

Explicit & Implicit Stereotypes

Explicit stereotypes or attitudes are opinions that people consciously think about and assess. These can be shared verbally.

Implicit stereotypes¹ are automatic and involuntary associations that people make between a **social group** (i.e. "men") and a **domain** or **attribute** (i.e. "science" or "math").

A person can have different implicit and explicit stereotypes. For example, one can have conscious beliefs that men and women are equally capable engineers, yet may automatically associate engineering more with men than women. The implicit association of men with math or science is different than sexism, or explicit stereotypes about women's abilities, as implicit associations are unconscious and automatic.

In Summary

Working female engineering feel less committed to their job and less valued by their organization compared to their male counterparts.

Our results suggest that these gender differences could be tied to prevalent implicit gender stereotypes - associating engineering more with men than women - that working engineers tend to show regardless of their gender. A similar pattern could also exist between feeling valued by one's organization and implicit stereotypes.

Since these findings are correlational, it is difficult to infer causation. Future research needs to explore how exactly implicit gender stereotypes might impact working female engineers.

Employment Experiences Study

Women are underrepresented among working engineers². In this study, we explored how the experience of working as an engineer differs for men and women. We studied professional engineers (263 in total: 145 women, 118 men) who work in engineering companies across North America. All participants were trained and employed as engineers.

Implicit Gender Stereotypes & Engineering

Our findings:

On average, people of all genders **associated engineering** more with **men** than women.



When implicit stereotypes are **strong**, women are less committed to their job than men.

When implicit stereotypes are weak, men and women are equally committed to their job.

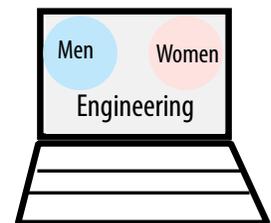


This study asks how widespread ideas about **gender** and **engineering** relate to women being more likely than men to drop out of engineering^{5,6,7}.

How Implicit Stereotypes Are Measured

The Brief Implicit Attitude Test⁴ (bIAT) measures implicit stereotypes and biases.

Words flash on a computer screen. Participants quickly decide whether or not each word fits into one of two categories presented on the screen.



When people have a strong implicit bias, they are faster to categorize science and math words along with words related to men but not women.

When people have no implicit bias, it's just as easy for them to categorize science and math words with "women" or "men."

More Resources & References

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5. Hill, C., Corbett, C., & St. Rose, A. (2013). *Why so few?: Women in science, technology, engineering and mathematics*. Washington, DC: AAUW.
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7. Beasley, M.A., & Fisher, M.J. (2012). Why they leave: The impact of stereotype threat on the attrition of women and minorities from science, math and engineering majors. *Social Psychology of Education*, 15(4), 427-448.

About Engendering Engineering Success (EES)

EES is a joint research project between the University of Alberta, the University of British Columbia, and the University of Guelph. We aim to identify which organizational practices best predict an inclusive and supportive workplace culture that maximizes organizational commitment and productivity for both men and women.