



Transforming Culture in  
Engineering Education



**Jennifer L. Groh, PhD**

Associate Director, Women in Engineering  
Program, Purdue University

## **Academic Coaching: Empowering Women and Allies**

March 3, 2015  
11am EST

# Questions & Discussion



**Host: Susan Arnold Christian**– Assistant Director, Center for the Enhancement of Engineering Diversity, Virginia Tech; WEPAN Professional Development Committee



**Moderator: Jennifer Heckscher**– Program Director, Gender Initiatives in STEMM, The Ohio State University; WEPAN Professional Development Committee

- **Undock, expand “Questions” pane in control panel.**
- **We will stop for questions at the end of the webinar. Please post your questions during the webinar.**
- **Presenters will stay on the line for an additional 10 minutes after the webinar. We will open the microphones for you to ask them questions directly.**

# General Info and Q&A

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- **The webinar uses Voice Over Internet. If your sound quality is not good, a teleconference line is available:**
  - **Phone: +1 (415) 655-0057    Access Code: 302-900-084**  
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- **Participant microphones are muted for quality.**
- **Stay with us if we are temporarily disconnected.**
- **Download PowerPoint and link to recorded webinar at [www.wepan.org](http://www.wepan.org) > Webinars.**

# About WEPAN [www.wepan.org](http://www.wepan.org)

- **Core Purpose: To propel higher education to increase the number and advance the prominence of diverse communities of women in STEM.**
  - 1,047+ members, 140 engineering schools
    - Members reach ~43,900 female engineering students
    - ~60% of female engineering students
  - WEPAN Institutional Members average 15% higher enrollment of women in engineering than non-member campuses



# WEPAN's ROLE

Translate research into practice:



2015 WEPAN Change Leader Forum

ROADMAP TO INCLUSION  
Engineering Excellence for the 21st Century

June 9 – 11 | Denver, Colorado



Women in STEM  
Knowledge Center

POWERED BY WEPAN



Engineering Inclusive Teaching

Faculty Professional Development

POWERED BY WEPAN



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*".....guides me towards a realization of an academic & career pathway that truly suites my personality and strengths"*



*"..... has meant the difference between suffering silently in my exaggerated weaknesses and focusing on capitalizing on my strengths!"*

# COACHING

Hand raising poll:

Raise your hand if you have some kind of familiarity with formal coaching methods?

*".....helped me to identify and pursue my career objectives, but it has also helped with the significant motivation obstacles I've faced ...[ by providing]... me with the tools I already possessed in order to help myself recapture my productive work life."*

*"Coaching for me was definitely an eye-opener. .... made me realize that I had all the answers I needed to move forward and make the changes I needed to make to get the most out of my opportunities, as well as my challenges!"*

# Poll: What is Academic Coaching?

***Select ALL that apply***

- A. A process by which the coachee deepens their learning and understanding
- B. A process for instilling accountability in the coachee
- C. A process by which the coachee consciously creates outcomes in their life
- D. I have no idea...that is why I am on the webinar today 😊

