Responsible Engineering: The Importance of Character and Imagination

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ABSTRACT: Engineering Ethics literature tends to emphasize wrongdoing, its avoidance, or its prevention. It also tends to focus on identifiable events, especially those that involve unfortunate, sometimes disastrous consequences. This paper shifts attention to the positive in engineering practice; and, as a result, the need for addressing questions of character and imagination becomes apparent.

INTRODUCTION

Discussions of ethics in engineering practice typically have two common features. First, understandably, they tend to focus on specific events, typically events that are newsworthy because of their unfortunate, if not tragic, consequences. Second, they usually focus on questions about alleged wrongdoing, its avoidance, or its prevention. Important as such discussions are, this paper will focus on a different, though related, aspect of engineering ethics—namely, responsible engineering practice. Given the importance of responsible professional practice, it is perhaps surprising how little attention has been directed to this more positive side of ethics in the literature.

In this paper I will explore the role that character and imagination might play in determining how engineers understand and deal with their responsibilities as engineers. I will offer only preliminary reflections on this relatively unexplored topic, inviting others to join in both widening and deepening the inquiry. In illustrating what I have in mind, I will limit my primary focus to the responsibilities of engineers to protect public safety, health and welfare. These are by no means the only sorts of responsibilities engineers have, but I will say little about them here. My basic thesis is that fulfilling an engineer’s responsibilities to protect public safety, health, and welfare calls as much for settled dispositions, or virtues, as it does for performing this or that specific action.

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My reflections take their cue from William F. May’s observation that it is particularly important for professional ethics to pay attention to moral character and virtue, as these dispositions shape professionals’ approach to their work. He notes that professionals typically work in institutional settings, often making it difficult to determine just where things have gone wrong and who should bear the responsibility. Also, professional expertise, particularly in large organizations, is not widely shared, even by fellow professionals. So, May concludes, we need professionals to have virtues that warrant their being trusted: “Few may be in a position to discredit [them]. The knowledge explosion is also an ignorance explosion; if knowledge is power, then ignorance is powerlessness.” He adds, “One test of character and virtue is what a person does when no one else is watching. A society that rests on expertise needs more people who can pass that test.”

What counts as “passing” this test of character? Especially when bad consequences become apparent only after the passage of considerable time, it can be very difficult to discredit specific professionals. This suggests that, when no one is watching (which is much of the time), professionals may be able to get away with shoddy, if not deliberately wrongful, behavior. So, “passing” the test seems to require avoiding such behavior even when no one will notice. But this is essentially negative—the avoidance of behavior that would be to one’s discredit if noticed by others. Although this is the dominant emphasis in literature on professional responsibility, we should also want to know what contributions professionals make to desirable outcomes when no one is looking. This can be equally difficult to notice and to assess. We typically take for granted the reliability of the work of engineers. For example, we assume that the elevator will work, that the bridge will bear the weight of traffic, that the building will not fall, and so on, even though we have little understanding of the work that is required to make this so—let alone the special engineering efforts that may have prevented failures or improved reliability.

When we shift our attention in this more positive direction, it quickly becomes apparent that what might count as responsible (as distinct from irresponsible) professional practice can vary widely. Followers of the now retired comic strip Calvin and Hobbes may recall the episode in which six-year-old Calvin has finally made his bed. His pal, Hobbes the stuffed tiger, says, “Gee, your mom sure was impressed when you made your bed.” Calvin replies, “Right. That’s how I like it—to impress her by fulfilling the least of my obligations.” We can think of Calvin as occupying one end of a spectrum of responsibility that ranges from the minimal to the supererogatory (“above and beyond the call of duty”). Somewhere between these two ends of the spectrum is where most of us spend most of our time.

It is interesting that, like the work of professionals, Calvin’s bed-making requires certain skills—skills that may be well developed or poorly developed, conscientiously employed or lackadaisically employed, and so on. Of course, we would prefer the services of conscientious professionals who have well developed skills, good judgment, and the like. However, we may end up with a clever Calvin who is content to stay out of trouble and to exert the least effort necessary for “success”; and if May is right, we may not be in a good position to know just how marginal the services are. By the same token, we may not be in a good position to know just how competent and conscientious other professionals are.