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Michelfelder Discussant Remarks - APPE 2010

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Description

Discussant remarks by Diane Michelfelder looking at challenges faced by engineering education in teaching sustainability and environmental justice.

Body

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As this panel was taking shape, Sharon Jones (Director of the Engineering Program at Lafayette College) and I were slated to participate as co-discussants. Unfortunately, Sharon could not be here this morning, but as she sent me her thoughts, let me begin by sharing them with you. From the perspective of engineering education, Sharon raises four points.

1. “Given engineering accreditation requirements, all students must learn about engineering ethics, however the coverage varies depending on what approach a college takes -- from just making sure students know the codes of ethics to full-fledged courses that help students develop frameworks based on moral theories that can be used to help with difficult decisions. Such varying coverage cannot guarantee that students know much more than the code of ethics for their discipline.”

2. “Some engineering disciplines have embraced sustainability, albeit defined from an anthropogenic stance as being important to limit impacts to future (human) generations caused by projects today. Some engineering disciplines are closely connected to such a definition of sustainability because their projects have a direct association with the impacts e.g. a transportation project through forests, or filling in a wetland for development. However, other engineering disciplines are more removed from the impact because the impact often depends on how the engineered device is used, in other words human behavior matters and the engineer does not control that (or so he/she thinks).”
3. “That said, even for an engineer who belongs to a discipline where the impact is direct, he/she has been exposed to the code of ethics, and he/she understands the anthropogenic meaning of sustainable development, the phrases "sustainable development" and "hold paramount the safety, health and welfare of the public" do not necessarily imply/include environmental justice. Engineering is based on designing a solution to a problem within a set of constraints and one of the constraints embedded throughout the education process is that of cost effectiveness, a term that comes from a traditional cost benefit approach of looking for the maximum benefits versus costs at an aggregate level. Environmental justice (and justice in general) requires a consideration of the distribution of benefits and costs among sub-populations and traditional engineering economic analysis does not include frameworks for this.”
4. “In conclusion,” Sharon notes, “there is no expectation that a student who has received a traditional undergraduate engineering education knows the meaning of EJ, much less how to address EJ in practice. That is currently gained via engineering experience over a career. Addressing this requires rethinking the educational model to incorporate ways for students to learn about justice and inequity and to provide them with frameworks to handle these considerations in the context of engineering problem solving. ***We are not there yet***.”

In turning now to my own remarks, I’d like to begin by briefly picking up on Sharon’s third point.

The challenge she is describing is not unique to engineering education. Illustrating what David Crocker said yesterday regarding how philosophers are as guilty as everyone else, it can be found in ethics education in the humanities as well,

particularly where you might least expect it to appear—and that's in environmental ethics. As environmental ethics has responded to the challenge, in J. Baird Callicott's words, of "scaling up" its interests from debates over intrinsic value and moral considerabilty in order to deal with global climate change and sustainability, a couple of things have happened. One, environmental ethics textbooks have gotten much longer; for instance, I taught from a 500 page book last semester and I just received another as an exam copy that was over 800 pages long. But the heft is secondary to the fact that even as these volumes get larger sustainability tends to be addressed in one section and environmental justice in another, so that students exposed to one of these topics might not be exposed to the other. How can this separation be explained?

To return to a phrase that Indira Nair used yesterday, I believe it can be traced to the temptation within teaching ethics to *play it safe.* In this context, playing it safe consists of holding the *material* (the use of resources) off to one side and the *social* (the impacts on people) off to the other, rather than approaching the teaching of ethics in terms of thinking what is to be human as being embedded within social-material or social-technical systems. One reason we philosophers tend to play it safe is tied to the fact that ethics education in philosophy suffers from the same problem as engineering education, only in reverse. If the latter tends not to think sufficiently about the role of the social in the construction of the material, the former tends not to think sufficiently about the material, the *thingly*, the designed. For this reason, I think I would somewhat disagree with John Ehrenfeld as to whether we'd be better off had Descartes never lived. For had Descartes never lived, we would not have had the Heideggerian critique of Descartes; and it is in large part due to Heidegger and some other existential philosophers that tools and machines were able to become legitimate objects of philosophical inquiry.