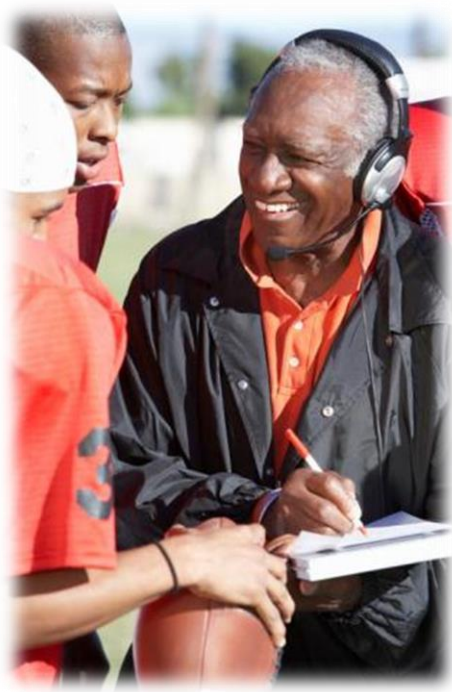
\*coachee = the person being coached



# LifeBound Definition

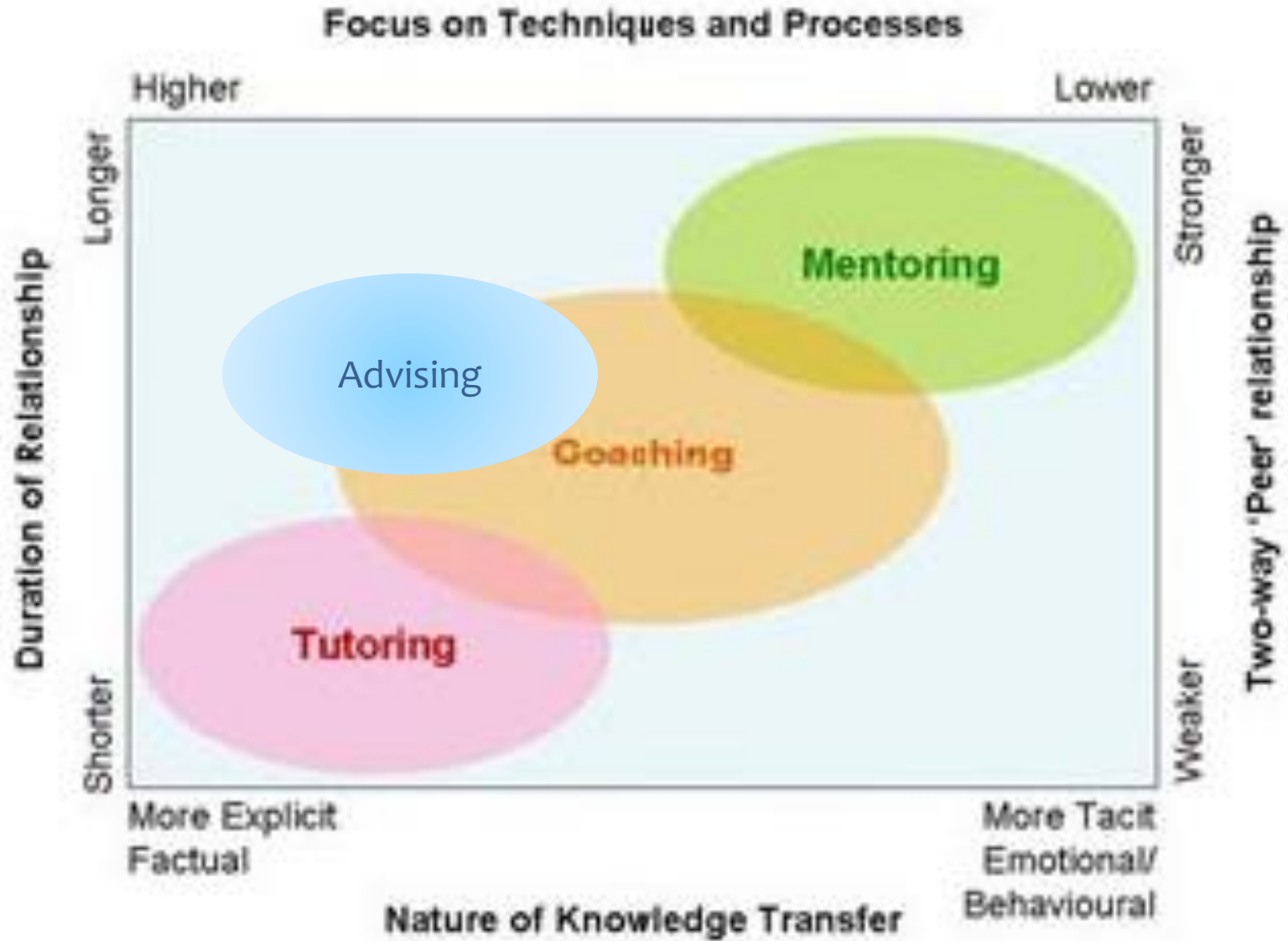


Academic coaching is an ongoing partnership to help students produce fulfilling results in their lives. Through the process of coaching, students deepen their learning, take responsibility for their actions, improve their effectiveness and consciously create their outcomes in life.



