Promoting and Supporting Culturally Competent Research Mentoring

Angela Byars-Winston, Ph.D.  
Associate Professor  
Department of Medicine  
Center for Women’s Health Research  
University of Wisconsin-Madison  

Christine Pfund, Ph.D.  
Researcher  
Wisconsin Center for Education Research  
Department of Medicine  

Goals

• Raise your awareness of ways in which cultural dynamics impact research teams and the mentoring relationships within those teams  

• Provide concrete strategies for enhancing the mentoring relationships of your program participants  

• Promote the use of evaluation measures can assess the effectiveness of the mentoring relationships for your REU participants
Session Outline

• Critical indicators in academic and science career development
• Influence of research mentoring relationships on critical indicators and the influence of culture
• Intervening on research mentoring relationships Integrating cultural responsiveness into mentor training
• Assessing the research mentoring relationships and their impact on REU participants

Critical indicators in academic and science career development
Cognitions

Science Career Development

Culture → Context

Key Factors in Academic and Science Career Development

Byars-Winston et al. (2005; 2006; 2010)

Alethia (Johnson et al., 2011)

- I was doing my report on Graves’ Disease a couple weeks ago. There’s different genes related to Graves’ Disease, for different ethnicities, and for a long time, they were like, ‘OK, it’s just this one gene,’ but it was only found with White people. And I thought that was really interesting. But then in my presentation, I was like, ‘Should I mention the part about African Americans having a different gene?’ And women get affected a lot more. And I thought, ‘Damn, that’s kind of messed up, that I should rethink presenting—it’s as normal to the disease as its symptoms, know what I’m saying?’ But still, I sort of felt, ‘Damn, should I not mention that?’
Key Factors in Academic and Career Development (Byars-Winston et al., 2010)

**COGNITIVE**
- Confidence in ability to succeed, cope with challenges ("Can I do this?")
- Outcome expectations ("Is this major/degree worth it?")

**CULTURAL**
- Salience of culture; e.g., ethnic ID
- Comfort interacting with others outside of own racial/ethnic group

**CONTEXTUAL**
- Perceptions of environment: department climate, faculty support, and academic or career barriers

**Question**

What psychological dimensions of race, ethnicity, and gender (culture) are relevant to cognitive dimensions of academic and career choice? Behavioral outcomes?
Social Cognitive Career Theory
(Lent, Brown & Hackett, 1994, 2000)

Person Inputs
- Predispositions
  - Gender
  - Race/ethnicity
  - Disability/Health status

Background Contextual Affordances

Learning Experiences

Self-efficacy Expectations

Outcome Expectations

Contextual Influences Proximal to Choice Behavior

Can I do this?

Persistence

What will happen?

Cultural

Cognitive

Contextual

Persistence
- Developing the next generation of scientists is a career development matter

- Many interventions/programmatic efforts do not capitalize on the extensive theory and research in psychology of career development

- Mentoring of emerging scientists and researchers should be intentional, guided by what is known in research to affect positive outcomes for trainees
Influence of research mentoring relationships on critical indicators and the influence of culture

• This relationship happens within a cultural context
• It has an impact on both academic and career pursuits
• The primary research mentor(s) plays a critical role in this relationship

Research Mentors

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

A complex, bi-directional relationship that...

- Occurs within a cultural context
- Has an impact on trainees’ academic and career pursuits
- Is greatly shaped by the critical role of primary research mentor(s)

Cultural Context of Research Mentoring Relationship

- ~ 75% of mentee sample identified as URM
- What is the salience of cultural factors in the research mentoring relationship?
- Qualitative interviews \((n = 38)\) about the role of gender and race/ethnicity were conducted with alumni mentors and mentees
Qualitative Findings

Cultural Context of Mentoring

- Ignoring cultural diversity in mentoring relationships can lead to miscommunication, privileging dominant cultural norms, mismatched expectations due to differing value orientations, and conflicts in working styles (Brown et al., 2009)
In order to make mentoring work, research mentors should consider:

- Addressing Cognitive, Cultural, and Contextual matters with their trainees
- Practicing Intentionality
- Cultivating Cultural Responsiveness

Intervening on research mentoring relationships: Integrating cultural responsiveness into mentor training
Training Mentors to be Cultural Responsive

- What interventions are effective in training research mentors to be more effective in their mentoring relationships?
- How can we train mentors to be more culturally responsive in their mentoring relationships?

