

Values in Practice: Navigating Ethical Challenges in Construction Management

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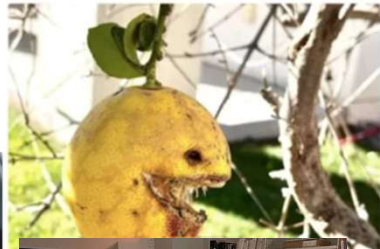
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What do you relate to in this moment

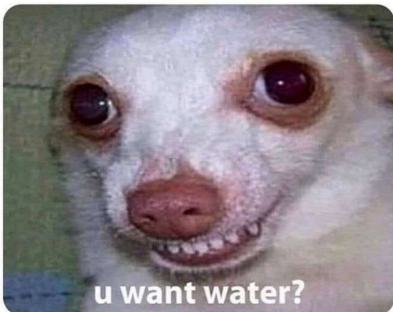
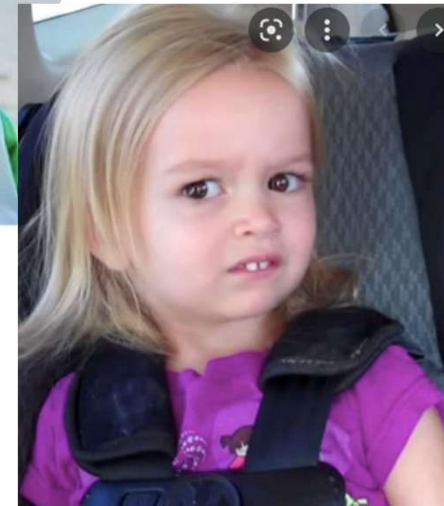
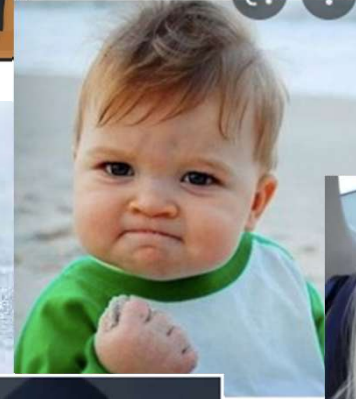


when life gives you lemon

"run"



When someone is crying and you don't know what to do



My Journey to Engineering Research



CAL POLY
SAN LUIS OBISPO



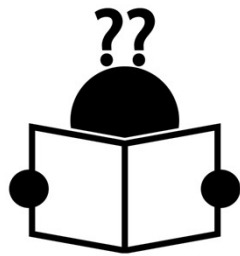
University of Colorado **Boulder**



You're interning with a construction management team on a downtown high-rise project, and something has been bothering you during the daily safety briefings. You've noticed that about 40% of your crew—mostly workers with English as their second language—nod along with blank expressions, which makes you wonder if they completely understand the safety procedures. Yesterday confirmed your suspicions. One of these workers nearly fell when using a harness incorrectly—exactly the procedure that had been covered in that morning's briefing. No one was hurt, thankfully, but it was a close call.

- What might you do?
- What are your options to address this situation?

Engineering Students Struggle to Maintain Professional Values When Facing Industry Pressures