LifeBound Academic Training and Certification  
[www.lifeboundcoaching.com](http://www.lifeboundcoaching.com) | [www.lifebound.com](http://www.lifebound.com)





<http://www.bcforestsafe.org/mentorship.html>

# Coaching Outcomes

Identify Opportunities

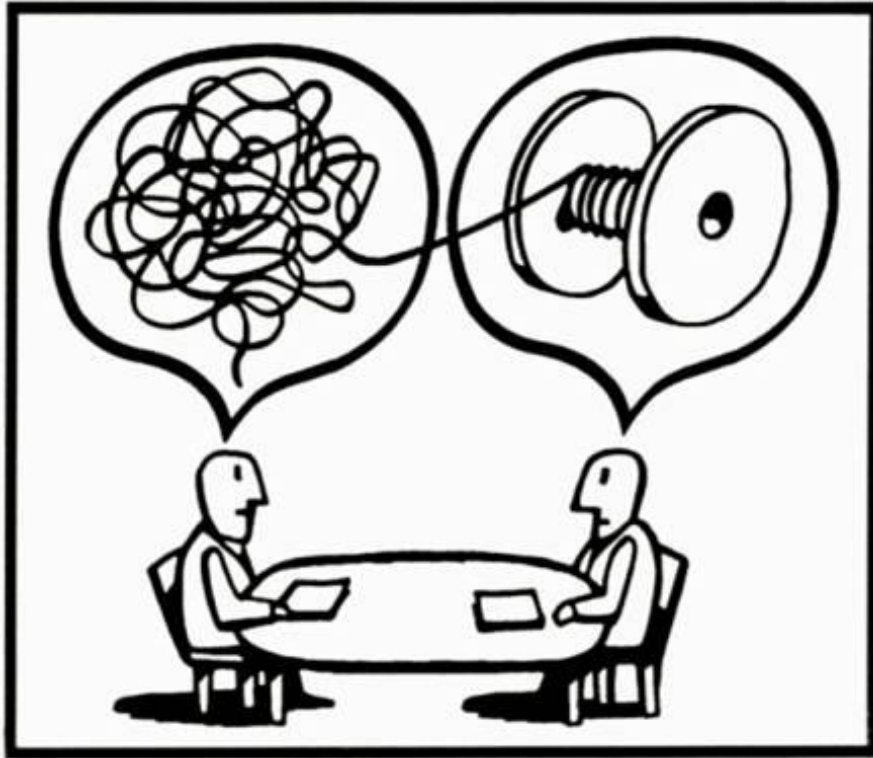
Setting Goals

Creating Outcomes

Managing Personal Change

- Foster creativity/critical thinking
- Connects learning/knowledge/experiences in new ways
- Forecast what they need to do to create opportunity, generate ideas and solve problems in all areas of life
- Creates foundation for academic, professional, personal success that translates into retention

# How does coaching accomplish these outcomes?



....moving pebbles instead of mountains... but not grains of sand...

Poll: How have you used formal coaching (of any kind) in your professional pursuits?

***Select all that apply:***

- A. To augment advising and/or mentoring of others
- B. To enhance my teaching approach
- C. To augment my management/supervisory skills
- D. Other – please type in your use(s) in the questions/chat box
- E. I have not yet used formal coaching methods in my professional life

# Today's objectives

- Background
  - What is Academic Coaching?
  - What skills are associated with coaching?
- Putting into Practice
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  - Resources

# University work/studies

## Case Western

- WEPAN EIT webinar (2/20/15) - The Power of Personal Vision: Linking Undergraduate Engineering Education and Professional Persistence (Buse & Bilimoria)
- MS in Engineering Management; Leadership Lab for Women in STEM

## Stanford study

- Improves retention rates (+15%); improves graduation rates (13%)

## University of New Mexico

- 1<sup>st</sup> gen, rural population of students; from 50% retention rate to 80%

## Harvard Graduate School of Education

- Executive/leadership coaching

# Coaching & Graduate Students

- Way for adults to navigate their own personal goals, life experiences, & new learning experiences (Griffiths, 2005)
- As relates to advisor-advisee relationships – is one criteria that affects the success of graduate students (Paglis, Green, & Bauert, 2006; Rose, 2005)
- Way to practice being part of an expert community – formulating questions and using language that is a required as part of socializing into a discipline (Duff, 2010)

