

**THE BEST OF BOTH WORLDS? WORK, FAMILY LIFE
AND THE RETENTION OF WOMEN IN ENGINEERING**

Gillian Ranson

Department of Sociology
University of Calgary
Calgary AB Canada T2N 1N4
ranson@ucalgary.ca

ABSTRACT

This paper argues that family issues continue to be decisive for women contemplating careers in engineering, and that the successful retention of women in all facets of engineering work depends on fundamental changes in the way employers of engineers, and men in engineering, think about careers and family life. This argument is based on ongoing research which examines the relationship between work and family life for women and men who graduated from the Faculty of Engineering at the University of Calgary during the 1980s. As well as looking at the experiences of the women, this research also explores the way family life affects the working lives of men in engineering, in order to seek common ground and, perhaps, a better work-family balance for everyone.

INTRODUCTION

The Canadian Council of Professional Engineers, in its summary of findings from the 1997 National Survey of Professional Engineers and Professional Geoscientists, has noted that engineering continues to be affected by lower numbers of women in the ranks of seasoned engineers, and that only 5.5% of the total population of professional engineers in Canada are women.

Though women are graduating from university engineering programs in increasing numbers, keeping them in engineering long enough to make a real difference to the profession remains a challenge. Part of the problem is that the increasing numbers of women entering the profession are young; according to the 1991 census, about half of all the women engineers in Canada were between the ages of 25 and 34 -- the age during which most women are establishing relationships and starting families. In this paper, I build on the assumption that establishing *both* a career *and* a family is particularly difficult for women in engineering. The linkages between their working lives and their family lives creates for many women what I call a "dual-earner disadvantage", relative to many of their male counterparts. This paper looks more closely at the nature of the disadvantage, and some possible ways to reduce it.

THE DUAL-EARNER DISADVANTAGE

My awareness of the "dual-earner disadvantage" emerged from a recent research project which involved tracking as many as possible of the 242 women (and a random sample of a comparable number of men) who graduated from the Faculty of Engineering at the University of Calgary between 1980 and 1990.

My purpose in this study was to gather information on their work and family histories, in order to compare the career paths of the women and the men. Altogether it was possible, between June, 1997, and August, 1998, to locate and include 317 engineers (164 women and 153 men). Participants either responded to a telephone survey, took part in a face-to-face interview, or completed a mail-out questionnaire.

About 86 per cent of the men, and 77 per cent of the women, were married. About 71 per cent of the women, and 69 per cent of the men, had at least one child. One major difference between the mothers and the fathers in the study was their employment status: about 97 per cent of the fathers were in full-time paid work, compared to 66 per cent of the mothers. About 10 per cent of the mothers were working 20-30 hours a week, and 23 per cent were working less than 10 hours a week.

Among mothers and fathers working full-time, however, there were some other striking differences. Some 92 per cent of the mothers, but only 25 per cent of the fathers, had spouses who also worked full-time.

This difference indicates that, in this study, most of the mothers in full-time engineering jobs were juggling the challenges of dual-earner families, while most fathers were in more traditional families where the husband was the main money-earner and the wife was mainly responsible for the family. I do not mean to suggest that there are no advantages to women in dual-earner families; for one thing, there is more likely to be money for childcare and other domestic support. And women engineers in dual-earner families may be able to take career risks not possible for men whose income is the only one in the family. On the other hand, men with wives to care for the family can devote much more time and energy to their jobs -- perhaps on the grounds that it *is* the main source of income. The outcome, then, among engineers who are parents, is men whose careers are privileged and supported working with women whose careers do not necessarily come first, and who take on much more responsibility for their families than their male colleagues do. This is what I mean by the "dual-earner disadvantage". The finding, confirmed in many studies over the years, that children do not affect men's careers in the same way that they affect women's careers, was borne out in my study also. One question in the telephone and mail-out survey asked parents whether their family responsibilities had affected their career progress: 69 per cent of the mothers, compared to 21 per cent of the fathers, responded that their career progress *had* been affected. In most cases, among the women, the response was that family responsibilities meant careers were slowed down, or "put on the back burner" for a while.

