UCD Women in Engineering Study

The metaphor of a leaky pipeline emerged over 40 years ago to explain the phenomenon of large numbers of women leaving STEM careers and university courses. Since then, various factors have been put forward as the key reasons women leave the industry, including struggles with work-life balance, confidence, isolation, and issues with promotions. However, most research on the topic was carried out in the US or UK, while the experiences of women in Ireland were absent. In 2023, supported by the UCD Foundation, a team of researchers launched the first large-scale examination of women's experiences working in engineering in Ireland. The aim in doing so was to identify policies and practices to enable women in Ireland to persist in the industry.

Presented here are the project's survey findings on factors influencing whether women leave, consider leaving, or persist in engineering in Ireland. Findings are representative of 370 female employees across all fields of engineering, 311 of whom still work in engineering, and 59 who left the profession.

Before delving into the findings, important to note that the 311 women still working in engineering were asked whether they had ever considered leaving the profession. Results showed that 149 women, or 48%, said they had considered leaving, while 162, or 52%, said they had never considered leaving. Although we don't have figures to compare this finding to other industries, the finding that nearly half of women working in engineering have considered leaving is stark. It suggested a need to dig further into this subgroup and that, perhaps, their experiences aligned more closely with the 59 survey respondents who no longer work in engineering. As such, and to create a clearer picture of what influences women to leave, or indeed never consider leaving engineering, the following groups were created:

Women who Left 59 + women who Considered Leaving 149 = 208 (L/CL)
Vs.
Women who Never Considered Leaving = 162 (NCL)

Next, a comparison of the experiences of the L/CL group and the NCL groups is explored:

1. Demographics

When examining the extent to which relationships and family life play a role in women's decision to persist in engineering, we found that 63% of those in a relationship were women who left/considered leaving. Similarly, 63% of those with children also fell into the left/considered leaving group. While amongst those who were single, 55% had never considered leaving. This tells us that demographics played a role in determining women's decision to persist, but how so?

We know from research elsewhere that women do not leave engineering to 'become full-time wives and mothers', and the same is true for our respondents. When we looked at the career moves of the 59 respondents who left engineering, almost 80% had moved to new careers, while only 12% left the workforce entirely to take care of their families.

"...'Stress' was selected as the issue most influencing women's consideration to leave engineering"

2. Employment Conditions

To understand the relationship between leaving or persisting in engineering and women's conditions of employment, we examined the following four factors:

a. Years Worked

70% of those who worked more than 30 years never considered leaving. Unsurprisingly, perhaps, this tells us that the likelihood a woman will leave/consider leaving declines the longer she works in the industry. Instead, the key period to focus on in terms of improving retention is during female employees' first 20 years in the industry, as 60% had left/considered leaving.

b. Company size

Amongst those who worked in companies with less than 50 employees, 80% were women who left/considered leaving. Women who left/considered leaving also made up the majority, 59%, of those who worked in companies with 5000+ employees. Mid-size companies were where women appeared most content, as 55% of those working in companies with 500-5000 employees had never considered leaving.

c. Weekly Hours

We found that as weekly working hours increased, a higher percentage had left/considered leaving. For example, for those who worked less than 25 hours per week, only 25% had left/considered leaving, while those who worked 50+ hours per week, 75% had left/considered leaving. And, we found, in terms of satisfaction with working hours, that for those who stated they were dissatisfied with working hours, 94% had left/considered leaving.

d. Gender make-up of colleagues

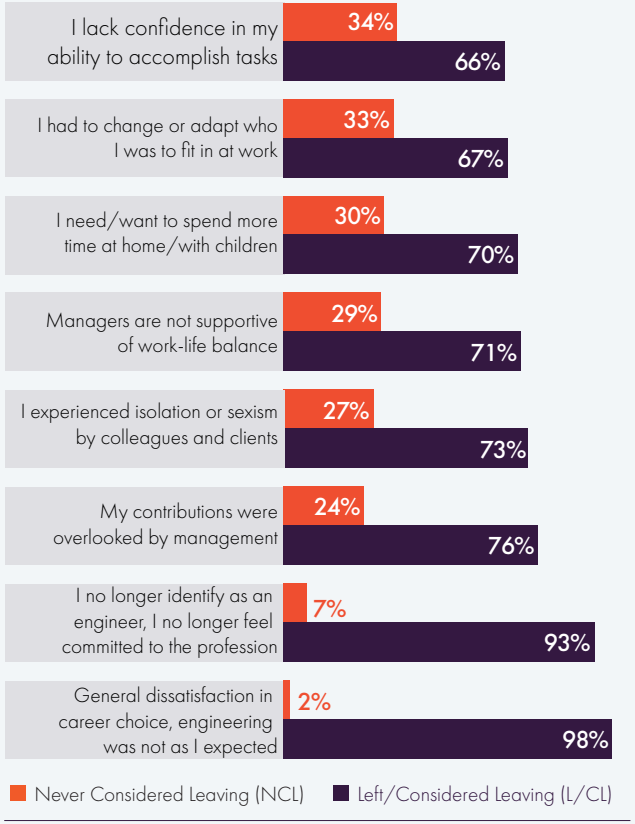
84% of respondents work with mostly/all male colleagues. Testing for respondents' satisfaction with the gender make-up of colleagues, we found that amongst those who were dissatisfied, 61% had considered leaving. By contrast, the majority of those satisfied, 56%, were women who had never considered leaving.

7. Hewlett, Sylvia Ann et al. "The Athena factor: Reversing the brain drain in science, engineering, and technology." Harvard Business Review Research Report (2008)

3. Workplace Issues

Finally, we examined which workplace issues influenced the likelihood that a woman will leave/consider leaving or never consider leaving. Below, we see that for those who experienced each issue, the majority were women who left/considered leaving.

Percentage of Respondents Reporting Having Experienced the Issue



An important takeaway from these findings is that it's unlikely there is one singular issue or factor driving women to leave engineering.

"On average, women who left/considered leaving experienced twice as many issues as women who had never considered leaving"

Instead, it might be an accumulation of certain issues combined with demographic or workplace conditions, which leads women to consider leaving. The key takeaway for those in management or HR is that if any of the above issues or personal concerns are noticeable amongst female employees, it is worth working with employees to help overcome them. As elsewhere, and in the case of employee retention, prevention is better than cure.

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