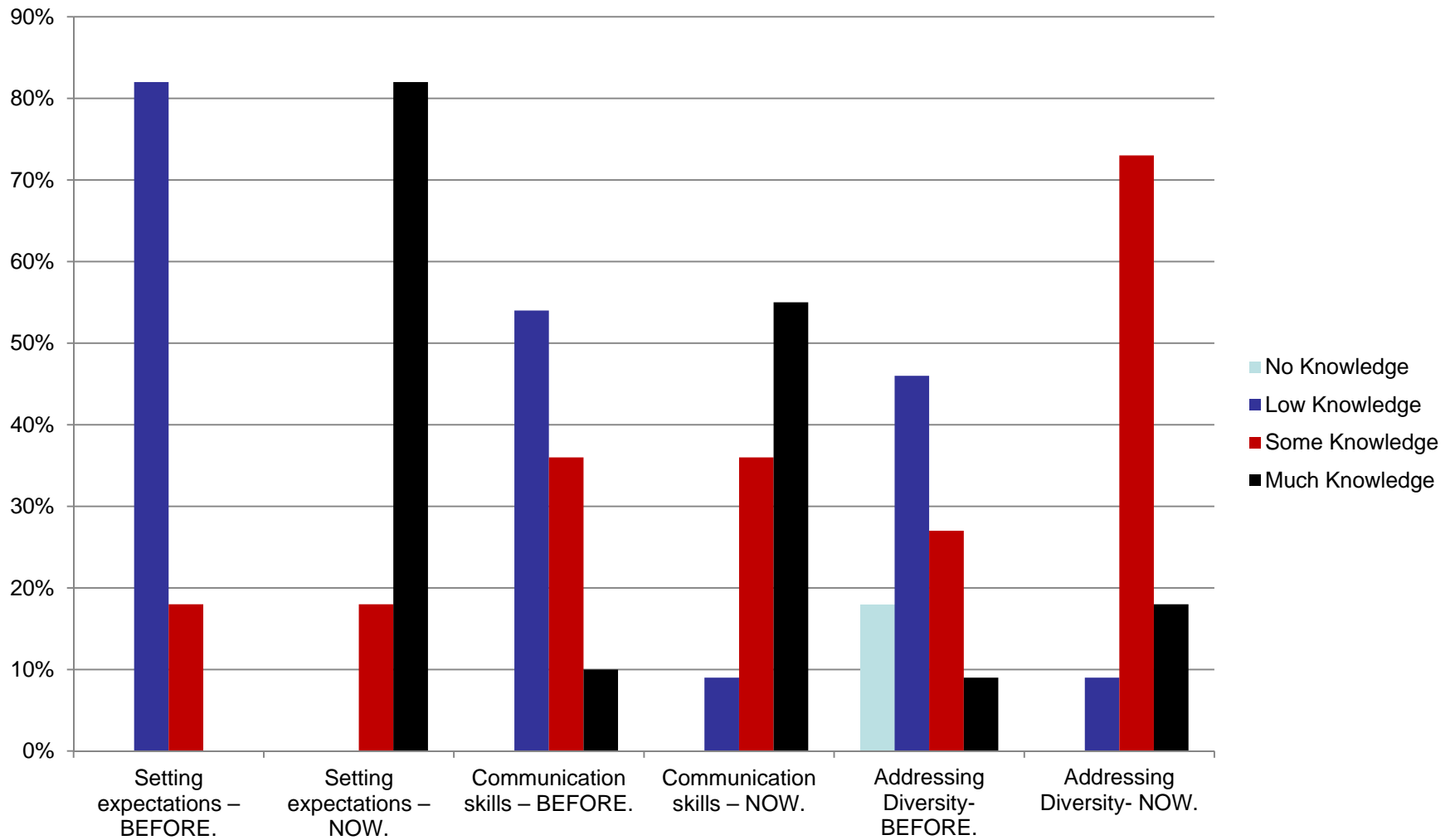
Catherine Mader, Hope College

Monica Plisch, APS