In the course of his presentation John Ehrenfeld made an intriguing proposal that sustainability be understood as an emergent property. I am not sure quite what to make of this. It strikes me that sustainability does not just emerge from a particular combination of states of affairs, but rather is the product of purposive work and a good deal of effort. Let us though assume for the moment that it makes sense to see sustainability as an emergent property. I wonder if that immediately leads to another question. Even if sustainability is an emergent property, how would equity of distribution of environmental burdens and benefits follow from it?

Here I would like to return to something that has been on my mind since last night's

lively discussion on the matter of “fuzziness.” It is not simply that social justice, or sustainability, or environmental justice are fuzzy concepts (arguably, environmental justice is less fuzzy but still contested). The world is a fuzzy place. We are nearly always acting on the basis of incomplete knowledge. Increasingly, we find ourselves faced with unparalleled complexities, novelties of scale, the blurring of the distinction between the technical and the social, uncertainties over how very small and insignificant impacts of actions and behaviors might add up to very large and significant impacts, and uncertainties over how small impacts might combine and associate with one another in unexpected ways. In short: not only is the world a fuzzy place, it is getting fuzzier all the time.

Last night, Sheila Jasenoff pointed out there are some 500 definitions of sustainability. Does this mean we ought to give up on the project of gaining greater consensus about what sustainability means? No, and especially not if one believes that sustainable practices are ones that will not lead to an inequitable distribution of environmental benefits and hazards down the road. Will sustainability ever stop being a contested concept? Again, no, but that should not deter us from trying to reach a greater degree of consensus. As the philosopher Brian Barry has point out, in its contestability sustainability is no different from a host of other normative concepts that we have no trouble relying upon in ordinary and everyday decision-making.

With this in mind, I wonder if it might be helpful to step back from worrying about the “fuzziness” of concepts such as sustainability or social or environmental justice in order to think about what processes and approaches might be most useful in reaching some measure of agreement over contested matters. In this context, what strategies might we have at our disposal?

One strategy, which we often use in the course of everyday life when we are trying to gain more clarity, is the method of analogy. We could try to come to more agreement about contested concepts if we take one or more concepts we agree on as a starting point, and then ask how similar a particular contested concept is to that first one. Yesterday, in the APPE resource room, I happened to pick up James Garvey’s book, *The Ethics of Climate Change.* Garvey uses the method of analogy to talk about sustainability. With Kant’s distinction between perfect and imperfect duties clearly in the background, he asks: Is the practice of sustainability more like charity or kindness, or more like a morally required act, such as saving a drowning child (Peter Singer’s famous example)? He argues it is closer to the latter than the

former. So that would be one approach.

Another way of coming to more agreement over contested concepts would be to use something like a Rawlsian process of reflective equilibrium, in which one works to see if a particular belief can be justified by holding it up against those beliefs whose justification is not in question. With regard to the particular contested concepts about which we have been talking, I personally find this approach to be an appealing one. In practical terms it would mean that the responsibility for framing sustainability and other concepts would not rest primarily in the hands of philosophers and other humanists. Rather, a process of reflective equilibrium would mean that philosophers and engineers would work together, taking beliefs arising out of both theory and practice, for the purpose of developing greater consensus around contested concepts. In his presentation, Robert Figueroa eloquently stressed the importance in working toward environmental justice of bringing together multiple communities and making sure everyone had a “seat at the table.” I believe it is also critical for philosophers and engineers to join in cross-community conversation in order to develop a working framework to reduce “fuzziness” on the matters that have brought us here together this weekend.

Topics

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Sustainability

Discipline(s)

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