ENGENDERING ENGINEERING SUCCESS - PROJECT REPORT

The Impact of Human Resource Policies & Practices on the Retention & Advancement of Female Engineers

Abstract

Engendering Engineering Success (EES) is a joint research project between the University of Alberta, the University of British Columbia, and the University of Guelph. EES aimed to identify which human resources practices and an inclusive and supportive workplace culture that maximizes career outcomes for women.

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Project Overview

This report examines practices relating to work-life balance and human resource policies in Canadian organizations that employ engineers and how these practices and policies correlate with tenure and advancement of female engineers.

Sample and Methods

We surveyed a Human Resources professional in each of 39 companies that employ engineers. The organizations represent six engineering sectors (Consulting Services, Utilities, Communications, Transportation, Government, Primary and Resource Industries, Construction and Manufacturing and High Technology).

We asked them to report on the following (see Appendix for more detail):
- Human resources policies and benefits:
    - 11 separate types of "work-life balance" benefits related to flexible work arrangements, maternity/parental leave and on-going family care
    - 13 Human Resource policies and programs related to employee development and training, mentorship, recruitment, promotion and other areas of support
- Career outcomes:
    - Average salaries of male and female engineers at different levels in the organization
    - Percentage of female engineers at different levels
    - Tenure of male and female engineers in the organization
- Their perception of employee's attitudes toward work-life balance benefits, HR policies focused on recruitment, retention and advancement of female engineers and policies aimed at creating gender inclusivity
- Their perception of the company's 'diversity performance culture' (respondents asked to indicate their agreement with 4 statements about the priority placed on gender diversity in their company)

Findings

Finding 1. Companies offer a range of "work-life balance" benefits – the average number of benefits reported per company was 5 and the range was between 1 and 8.

THE MAJORITY OF COMPANIES REPORTED OFFERING FLEXIBLE WORK ARRANGEMENTS. A MINORITY OF COMPANIES OFFERED PAID MATERNITY AND PARENTAL LEAVES, THOUGH THESE NUMBERS ARE ABOVE RECENT REPORTS ON NATIONAL AVERAGE (IN 2008, APPROXIMATELY 19.4% OF EMPLOYED, EMPLOYMENT INSURANCE ELIGIBLE NEW MOTHERS RECEIVED EMPLOYER TOP-UPS). FEW COMPANIES REPORTED OFFERING PAID FAMILY CARE BENEFITS.

Work-life balance types of benefits

Y-axis: # of companies (0, 10, 20, 30, 40)

- Flexible Hours (87%)
- Telecommuting (87%)
- Compressed work week (64%)
- Flexible meetings (51%)
- Paid Maternity Leave (46%)
- Paid Parental leave (26%)
- Job Sharing (26%)
- On-site child care (10%)
- Subsidies for child care (7.7%)
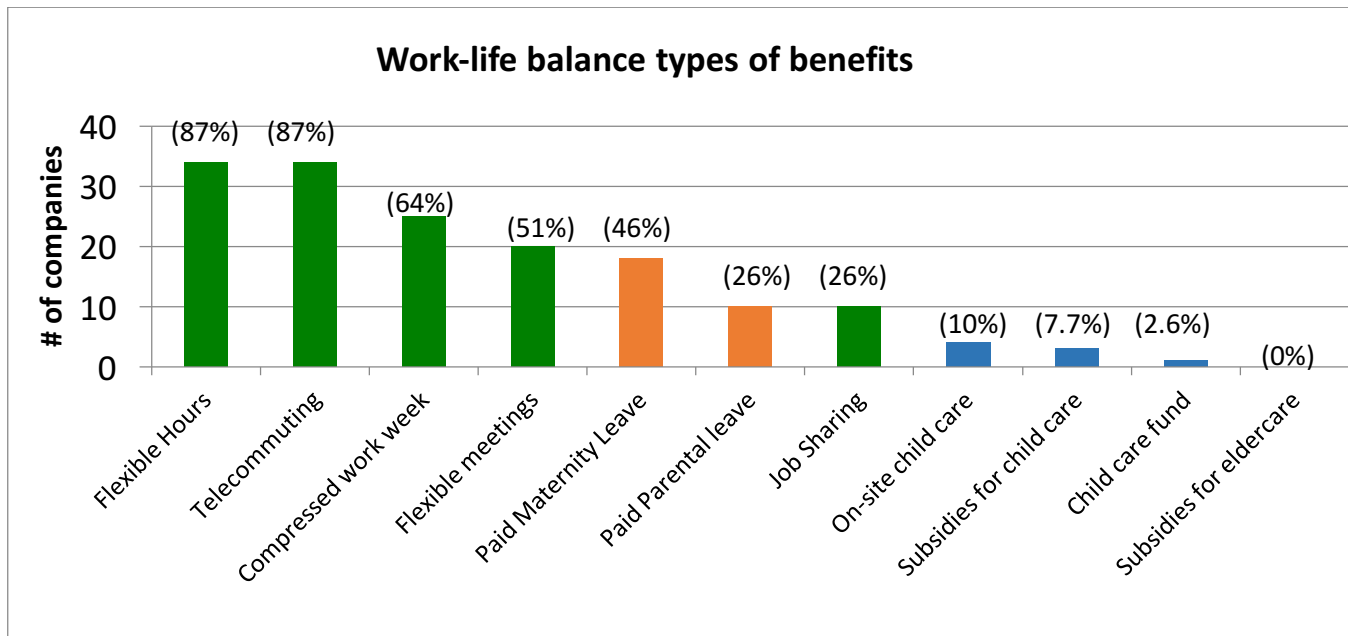- Child care fund (2.6%)
- Subsidies for eldercare (0%)

