



# Connecting to Discipline-Based Initiatives: An Example from an NSF-sponsored Program

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# Overview

- The story of our discipline-based project
  - Conducting Rigorous Research in Engineering Education (RREE)
- Possibilities for your work
  - Connecting with discipline-based communities on your campus or in your home discipline



# Disciplinary Styles in the Scholarship of Teaching and Learning: Exploring Common Ground

- History
- English
- Communication Studies
- Management Science
- Sociology
- Psychology
- Mathematics
- Chemistry
- Engineering

Huber, Mary and Morreale, Sherwyn. 2002. *Disciplinary Styles in the Scholarship of Teaching and Learning*. Stylus Publishing.



# Think-Pair-Share

- How would being part of a discipline-based project be beneficial to you?
  - Please answer the question individually
  - Turn to the person next to you, introduce yourself, and compare your responses
  - Please prepare to respond to the whole group



- Possible benefits:
  - Funding and publishing opportunities
  - Increases credibility with faculty in the discipline
  - Opportunity for interdisciplinary work
  - Build the body of knowledge



- Our story continues . . .
  - We need to increase the number of people who can do engineering education research
  - We looked to the community of practice (CoP) model to see how to do it

A GUIDE TO MANAGING KNOWLEDGE

# CULTIVATING COMMUNITIES OF PRACTICE

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HARVARD BUSINESS SCHOOL PRESS

## A Community of Practice

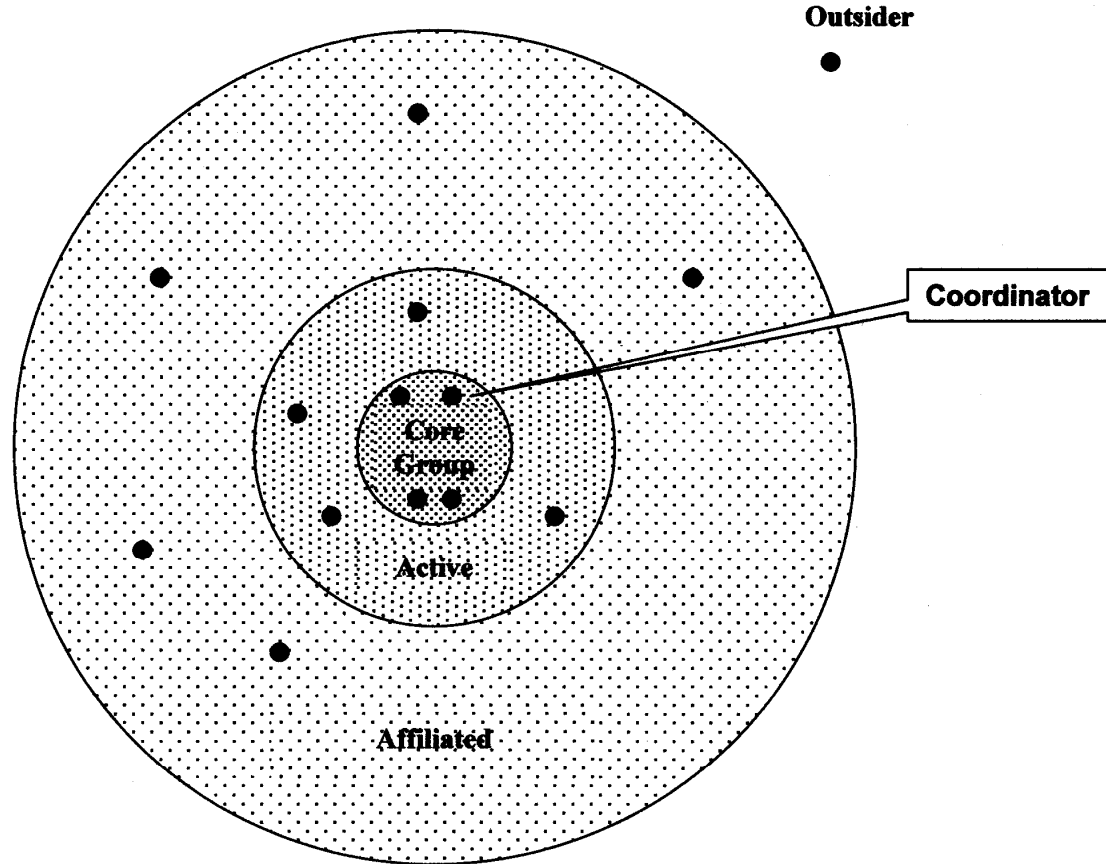
A group of people who:

- Share an interest in a topic (**Domain**)
  - Interact and build relationships (**Community**)
  - Share and develop knowledge (**Practice**).
- Wenger, Etienne, McDermott, Richard, and Snyder, William. 2002. *Cultivating Communities of Practice*. Cambridge, MA: Harvard Business School Press.