THERE IS CONSTANT ADULT SUPERVISION



HOW GRAD SCHOOL IS JUST LIKE KINDERGARTEN

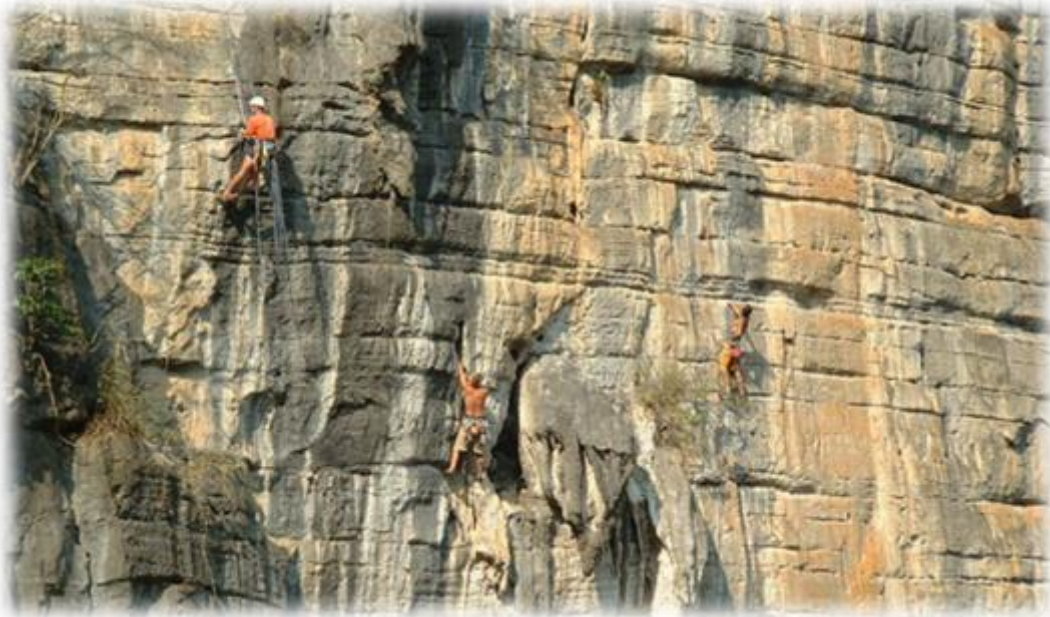
WWW.PHDCOMICS.COM

THERE ARE NO GRADES  
(YOU JUST HAVE TO PLAY WELL WITH OTHERS)





# What generally happens when people\* get stuck and/or feel marginalized?



Specifically, “people” can be students, employees, and in the interests of this group: Women in STEM and their Male Allies...

# Coaching on non-cognitive skills

- Self awareness
- Self advocacy
- Strategy
- Follow-through & Accountability
- Effort (Growth vs. Fixed mindset)
- Curiosity
- Resilience
- Ability to Work Together