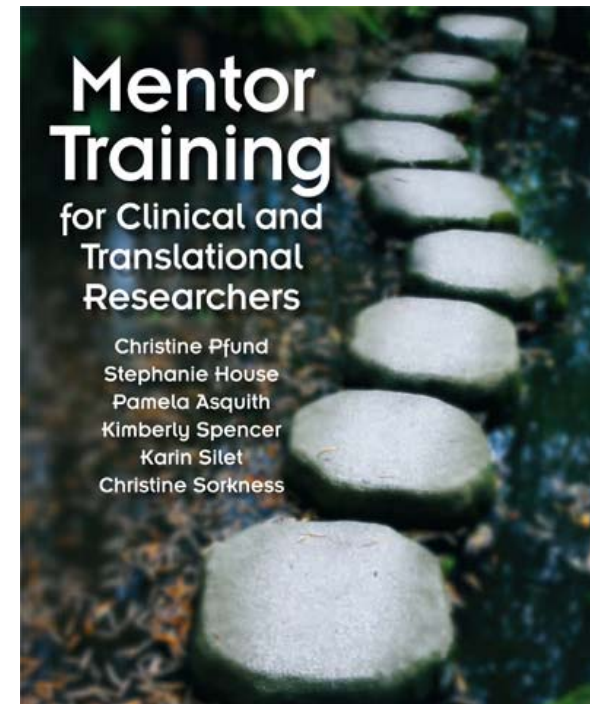
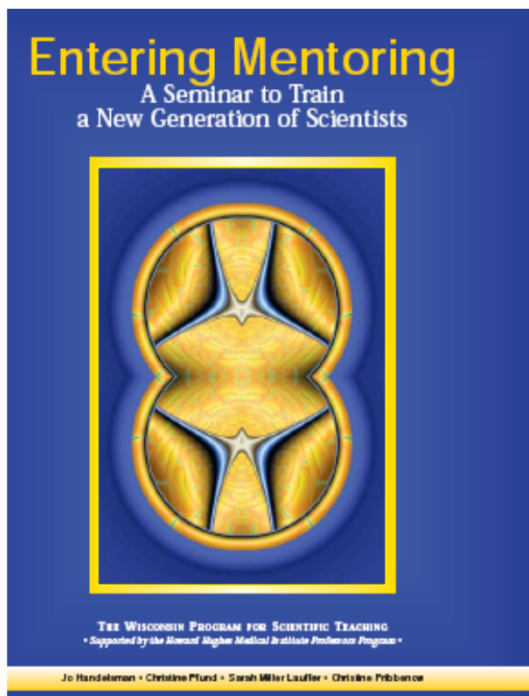
Alejandro Rodriguez-Wong, Harvard

