Addressing Barriers and Supports to Dissemination and Implementation: Lessons Learned (so far) from Mentor and Mentee Training Initiatives

Christine Pfund, PhD.

Director, Center for the Improvement of Mentored Experiences in Research (CIMER)
PI, National Research Mentoring Network (NRMN) Coordination Center
Wisconsin Center for Education Research
Institute for Clinical and Translational Research
University of Wisconsin-Madison
A National Focus on Mentoring

- National Academies of Science
  - New Report on Mentored Undergraduate Research Experiences
  - Consensus Study: The Science of Effective Mentoring in STEMM

- National Institutes of Health (NIH)
  - Mentored K awards (e.g. K24)
  - National Research Mentoring Network (NRMN)
  - New T32 requirements

- National Science Foundation (NSF)
  - Post-doctoral mentoring plans
  - AAAS/ PASEMEN STEM Mentoring 2030 Meeting

- Sloan Foundation
  - University Centers of Mentoring Excellence

- Howard Hughes Medical Institute and Burroughs Wellcome Fund
  - Mentor and mentee training for the Gilliam Fellow and PDEP Programs
Substantial Investment in Developing and Testing Curricula to Optimize Mentoring Relationships

- Mentor training modules (*Entering Mentoring* and new modules)
- Culturally aware mentor training
- Mentee training (*Entering Research*) modules
- *Mentoring Up* modules
- Self-paced online mentor training (OPM)
- Synchronous online mentor training
Evidence for the Mentorship Training Interventions


Key Elements for Advancing Dissemination and Implementation of *Entering Mentoring*


**Approach 1:** Adapt the Research Mentor Training Curricula for Multiple Audiences and Career Stages and Increase Accessibility

- Generate materials that resonate across diverse groups
- Provide resources online in a flexible format
Freely Available Research Mentor Training Curricula based on *Entering Mentoring* ([www.cimerproject.org](http://www.cimerproject.org))
Freely Available Research Mentee Training Curricula based on *Entering Research* ([www.cimerproject.org](http://www.cimerproject.org))

Complete Entering Research Curricula

Curricula are organized by implementation type. Each curriculum denotes the career stage of the trainee. Click on the menu item to log in and download the curriculum as a PDF.

1. **10 Week Summer Research Program for Undergraduate Students**
   - Research Comprehension & Communication Skills
   - Practical Research Skills
   - Research Ethics
   - Researcher Identity
   - Researcher Confidence & Independence
   - Equity & Inclusion Awareness & Skills
   - Professional & Career Development Skills
   - [Preview](#)  
   - [Login to Download](#)

2. **15 Week Course for Novice Undergraduate Students**
   - Research Comprehension & Communication Skills
   - Practical Research Skills
   - Research Ethics
   - Researcher Identity
   - Researcher Confidence & Independence
   - Equity & Inclusion Awareness & Skills
   - Professional & Career Development Skills
   - [Preview](#)  
   - [Login to Download](#)

3. **15 Week Seminar for Intermediate Undergraduate Students**
   - Research Comprehension & Communication Skills
   - Research Ethics
   - Researcher Identity
   - Researcher Confidence & Independence
   - Equity & Inclusion Awareness & Skills
   - Professional & Career Development Skills
   - [Preview](#)  
   - [Login to Download](#)

4. **15 Week Seminar for Novice Graduate Students**
   - Research Comprehension & Communication Skills
   - Practical Research Skills
   - Research Ethics
   - Researcher Identity
   - Researcher Confidence & Independence
   - Equity & Inclusion Awareness & Skills
   - Professional & Career Development Skills
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**Approach 2:** Develop a Master Facilitator Initiative to Increase the Number of Trained Facilitators to Implement Train-the-Trainer workshops nationally

- Build skills and confidence for implementation
- Provide structure time to develop a concrete implementation plan
- Workshop opportunities
NRMN Master Facilitator Initiative

National Impact: **355 events** reaching **9,232 participants**!
Train-the-Trainer (TTT) National Reach

- >25 facilitator trainings
- >600 trained facilitators
- >500 implementations of research Mentor and Mentee training