FIGURE 1 SHOWS THE NUMBER (AND PERCENTAGE) OF COMPANIES IN THIS SAMPLE WHO REPORTED THAT THEY DO OFFER THE BENEFIT LISTED ON THE HORIZONTAL AXIS. THE BARS ARE COLOR CODED TO INDICATE WHETHER THE BENEFIT IS A FLEXIBLE WORK ARRANGEMENT (GREEN), A PAID LEAVE (ORANGE) OR A FAMILY CARE BENEFIT (BLUE).

Finding 2. Human resources policies and practices varied across organizations. The average number reported per company was 4.6 and the range was between 1 and 10.

THE MAJORITY OF COMPANIES REPORTED OFFERING TRAINING, CAREER PLANNING AND MENTORSHIP TO BOTH MEN AND WOMEN. A MINORITY OF COMPANIES HAD HR PROGRAMS FOCUSED ON RECRUITMENT, RETENTION AND ADVANCEMENT OF FEMALE ENGINEERS. VERY FEW COMPANIES REPORTED HAVING A POLICY OF PROMOTING WOMEN TO SENIOR POSITIONS, ALL ELSE EQUAL.

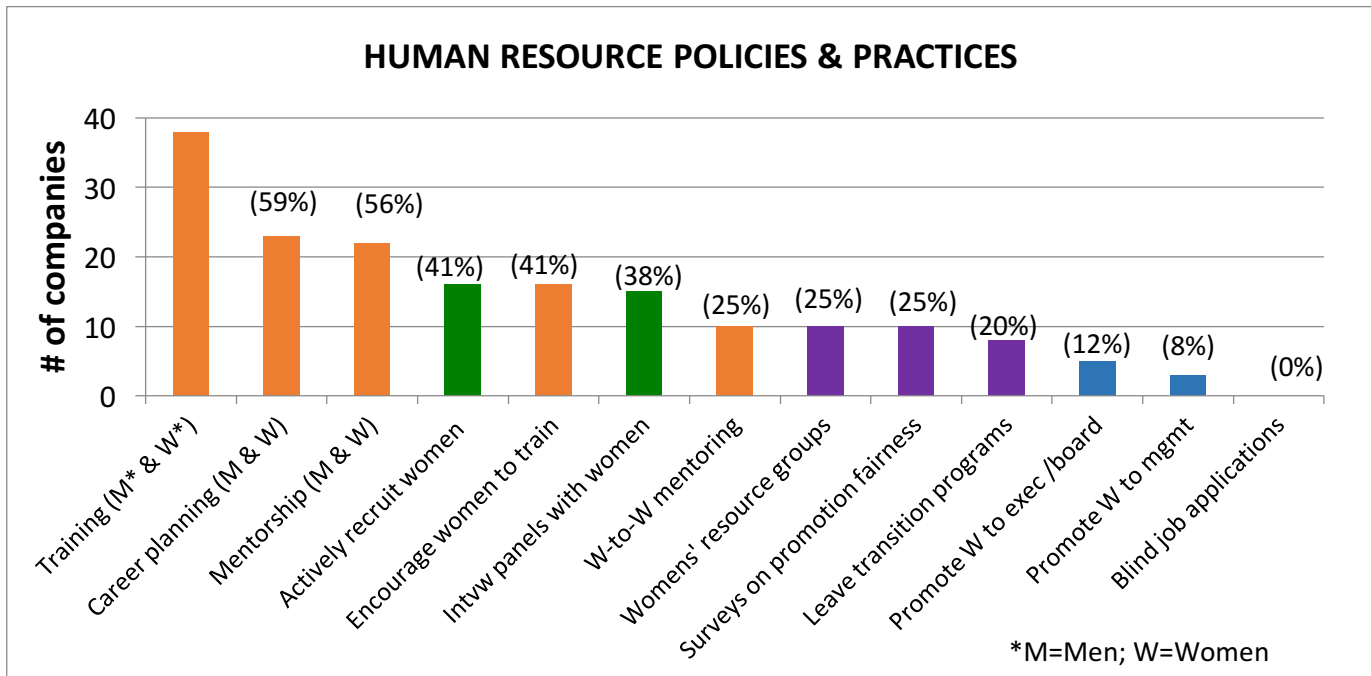## HUMAN RESOURCE POLICIES & PRACTICES

FIGURE 2 SHOWS THE NUMBER (AND PERCENTAGE) OF COMPANIES IN THIS SAMPLE WHO REPORTED THAT THEY DO OFFER THE POLICY/PRACTICE INDICATED ON THE HORIZONTAL AXIS. THE BARS ARE COLOR CODED TO INDICATE WHETHER THE BENEFIT IS ONE OF TRAINING/MENTORSHIP (ORANGE), RECRUITMENT STRATEGIES (GREEN) WHICH INCLUDE 'BLIND JOB APPLICATIONS', A PROMOTION POLICY (BLUE), AND A MISCELLANEOUS CATEGORY (PURPLE).