THE DIFFERENCE THAT CHILDREN MAKE FOR WOMEN

At the 1998 CCWEST conference, in a paper on retention of women in engineering based on some of the preliminary findings of this research project, I noted some of the consequences of balancing work and family life for women in engineering. (Ranson, 1998). Those consequences bear repeating here. First, as noted above, women with children were far more likely to withdraw from full-time work than men were.

As we would expect, the men continued working full-time, and 96 per cent of them continued working in engineering. By contrast, 18 per of the women in the study were no longer working in engineering, and the shift was almost always a consequence of having children. As noted above, only about two-thirds of the mothers were working full-time at the time they were surveyed.

Among the mothers who continued to work in engineering, three clear strategies emerged as ways of managing to combine a career with family responsibilities. The first was to choose employment within a large organization (typically, in my study, a large oil company) with established maternity leave policies and precedents for part-time work, flex-time schedules and so on. In general, it was women, rather than men, who spoke about long tenure with an employer earning the benefits of flexibility, or the possibility of part-time work, once children arrived. Shelley, who had worked for her present employer since graduating in 1982, had taken maternity leaves of four to six months with each of her three children, and moved to part-time work after her second child. She commented that "it had taken her years" to manage it, and she would stay with her present employer until her children were all in school. Kathy, who went to work for her present employer some months after her graduation in 1990, said she would have looked for another job to get more experience, but had a baby instead. She decided not to move because "they were flexible and I had seniority".

Monica, who had worked for the same large company since graduation in 1985, pulled many threads together in reflecting on why she had not changed employers.

Up until now they have kept me here by, they somehow always seemed to give me what I wanted just when I needed it, you know. Like if I was thinking about leaving, they'd give me a raise . . .

There are several reasons but I guess one that's keeping me here now is the work-life balance. . .

Now we're finally at a position where we can imagine having a family and that's a big factor in [the company], a huge factor.

Monica pointed out that part-time work was an option, and those who worked three days a week were "treated equally". Another enticement was the fact that long tenure meant longer holiday entitlement, and "if I had a family. . . it would be nice to have more time off".

The second strategy, made possible by the large-scale restructuring in the energy industry in Alberta during the 1980s, was to take advantage of opportunities for contract or consulting work. In some ways, contract work provided the kind of flexible scheduling and manageable hours not available in many engineering jobs. About 13 per cent of the women in the study were self-employed consultants at the time they were interviewed. About half had careers that resembled those of the self-employed men, who worked full-time hours, usually in businesses employing others, and earning high incomes. The remainder (eight women) did occasional consulting work to keep in touch with engineering, but spent most of their time caring for young children.

These occasional consultants were interesting for two reasons. First, for all but one (a woman who turned to consulting work while completing a Ph.D.) consulting was a response to the presence of children. Three of the women, who had their first children in their 30s after establishing careers in engineering, were fielding calls from prospective employers and picking and choosing among contract jobs. But for all three, family had priority. Kaye's first child arrived when she was 37. As she said, "I've been working 15 years and it's just wonderful to have a break." Three of the women turned to consulting and contract work because they were unable to convert full-time jobs to part-time one. Two of the three actually continued to work for their former employers on part-time contracts. All these women represented a link between the women with children who were no longer working in engineering and those who had maintained more full-time careers through the child-rearing years. Second, they collectively suggested a reinterpretation of contracting work as offering the flexibility not always available in permanent engineering jobs.