# Conducting Rigorous Research in Engineering Education



→ *The Community of Practice*



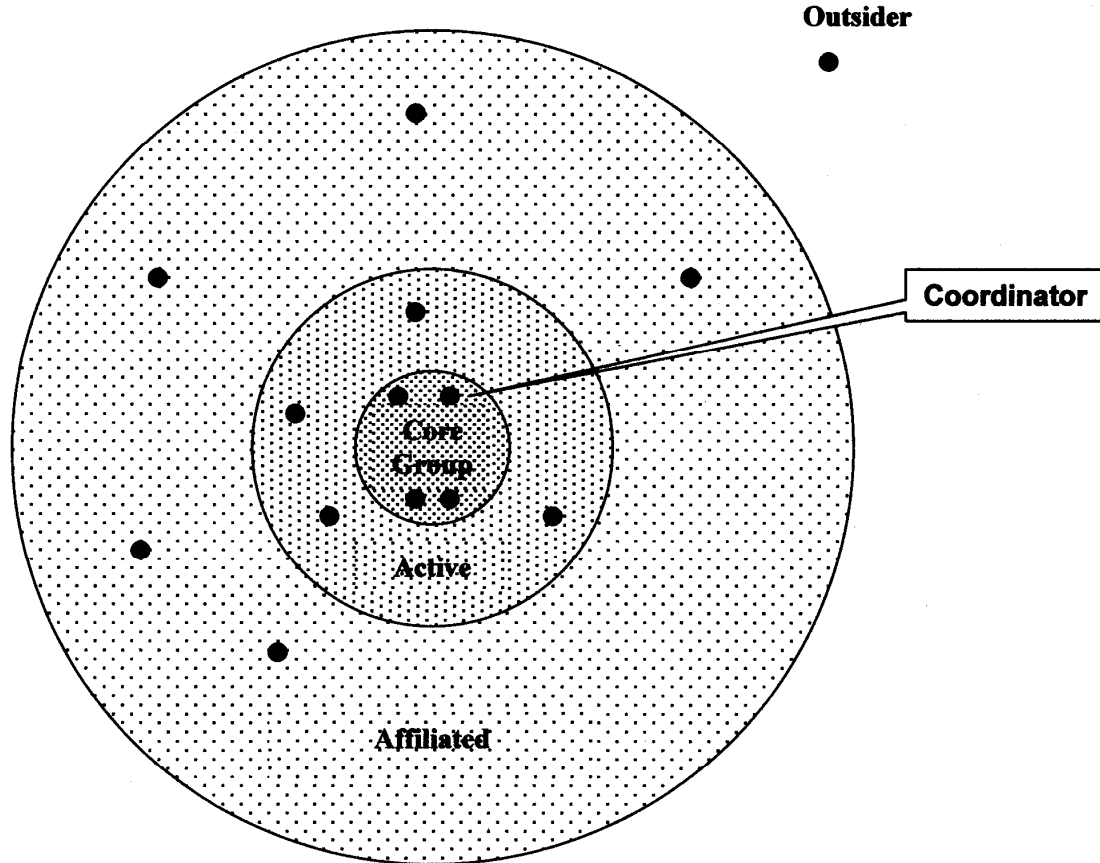


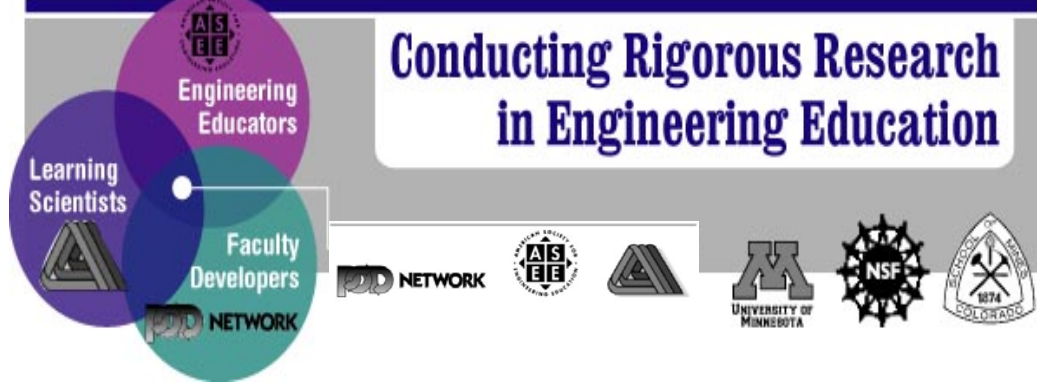
- Our intellectual neighbors
  - American Society for Engineering Education – Educational Research and Methods Division (ASEE ERM Division)
  - American Educational Research Association (AERA) Division I – Education in the Professions
  - POD