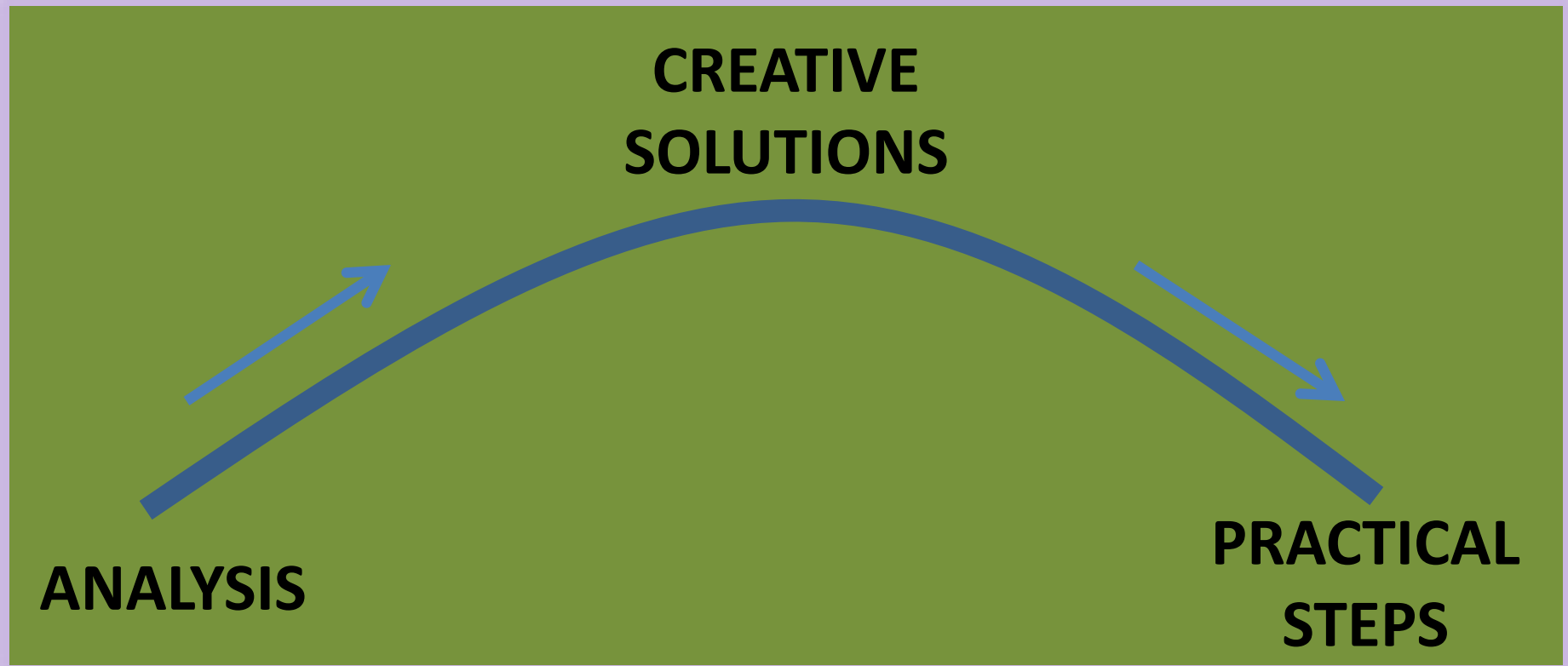
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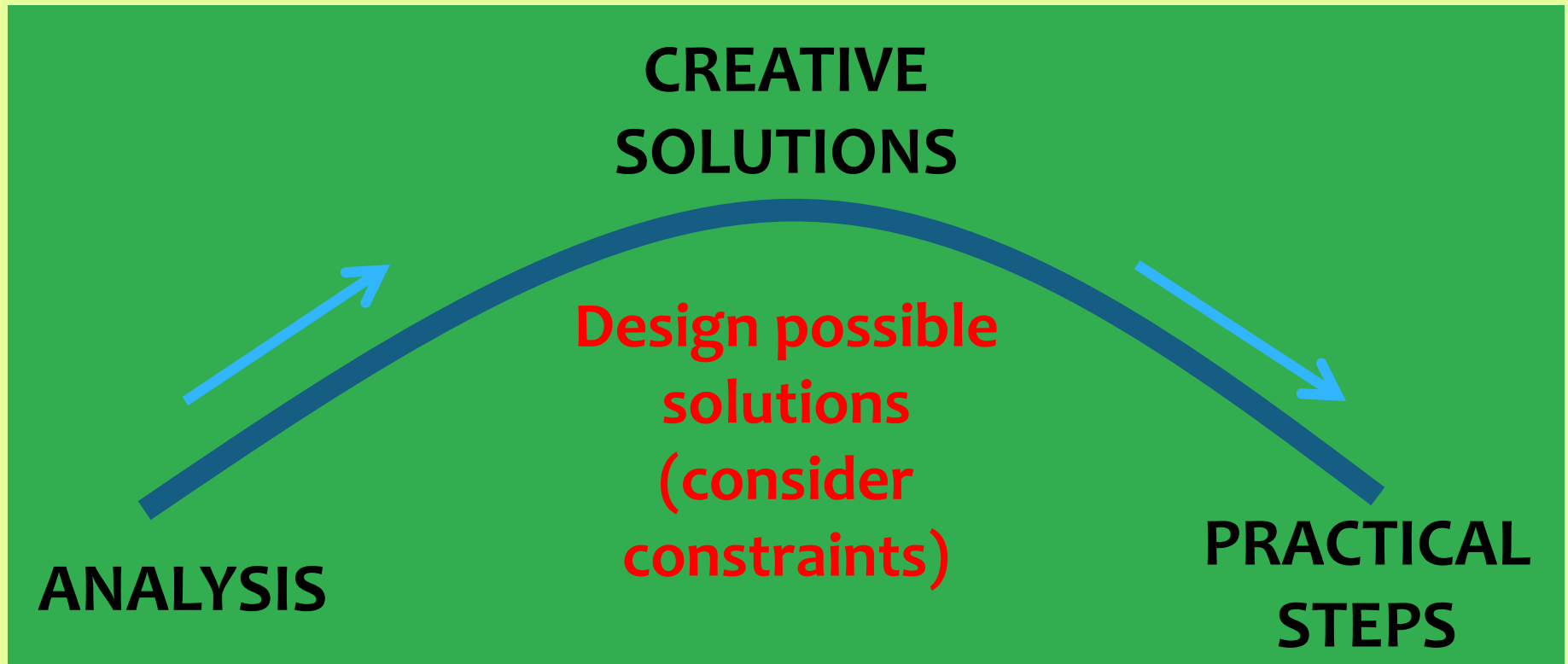
# What are the coaching tools?