Pick up a Facilitator Training Workshops Flyer
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**Approach 3:** Provide Implementation Resources to Address Barriers to Implementing Research Mentor Training
- Provide resources and templates for addressing known barriers
- Build a learning community of implementers
# Example Implementation Resources

<table>
<thead>
<tr>
<th>Securing Stakeholder Support</th>
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<tbody>
<tr>
<td>Publications</td>
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<td>Facilitator Recognition Program</td>
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<tr>
<th>Recruiting Participants</th>
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<tr>
<td>Evidence of effectiveness</td>
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<tr>
<td>Talking points</td>
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<td>Impact of training</td>
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<tr>
<th>Designing Training</th>
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<td>Scheduling and group size</td>
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<tr>
<td>Facilitator Guides</td>
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<tr>
<td>MyNRMN group “Facilitators of Mentor Training and Mentee Training Groups”</td>
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<tr>
<th>Evaluating Training</th>
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<td>Overview of evaluation process</td>
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Key Elements for Advancing Dissemination and Implementation of Entering Mentoring


**Approach 1:** Adapt the Research Mentor Training Curricula for Multiple Audiences and Career Stages and Increase Accessibility
- Generate materials that resonate across diverse groups
- Provide resources online in a flexible format

**Approach 2:** Develop a Master Facilitator Initiative to Increase the Number of Trained Facilitators to Implement Train-the-Trainer workshops nationally
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**Approach 3:** Provide Implementation Resources to Address Barriers to Implementing Research Mentor Training
- Provide resources and templates for addressing known barriers
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**Approach 4:** Develop a Standardized Approach to Evaluate the Quality of Research Mentor Training Implementations Nationally (and to study mentor training and D&I)
- Provide centralized evaluation resources using common metrics
- Track D&I and share outcomes
Tracking and Evaluation Process

• Through NRMN, we provided assessment for mentor (and mentee) training

• Data became part of our national dataset, which
  • Informs future initiatives
  • Informs research mentoring

• Evaluation reports of aggregated data were shared to demonstrate effectiveness at local institutions
Evaluating Your Training

1. Inform us about your evaluation
   Email us at least 2 weeks in advance

2. Discussion of Survey Options
   Customization based upon unique training and site needs.

3. We Create Survey(s)
   Final copy will be sent for your approval

4. Data Collection
   Post training, you send survey link to participants.
   We help track when to send reminders and the response rate.
   As a facilitator, you complete the End-of-Training Survey.

5. Summary Report
   Survey data will be summarized, including the customized pieces of the surveys and made available to you.
# National Data Collection

<table>
<thead>
<tr>
<th>Mentor Training</th>
<th>Master Facilitator</th>
<th>Trained Facilitator</th>
<th>Total</th>
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<tbody>
<tr>
<td># Events</td>
<td>161</td>
<td>122</td>
<td>283</td>
</tr>
<tr>
<td># Completed Surveys</td>
<td>1,848</td>
<td>1,130</td>
<td>2,978</td>
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CIMER Assessment Platform (CAP) (www.cimerproject.org)

Electronic survey platform to collect individual or paired survey data across programs, institutions, and organizations using both common and customized assessment metrics.
Acknowledgements
Research Mentor Training Funding

- Original *Entering Mentoring* curriculum (HHMI Professors Program, 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: Drezner)
- Workshops and curricula have been developed for faculty mentors (NSF #0717731, PI: Pfund) including training workshops for T32 and R25 trainer
- NIH has funded a study to develop better understanding of specific factors in mentoring relationships that account for positive student outcomes (NIH #1R01GM094573-0 PI: Byars-Winston, co-I: Pfund) and renewal to focus on cultural aspects of mentoring relationships (PIs: Byars-Winston and 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.
- NIH has funded legacy website (3UL1RR025011-05S1, PI: Drezner), randomized controlled trial (3UL1RR025011-03S1, PI: Drezner) and train-the-trainer workshops (R13GM106445, Co-PIs: Pfund and Sorkness)
- *Optimizing the Practice of Mentoring* online module developed at the University of Minnesota’s NIH-funded Clinical and Translational Science Institute (UL1TR000114)
- NIH has funded National Research Mentoring Network (NRMN) (U54 MD0009479-01)