STEM Faculty Development Research Projects

Karen High & Cindy Lee
Engineering & Science Education, Clemson University
Contact: stemfacdev@clemson.edu
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Participant Engagement</th>
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<tbody>
<tr>
<td>Overview</td>
<td>5 min</td>
<td>Participants will consider the potential benefits they may gain from developing a STEM FD research project</td>
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<tr>
<td>Specifics of Research Agenda</td>
<td>20 min</td>
<td>Participants will be challenged to understand the various parts of the research agenda</td>
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<tr>
<td>Q &amp; A</td>
<td>5 min</td>
<td>Participants will be given the opportunity to ask for specific information about the agenda components</td>
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<tr>
<td>Guided Research Program Development</td>
<td>40 min</td>
<td>Participants will be challenged to think through the many considerations underlying a complete research project as well as network with other session attendees to form potential collaborations</td>
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<tr>
<td>Report out</td>
<td>15 min</td>
<td>Participants will share with the other attendees the research they framed as well as pose and answer specific questions regarding their plan</td>
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<tr>
<td>Wrap-Up</td>
<td>5 min</td>
<td>Participants will complete an exit survey</td>
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Holistic STEM FD
four areas of teaching, research, service, and leadership
How Many Hats Do You Wear:
Building Research Capacity for STEM Faculty Development Workshop

February 17–18, 2017
Clemson University
Research & Workshop Team

Karen High  Cindy Lee  Sandy Linder  Shannon Stefl

Faiza Jamil  Cindy Roper  Dennis Lee  Kimbell Dobbins  Teri Garrett
The STEM Faculty Development Collaboratory (SFDC)

- The STEM Faculty Development Collaboratory (SFDC) at Clemson University was established in 2015 to provide transformative research and service in the holistic areas of teaching, research, service, and leadership.

- The SFDC focuses on transformative research and service to advance holistic faculty development focused on the STEM disciplines.
  - Please fill out the Affiliate Recruitment cards if you are interested in joining the collaboratory or contributing to the further development of the research agenda.
Workshop Participant’s Areas of Expertise
STEM Faculty Development Workshop Discussion Threads

Thread 1
Inputs
• Motivation & Engagement
• Expectations & Policies
• Context & Characteristics

Thread 2
Processes
• Mechanisms & Models
• Implementation Fidelity
• Data Usage

Thread 3
Outcomes
• Faculty Identity
• Metrics & Productivity
• Cultural Norms
Development of national research agenda during workshop

Create
Day 1
Individuals and groups create sticky notes of reflections & ideas

Organize
Day 1
Individuals and groups organize sticky notes into 3 workshop threads boards

Analyze
Day 2
Groups analyze boards to identify common themes and distinct voices

Relate
Day 2
Groups build concept map to relate themes. This becomes the first step of research agenda

Concept Map

Thread 1
Thread 2
Thread 3

Current State of the Research Agenda
Identified **seven overarching outcomes** for research in Holistic STEM FD.

1. **Metrics/Instrument Development for STEM FD**
2. **Impact on Students**
3. **Generalizable Models of Holistic STEM FD**
4. **Impact on Faculty**
5. **Equity**
6. **Cultural and Community Context, and**
7. **Institutional Policy and Context**

To move the needle on these outcomes, we identified **four potential categories of research** that make up an emergent agenda of research for holistic STEM FD.

<table>
<thead>
<tr>
<th>Category</th>
<th>Themes</th>
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| 1. Cultural and Contextual considerations | • Importance of Context  
• Institutional Value  
• External Forces  
• Who’s Responsible  
• Addressing bias |
| 2. Processes of Conducting STEM FD | • Delivery  
• Innovation |
| 3. Assessment of Models | • Formative Assessment (Micro- inform the model/feasibility)  
• Summative Assessment (Meso- results of the model)  
• Systematic Assessment (Macro/Global- overall change/sustainability)  
• Implementing Assessment |
| 4. Who Are the Learners? | • Self-Regulatory Development  
• Motivation  
• Identity  
• Student Outcomes  
• Aligning Personal and Institutional Goals  
• Aligning Goals Across Academia |
Learning more about the research agenda and SFDC

- Research Agenda & SFDC Website: 
  www.clemson.edu/ese/stemfacdev

  - Key items available:
    - Workshop info, ASEE paper, NARST paper, FIE paper, SFDC collaboratory members contact info, draft of agenda

- Email contact: stemfacdev@clemson.edu