Chandra Turpen, UM-College Park

APS Workshop 2011

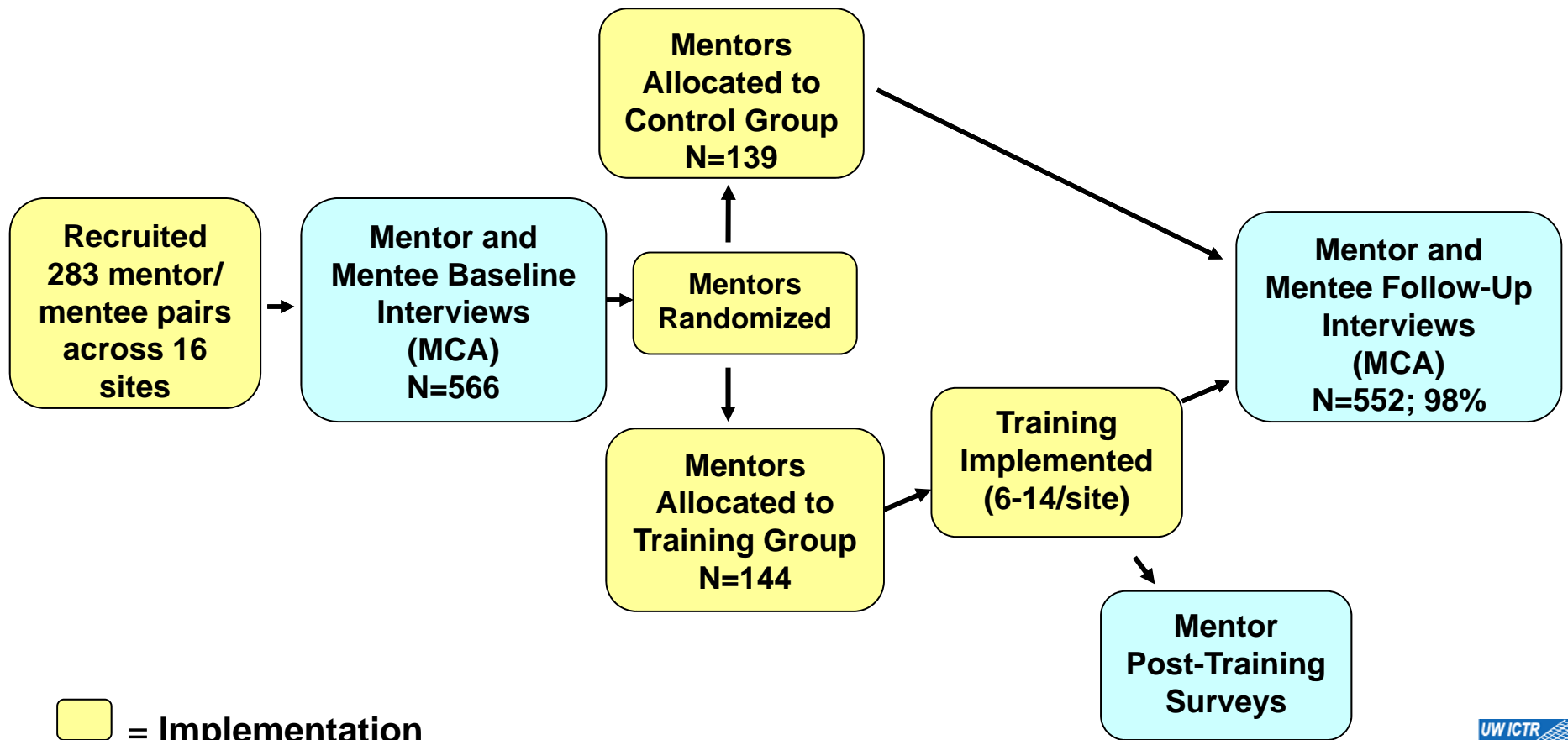


Curriculum Overview: Mentor Training Adaptation



Mentor Training for Clinical & Translational Researchers:
(<https://mentoringresources.ictr.wisc.edu/>)

Training Implementation and Evaluation: Flowchart of Research Mentor Training Trial