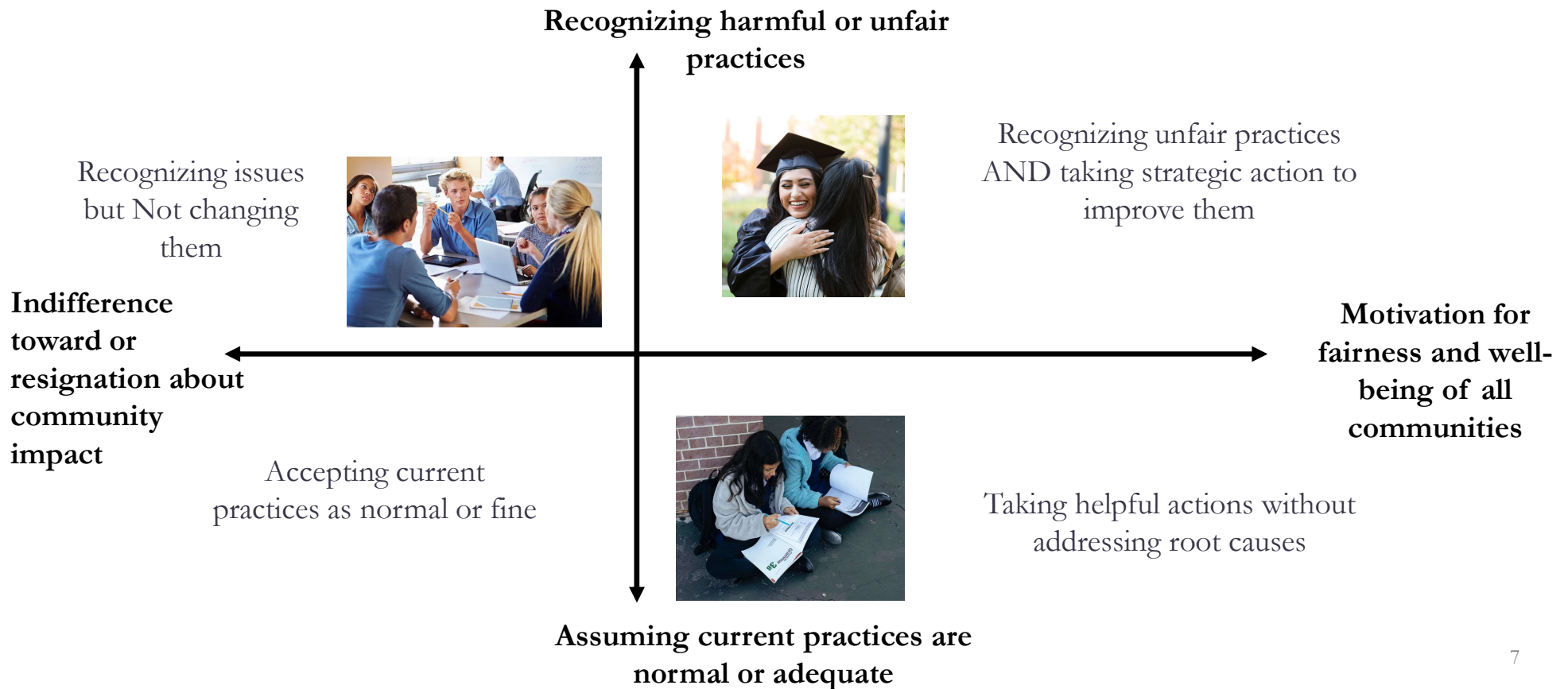


However, there are multiple ways to express your values when faced with ethical challenges. My research equips students with tools to navigate industry pressures while creating meaningful change from within.

