

# Community in Engineering Education

## Past, Present, and Future

Engineering Education Pioneers Project  
Center for Engineering Learning & Teaching  
University of Washington

ASEE 2016



*Photo: M. Matti*

## The Pioneers Project

- To understand, appreciate, and grow our communities
- Interviews with 47 early contributors to engineering education
- ...conducted by prospective pioneers
- Analysis to investigate impact, transformation\*
- Profiles on web at <http://bit.ly/engredupioneers>

\*See ASEE 2016 paper, "Making an impact..."

2016 June 29 ASEE 2016

2

# Session Goals

- **Learn from pioneers' stories about...**
  - the communities they were involved in
  - the communities they advanced
  - the communities benefited from
- **Examine how we benefit from these communities**
- **Identify strategies for sustaining and growing these communities**

2016 June 29 ASEE 2016

3

# Session Presenters

- **Interviewer team members and represented pioneers**
  - Natascha Trellinger, presenting Stephanie Adams
  - Gina Adam, presenting Tom Litzinger
  - Beth Rieken, presenting Jack Lohmann
  - Adam Carberry, presenting Barbara Olds
  - Gurloveen Rathore & Angie Minichiello, presenting Sheri Sheppard
  - Micah Lande, presenting Karan Watson
  - Alex Mejia, presenting Charlie Yokomoto
- **CELT project team members**
  - Cheryl Allendoerfer, Ken Yasuhara, Jennifer Turns, Cindy Atman

2016 June 29 ASEE 2016

4

## Session Plan

# Learning from Pioneers and Each Other

- Opening discussion on the many communities in engineering education
- Virtual panel of pioneers
- Pioneer profile poster gallery walk
- Group discussions on pioneers and community
- Closing discussion on advancing communities

2016 June 29 ASEE 2016

5

## Our Many Communities

- What engineering education communities are you involved in?
- How do you benefit from these communities?

2016 June 29 ASEE 2016

6



# Our Communities

- *What engineering education communities are you involved in?*
- Students, Student Division
- First-year programs
- ASEE, FIE, AERA, REES, Capstone, WEPAN, SWE, **ICLS**, **UIF**, similar conferences
- Engr. edu. Ph.D. program
- Family, religious, sports, hobbies, community...personal communities
- Technical, disciplinary field
- Faculty dev. book club
- Student affairs office
- Centers for teaching & learning
- **ADVANCE**
- **DBER** groups
- In-dept. faculty community
- Tenure- vs. professional track faculty

2016 June 29 ASEE 2016

7

# Community Benefits

- *How do you benefit from these communities?*
- Mentorship
- Moral, emotional support
- Sharing ideas
- Inspiration
- Research collaboration
- Learning
- Leadership
- Resources...LEGO kits (Tufts)
- Sense of belonging
- Share, relieve stress
- Funding
- Friendship
- Networking, expanded communities

2016 June 29 ASEE 2016

8

# Virtual Panel of Pioneers

## Introducing a Sample of Pioneers

2016 June 29 ASEE 2016

9

# Virtual Panel of Pioneers

- **Sample of seven pioneers whose stories address community and whose interviewers could be here today**
- **Brief introductions**
  - Interviewer/facilitator name and institution
  - Introduction to pioneer, including the communities they mentioned
- **Profile posters/handouts around the room**
  - Pick one to visit in the upcoming gallery walk.

2016 June 29 ASEE 2016

10

# Stephanie Adams

presented by Natascha Trellinger

- **Incoming dean at Old Dominion**
- **Pivotal faculty development workshop experience**
- **ABET, NSF as support for interest in studying teaming**
- **“Leverage and partner”**
- **Community success = personal success**
- ***Journal of Engineering Education***

2016 June 29 ASEE 2016

11

# Tom Litzinger

presented by Gina Adam

- **Directs Penn State’s Leonhard Center**
- **Traditional faculty career start**
- **Associate dean encouragement to attend ASEE**
- **PI with NSF-funded, multi-campus Coalition project**
- **Interdisciplinary collaborations**
- **“Never give up. Never surrender.”**

2016 June 29 ASEE 2016

12



# Jack Lohmann

presented by Beth Rieken

- **Chuck Vest's encouragement to do engineering education work**
- **Program director at NSF, collaborating on Coalitions programs**
- **Georgia Tech until 2012 retirement as vice provost**
- ***Journal of Engineering Education* editorship, transition to high-profile research publication**
- **ASEE Engineering Deans Council collaboration to distribute *JEE***

2016 June 29 ASEE 2016

13

# Barbara Olds

presented by Adam Carberry

- **English background, started w/ teaching tech. comm.**
- **Colorado School of Mines, local community of faculty engaged in engineering education**
- **External community at ASEE**
- **Border-crossing, broad interests across communities**
- **ASEE communities of practitioners and researchers**
- **Assoc. editor at *JEE***
- **NSF**