= Implementation

= Assessment



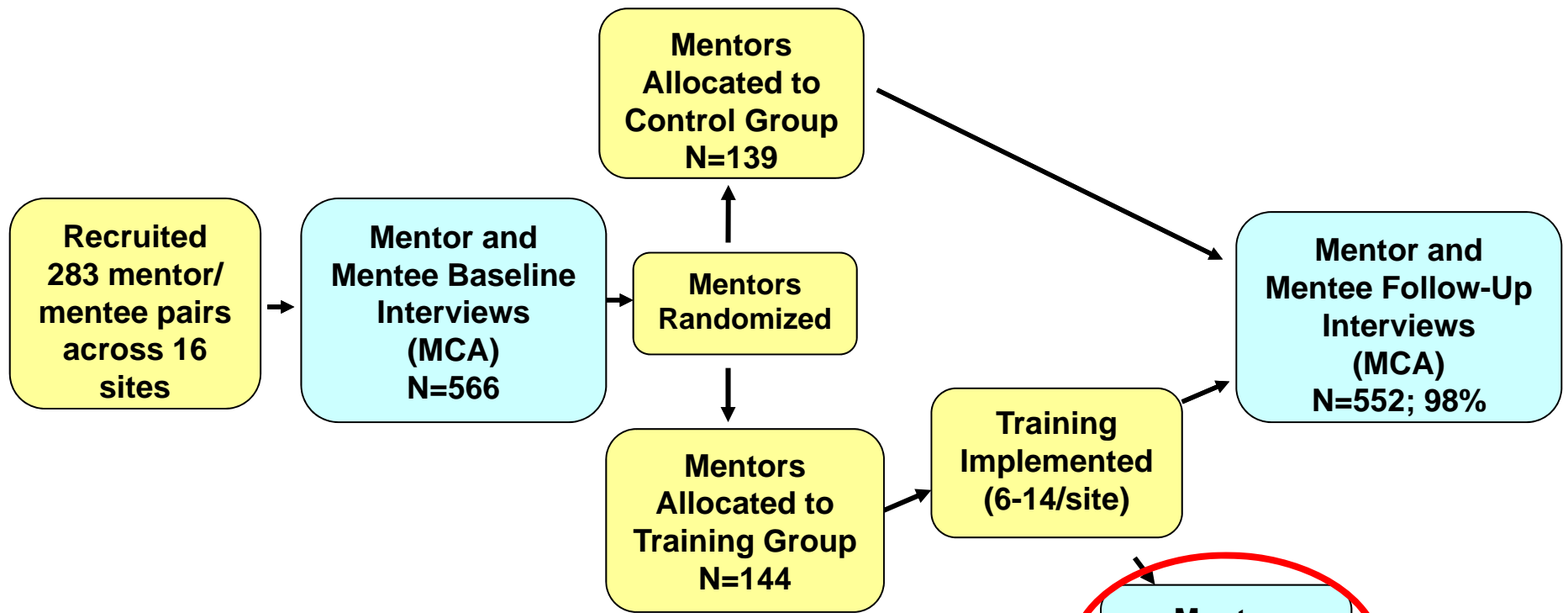
Jan 2010

July- Oct

Sept 2010 – Feb 2011

Aug 2011

Training Implementation and Evaluation: Flowchart of Research Mentor Training Trial



 = Implementation

 = Assessment



Jan 2010

July- Oct

Sept 2010 – Feb 2011

Aug 2011

Mentor Post Training Survey

N=128

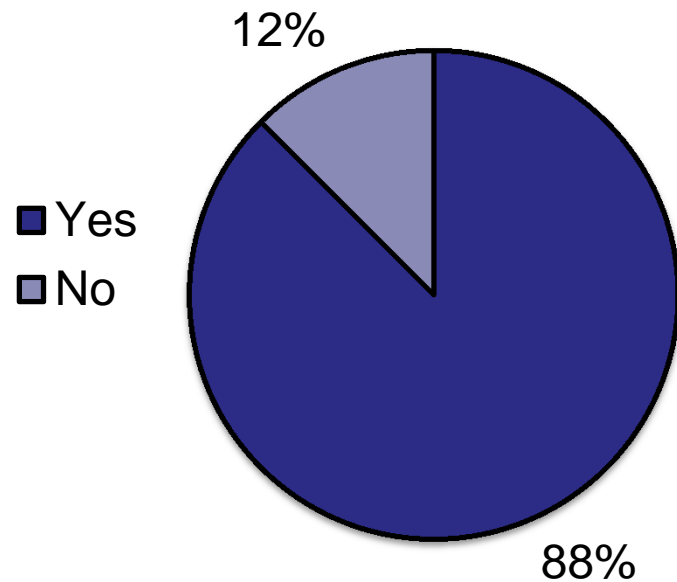
1. Effectiveness of the training sessions
2. Self-reported skills gains
3. Self reported changes in behavior