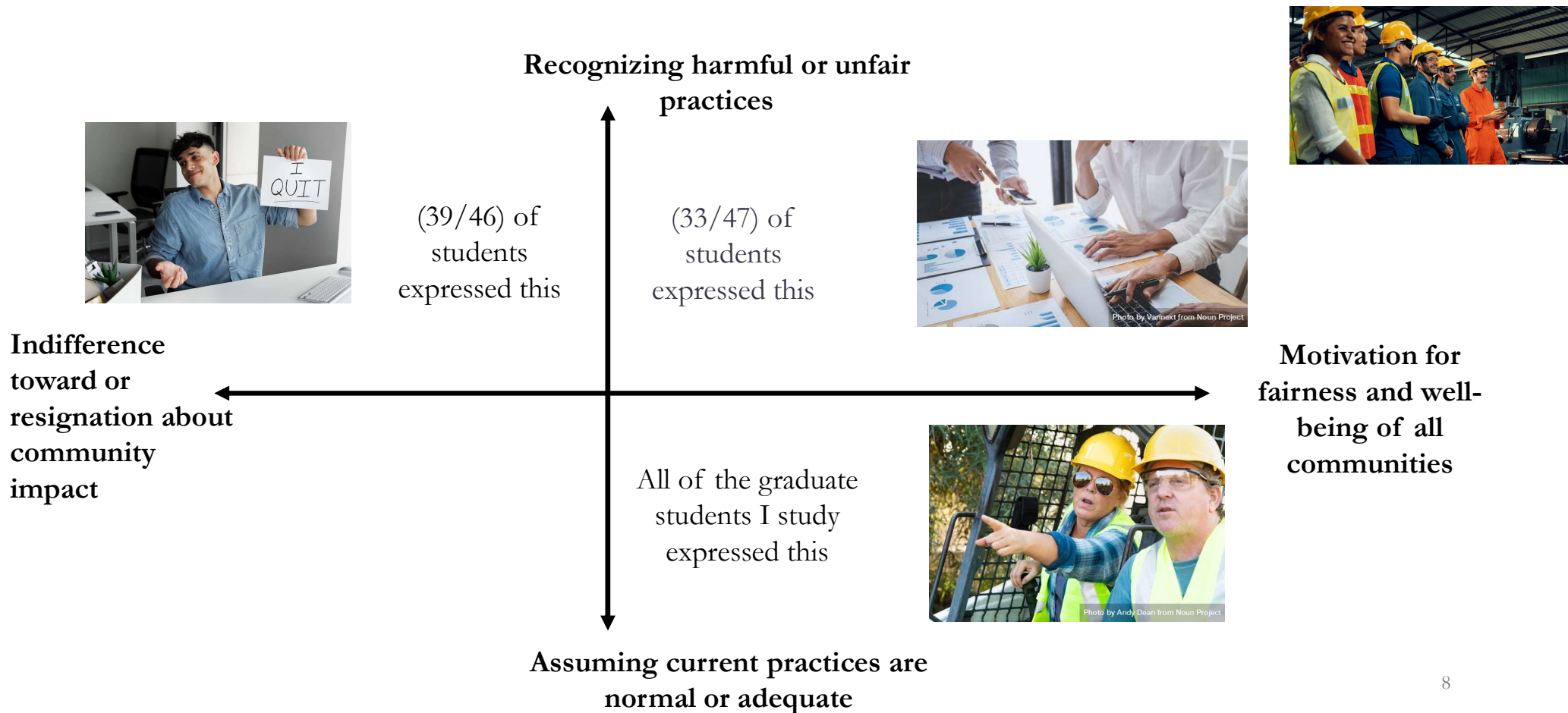
Today we will go through

- One tool for understanding an engineer's personal agency and decision-making power in industry settings
- Identifying barriers that limit action in expressing your values and supports that enable engineers to implement their values effectively

