

**WORKSHOP ON OVERCOMING  
CHALLENGES TO INFUSING  
ETHICS INTO THE DEVELOPMENT  
OF ENGINEERS  
JANUARY 10-12, 2017**

**NATIONAL ACADEMY OF SCIENCES**

**Affinity Group 8**

**Assessment of Engineering Ethics Education**

# OUR AFFINITY GROUP

- Matthew Brown
- Justin Henriques
- Anna Lauren Hoffmann
- Eduardo Mendieta (the gatherer of thoughts)
- Harold Stern
- Carla Zoltowski
  
- Moderator: Gerry Galloway



# 1. WHAT KEY FACTORS NEED TO BE DEALT WITH TO CHANGE THIS CHALLENGE?

- Align “better” –more legibly- professional/ disciplinary expectations and societal/industry expectations.
- Challenge the “hard” vs. “soft” skills distinction.
- Align “better” –more legibly- *quantitative* vs. *qualitative* measurements.
- Develop overall better tools for assessing delivery and acquisition of ethics reasoning – be sensitive to disciplinary contexts



## CONTINUING 1

- Be clearer about what it is that we aim to assess. Is it: **concepts** (categorical imperative, utilitarian calculus, etc), **skills** (reasoning, multi-perspective analysis, modeling), **values** (beneficence, non-maleficence, public good, social justice, sustainability, inclusiveness), **virtues** (consideration, responsibility, honesty, integrity, etc)?
  - Recognize that there are “power” issues involved when someone appears/is ethical: gender, race, ethnicity. “Ethical Subjects” are vulnerable.
- 

## CONTINUING 1-STILL

- Recognize that there is (or there seems to be) a gap between what can be called “ethical fitness” and social behavior.
- Recognize that better laws are not the solution to inculcating better ethical thinking and behavior from engineers.
- What is the linkage/line between professional ethics and individual ethics? This needs to be understood better.



## 2. WHAT ARE THE THREE MOST PROMISING APPROACHES/STRATEGIES AND WHY?

- Infused assessment throughout, and consistently, span of education and professional life –more benchmarks, more data.
- Longitudinal assessment once student is in the field: surveys with industry of how students are doing. Both collective and individual.
- Adopt tools from “big data” and “social media” analytics, while recognizing their limits.



## CONTINUING 2

- Assess overall “climate” of discipline/department.
- Capitalize on the fact that we have entered an age of “big data,” i.e.: we now have one to two decades of data from colleges and universities of courses, successes, failures, about program outcomes.
- If it can be assessed it is not simply “subjective,” which does not mean that it is “objective.”



### 3. WHAT CAN THE COMMUNITY OF ATTENDEES DO TO DEVELOP WITH THIS CHALLENGE?

- Help NAE and CEES identify successful, though not widely known, tools for assessing ethics learning.
- Ask moral and social psychologists what are the best assessment tools for overall ethics learning analysis.
- Educate discipline and professional associations that assessment is key to our aim of educating ethical engineers.

## 4. WHAT CAN THE BROADER ENGINEERING COMMUNITY DO TO HELP WITH THIS CHALLENGE?

- Industry can signal back to professionals that so-called “soft” skills are important; example: we have a representative here from Lockheed Martin: Lauren C. Schultz, Ethics Analyst.
- Encourage industry to give presentation on their “ethics culture/goals” when recruiting, and “lecturing/presenting” their products, encourage them to include “ethics assessment”
- Establish relations with industry ethics initiatives and key personnel and embed this back into college/university advisory board.
- Leverage industry strategies for ethics assessment (i.e. were we looking in the wrong place?).