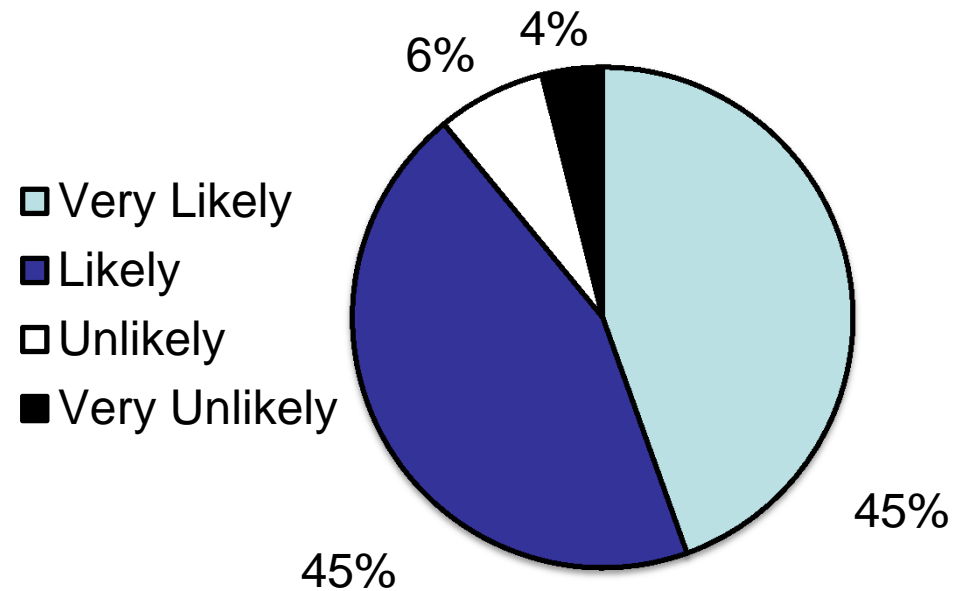
Mentor Satisfaction with Training

N=128

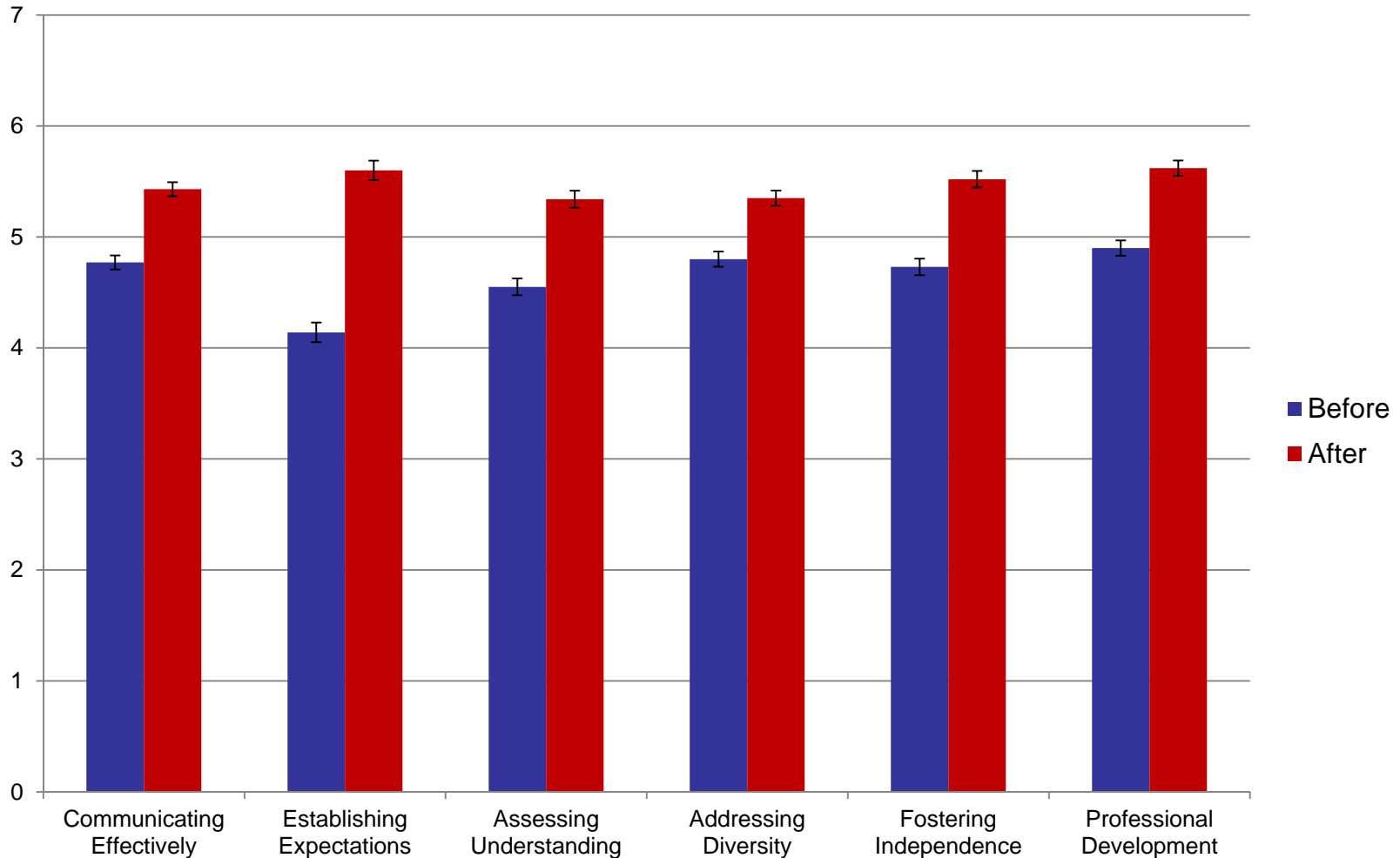
Was the 8 hour training a valuable use of your time?