# Conducting Rigorous Research in Engineering Education



→ *The Community of Practice*



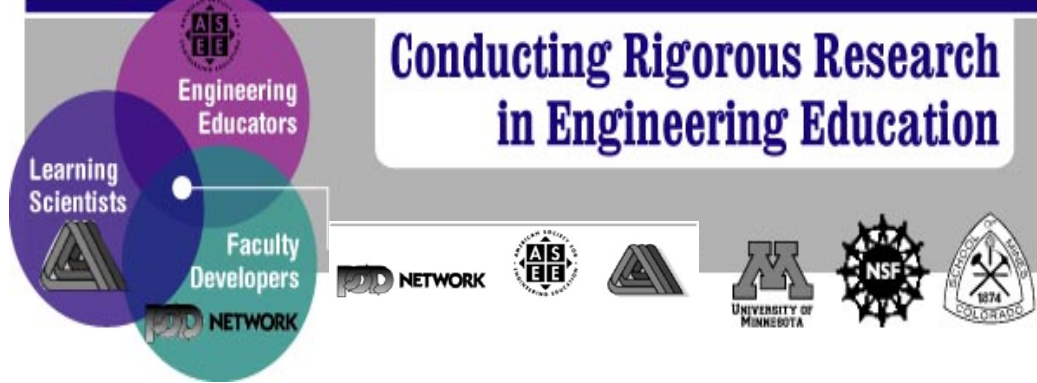


## Project Description

- Project name : ***Conducting Rigorous Research in Engineering Education: Creating a Community of Practice*** (RREE)
- Goals
  - Expand the community of engineering education researchers doing rigorous research
  - Sustain this community by fostering a Community of Practice (CoP)
- Deliverable: Develop and offer a year-long experience that prepares engineering faculty to conduct rigorous engineering education research



- Faculty funded by two NSF projects:
  - Conducting Rigorous Research in Engineering Education (NSF DUE-0341127)
  - Strengthening HBCU Engineering Education Research Capacity (NSF HRDF-041194)



## Project Description, Cont'd

- Components
  - 5 - day workshop each summer (2004-2006)
  - Conduct a small research project
    - Grant funds available for the project
    - Grant funds available to work with a research mentor
- Features of the Workshop
  - A day of paradigm shifts
  - Four days of cognitive apprenticeship on research questions, designs, and methods
  - Posters as performance outcomes, collaborative sharing spaces, and as a feedback mechanism
  - Self-selected teams of intellectual neighbors



- Workshop results
  - High level of participant interaction.
  - Participants report learning gains.
  - Evaluation of performance measures is ongoing.



# Supporting a CoP

- Bringing “outsiders” into the community
  - Workshop sponsors are three organizations that were not previously affiliated
    - American Society for Engineering Education (ASEE)
    - American Educational Research Association (AERA), Professions Education Division
    - POD
- Roles of the organizations
  - Executive Committee membership (2 from POD, 2 from AERA, 2 from ASEE, 2 belong to all three organizations)
  - Provide workshop facilitators



- Enhancing CoP
  - During the workshop
    - Provide opportunities for participants to meet informally
      - Common meals
      - Optional field trips
      - Extended unstructured time in the middle of the day
      - Location of workshop itself
  - After the workshop
    - Through interactions with a research mentor
    - ASEE RREE Idealog (a Blog)
    - Broader participation in conferences



- Executive Committee results
  - New models for looking at Engineering Education research
    - Created a model that contrasted
      - Scholarly Teaching with
      - Scholarship of Teaching and Learning with
      - Rigorous Research in Engineering Education
- Interactive Engagement
  - Reflect on the above model
  - Turn to the person next to you and discuss



## Who are your “intellectual neighbors”?

- Individual free-writing
  - What faculty development and/or educational research project would benefit by inclusion of discipline-based groups?
  - What groups could act as “intellectual neighbors” for this/these project(s)?
- Small group brainstorming to develop individual plans for making the first step toward partnering with intellectual neighbors.



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  - Norman Fortenberry, NAE/CASEE
- Project website
  - [www.mines.edu/research/cee/ND.htm](http://www.mines.edu/research/cee/ND.htm)