Professional culture contributes to gender wage inequality in engineering

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Women engineers are underpaid for their contributions to technical activities, due to cultural ideologies in the engineering profession, according to Rice University research.

"Cultural ideologies within professions may seem benign and have little salience outside of a profession's boundaries, but may play an important role in wage inequality," said Rice Assistant Professor of Sociology Erin Cech.

To study the engineering profession, Cech used National Science Foundation survey data to demonstrate that patterns of sex segregation and unequal pay for women break consistently along the lines determined by engineering's "technical/social dualism," an ideological distinction between "technical" and "social" engineering subfields and work activities. The study will be published in the journal Social Forces.

"This article demonstrates the importance of understanding how professional cultures contribute to inequality within professions," Cech said. "Professional cultures serve as a touchstone for judgments of professional competence, excellence and fit, yet such cultures are largely ignored in current inequality literature."

Cech found the wage gap in engineering to be largest in one particular arena: work considered to be most "technical"—the most valued side of the technical/social dualism. She said common stereotypes that men are more technically inclined and women are more socially inclined get

mapped on this dualism and have consequences for wages: Women engineers are not underpaid for engaging in social activities (including management), but they are underpaid for their technical work.

Cech said engineering is a useful profession to study the effects of cultural ideologies on wage inequality because women are underrepresented in engineering and encounter persistent inequality once there. Women are only about 12 percent of the engineering workforce and as little as 7 percent in certain subfields such as mechanical engineering.

At the heart of this gender wage gap in engineering are dualistic styles of thought, Cech said. Starting in undergraduate training, engineers learn to draw strong lines between "people-focused" versus "technology-focused" activities, between detached objectivity versus emotional connectedness and between "hard" technologies (such as engines) versus "soft" technologies (such as logistics). "Such dualisms are false representations of engineering in practice, as engineers' work necessarily involves technical and social activities simultaneously," Cech said.

The segregation and differential payment of men and women along this cultural ideology suggests new ways to understand these inequalities, Cech said. "My results suggest that seemingly benign cultural beliefs within the engineering profession have real consequences," she said. "Although the technical/social dualism does not reflect the reality of engineers' heterogeneous day-to-day work, this ideology has salience and power."

Cech said research on other forms of cognitive and schematic bias has proven effective at minimizing bias. "Explaining and directly refuting this ideology in engineering education, hiring committee training and 'diversity workshops' … may help weaken the influence of the technical/social dualism and begin to undermine gender inequality in

engineering," she said.

She said the consideration of professional cultures may open up fresh areas of inquiry into inequality within professions. "Understanding how biases are built into cultural meaning systems specific to powerful institutions like professions may illuminate why inequality persists despite the spread of egalitarian ideals," Cech said.

More information: Read the abstract for "Ideological Wage Inequalities? The Technical/Social Dualism and the Gender Wage Gap in Engineering": sf.oxfordjournals.org/content/ … 2/sf.sot024.abstract

Provided by Rice University

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