Finding 3: Women are underrepresented at all levels, but the percentage of women decreases markedly with increasing levels of seniority.

THE PERCENTAGE OF WOMEN IN MANAGERIAL ROLES WAS RELATED TO HAVING FAVOURABLE PROMOTION POLICIES FOR WOMEN (r=.49, p<.05). WE ASKED SPECIFICALLY, ALL ELSE EQUAL, WOULD YOU PROMOTE A WOMAN TO MANAGEMENT? THESE FINDINGS SUGGEST THAT SUCH POLICIES MAY BE IMPORTANT TO ENSURE THAT MORE WOMEN OCCUPY LEADERSHIP POSITIONS.

THE PERCENTAGE OF WOMEN IN MANAGERIAL ROLES WAS ALSO RELATED TO THE PERCENTAGE OF NON-MANAGERIAL FEMALE ENGINEERS PRESENT IN THE COMPANY. COMPANIES WITH MORE FEMALE ENGINEERS AT THE NON-MANAGERIAL LEVEL WERE ALSO LIKELY TO HAVE MORE FEMALE ENGINEERS IN FRONT-LINE MANAGEMENT (r=.39, p<.05), MIDDLE MANAGEMENT (r=.54, p<.01), AND BOARD OF DIRECTORS (r=.38, p<.05).

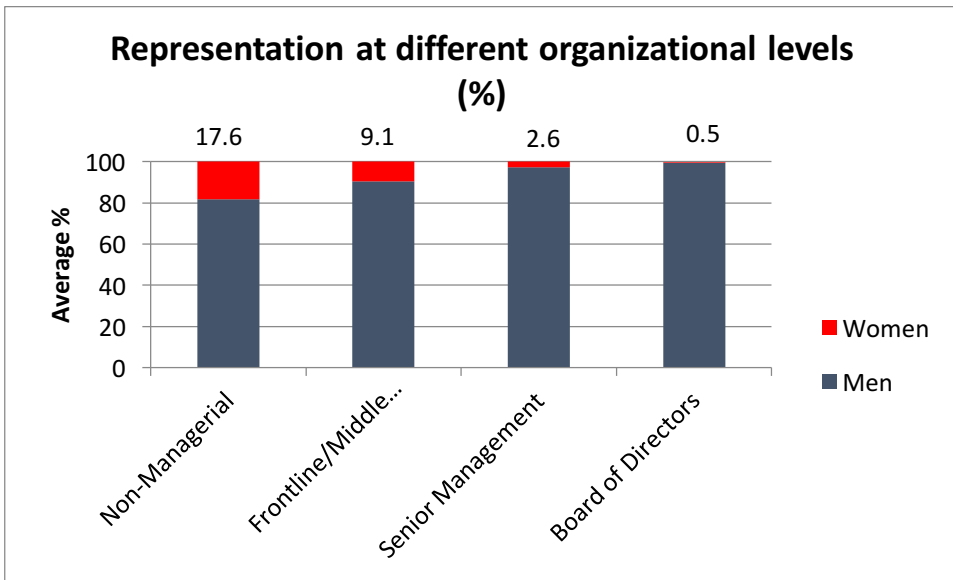## Representation at different organizational levels (%)

FIGURE 3 SHOWS THE REPRESENTATION OF WOMEN AT DIFFERENT LEVELS OF RESPONSIBILITY, INCLUDING THE BOARD OF DIRECTORS. THE PERCENTAGE VALUES ARE THE AVERAGES ACROSS ALL COMPANIES.