Mentoring Relationships

Entering Research

Entering Mentoring

Research Mentoring Relationship

Mentee Perceptions of the Relationship

Mentor Perceptions of the Relationship
The Roles of Research Mentors and Mentees

Mentee Intervention: Entering Research

Learning Goals for Undergraduates

Part 1: Students will find a research mentor, 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.
Mentor Intervention: *Entering Mentoring*

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<td>Introduction to Mentor Training</td>
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<td><em>10-week project design</em></td>
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<td>Week 2</td>
<td>Aligning Expectations</td>
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<td>Week 3</td>
<td>Promoting Professional Development</td>
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<td>Week 4</td>
<td>Maintaining Effective Communication</td>
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<td>Week 5</td>
<td>Addressing Equity and Inclusion</td>
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<td>Week 6</td>
<td>Assessing Understanding</td>
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<td>Week 7</td>
<td>Fostering Independence</td>
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<td>Week 8</td>
<td>Cultivating Ethical Behavior</td>
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<td>Week 9</td>
<td>Articulating Your Mentoring Philosophy</td>
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Originally optimized for biologists engaged in mentoring undergraduate researchers, many of whom were graduate students and post-docs.

http://www.researchmentortraining.org/

Key Elements of Mentor Training

• Process-based using case studies and group problem-solving

• Aimed at awareness-raising

• Provides a forum to share the collective experience of mentors across a range of experiences

• Links to resources to improve mentoring
Changes in Behavior of the Mentors

![Bar chart showing changes in behavior of mentors.]

- Discussed mentees’ expectations of you, as the mentor
- Oriented to your building
- Considered issues of diversity in regards to mentoring
- Discussed an aspect of mentoring with your colleague
- Reflected upon or wrote your own mentoring philosophy


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Curriculum Overview: Mentor Training Adaptation

Version 2 Coming in June with Entering Research Tools

Entering Mentoring: [http://www.researchmentortraining.org/]

Mentor Training for Clinical & Translational Researchers: [https://mentoringresources.ictr.wisc.edu/]

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5/7/14
Overview of Randomized Trial to Test Effectiveness of Mentor Training Curriculum

- **Curriculum Adaptation**: Entering Mentoring curriculum adapted for clinical and translational researchers
- **Training Implementation**: Trained facilitators administered curriculum to 16 sites across the country and in Puerto Rico
- **Evaluation**: Tested the effectiveness of the curriculum via a randomized controlled trial (256 pairs)

The Roles of Research Mentors and Mentees

- Principal Investigator (Faculty)
- Post-doctoral researcher
- Graduate Student
- Undergraduate Researcher
Mentor Satisfaction with Training (n=128 mentors in intervention group)

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

- Yes: 88%
- No: 12%

Would you recommend the sessions to a colleague?

- Very Likely: 45%
- Likely: 6%
- Unlikely: 4%
- Very Unlikely: 4%


Significant Change in Mentor Self-Reported Effectiveness

Pfund et al. Academic Medicine 2014
Mentor Behavioral Changes

- Content analysis used to code qualitative ‘stages of change’ with inter-rater reliability of 98.7%
- Coded across 4 stages of change
  - No change
  - Awareness
  - Intent to Change
  - Implemented Change
- Each mentor assigned to the highest stage of change noted in responses

Mentor Behavioral Change
N=141; 3 months post training

![Pie charts showing the distribution of stages of change for intervention and control groups.](chart.png)

Pfund et al. Academic Medicine 2014
Resources to Support Implementation

Available Curricula
Example Compact and IDPs
Build Your Own Curricula
Implementation and Recruitment Guides
Resources by Stage of Relationship
Evaluation Instruments and Links

https://mentoringresources.ictr.wisc.edu/
www.researchmentortraining.org

Building Capacity of Trained Facilitators and Reaching a Diverse Audience

Trained 112 facilitators via train-the-trainer workshops at national venues that focus on training of diverse scholars:

- UW Health Equity Leadership Institute
- Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
- American Public Health Association
- Annual Biomedical Research Conference for Minority Students (ABRCMS)