One of the "occasional" contractors worked 20 hours a week, but none of the others did more than 10 hours of paid work a week. And all worked as individuals, not in businesses where they were employing others. This clearly differentiated them from the second group of self-employed women, all of whom worked for pay for at least 30 hours a week, and nearly two-thirds of whom were owners or part-owners of businesses employing others. Yet even in this group, almost all the women had children, and cited flexibility as the main attraction of self-employment. In this group, too, self-employment frequently followed long experience with other employers. Heather, having had her first baby in her 40s, wanted to have "quality time" for her child, and appreciated not having to "put in the long hours" because her business was up and running. Colleen transferred to consulting when her children were 14 and 10, because she wanted to be "super flexible", able to participate in her children's activities and volunteer at school and in the community.

The third strategy, hinted at in some of the comments above, concerned the *timing* of children. Engineers, more than women in more traditional female occupations, tend to have their children later, because their careers take longer to establish (Ranson, 1998), and because the presence of children may slow down the process even further. One example from my interviews makes this clear. Sarah, in her early 30s and with an MBA added to her engineering degree, was working for an oil company where she had just assumed responsibility for a major project that was making immense demands on her time.

I found it really tough the last few months, just keeping in contact with family and friends, and I felt really bad that I haven't been returning phone calls and I'm not available as much as I used to be. . . I'm not sure I like that but I think it's one of the things that comes with rising up the corporate ladder. . . I'm closer to the senior management than I've ever been and I see their lifestyles and part of me says, I don't want anything like that because they don't have a life.

I asked her if she would do what she was doing if she had a spouse and children, and she thought she would -- but with qualifications.

I know women that do do that here, but they have to have a very understanding spouse that's probably more flexible. It's very difficult to do this job and have a spouse that's doing exactly the same thing with exactly the same sort of aspirations, I think.

This is another way to describe the "dual-career disadvantage". In terms of the implications of career demands for the timing of children, Sarah was clear about the fact that the project she was managing would need her full-time attention for at least two years. She was single, she could hear her biological clock ticking, and she was really torn between the demands of an interesting and demanding job and her wish for a family and a life outside work.

THE DIFFERENCE THAT CHILDREN MAKE FOR MEN

The strategies outlined above are necessary because, until recently, engineering workplaces have not been occupied by people whose family responsibilities extended further than being breadwinners. As noted earlier, the vast majority of the men in the present study had wives who took major responsibility for the children. Does this mean, though, that men are content to leave all the family work to their wives, and focus single-mindedly on their careers? Times are changing, and many men are beginning to experience the costs of sacrificing family to career. There is now considerable research exploring the new "involved father" as image and reality (for example, Pleck, 1987; LaRossa, 1988; Gerson, 1993; Coltrane, 1996). There is very little research, however, that examines the actual effect of family responsibilities on how men organize and think about their work.

If we are interested in understanding the work-family experiences of women who are the newcomers to engineering, I think it is very important also to understand what it is that they are being measured against. I have just completed an exploratory study of the way some of the fathers in the study talked about their family responsibilities and their careers.¹ All 22 men in the study group were married, and all were in full-time paid employment, all but one in engineering work. Five were self-employed. Twenty of the 22 were main breadwinners for their families; only two had wives who worked full-time, and five had wives who worked part-time. The number of children ranged from one to four, with the average being two. The children's ages ranged from 16 to three months, with the average being eight.

Working with the interview material, I was looking at how the men talked about their working lives and their family responsibilities, and at the perspectives or discursive frameworks that seemed to organize this talk. I found that perspectives on fatherhood responsibilities usually went along with a particular approach to career and working life. This approach was largely reflected in the extent to which the norms of men's work behaviour were accepted or challenged. These norms relate to the use of time. An important component of the "good worker" identity that has long been associated with men at work is willingness to spend time on the job (Andrews and Bailyn, 1993; Pleck, 1993; Rappoport and Bailyn, 1996; Collinson and Collinson, 1997; Hochschild, 1997). So the extent to which the men in the study were willing to question

¹ The 1980, 1981 and 1985 cohorts of graduates were chosen for more extensive study, with in-depth interviews where possible, to contextualize the survey data, and also to explore in greater depth some of the economic factors that differentially affected cohorts in the larger sample. Of the 39 male graduates in the study from these three cohorts, 28 took part in face-to-face interviews. The 22 who had children are the focus of this discussion.

or challenge the need to devote long hours to the job emerged as a useful device to sort or categorize them.