- **Asking Powerful Questions**
- **Listening**
- **Observing**
- **Acknowledging**
- **Championing**
- **Confronting Courageously**

# Coaching Arc



# Coaching Arc



**Identify the problem**



Figure adapted from LifeBound

**“Build” strategy  
Test design**

# Powerful Questions help the coachee see...

- ✓ ...where their strengths lie
- ✓ ...how to put those strengths to best use
- ✓ ...resources and options they already have on hand...
- ✓ ...how a goal can become manageable through small steps
- ✓ ...a process for accountability

# Powerful Questions

What makes a Powerful Question?

- ✓ Open-ended
- ✓ Reflective
- ✓ Short
- ✓ Non-Leading
- ✓ Relevant
- ✓ Aligned to the moment





# Categories of Powerful Questions

- Examine costs/benefits
- Discuss resources/barriers
- Determine impact (+ and -)
- Examine from a different perspective
- Promote creative/deep thinking
- Analyze a situation
- Determine practical steps
- Accept accountability
- Confront/Challenge

# Powerful Questions

Coaching a student/employee who is questioning her/his career plans:

- ✓ What impact do you want to have?
- ✓ What will it look like?
- ✓ Why is this important to you?
- ✓ What are possible barriers to your goal?
- ✓ Who can be part of your success team?
- ✓ When do you need to be independent?
- ✓ When do you need to collaborate?
- ✓ When must you say 'No'? Or 'Yes'?

# Acknowledging

A coach “champions” successes

*You are....*

Bold

Committed

Devoted

Sensitive

A risk taker

Self-determined

Dynamic

*You have....*

Integrity

Courage

Ambition

Compassion

Spirituality

Responsibility

Energy

# Listening

A coach is not to solve problems - rather a coach is to be a good listener and provide a path for the coachee to walk down.

**Level I**: Surface Listening

**Level II**: Intimate (Deeper) Listening

**Level III**: Big Picture (Intuition) Listening

Coaches should think “*wait*”