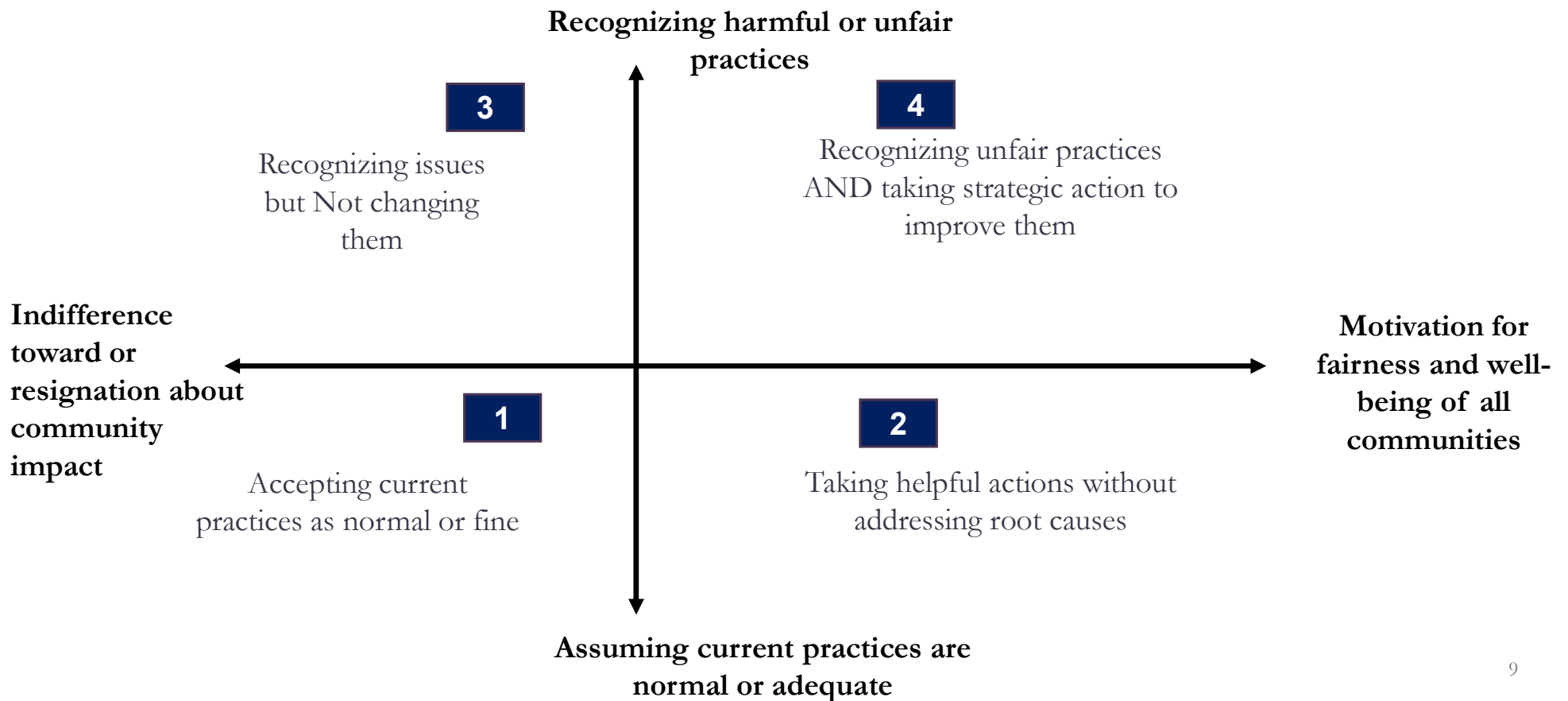
Origins: The Organizational Transformation Framework was developed to show how students could advocate for change in their school's practice