Would you recommend the sessions to a colleague?

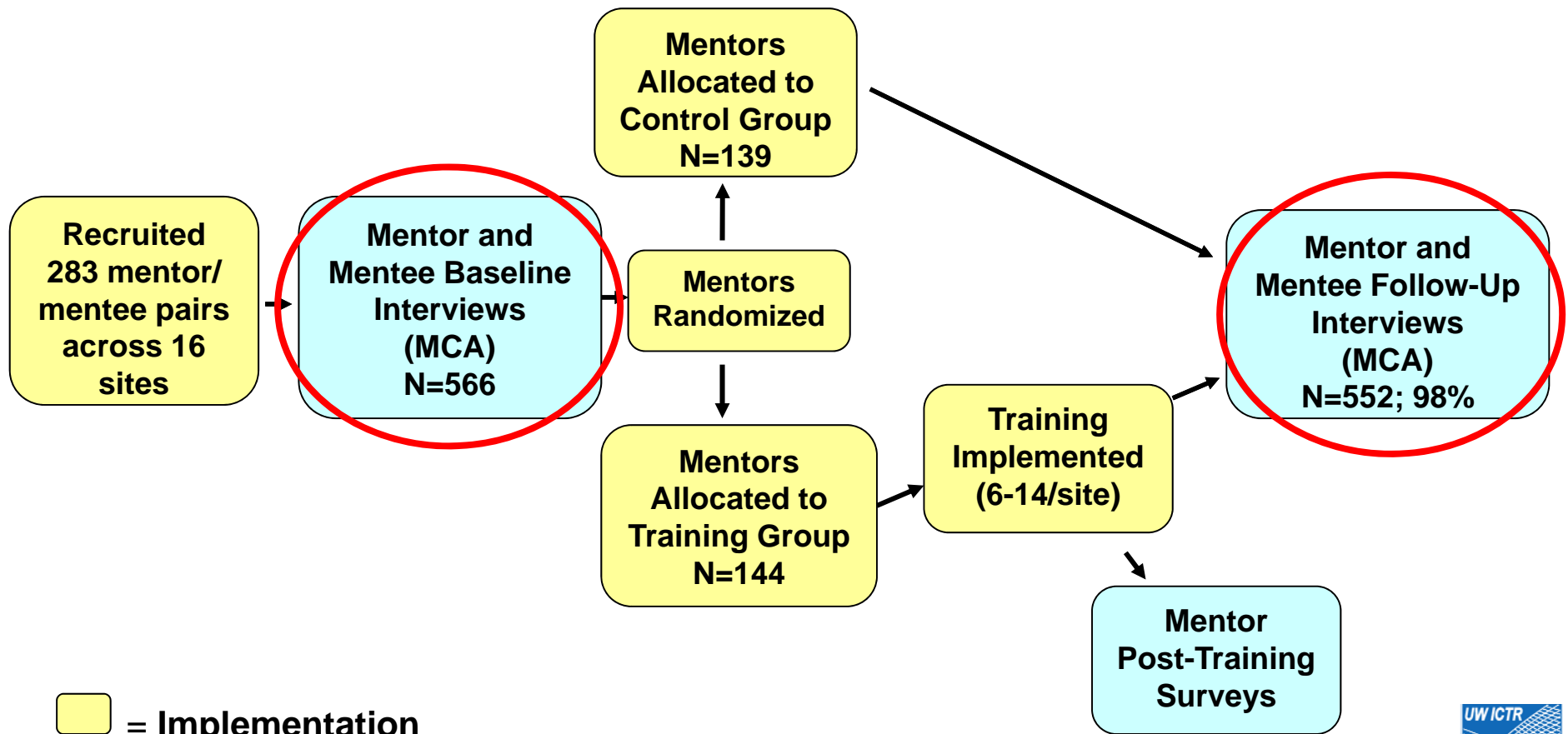


Mentor Skills Gains N=124



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

Training Implementation and Evaluation: Flowchart of Research Mentor Training Trial