Implementation of Facilitator Training to Disseminate Research Mentor Training for Diverse Scholars (R13GM106445, Co-PIs: Christine Pfund and Christine Sorkness)
New Mentor Training Modules

Cultural Responsiveness Research
Mentor Training Goals:

- Be aware of how our personal cultural experiences shape our views (work and career development)
- Understand the lived experiences of people with whom we work
- Recognize how culture is connected to science career development
- Acknowledge the role of culture in privilege and power in research mentoring relationships
Bio-REU Common Assessment Tool

Currently assesses:

- Gains in research skills and knowledge
- Personal gains related to research work
- Gains in sense of science identity
- Interest and intent to pursue a research career(s)
- 3 questions on impact of research mentors on research experience

Survey Content Added to Bio-REU Survey for UW-Madison REU Participants (2012-13)

- SCCT-related items:
  - Self-efficacy, Outcome expectations
  - Sources of efficacy, Goal-Intentions

- Cultural competence/salience in mentoring relationship
  - Mentee Importance – Mentor Competence

- Separate survey for research mentors to assess mentor effectiveness and alignment with mentee ratings (skills, knowledge and mentor effectiveness)
### Examples of Item Content

<table>
<thead>
<tr>
<th>SCCT Content</th>
<th>Items</th>
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<tbody>
<tr>
<td><strong>Research Self-efficacy:</strong></td>
<td>• make important contributions to a research team&lt;br&gt;• complete a science degree&lt;br&gt;• pursue a research science career&lt;br&gt;</td>
</tr>
<tr>
<td><em>“How much confidence do you have in your ability to...”</em></td>
<td></td>
</tr>
<tr>
<td><strong>Sources of Research Self-efficacy:</strong></td>
<td>• I analyzed research data; wrote a scientific report&lt;br&gt;• My primary research mentor showed me how to conduct a research procedure&lt;br&gt;• My research mentor told me I have the ability to be a scientist&lt;br&gt;• I felt anxious about my ability to do research&lt;br&gt;</td>
</tr>
<tr>
<td><em>“During your most recent research experience…”</em></td>
<td></td>
</tr>
<tr>
<td><strong>Outcome Expectations - Research Career:</strong></td>
<td>• do work that makes a difference in people’s lives or to society&lt;br&gt;• go into a field with high employment demand&lt;br&gt;• earn an attractive salary&lt;br&gt;</td>
</tr>
<tr>
<td><em>“A research science career would allow me to...”</em></td>
<td></td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>• I intend to pursue a career in science that includes research&lt;br&gt;• I intend to pursue a career in science that DOES NOT include research&lt;br&gt;</td>
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### Examples of Item Content (cont’d)

<table>
<thead>
<tr>
<th>Cultural Importance</th>
<th>Items</th>
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<tbody>
<tr>
<td><em>“In your mentoring relationship, how important is it to you that your primary research mentor...”</em></td>
<td>• Is willing to discuss diversity&lt;br&gt;• Considers their own cultural background, as well as yours&lt;br&gt;• Values and respects cultural differences&lt;br&gt;</td>
</tr>
<tr>
<td>Cultural Skill/Competence</td>
<td>• Discussing diversity&lt;br&gt;• Considering their own cultural background, as well as yours&lt;br&gt;• Valuing and respecting cultural differences&lt;br&gt;</td>
</tr>
<tr>
<td><em>“In your mentoring relationship, how skilled was your primary research mentor in...”</em></td>
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Invitation to Research Study

• Will use refined measures as add-ons for Bio-REU Common Assessment Tool and the research mentor survey in Summer 2014 at UW

• Will add additional mentor effectiveness measures to both surveys

• If funded, will implement research mentor training with added cultural responsiveness module at REU sites and assess using the Common Assessment Tool with our added measures

Acknowledgements

UW-Madison Team (past and present)
Pamela Asquith, Janet Branchaw, Gail Coover, Marc Drezner, Michael Fleming, Jo Handelsman, Stephanie House, Patrice Leverett, Robert Mathieu, Amy Owen, Ross Benbow, Sarah Miller, Christine Pribbenow, Christine Sorkness, Kimberly Spencer

Partnerships

HHMI  NSF