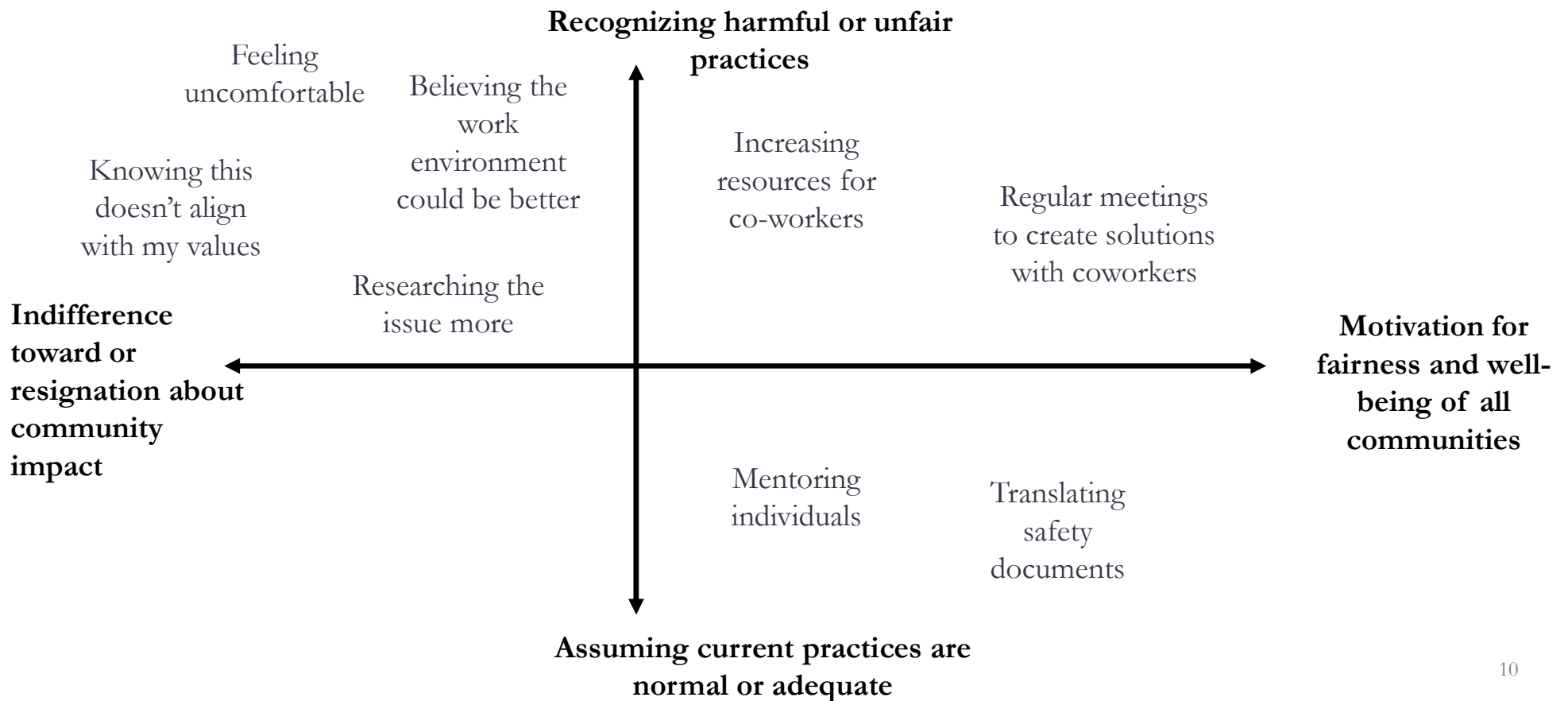
Applying the Organizational Transformation Framework: How Engineers Can Align Professional Practices with Personal Values