It is helpful to visualize this work/family balance in terms of a continuum of conformity to the "good worker"/long hours norm. At one end of the continuum, I found men (the "conformers") who seemed to accept these expectations completely. These were the fathers who worked long hours and were seldom home -- and, more significantly, who did not question or problematize this state of affairs when talking about it in an interview. For example, Philip, a 35-year-old mechanical engineer working in land development and construction, spoke of how he "always expected" to occupy the breadwinner role while his wife cared for their three young children. This arrangement, he said, was "harder on her than on me", though she was "getting more comfortable in the role." He looked back on years of hard work to build his business:

[I'd] come home at six to eat dinner, play with the kids for an hour and my mind's still always on the work. I'd be back in my office from eight to 11 at night, sit in the hot tub for half an hour to unwind and then to bed. So I put in a lot of hours for a long time.

Much of his work was done from an office in his home; as a joke, he offered his wife's assessment of what this meant: "He hangs around a lot but he's not a lot of help."

Then there were the "qualified conformers". Different kinds of pushes and pulls between work and family life characterized the six men in this category. Their conformity was "qualified" for several reasons. For example, Gary's conformity was qualified mainly because it couldn't be sustained in the face of the demands of two young children and a wife who -- rare in this study -- also had a full-time paying job. Shifting away from a single-minded career focus was a change about which he was clearly ambivalent; his talk veered between gruff pleasure in his children, aged seven and three, and discomfort at the way their presence had compromised his image of himself as a professional employee.

Qualified conformity of a different kind was illustrated by Steve, Matthew, Bill and Richard. These men shared a focus on their careers which were, if required, allowed to take precedence over their family responsibilities. But their families were clearly very important to them. These men were more reminiscent of the breadwinner fathers of a generation ago, who put in time in sometimes less than challenging or enjoyable careers in order to support their families. Job security took a more central place in the talk of these men. The tension between work demands that must come first, and family responsibilities that were seen as highly significant, could be heard in all these cases.

For example, Bill, aged 46, was the father of one teenager, and the family's sole breadwinner since the boy was born. He had given up a job travelling in sales, to hire on with his present company. Being home every night at 5.30 gave "a certain stability and a certain rhythm to our family life . . . I think we've been good parents to our kid". But Bill was still aware that work pressures must occasionally take men away from their families. Men couldn't be as concerned with their families because of "outside forces" in the working world, and "the responsibility that most men I think feel, myself in the extreme, of being the breadwinner type function." The working world, for many men, was "a hard world at times" and "the family has to take care of itself to some extent."

The third point on the continuum I call "strategic accommodation". This group contained men who were like some of the women in the study, in that they managed to combine the demands of the job with the demands of their children by choosing their jobs very carefully. For example, Kent shared the concerns of the previous group about job security, but had found that security in a job whose predictable demands allowed him the time he needed for his family. Kent said he was in his office by 7 a.m. but left by 5.30 p.m. So he was able to make a commitment like acting as assistant coach on his son's sporting team.

Finally, at the other extreme from the "conformers" were the "challengers" -- fathers who explicitly criticized a single-minded focus on career, who made their family responsibilities a clear priority, and who changed the way they worked to give precedence to their families. What seemed to distinguish this group was not only the fact that they *had* made changes at work, but that they had had the confidence to challenge existing norms of men's work behavior. They were able to do so because they had a different career perspective from the other men in the study.

Unlike most of the other men in the study, these men were quite confident about their expertise and their ability to remain employed. This confidence played out in the way they organized their working days, and their attitude to time spent on the job. It was as if in some cases family issues could occupy more space because career worries no longer needed to. Others talked as if they had never *had* career worries.

