

Washington Post, Aug 9, 2014

URL: <http://www.washingtonpost.com/blogs/she-the-people/wp/2014/08/09/uncivil-work-environment-blamed-for-lack-of-women-engineers/>

## Study: Uncivil work environment pushing women out of the engineering field

*“Scientists investigate that which already is; engineers create that which has never been” – Albert Einstein*

Workers with skills in science, engineering, math and technology are among the [most in demand and highest paid of any sector](#). They are seen as key drivers of innovation, problem-solving and economic growth, who will help shape the future.

And most of them are men.

While that news is hardly shocking, a new National Science Foundation report released on Saturday about why so few women go into engineering, or stay in the field, highlights a key reason: a workplace culture of incivility toward women.

“I wouldn’t call it a hostile environment, but it’s definitely chilly,” said Nadya Fouad, a professor of educational psychology at the University of Wisconsin-Milwaukee, who presented the results to the American Psychological Association in a talk entitled [“Leaning In, But Getting Pushed Back \(and Out.\)”](#)

Fouad and her colleagues surveyed more than 5,000 women who had graduated from some of the top universities with engineering degrees over the past six decades and found that 40 percent had either quit the field or never entered the profession in the first place.

For more than two decades, women have accounted for about 20 percent of all engineering degrees. Yet fewer than 11 percent of all engineers are women. And this despite a massive funding effort to get more people into STEM fields – \$3.4 billion in federal funds for STEM education since fiscal 2010, with \$13 million targeted directly at women.

And while caregiving responsibilities – the stereotypical view for why women leave demanding professions – played a role in some decisions, for the most part Fouad found that what really pushed women out were uncivil workplace climates, the expectation to put in long hours of face time in the office, and the perception that there was little opportunity to advance.

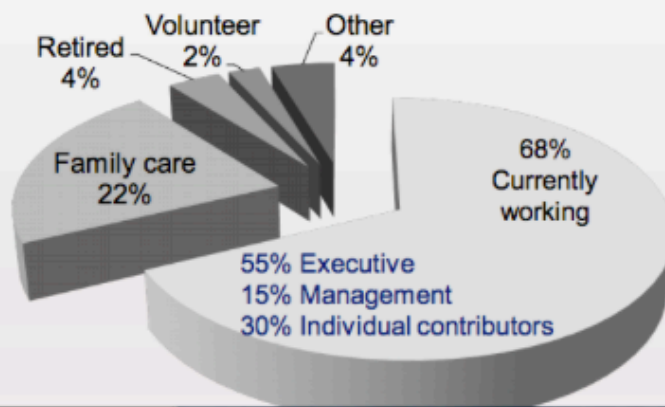
Of the women who left the field less than five years ago, two-thirds pursued better opportunities in other fields, — 72 percent became either managers or executives. One-third said they stayed home with children because their companies didn't accommodate work-life conflicts.

## Paths for those who left more than five years ago:

- **Why Did They Leave?**

- To fulfill care-giving responsibilities (17%).
- Not offered opportunities for advancement (12%).
- Lost interest in engineering (12%)

### Where Are They Now?



From "Leaning In, But Getting Pushed Back (and Out)"

"It's not about 'fixing the women' – making them more confident or anything. It's really about the climate in the workplace," Fouad said. "We found that even women who are staying consider leaving because they don't have supervisor support. They don't have training and development opportunities. And their colleagues are incivil to them, belittle them, talk behind their backs and undermine them."

On top of that are inflexible workplace cultures that demand long hours for no clear work-related reasons.

"One woman said, 'My supervisor makes me stay every night until he talks to all of us, and he never gets to me before 10 p.m.," Fouad said. "You can say, 'She should have gone and talked to him.' But the point is, why isn't somebody saying, 'Why are you keeping all your employees here until that late?'"

Fouad said that their report, which was a three-year effort, is filled with similar comments. She had originally hoped to 1,200 women would respond to the survey.

Instead, 5,300 women did, unleashing a wave of pent-up frustration, disappointment and anger. “We really touched a nerve,” she said.

“I think the men in power are unaware – or at least I hope it’s just that they’re unaware – of how the climate is for women,” she continued. “And they have no incentive to change, because they personally aren’t experiencing it.”