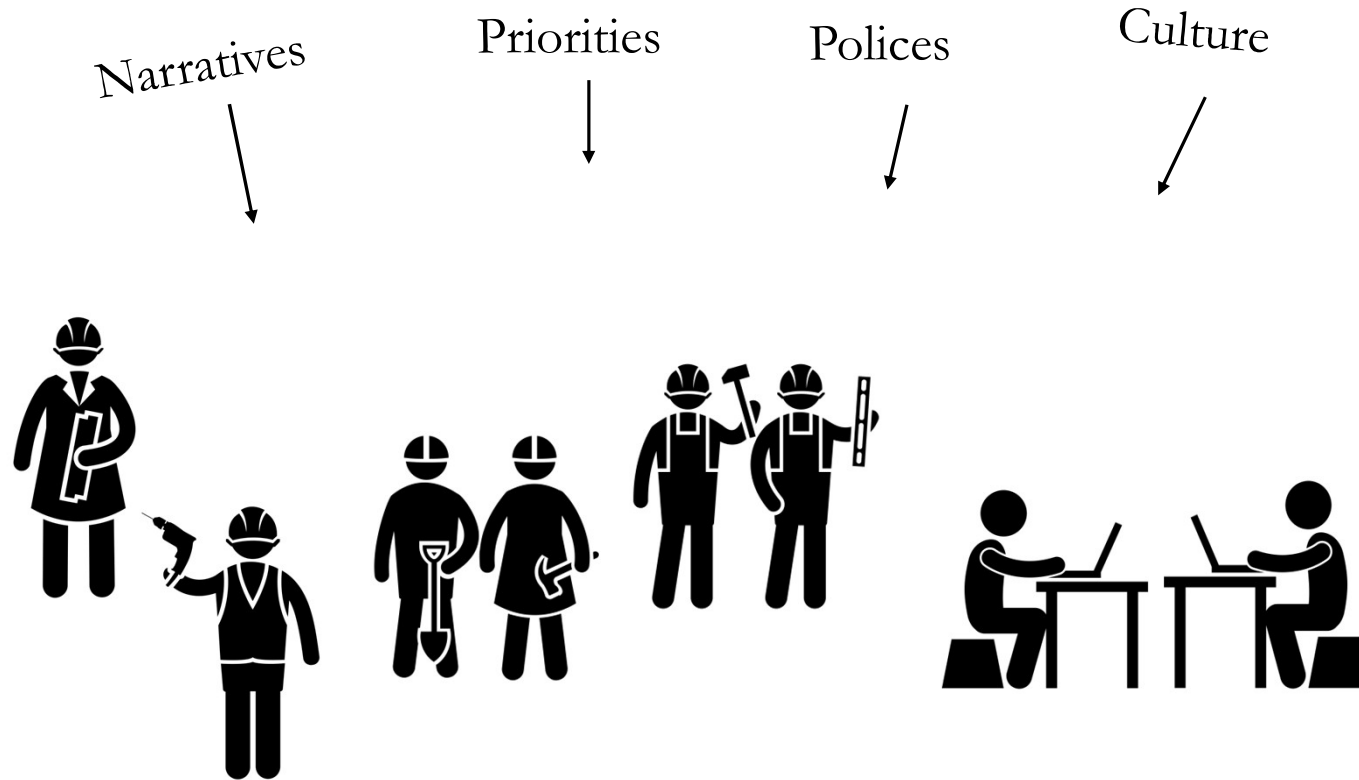
Polling battle



In expressing your values--- Multiple the available options



As student become more prepared to expect such pressures, they often develop more confidence to express their values despite them



Example: how are inaccessible buildings designed and built?

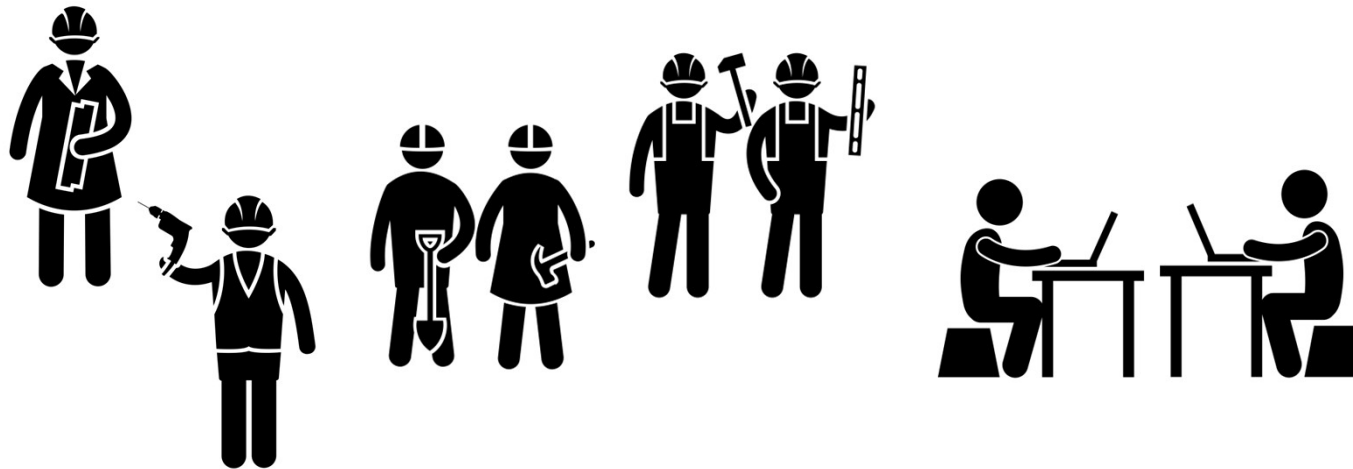


"Wheelchair users rarely visit these types of buildings anyway"

"We're already 15% over budget so I must implement the minimal amount of accessibility features necessary"

Building codes that allow "historic" buildings to remain inaccessible through exemptions

Design teams with no disabled members or disability experience making accessibility decisions



My findings on what aspects of engineering culture polices limited students from expressing their values and what tools supported them

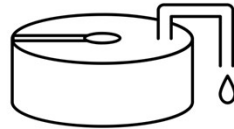
Not being accountable to social impact



Nicole

- Limited post-project evaluation
- Seeing community complaints as PR problems
- Disconnect from all communities effected

Using your own experience being negatively impacted by engineering organizations



Joshua

- Experience with:
Being underpaid,
occupational injuries,
Environmental degradation,
prejudice, gentrification

Case Study Discussion ~ 3 minutes read on your own

Turn to the people around you and discuss the case study you find most interesting, confusing, or aggravating.

