Communities of Practice in Engineering Education:
How Do We Investigate Diversity and Global Engineering?

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Session Goals

- To think about and investigate diversity and global engineering broadly

- Recognize the multiple ways that these concepts affect our students

- Take away your own draft of a research question focusing on diversity and/or global engineering

- In the process...
  - Promote reflective practice

  - Create a collaborative knowledge base

  - Foster a community of practice

What We'll Do Here Today...

- **Part 1:** Activate thinking
- **Part 2:** Story Posters – Evolution of research questions
- **Part 3a:** Make it visible and shared: Small-group discussions
- **Part 3b:** Apply it to your own work: Mini-workshop on research questions
- **Part 4:** Bring it back to the community: Debrief and summary

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Part 1:
What is "diversity"?
What is "global engineering"?

Think, jot down a few notes:

- What are the top diversity issues on *your* campus?

- What does global engineering mean for *your* students?

Discuss with your neighbor

What Is Diversity?

- Gender
- Race
- Ethnicity
- Age
- Physical disabilities

- First generation student
- Socio-economic status
- Learning style
- Sexuality
- Religion
- Rural / urban / suburban
- Other disabilities (hearing)
- Etc.

ADDING COMPLEXITY
- Belonging to multiple groups (multiple ethnicities, gender and ethnicity, etc.)
- Power issues
- "Enacted diversity"

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What Is Global Engineering?

- Working globally
- Working with people who define problems differently
- Formulating and solving problems from a global perspective
- Cultural competency / global competency
- Intercultural communication
- Social justice on a global level
- More...

See: Downey, G.L., Lucena, J.C., Moskal, B.M., Parkhurst, R., Bigley, T., Hays, C., Jesiek, B.K., Kelly, L., Miller, J., Ruff, S., Lehr, J., and Nichols-Belo, A. (2006). The globally competent engineer: Working effectively with people who define problems differently. *Journal of Engineering Education,* April 2006, vol. 95, no. 2, pp. 107-122.

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To keep in mind during this session....

- What types of diversity are important on your campus?

- What does global engineering mean for your students?

- How are you defining diversity and/or global engineering?

Part 2: Story Posters
Evolution of research questions

Quick poster "walk"

- What catches your eye about these stories?

- What questions would you like to ask?

(use sticky notes - place on poster)

Part 3a:
Make it visible and shared:
Small-group discussions

What did you see?

What was involved in formulating the Scholars' questions?

What makes a good research question?

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Part 3b:
Mini-Workshop:
What makes a good research question?

What is <u>your</u> question?

Evaluate draft questions

Identify opportunities for improvement

Part 4:
Bringing it back to the community: Debrief and Summary

What are you learning about developing research questions around issues of diversity and the global engineer?

Conceptualizing & Defining Diversity

- Context is crucial: The types of diversity that are important to examine, as well as what those diversity categories really mean, are context-dependent.

Developing a Research Question

- Moving beyond "what's going on" to "how" and/or "why" things are the way they are

- Some reasons for this approach:
  - Describing the existing situation (the "what") is important, but it's also useful to dig deeper and attempt to understand why things are the way they are, or how the situation affects people in the setting.
  - Leaves room for unexpected discoveries

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Next steps: Choosing Research Methods

- Seeing the landscape and then digging deeper

- Some reasons for this approach:
  - Diversity issues involve people and their experiences
  - Many questions about diversity issues are best answered by methods that let participants explain their experiences in depth

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Beyond this session….

- Exit "stories"
  - What is something you are taking away?

- What are <u>your</u> next steps?

- If you're interested in finding out more about the ISEE model:

  Adams, R.S., Allendoerfer, C., Bell, P., Chen., H., Fleming, L., Leifer, L., Maring, B., and Williams, D. (2006). A model for building and sustaining communities of engineering education research scholars. In *Proceedings of the American Society for Engineering Education Annual Conference,* Chicago, IL, June 2006.

Thanks!

Acknowledgment: