ENGINEERING

THE AFFORDABLE SOLUTION

FACILITATION GUIDE

Overview

These caselets are narrative accounts designed to stimulate dialogue about the virtues that shape professional life. They differ importantly from the ethical case studies most faculty and students encounter in professional training. Rather than presenting a moral dilemma to be resolved, each caselet illustrates the presence—or absence—of a particular virtue as it operates in everyday practice. The goal is not to reach a verdict on what a character should have done, but to explore what a virtue looks like in action—and what may be at stake when it is absent.

Caselets are organized by virtue and professional context, but many will resonate beyond their primary category. A caselet about curiosity in a business setting may illuminate curiosity in medicine or law. Instructors are encouraged to use caselets flexibly and across disciplines.

General Facilitation Tips

- **Focus on virtue, not verdict.** Keep discussion centered on how the virtue appears (or is absent) in the caselet, not on whether the character made the right call. If the conversation drifts toward "what should they have done?", redirect gently.
- **Start with observation.** Open by asking what students noticed before asking what they think. Grounding early discussion in specific moments from the caselet prevents premature judgment.
- **Use questions as starting points, not a script.** Follow student energy. If a student raises a more generative question than the ones provided, pursue it.
- **Push back on easy agreement.** If the room converges too quickly, the caselet's complexity may not have been fully engaged. Invite students to complicate their own claims and consider opposing readings.
- **Invite connection to professional life.** The richest moments often come when students link the caselet to patterns they've observed or anticipated: "I've seen something like this when . . ."
- **Let silence work.** Resist the urge to fill every pause. Students often need a moment to arrive at their most substantive responses.
- **Close with reflection.** Reserve a few minutes to ask students what will stay with them — a question, an image, an unresolved tension. A sentence or two naming what they now understand about the virtue that they didn't before is a strong closing move.

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Discussion Questions

1. Mateo was driven by deep compassion and personal experience. Still, he could have submitted his concerns about privilege and safety factors to relevant standardization organizations and worked with them to fix the issue from the inside. How can strong emotional motivators impact an engineer's technical judgment?
2. Is it ever ethically justifiable to reduce safety margins to increase accessibility to a life-saving product?
3. Mateo decided that the risk of a lower safety factor was worth the benefit of lower cost. Did he have the right to make that risk assessment on behalf of the users?
4. How do engineers determine if a partial safety measure actually improves a system, rather than creating new risks?

Facilitation of this Caselet

Resist the easy verdict that compassion was the problem. Mateo's motivation is not just sympathetic, it is rooted in lived experience that most engineers designing for these populations do not have. The caselet is not an argument against caring deeply or drawing on personal history. It is an argument about what happens when compassion operates without sufficient constraint. Help students locate that distinction early, because the temptation to conclude simply that "emotion clouds judgment" flattens what the caselet is actually doing.

Sit with what compassion actually requires. Mateo's compassion is not in question. What the caselet puts pressure on is whether compassion, on its own, is sufficient moral equipment for the decisions he is making. Ask students to articulate what compassion is doing in Mateo's reasoning at each stage: during the design review, in his exchange with Sarah, in his presentation. In each of those moments, compassion is functioning more as an argument: a reason to proceed, a way of framing risk, a justification for overriding concern.

Follow Sarah carefully. Sarah is doing exactly what a structural analyst is supposed to do, and she is right. But she is also easy to read as the obstacle—the voice of bureaucratic caution against Mateo's moral urgency. Ask students what it cost Sarah to raise the concern she raised, and what the team's dynamic suggests about how dissent functions when one person in the room has a compelling personal story and a clear moral frame. Compassion can crowd out other voices, and that dynamic is worth naming explicitly.

Explore the consent problem. The third discussion question asks whether Mateo had the right to make a risk assessment on behalf of his users. This is one of the caselet's sharpest edges. Mateo frames his decision as an act of compassion. He is choosing clean water over safety margins for people who would otherwise have neither. But the families receiving the Aqua-Lite did not choose that tradeoff. Ask students what genuine compassion requires in terms of honesty with the people it is meant to serve.

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