Abstract

BACKGROUND

U.S. engineering educators are discussing how we define engineering to our- selves and to others, such as in the recently released U.S. National Academy of Engineering (NAE) report, Changing the Conversation. In these conversations, leaders have proposed the skills, knowledge, processes, values, and attitudes that should define engineering. However, little attention has been paid to the daily work of engineering faculty, through their engineering research and teaching students to be new engineers, that puts these discipline-defining ideas into practice in academia.

PURPOSE (HYPOTHESIS)

The different types of narratives engineering faculty explicitly or implicitly use to describe engineering are categorized. Categorizing these common nar- ratives can help inform the nationwide conversation about whether these are the best narratives to tell in order to attract a diverse population of future engineers.

DESIGN/METHOD

Interviews with ten engineering faculty at a research-extensive university were conducted. Interview transcripts were coded thematically through coarse then fine coding passes. The coarse codes were drawn from boundary theory; the fine codes emerged from the data.

RESULTS

Faculty members’ descriptions moved within and among the narratives of engineering as applied science and math, as problem-solving, and as making things. The narratives are termed “universalized” because of their broad- sweeping discursive application within and across participants’ interviews.

CONCLUSIONS

These narratives drawn from academic engineers’ practice put engineering at odds with recommendations from the NAE report. However, naming the narratives helps make them visible so we may then develop and practice telling contrasting narratives to future and current engineering students.

KEYWORDS

discourse analysis, engineering epistemology, faculty work

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Bio

Alice Pawley is an assistant professor in the School of Engineering Education and an affiliate faculty member in the Women’s Studies Program at Purdue University. Dr. Pawley has a B.Eng. in Chemical Engineering from McGill University, and an M.S. and a Ph.D. in Industrial and Systems Engineering with a Ph.D. minor in Women’s Studies from the University of Wisconsin-Madison. She is co-PI on Purdue University’s ADVANCE initiative, through which she is incorporating her work on metaphors into better understanding current models of women’s underrepresentation in the context of Purdue, and creating new models via institutional ethnography. Her research focuses on using the metaphor of a boundary as a tool to better understand how faculty determine what counts as engineering, and to identify how engineering might be understood as a gendered discipline.

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