2016 June 29 ASEE 2016

14

# Sheri Sheppard

presented by Gurlovleen Rathore & Angie Minichiello

- Started in industry, grew interested in research
- Started teaching as grad student
- Refocused on engineering education research as faculty at Stanford
- Stanford design community, est. [Designing Education Lab](#)
- Works with campus teaching & learning center
- Synthesis Coalition
- Community builder, involved in local ASEE student chapter

2016 June 29 ASEE 2016

15

# Karan Watson

presented by Micah Lande

- 30+ years at Texas A&M, now provost, executive VP
- IEEE, ASEE
- Student residential community of women engineers
- Experiences of belonging and not belonging in engineering as woman
- Challenges and opportunities

2016 June 29 ASEE 2016

16



# Charlie Yokomoto

presented by Alex Mejia

- IUPUI faculty emeritus
- Sharing teaching practices w/ other faculty
- Dean encouragement to attend ASEE, found ERM Division, started attending FIE
- Sports coaching led to interest in how people learn
- Collaborated across depts., e.g., w/ psychology faculty on MBTI work
- “Don’t sit in the back of the room.”

2016 June 29

ASEE 2016

17

## Gallery Walk

Reading Pioneers’ Profiles

2016 June 29

ASEE 2016

18

After the gallery walk...

## Discussing Your Pioneer

- **Discuss your group's pioneer with their presenter. (10m)**
- **How did this pioneer *get involved* with their communities?**
- **How did this pioneer *benefit* from their communities?**
  - What did these communities make it easier/possible for this pioneer to do and how?
- **How did this pioneer *advance* their communities?**
  - What actions did they take, and what impacts were the result?
  - Who did they interact with, to what end, and how?

2016 June 29 ASEE 2016

19

## Pioneers Benefiting from Communities

- **Becoming aware of what engineering education is**
- **Opportunities to advance career in engineering education**
- **ABET as authority to drive change, open discussions**
- **Entering burgeoning communities, then pushing on them to develop further**

2016 June 29 ASEE 2016

20

# Pioneers Advancing Communities

- Long-term sustenance of inherited communities, organizations
- Inviting and encouraging those new to engineering education work
- Serving as model for like individuals, precedent on unconventional paths
- Paying it forward, grassroots community-building
- Giving someone time, listening to them
- Working for the success of others
- Staying true to passion for education, role-modeling, addressing barriers
- Serving on doctoral committees, even at other institutions, to support engineering education students

2016 June 29 ASEE 2016

21

# Advancing Our Communities

Closing Discussion

2016 June 29 ASEE 2016

22



# Who, Where, How, and Why?

Taking inspiration from these pioneers, how might you fill in these blanks?

As a 1, I could advance the 2 community  
by 3, with the intention of 4.

- 1. Who: In what role or capacity?**  
Faculty member, student, advisor, professional engineer...
- 2. Where: To benefit which community?**  
Researchers, graduate students, faculty developers...
- 3. How: Through what concrete, specific action?**  
Fostering collaborations, bringing a student to ASEE...
- 4. Why: To what end?**  
Translating research to practice, legitimizing teaching...

2016 June 29 ASEE 2016

23

As a \_\_\_\_, I could advance the \_\_\_\_ community  
by \_\_\_\_, with the intention of \_\_\_\_.

- E.g., as a faculty developer, I could advance the graduate TA community at UW by facilitating peer mentorship, with the intention of scaling up improvement of teaching.
- As a **Ph.D. candidate**, I could advance **potential post-grad. pathways** by **sharing stories of new engineering educators' experiences**, with the intention of **helping people to find pathways that fit them best**.
- As a **postdoc**, I could advance the **engr. outreach community in Romania** by **organizing inquiry-based engr. activities for minority elementary school students to help them be more aware of engineering and give them confidence**.
- As a **engr. edu. researcher**, I could advance the **practitioner community** by **propagating my work**, with the intention of **change**.

2016 June 29 ASEE 2016

24

As a \_\_\_\_, I could advance the \_\_\_\_ community by \_\_\_\_, with the intention of \_\_\_\_.

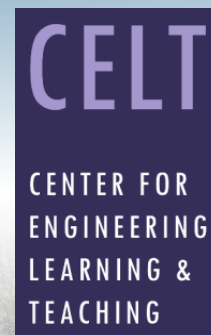
- **As an engr. instructor, I could advance the adult learner community by developing online pedagogy for a more diverse profession.**
- **As a faculty advisor, I could advance the undergraduate female community by being active in SWE, with the intention of developing leadership in those students.**
- **As a member of the engr. edu. community, I could attend the safe space training in order to make our community more diverse and inclusive.**

2016 June 29 ASEE 2016

25

Thank you!

- Please leave us your e-mail address, and we will send you session slides with discussion notes.
- This material is based upon work supported by the National Science Foundation under Grant No. 1263512. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.



2016 June 29 ASEE 2016

26