### In their own words...

- “ To advance, it seems as though you must be willing and able to work 50+ hours/week and often be on-call 24/7.”  
– Caucasian Chemical Engineering Graduate
- “There isn’t a strong network of females in engineering. You either need to learn to be “one of the guys” or blaze the trail yourself, which is very difficult. I deviated from engineering... but work now in construction, where I am the only female executive officer.”  
– Caucasian Agricultural Engineering Graduate
- “[There is] no opportunity for advancement in a male-dominated field—the culture of engineering is male-centric with high expectations for travel and little personal time.”  
– Caucasian Chemical Engineering Graduate

From “Leaning In, But Getting Pushed Back (and Out)”

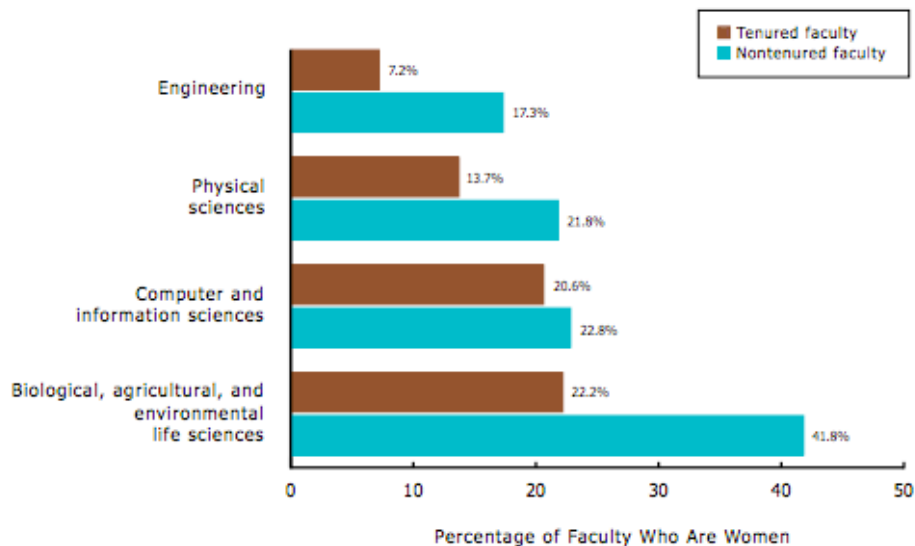
The findings add weight and context to previous looks at why more women don’t go into or don’t stay in STEM fields. Another report by the American Association of University Women, “[Why So Few?](#)” highlighted the roles of stereotypes that women aren’t “naturally” smart enough, and implicit or unconscious bias that these are careers for men.

In fact, they noted that the ratio of children being identified as mathematically gifted, scoring 700 or higher on their SAT at age 13, had dropped from 13:1 of boys to girls 30 years ago, to 3:1. And before administering tests, studies have shown, when girls are reminded that they are equally as capable of boys, performance differences disappear – a sign, some argue, of how powerful girls themselves react to the stereotype.

The AAUW report also cited a lack of role models. In the United States, women make up about 12 percent of engineering professors, one of the lowest percentages in all

STEM fields, where women are more likely to make up 18 to 22 percent of the faculty.

**Figure 13. Female STEM Faculty in Four-Year Educational Institutions, by Discipline and Tenure Status, 2006**



Source: National Science Foundation, Division of Science Resources Statistics, 2009, *Characteristics of doctoral scientists and engineers in the United States: 2006* (Detailed Statistical Tables) (NSF 09-317) (Arlington, VA), Author's analysis of Table 20.

#### AAUW Report: Why So Few?

Fouad and her colleagues are at work on another study that looks at best practices and what companies can do to attract and retain more women engineers.

The solution? Creating welcoming and supportive work environments.

Drawing from responses from women engineers who were satisfied in their workplaces and were advancing in their careers, Fouad makes four recommendations:

- Recognize the problem. That women aren't leaving just because they want to spend time with their children. They're leaving because of the difficult workplace climate and lack of opportunity to advance.
- Change starts from the top. Managers must create a culture that doesn't tolerate incivility and condescension toward women, and respects all employees' work-life obligations.

- Implement system-wide changes. Invest in professional training and development and make clear how people advance, with fair criteria. In other words, break up the 'old boy network' for getting ahead.
- Implement role-level changes. Communicate clearly what needs to be done, how and by when.