Finding 4. On average men had longer tenure with their current company than women and this difference is statistically significant (t(26)=3.81, p<.001).

THE TENURE OF FEMALE ENGINEERS WAS RELATED TO ORGANIZATIONS OFFERING SPECIFIC "WORK-LIFE BALANCE" BENEFITS: 1. ON-SITE CHILD CARE (r=.39, p<.05), 2. PAID MATERNITY LEAVE (r=.39, p<.05) AND 3. PAID PARENTAL LEAVE (r=.49, p<.01).

THE TENURE OF FEMALE ENGINEERS WAS ALSO RELATED TO THE COMPANY'S 'GENDER DIVERSITY PERFORMANCE' CULTURE (r=.40, p<.05). A COMPANY WITH A HIGH GENDER DIVERSITY PERFORMANCE CULTURE IS ONE THAT CONDUCTS ONGOING MEASUREMENT OF DIVERSITY INDICATORS AND HAS A STRATEGIC GOAL TO IMPROVE GENDER DIVERSITY.
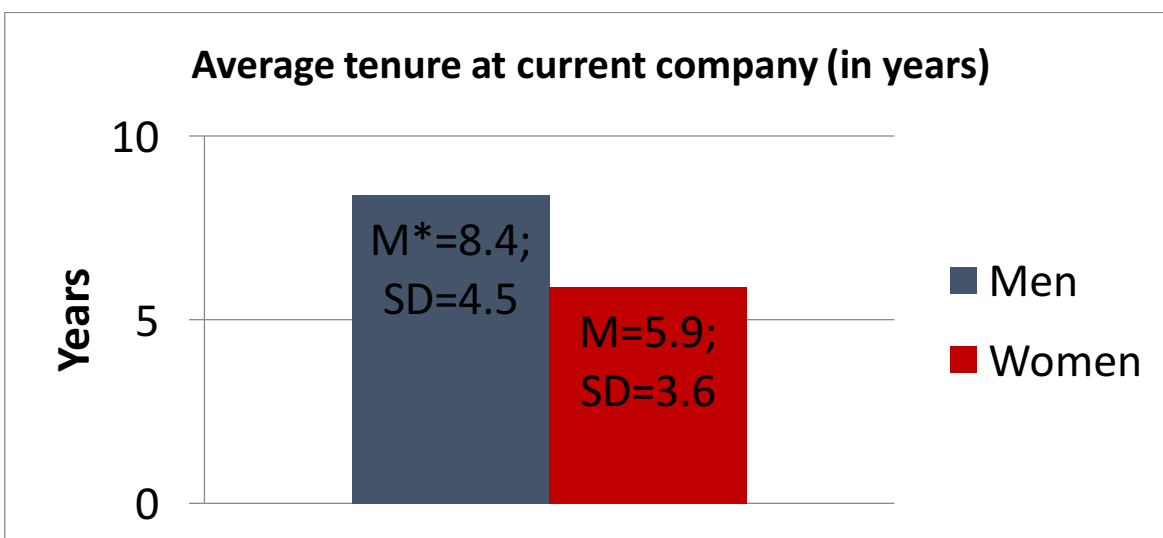
Average tenure at current company (in years)

FIGURE 4 SHOWS AVERAGE TENURE AT CURRENT COMPANY FOR MEN AND WOMEN IN YEARS.

NOTE: M*=MEAN; SD=STANDARD DEVIATION

Finding 5: Men's pay at all levels was higher than women's, but the difference was statistically significant at the level of senior management (t(5)=-2.58, p<.05).

THE SIMPLE AVERAGE* SALARY PER YEAR FOR MEN WAS APPROXIMATELY $85K AT THE NON-MANAGERIAL LEVEL, $107 AT THE FRONT-LINES MANAGEMENT LEVEL, AND $151K AT THE SENIOR MANAGEMENT LEVEL. AVERAGE SALARY PER YEAR FOR WOMEN WAS APPROXIMATELY $80K AT THE NON-MANAGERIAL LEVEL, $101 AT THE FRONT-LINES MANAGEMENT LEVEL, AND $137K AT THE SENIOR MANAGEMENT LEVEL.