Why

Am

I

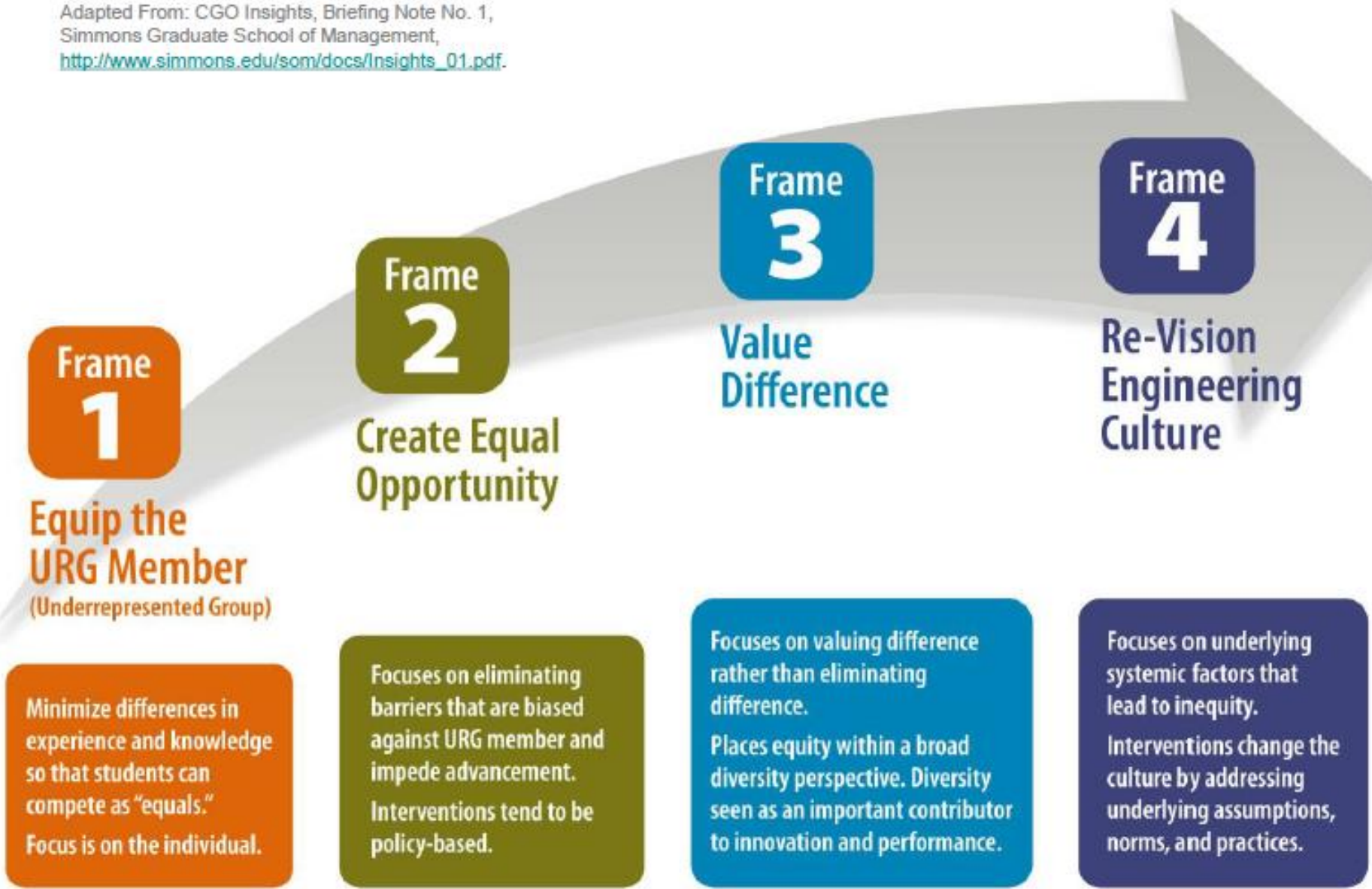
Talking

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# A Framework for Promoting Equity

Adapted From: CGO Insights, Briefing Note No. 1, Simmons Graduate School of Management, [http://www.simmons.edu/som/docs/Insights\\_01.pdf](http://www.simmons.edu/som/docs/Insights_01.pdf).



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# ...in the classroom...

...with integration of technology and hybrid/flipped learning models

...enrich class discussion with powerful questions...

...enrich student-led discussions with coaching skills...



# ...in training & retention programs....

...with integration of coaching into existing mentoring programs for students/faculty/staff...

...enrich student/faculty/staff professional development, entrepreneurial and other training programs with coaching elements....

...enrich student internship experiences with coaching from company mentors included...

....enrich graduate student training with coaching around expectations of MS/PhD graduates for both industry and academic careers...

# What do employers expect/desire more of in MS & PhDs graduates?

- Engineering fundamentals & application
- Environmental constraints
- Quality control
- Technical knowledge
- Economic/political understanding
- Management and leadership skills
- Communication skills
- Globally aware

Nair & Patil, 2008; Nguyen, 1998; Bucknell, 2013

# PhD skills necessary for..

## Industry

- Solve problems
- Meet deadlines
- Work in teams
- Communicate orally and verbally
- Tailor communication to your audience
- Manage projects
- Work across disciplines, etc.

**Industry:** Wallgren & Haggind, 2004; Watson & Lyons, 2011; Berdanier et al 2014; Cox et al 2011

**Academia:** Akay, 2008; Salters, 1997; Cox et al, 2011; Berdanier et al 2014

## Academia

- Break down concepts into simple, understandable ideas
- Communicate verbally and in writing
- Tailor communication to audience
- Teach academic courses
- Write grants and obtain funding
- Manage a research group
- Identify others' strengths
- Synthesize knowledge and information
- Manage multiple projects
- Establish a laboratory group, etc.

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# Action Item: Reflections

- What parts of coaching do I find valuable?
- How might my current relationships (students, interns, mentees, mentors, committee work, family, friends, etc.) be different if they included a coaching aspect?
- How can I implement coaching strategies in my daily life?
- How can I encourage others to implement coaching strategies?
- How can I use coaching to make a difference in diversity issues related to women in engineering?