 = Implementation

 = Assessment



Jan 2010

July- Oct

Sept 2010 – Feb 2011

Aug 2011

Mentoring Competency Assessment

26 items

	1 Not at all Skilled	2	3	4 Moderately Skilled	5	6	7 Extremely Skilled
Effective Communication (6 items)							
Aligning Expectations (5 items)							
Assessing Understanding (3 items)							
Addressing Diversity (2 items)							
Fostering Independence (5 items)							
Promoting Professional Development (5 items)							

Fleming M, House S, et al. The Mentoring Competency Assessment: Validation of a New Instrument to Evaluate Skills of Research Mentors. *Academic Medicine*, 2013 May 22 [Epub ahead of print]

Post Interview MCA Example Questions

	1 Not at all Skilled	2	3	4 Moderately Skilled	5	6	7 Extremel y Skilled
Working with mentees to set clear expectations of the mentoring relationship-BEFORE							
Working with mentees to set clear expectations of the mentoring relationship-NOW							
Accurately estimating your mentees' level of scientific knowledge-BEFORE							
Accurately estimating your mentees' level of scientific knowledge-NOW							

Fleming M, House S, et al. The Mentoring Competency Assessment: Validation of a New Instrument to Evaluate Skills of Research Mentors. *Academic Medicine*, 2013 May 22 [Epub ahead of print]

**IMPLEMENTING THE CURRICULUM:
GETTING STARTED AT YOUR INSTITUTION**



Implementation of Research Mentor Training

- Who should be trained?
- How will you recruit participants?
- Who will support implementation?
- Who will manage logistics?
- Who will facilitate the training sessions?
- Who will evaluate the training?

Recruitment of Mentors

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

Resources to Support Implementation

Available Curricula

Implementation and Recruitment Guides

Build Your Own Curricula

Resources by Stage of Relationship

Evaluation Instruments and Links

Train the Trainer Workshops

<http://www.researchmentortraining.org/>

<https://mentoringresources.ictr.wisc.edu/>



Watch testimonials from mentors, mentees, and training facilitators.



For Mentors



Find out how you can become an exceptionally effective mentor to the researchers of the future.

For Mentees



Discover effective communication strategies to get the most out of working with your mentor.

For Trainers



Learn more about approaches to training mentors and how to use our training materials.

<https://mentoringresources.ictr.wisc.edu/>



PHONE
(608) 261-1180



**Identifying Critical Factors In Mentoring
Relationships
And Then
Augmenting our Training to Address Those
Factors**

NIH #1R01GM094573-0
PI: Byars-Winston, co-I: Pfund

Multicultural Cube

Ivey et al. (1993)