- **The Downtown Office Tower Project**
- **The Highland Elementary School Renovation**
- **The Riverside Development Project**



Three "A"s Analysis

Agree: Which decisions seem reasonable given the constraints? What pressures might justify these choices?

Argue: Which decisions do you disagree with? What could have led to better outcomes?

Aspire: What would you hope to do in a similar situation? What options would you consider?

In Sum: I care about connecting engineering and construction students to the tools available to them, to navigate school and the professional challenges they will face

My Teaching Toolbox

Teaching Training

- Teaching Assistant
- College Teaching Certificate
 - 40 workshops on college teaching
 - Video Taped Consultations of teaching
- Just and Equitable Teaching Credential
- *Dialogic Pedagogy Micro-credential*

Social Capital

- Research on student career pathways after graduation
- Humanitarian Engineering Faculty Board
- ASEE Community Engagement
- Industry Advisory Committee

Mentoring Experience

- MS Engineering student (Manjeet Pandey)
- BS Research students
 - Caroline Chang
 - Ben Deblasio
 - Catherine Patton

Case Study: The Riverside Development Project

A construction manager is overseeing a new mixed-use development along a river that runs through the city. The project has all necessary permits and approvals from the city council. During site preparation, several local residents approach the construction fence, expressing concerns about increased flooding risks to their nearby homes and mentioning that the area has cultural significance to the indigenous community that historically lived along the river.

The construction manager listens politely but explains that all legal requirements have been met, and the project has been approved by the proper authorities. He suggests they take their concerns to the city council, though construction is already underway. When one resident mentions traditional knowledge about the river's flooding patterns, the construction manager mentally dismisses this as unscientific compared to the engineering studies already completed.

Later, at a team meeting, he briefly mentions the encounter but doesn't suggest any changes to the project plan or additional community consultations. Construction continues according to the original schedule.

Case Study: The Highland Elementary School Renovation

A construction manager is overseeing a renovation of an aging elementary school in a lower-income neighborhood. The project is already running 10% over budget due to unexpected structural issues discovered during demolition. At a budget review meeting, the project team needs to make cuts to bring costs back in line.

The plans include an accessible playground with inclusive equipment that would serve children of all abilities, including the 15% of students with various physical disabilities. The playground represents about 8% of the remaining budget.

The construction manager reviews the options and recommends reducing the scope of the playground to a standard design with minimal accessible features, meeting only basic ADA requirements. He justifies this by noting that the educational spaces should be prioritized over recreational areas, and points out that the standard playground equipment is significantly less expensive and available from a supplier they regularly use.

Though aware that this decision will particularly impact students with disabilities, he views it as a practical business decision to meet budget constraints. He does not suggest exploring alternative funding sources, phasing the playground installation, or consulting with parents or disability advocates about potential compromises.

Case Study: The Downtown Office Tower Project

A construction manager is assembling teams for a prestigious downtown office tower project. When reviewing subcontractor bids, he notices that a woman-owned electrical contracting company has submitted a competitive bid that's only 2% higher than the lowest bidder, a firm the company has worked with for years. The woman-owned firm has excellent qualifications and has completed similar projects successfully, though they're smaller than the usual contractors on the company's roster.

During the selection meeting, the construction manager presents all bids but emphasizes the importance of "proven relationships" and "minimizing risk" on such a high-profile project. He recommends going with the familiar contractor despite the potential opportunity to diversify their subcontractor pool.

Similarly, when assigning internal staff to the project team, he selects individuals he's worked with before, resulting in a team that lacks gender and racial diversity. When a colleague subtly points this out, the construction manager responds that he's simply choosing the most qualified people based on experience with similar buildings, and that "this isn't the project to experiment with new talent."