# Action Item: Practice

## How can you be a great coach?

- Build a relationship
- Help students become problem-solvers
- Set and hold expectations
- Be a believing mirror
- Strive for small commitments
- Withhold judgment
- Hold students accountable
- Help students to see the big picture

***Diversity is what we have – Inclusion is what we do with it.***  
**~ Dr. Beth Holloway, Purdue University**



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ROADMAP TO INCLUSION  
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***In the works:*** post-forum coaching workshop on 6/12 (Fri)



# ACADEMIC COACHING FOR FACULTY AND STAFF

THE WORLD'S LEADER IN





# LIFEBOUND'S ACADEMIC COACHING IN COLLEGES AND UNIVERSITIES ACROSS THE US

- Aims Community College
- Air Force Academy
- Blackfeet Community College
- Central Wyoming College
- Colorado College
- Colorado Mountain College
- Colorado State University
- Commonwealth Medical College
- Community College of Aurora
- Community College of Denver
- Cuyahoga Community College
- East Tennessee State University
- Edison State College
- Fort Peck Community College
- Front Range Community College
- Georgia Perimeter College
- Girard College
- Golden West College
- Harper College
- Henderson Community College
- Independence Community College
- Laramie County Community College
- Leeward Community College
- Metropolitan State University of Denver
- Middlesex Community College
- Montclair State University
- New Mexico Highlands University
- Northern Illinois University



- Northwest Shoals Community College
- Oglala Lakota College
- Ohio Dominican University
- Pueblo Community College
- Purdue University
- Rich Mountain Community College
- Salt Lake Community College
- San Angelo State University
- San Jacinto College
- Seminole Community College
- Spelman College
- Strayer University
- Texarkana College
- Texas State University-San Marcos
- Three Rivers Community College
- Tompkins Cortland Community College
- Trinidad State Junior College
- Trinity University
- University of Arizona
- University of Central Oklahoma
- University of Colorado, CO Springs
- University of Denver
- University of Missouri
- University of New Mexico
- University of New Mexico-Taos
- University of S. Mississippi
- University of Scranton
- University of Texas at Brownsville
- University of Wisconsin
- University of Wyoming
- Utah State University
- Vassar College
- W. Kentucky Community & Technical College
- Western State Colorado University
- Wichita State University
- Winston Salem University

# Upcoming Academic Coaching Trainings

I can bring **coaching workshops with a STEM &/or diversity focus** to your site in conjunction with LifeBound - [jgroh@purdue.edu](mailto:jgroh@purdue.edu)

*Additional LifeBound trainings:*

Denver:

April 8-10, 2015

June 22 – 24, 2015

July 20 – 22, 2015

October 26 - 29, 2015

December 7-9, 2015

One-week Hawaii Intensive Training

June 8 - 12, 2015

GlobalMindED Conference Denver Marriott

June 18-19, 2015

Email: [caroljcarter@lifebound.com](mailto:caroljcarter@lifebound.com)

LifeBound's Website at [www.lifeboundcoaching.com](http://www.lifeboundcoaching.com)

Visit Carol's Educational Blog at [www.caroljcarter.com](http://www.caroljcarter.com)



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# Acknowledgements



**WIEP colleagues – Purdue University**

**Carol J. Carter**, President of LifeBound & Student Success Expert

**Maureen Breeze**, LifeBound Lead Trainer

**Suzanne Zurn-Birkhimer, Ph.D.**, Professor, St. Joseph's College

## **Hand raising poll:**

Raise your hand if you plan to use something new learned today in your professional and/or personal lives?

And....if you'd like to list ideas for ways to use coaching in addition to what we discussed today, please feel free to leave a comment in the chat box or on the survey sent out for feedback.

# Asking Questions and Discussion

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- **Participant microphones are muted for webinar quality.**
- **Undock and expand the “Questions” pane in the webinar control panel and type your questions in the box.**

# Questions & Discussion

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**Speaker: Jennifer L. Groh, PhD** - Associate Director, Women in Engineering Program, Purdue University

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# Thank You for Attending

## We Hope You Enjoyed the Webinar!

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- Links to the PowerPoint and recorded webinar will be posted at [www.wepan.org](http://www.wepan.org) > Webinars
- Share with your colleagues!
- Survey following the webinar—please respond!
- Support WEPAN—become a member - make a donation at [www.wepan.org](http://www.wepan.org)
- Pay a personal tribute to someone who has made a difference to women in engineering
- Thank you for attending today! **Stay on the line if you would like to ask questions directly to presenters!**