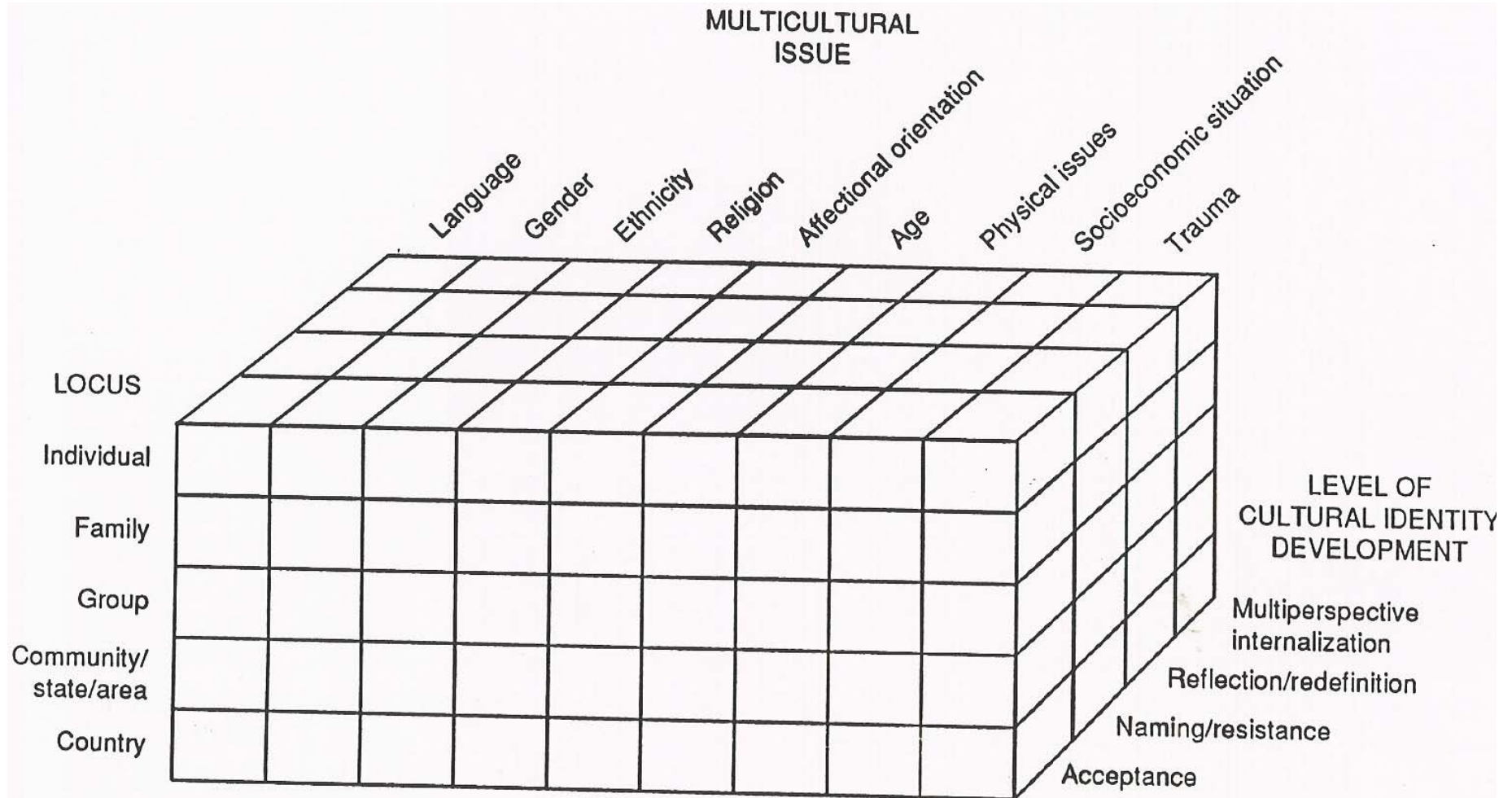


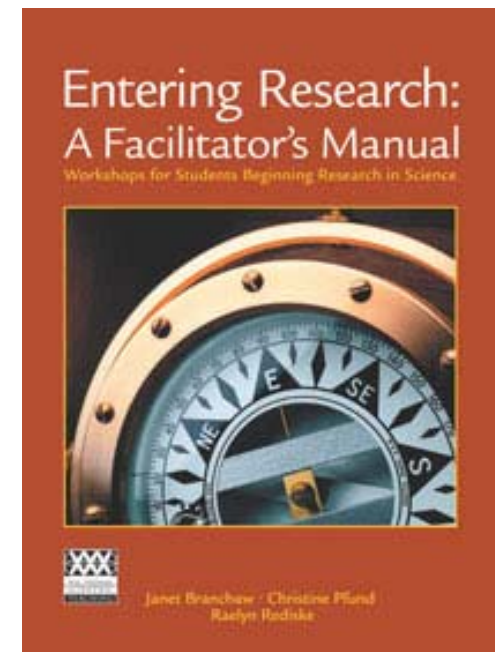
Figure 5.1 The Multicultural Cube

Entering Research: Mentee 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.



Thank you!

Moncia and Ted

Many, many partners and collaborators:
Angela Byars-Winson, Janet Branchaw, and Jo Handelsman



University of Wisconsin
SCHOOL OF MEDICINE
AND PUBLIC HEALTH



WCER
WISCONSIN CENTER FOR EDUCATION RESEARCH



UNIVERSITY OF WISCONSIN

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Health Research**



UW Institute for Clinical and Translational Research

UW ICTR



THE UNIVERSITY
of
WISCONSIN
MADISON



HHMI



CIRTL Network
Center for the Integration of
Research, Teaching, and Learning



UW-MADISON
INSTITUTE
for
cross-college
BIOLOGY
EDUCATION



University of Wisconsin - Madison

Workshop Evaluation

Please complete the workshop evaluation and leave on the table before you leave.

Thank you!