“These are all things that can change,” Fouad said. “Because this is not a ‘woman’s issue.’ This is about creating a good work environment. And good work environments are good for everybody.”

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URL of APA presentation by Nadya Fouad, August 2014.

<http://www.apa.org/news/press/releases/2014/08/pushed-back.pdf>



## Leaning in, but Getting Pushed Back (and Out)

Nadya A. Fouad, Ph.D  
University of Wisconsin-Milwaukee

### Agenda

- Status of women engineers nationally
- “Stemming the tide”
  - Rationale
  - Key findings
- Differences between women engineers who stay and leave
- Best practices from the study

## Women = Dispensable Talent?

“The stock market would not allow the waste of capital in the way we tolerate the waste of female talent and ability.”

- Lord Myners, in his keynote speech at the Report of the Gender & Productivity Summit, 11 Downing Street, October 2004

APA Annual Convention

August 7-10 2014 ★ Washington, DC

### Project on Women Engineers' Retention (POWER): Study Site and Method

- 3-year, NSF-funded longitudinal study
- Formally partnered with top 30 universities with the highest number of women engineering graduates (list from ASEE, 2008).
- Reached out to female engineering alumnae through email and postcards
- Women from an additional 200 colleges participated in the survey after hearing of this study through colleagues

## Why Do Women Stay in Engineering?

- They are satisfied with their jobs and careers
- They have supportive bosses and co-workers
- Their organizations “get it”- how do they show it?
  - They recognize women’s contributions and care about their well-being
  - They invest in their training & professional development
  - They provide clear, transparent paths for advancement
  - They have supportive work-life policies *and* a work culture that supports work-life balance for all

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## Are Current Women Engineers a Flight Risk?

- Yes, they are. And here’s why:
- Women who thought about leaving their organizations experienced :
  - excessive workload without enough resources, conflicting work demands, and unclear expectations about work goals and standards
  - a career plateau with few advancement opportunities
  - low satisfaction with their jobs and careers
  - a variety of climate related barriers



- Random sample of 250 persisters compared to 264 non persisters
- Persisters:
  - 82% White, 9% Asian, 4% Latina and 2 % African American,
  - 67% married/partnered,
  - Mean age 36
  - Median earning of \$75,000-\$ 99,000

## Nonpersisters

- Non Persisters:
  - 79% White, 8% Asian, 3% Latina and 3 % African American,
  - 65% married/partnered,
  - Mean age 35
  - Median earning of \$75,000-\$ 99,000

## Summary and Final Thoughts

- All evidence points to one fact:

**Women's departure from engineering is not a "woman's issue" after all.**

- Climate issues and lack of advancement opportunities lie at the heart of women opting out and/or not leaning in.
- Our results also show that women engineers who contemplate leaving their organizations also think about leaving the profession:

**attrition from organization=attrition from profession**

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“Today, despite all of the gains we have made, neither men nor women have real choice. Until women have supportive employers and colleagues as well as partners who share family responsibilities, they don't have real choice. And until men are fully respected for contributing inside the home, they don't have real choice either.”

— Sheryl Sandberg, *Lean In: Women, Work, and the Will to Lead*

## NPR Summary:

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Fouad offered some recommendations for engineering companies looking to retain female employees. She says the organizations first need to recognize the problem, and then commit to change at the leadership level. That way change can perpetuate throughout the system.

But not everyone agrees with Fouad's findings.

"Women aren't leaving engineering to go and hide in a corner. They are leaving for many reasons which a study like this may not find," said [Elizabeth Bierman](#), president of the Society of Women Engineers and an aerospace engineer for 20 years. "The work environment may be one reason, but for the majority it is not the case."

Her organization recently conducted its own [retention study](#) and found that although women do leave the engineering workplace faster than men, they do so for a variety of reasons. Many of those reasons, such as lack of work-life balance, also resonate with men, Bierman said.

The bigger problem facing women and engineering, she said, is getting more women into the engineering pipeline. Bierman says companies looking to retain both women and men should improve their work-life balance policies.

"We've found that women stay in engineering because they want to make sure they are making a difference," she says. "If women feel they are making that difference, retention levels will be higher."