Connecting with others: Empathy in engineering and engineering education

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Overview

- 1. Why? What?
 - Why empathy in engineering?
 - What is empathy & can we learn it?
- 2. Let's try it Empathy module
- 3. Now what? Empathy and engineering formation.

Sourceable :::

Does Engineering Breed Social Apathy?

🍰 Marc Howe



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A new study by an engineer turned sociologist claims that training in the discipline can lead to an increased level of indifference to broader social concerns.

New Study Reveals Engineering Schools Fail To Teach Empathy

Jon Marcus, PTC

With its relentless emphasis on technical problem-solving, engineering education may be overlooking something

equally important according to a new study...

https://www.forbes.com/sites/ptc/2013/12/16/new-study-revealsengineering-schools-fail-to-teach-empathy/#5ba88ec0482f

Cech, E. (2014). Culture of disengagement in engineering education? *Science, Technology, & Human Values, 39*(1), 42-72. doi:10.18260/p.2435510.1177/0162243913504305

What Google Learned From Its Quest to Build the Perfect Team

New research reveals surprising truths about why some work groups thrive and others falter.

By CHARLES DUHIGG



"The behaviors that create psychological safety – **conversational turntaking and empathy** – are part of the same unwritten rules we often turn to... when we need to establish a bond. And those human bonds matter as much at work as anywhere else. In fact, they sometimes matter more."

Duhigg, C. (2016). What google learned from its quest to build the perfect team. *The New York Times Magazine*. https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html?_r=0 In which other aspects of engineering might empathy be relevant?

Can empathy be taught?



What is empathy?



Walther, J., Miller, S. E., & Sochacka, N. W. (2017). A model of empathy in engineering as a core skill, practice orientation, and professional way of being. *Journal of Engineering Education*, *106*(1), 123-148.

'Teaching' empathy in a core mechanical engineering design course

Context: Interdisciplinary module development with engineering and social work

Engineering and Society Course:

- Open ended projects Systems understanding and problem framing
- Critical readings and discussions
- Reflection exercises



Data:

- Observations
- Post-module reflection
- Final reflection
- Design artefacts



The design of the modules



Connected to semester project

Let's give it a try!

- Encountering Others (Commonality exercise)
- Role play professional engineering scenario

Focus today:

Encountering Others

Self-Awareness

Intentional use of self

Commonality Exercise

Instructions:

- 1. Talk with two people who you don't very well and uncover at least two things you have in common with each person (4 mins).
- 2. Debrief (5 mins):
 - a) How did you approach people /what did you do?
 - b) What signals did you pick up from your counterpart?
 - c) How did you feel throughout the exercise?

the self

your most powerful tool in interpersonal communication

Role Play



Application to engineering work – scenario

- You are an engineer working PG&E.
- You have been tasked to connect with a range of stakeholders around the power shutdowns.
- You are attending a range of community events. Today you are speaking to people at the Saturday morning farmers' market.

Your goal is to <u>make connections</u> with stakeholders and <u>start conversations</u> that could potentially lead to some local residents serving on an advisory committee.



Your task...

- The engineer approaches community members (2) at the street festival to meet and establish a relationship with them (2 min)
- After the first round, select a new engineer, and repeat the role play (try to approach the conversation differently than the prior round(s))
- Total 5 minutes



<u>Focus on:</u> Awareness of self, Intentional use of body language, Awareness and regulation of own emotional reaction, & Focus on and interest in other person



what was it like?

To be the engineer? What did the residents say to you? What did you say/do in response?

To be the resident? What did you say to the engineer? What did they do? How did you feel?

Empathy & Engineering Formation

Variations in Self-Other relationships:



Walther, J., Brewer, M., Sochacka, N. W. & Miller, S. E. (2020). Empathy and Engineering Formation. *Journal of Engineering Education, January edition*.

"One doesn't have to operate with great malice to do great harm. The absence of empathy and understanding are sufficient."

- Charles M. Blow

Now what?

Discussion:

- What are places in the curriculum where empathy could be integrated?
- What can we do about disciplinary values and narratives that may be problematic in helping students develop empathy?

Thank You!



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