THE SALARY COMPARISON FOR MEN AND WOMEN IN THE BOARD OF DIRECTORS IS PRESENTED IN THIS GRAPH, BUT THERE ARE TOO FEW CASES OF WOMEN MEMBERS OF THE BOARD FOR MEANINGFUL COMPARISON.

THE SALARY OF FEMALE ENGINEERS AT THE NON-MANAGERIAL LEVEL IS RELATED TO THE TENURE OF FEMALE ENGINEERS IN THE ORGANIZATION (r=.47, p<.05).

*THE SIMPLE AVERAGE IS THE AVERAGE ACROSS THE COMPANIES REPORTING. IT IS UNWEIGHTED FOR THE NUMBER OF ENGINEERS INCLUDED IN EACH INDIVIDUAL COMPANY'S AVERAGES.


FIGURE 5 SHOWS AVERAGE SALARIES FOR MEN AND WOMEN AT DIFFERENT LEVELS OF RESPONSIBILITY.

NOTE: A RELATED EES REPORT OUTLINES FINDINGS ABOUT THE RELATIONSHIP BETWEEN GENDER INCLUSIVE WORKPLACE POLICIES AND PRACTICES AND KEY EMPLOYEE OUTCOMES SUCH AS ORGANIZATIONAL COMMITMENT ("ENGENDERING ENGINEERING SUCCESS – THE BENEFITS OF GENDER INCLUSIVE POLICIES AND PRACTICES" AT HTTP://WWEST.SITES.OLT.UBC.CA/EMPLOYEE-EXPERIENCES/)

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http://wwest.mech.ubc.ca/ees/

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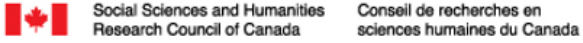
Appendix

Work-life balance benefits (Possible responses: "yes", "no", "I don't know")

Specific programs	# of companies reporting "yes"	Type of benefit
Flexible Hours (i.e., work scheduling flexibility around the start and end times of the work day, though a certain number of hours per day must be worked)	34	Flexible work
Telecommuting (i.e., allowing employees to working from home and communicate with the workplace through technology, occasionally or full time)	34	Flexible work
Compressed work week (i.e., full-time hours are worked in fewer than five days)	25	Flexible work
Scheduling meetings around family	20	Flexible work
Job Sharing	10	Flexible work
Paid maternity Leave (i.e., over and above basic entitlements)	18	Maternity/ Parental leave
Paid parental leave (i.e., over and above basic entitlements)	10	Maternity/ Parental leave
Transitional programs for parental leave	8	Maternity/ Parental leave
On-site child care	4	Family care
Subsidies for child care	3	Family care
Child care fund	1	Family care
Subsidies for elder care	0	Family care

Human Resources policies and practices (Possible responses: "yes", "no", "I don't know")

HR Policy or practice	# of companies reporting "yes"	Type of policy or practice
Training - Men & Women	38	Training/ Mentorship
Career planning-Men & Women	23	Training/ Mentorship
Encourage training - Women	16	Training/ Mentorship
Mentorship - Men & Women	22	Training/ Mentorship
Women-to-Women mentoring	10	Training/ Mentorship
Resource groups-Women	10	Training/ Mentorship
Benchmarking surveys on promotion fairness	10	Promotion policies
Leave transition programs	8	Promotion policies
Promote Women to executive/board levels, all else equal	5	Promotion policies
Promote Women to management level, all else equal	3	Promotion policies
Actively recruit women	16	Recruitment
Composition of interview panels	15	Recruitment
Blind reviews-applications	0	Recruitment

Perceptions of employees' attitudes related to various gender diversity policies

HR professionals were asked to rate the attitudes of employees to each of the following on a 7-point scale (1 = Very negative; 7 = Very positive):

- Work-life balance benefits
- HR programs and policies focused on the advancement of female engineers
- HR policies aimed at creating gender inclusivity

Climate – Gender Diversity Performance Scale

HR professionals were asked to rate on a 4-item scale the extent to which their company prioritizes gender diversity (1 = Strongly disagree; 5 = Strongly agree).

1. Improving gender diversity indicators (GDI) are important priorities for your company at the present time
2. Managers across our company recognize there is a positive value proposition for increasing gender diversity
3. Our company has a designated champion with authority and resources to lead the development and execution of strategies to improve our gender diversity
4. Currently individual managers are assessed for their performance in advancing diversity and/or an inclusive culture