

Putting your money where your mouth is: implementing engineering's self-definitions of problem-solving to teach social justice

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Engineering is often defined around the notion of problem-solving (Pawley, forthcoming). Some scholars such as Zussman (1985), and Riley (forthcoming) have pointed out the incongruity of a profession of engineering waiting others to define its work for it, with Downey(2005) arguing that engineering should perhaps instead be defined around "problem-definition" in order to retain its professional autonomy. I argue that either notion can be leveraged in engineering education contexts to develop a generation of engineers who connect the idea with broader social justice goals. Rather than allow engineering as a profession to focus on the construction or solution of problems in certain contexts (commercial, industrial and military rather than domestic) as sites of engineering, and or with certain actors (wealthy, male, White, rather than women, people of colour or the poor) as beneficiaries of engineering, perhaps we can change the course of engineering by providing future engineers — engineering students — with alternative visions. In this session, I will provide examples of cases that could be used within an introductory engineering course framework, including the August 2007 decertification of the levees in East St. Louis, and sustainable design from the PBS series, e2: the economies of being environmentally conscious. Focusing on these cases will allow students to see ways that engineers should more authentically fulfill their self-definition as problem-solvers by defining problems in ways that do not "design out" women, people of colour, and people in poverty.