

Ethics Instruction: Are We Covering What We Need To?

By Scott Civjan, Ph.D., P.E.

Structural engineers make ethical choices every day. Many decisions are engrained in engineering practice and become second nature, such as ensuring the safety of the public through sound design and engaging in honest business practices. In addition, engineers work to ensure equitable and inclusive work environments and uphold professional codes of ethics. We do our best. But is that good enough?

Some ethical dilemmas become touchstones in the profession and are canonized in case studies. Most engineers are lucky never to face these decisions but like to think that we would be as ethical as the heroes presented are. In reality, ethics is not as straightforward or monumental as these case studies lead us to believe. Daily design activities bring a barrage of decisions with impacts to projects, personnel, and stakeholders – with many conflicting interests. The ability to navigate these decisions ethically defines good practice. Unfortunately, there are signs that the profession does not always uphold these standards. Professional Engineering Advisory Boards regularly post examples of disciplinary actions, and monthly examples are collected in the American Society of Civil Engineers (ASCE) column, *A Question of Ethics*.

Since 2000, accredited civil engineering programs have been required to include ethics instruction. However, requiring ethics instruction and influencing ethical behavior can be very different things. Do teaching methods impress the practical importance of ethics in a meaningful way? Studies have reported higher incidences of ethical transgressions among engineers than in other majors, with cheating in university situations a strong predictor of unethical behavior in the workforce. In fields where public safety is at risk, this is especially troubling.

Meeting accreditation requirements typically includes ethics modules discussing the *Codes of Ethics*, published by ASCE and the National Society of Professional Engineers (NSPE), and example case studies. More innovative instruction methods are sometimes included, like reading or writing stories with ethical cliffhangers, assigning philosophical readings, or technical discussions of micro/meso/macro ethics (personal behavior through societal, ethical issues). I propose that ethics instruction may not be effective when focusing on infractions, heroic actions, relying solely on philosophy/ethicist views, or relying on non-realistic scenarios to engage students.

Codes of Ethics-based instruction can imply that avoiding violations equals ethics, which is misguided. Future engineers should be people you want to do business with, not those looking for loopholes in morality. Case studies create challenges when presenting scenarios that ask us to pontificate on the scurrilous offender, perhaps discussing variations that would result in a different action. Having students cognitively evaluate situations they cannot fully imagine themselves in, due to inexperience, completely misses the intuitive and reactive nature of many ethical decisions. When construction issues arise, decisions must be made to replace a piece, modify it, or check capacities, often by the end of the day, if not sooner.

How do we make the decision? It is pointless to discuss whether the fabricator should have notified us before it got to the field or assign blame for missing a design error. We are engineers. We fix problems. We quickly focus on the problem, decide whom to bring into the decision, and identify impacts to the schedule and final product. Other stakeholders and society at large are of concern but not often at the forefront of these decisions. Our preconceptions and history of previous decisions come into play. The approach to these decisions relies on personal ethics, experience, and the company culture, a culture that subtly shifts over the years based on the ethics of the individuals.

Perhaps a more significant issue with case studies, or fictional ethics stories, is that a clear tragic outcome or heroic action is often used to grab student interest. This suggests that ethical decisions are a once-in-a-career event of major consequence, which is likely to give students an arms-length perspective on ethics as events that happen to others and a belief that one can learn ethics purely through observing the behavior of others.

The more removed the situation is from their current life, the easier it is to think abstractly without relating personally to the decision. I have given an assignment of two situations, one a student using online resources during a closed book exam, and another where an early career engineer finds online sample calculation spreadsheets posted for a design. I see the former as directly violating an ethical agreement and the latter as a typical office scenario using blogs or posting useful templates. Many students could not relate to the latter, thinking it a much bigger ethical lapse since the stakes of



public safety and company reputation could be at risk. They misconstrued the ethics because the situation is not in line with their current experience. Case studies expecting the perspective of a project or construction manager are situations even further removed from their experiences. This leads to learning “correct” decisions but not evaluating and modifying their own ethical behavior.

So, what to do? I propose that ethics instruction should include awareness of how individuals make decisions, slowly expanding scenarios from current student experiences to what they might experience later in their careers. We need to move the conversation away from blame and toward understanding different perspectives and competing goals. Everyone working on a project wants to get the job done safely, on time, and on budget. No one wants to get bogged down in RFIs, arbitration, and lawsuits. We want to include the broader impacts our decisions have on stakeholders and society-at-large but often find it hard to see the direct connection to our decision. We can disagree on decisions because of our background and perspective. There are temptations to defer decisions, place the responsibility on others, or let something slide because “that is how it has been done before” or to avoid confrontation.

Ethics is often the simple matter of what battles we choose to engage in and what perspectives, aside from our self-interest, are included in the decision. A subsequent article will follow up with some ideas on guiding students and early-career engineers toward a career where they think about the ethics and impacts of their decisions. ■



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