

# Gender Bias in the Engineering Workplace

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**Summary** The findings from this study are based on the results of an online survey of more than 3,000 engineers in the U.S.A. and Canada to understand the experiences and impact of implicit gender bias in the engineering workplace. This topic is aligned with planned topics of Gender Summit 11 on the impact of gender stereotypes on hiring, retaining, and promoting diverse talent in the engineering profession.

## 1. Relevance

Implicit bias can negatively impact workplace climate, which prior research has shown is a factor in women's decisions to leave the engineering profession. This study differs from prior social psychology laboratory studies of implicit bias in engineering because it focuses on the actual workplace experiences of women engineers.

## 2. Aims & Objectives

The primary research objective was to test for four basic patterns of gender bias in the engineering workplace that have been found to affect decisions in hiring, promotions, and compensation: Prove-It-Again, Tightrope, Maternal Wall, and Tug of War. Researchers also analysed the impact of implicit bias on workplace processes, including hiring, pay, promotions, performance evaluations, and mentoring.

## 3. Methods

More than 3,000 professionals with at least two years of experience as engineers or engineering technicians completed the online survey. The survey included questions related to the four basic patterns of implicit bias. Comparisons were made between responses by gender, with particular focus given to comparisons against the white male majority in the North American engineering workplace. In addition to an analysis of the quantitative data collected, a qualitative analysis was conducted based on almost 900 individual survey comments received.

## 4. Results

Large gender gaps were reported for three of the four basic patterns of bias. **Prove-It-Again:** 61% of women vs. 35% of white men reported having to prove themselves repeatedly to get the same level of respect and recognition as their colleagues. **Tightrope:** 65% of women versus 85% of white men reported having the same access to desirable assignments as their colleagues. **Maternal Wall:** 55% of women versus 78% of men stated that having children did not change their colleagues' perceptions of their work commitment or competence. Negative comments received by male engineers reflect the belief that engineering is highly meritocratic, and that "efforts to 'balance' gender and race diminish the overall quality of an organization..." illustrating the controversial nature of the issue.

## 5. Conclusions

The findings provide evidence that women engineers feel that they are disadvantaged in hiring, pay, promotions, performance evaluations, and mentoring. As efforts are made to increase diversity in STEM, organizations must address the implicit biases that are transmitted through basic business systems.

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