

Engaged Engineers at Work: Insights on What Matters Most

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Engagement in Engineering- Why Should We Care?

- Warnings from “Rising above the Gathering Storm”—
Engineers are critically needed for US innovation
- Engineering profession has the highest turnover compared to other skilled professions: accounting, law, medicine, and higher education.
- ROI on STEM careers is not optimally realized
- Loss of engineers=loss to organizations and profession, loss to society, loss to the U.S.’s competitive edge, loss to individual
- Need to understand what organizational factors keep engineers engaged in the profession

A Trilogy for Engineering Engagement



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- Engineers' engagement with their work and the profession is predicted by a trilogy of factors-
 - Presence of high levels of job/career satisfaction and commitment
 - Presence of supportive organizational practices and behaviors
 - Absence of detrimental organizational practices and behaviors

Data Overview



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- Two NSF-funded studies to assess engineers' perspectives on their engineering careers
 - Formally partnered with top 30 universities with the highest number of women and URM engineering graduates (list from ASEE, 2008).
 - Self-report web-based surveys sent to women and men who graduated with an undergrad in engineering
 - Data collection in progress with male engineering alumni
 - *Who's an engineer?* Participants asked to self-identify whether they were currently working in engineering

Respondents' Profile

- 1,934 women; 995 men (to date)
- Mean Age:
 - Men = 43 years; Women = 37 years
- Marital/Co-habitation status:
 - Men = 80%; Women = 71%
- Parental status:
 - Men with kids 40%; Women with kids = 40%
- Represented all major areas of engineering and all SIC industries

Engineers' Work Satisfaction and Commitment

- Related to high levels of:
 - Supportive supervisors and coworkers
 - Opportunities for training and development
 - Recognition of accomplishments
 - Supportive work-life climate
- Related to low levels of:
 - Role ambiguity
 - Chilly work climate
 - Sexism and supervisory undermining behaviors

Satisfaction with the Engineering Profession

- Engineering satisfaction is related to high levels of:
 - Opportunities for training and development
 - Opportunities for promotion
 - Recognition of accomplishments
 - Coworker support

Satisfaction with the Profession



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- Engineering satisfaction is related to low levels of:
 - Role ambiguity
 - Family interference with work
 - Chilly Climate (i.e., sexist work behaviors and supervisory undermining behaviors)

Commitment to the Profession



- Commitment to Engineering is related to high levels of:
 - Opportunities for training and development
 - Recognition of accomplishments
 - Supportive work-life climate
- Commitment to Engineering is related to low levels of:
 - Role ambiguity, conflict and overload
 - Chilly Climate (i.e., sexist work behaviors)

Gender Differences in Engagement?

- Both men and women reported positive impact of supportive work practices on engagement
 - Women report greater advancement opportunities, greater work/life support
 - But, women report less supervisory and coworker support
- Both men and women report the negative impact of a chilly work climate on engagement
 - But, women report more sexist work behaviors and undermining behaviors from supervisors and co-workers

Gender Differences in Engagement?

- Women are more satisfied and committed to their organizations than men
- Men are more satisfied with the engineering profession than women
- Women are more committed to the engineering profession than men

Engagement is Malleable

- Organizations can choose to enhance engagement by:
- Creating systems and policies that --
 - Invest in skills-based training & professional development
 - Provide transparent paths with clear, fair criteria for mobility and advancement
 - Clearly define work roles and goals
 - Train bosses to be supportive
- Creating a work culture that --
 - has zero-tolerance for sexism and undermining
 - recognizes employees' contributions and cares about their well-being
 - respects employees' work-life obligations

Questions?



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Thank you!

Sexist and Undermining Work Behaviors

- Examples of undermining behaviors targeted at women by their managers and co-workers:
 - Being belittled, insulted, talked about behind their back
 - Being pulled back when trying to succeed at work
- Sexist work behaviors are evident when women are treated in a condescending, patronizing manner by senior managers and co-workers