For example, Keith, a 35-year-old chemical engineer, had been recruited to his present management position with a junior oil company by a company executive who knew him well -- and knew also, according to Keith, that "I've always enjoyed my time away from work as well." Now the husband of a full-time university student, and the father of a three-year-old, he said he did "more than his share" of child care and housework. Occasionally, that involved the need to tell his boss he was leaving early to pick up his child from day care. According to Keith, his boss recognized this as "part of the package he hired."

Rob, a 40-year-old mechanical engineer, and an acknowledged technical specialist in his field, had just left a long-term employer (where he had made rapid progress through the ranks) to start his own small consulting company. His experience and specialized skills made him highly marketable, and financially successful. He spoke as one who could name his employment terms, and he did so with an explicit focus on the demands of his two young children. In particular, he challenged the long hours which were, in his eyes, "the norm for the [energy] industry". Rob criticized the behaviour of those, like his former boss, who came into the office at 4 a.m. because he couldn't sleep, and "because he had Things To Do".

The question raised by this group was how their family responsibilities might have been described, and discharged, if their careers had unfolded differently. What was suggested here was not a radical challenge to the "good worker" ethic, but more a changing of gears by men who, by virtue of superior talent or possession of needed skills or simple seniority in an organization, had paid their dues and could therefore name their terms.

But if the fathers in the study differed, the "continuum" along which they differed actually represented a fairly narrow range. Even among the most family-oriented, the conventional eight-hour working day was considered a minimum obligation, and a 10-hour day with a very early start was not uncommon. What was also common to 19 of the 22 fathers was the amount of *discretion* available to them in the exercise of their responsibilities as fathers. This discretion was provided by the availability of a partner who, even if employed part-time (and only five were) could step in to replace the father if the need arose. The example provided by Derek, grouped with the "conformer" fathers, best illustrated this situation. Derek, who had two children aged nine and seven, and a wife who worked part-time, commented that he came in to work at 6.30 a.m. and tried to leave by 5 or 5.30 p.m. He also tried not to come in to work on the weekend. A few years ago he had been involved as a volunteer with some of his sons' activities, but had had to give them up because it was too hard to commit the time. The children shaped his work "in a small way".

But I mean, if I have to work late or whatever, and the kids have something going at night, I'll be calling [his wife] and saying, I can't make it, can you do it? Or if she can't do it, then I'll leave, and go and do it. But, I mean . . . my job here basically *isn't* nine to five, and I can't always be home at five o'clock in the evening, you know. . . I'll try to make it, let's put it that way, but if I can't then hopefully [she] can do it.

Later, however, he commented:

If I wanted to, I could. But, you know, if I know I have work to do that needs to get done, I find it hard to just leave it, and then come back the next day and do it. . . I don't know what you call that but I guess it's a conscience maybe, or something like that? . . . If I wanted to, I could do. It would affect I guess my job to a certain degree. But that's not who I am.

This is the "advantage" side of the "dual-earner disadvantage" coin. As other researchers have discovered (Seron and Ferris, 1995) this is the kind of flexibility with respect to time on the job that many women with children do not have.

LEVELLING THE PLAYING FIELD

On one hand, it is very difficult to see how the "playing field" of the engineering workplace can be levelled, given the nature of the "dual-earner disadvantage" I have described. On the other hand, I would argue that it is helpful to have a better understanding of the nature of the disadvantage many women face at work in order to bring about change.

I have suggested that the "dual-earner disadvantage" grows out of women in dual-earner families, whose careers do not necessarily come first, working with men in more traditional family situations, with wives at home or working part-time in order to shoulder the family responsibility. This traditional family structure has considerable ideological force, but it is actually a demographic minority. What makes it so dominant then in engineering? One possible explanation is that engineering has been until very recently an almost exclusively male occupation. It continues to be a "traditional" choice for men, who may well be "traditional" in other senses as well. Male-dominated occupations or workplaces have never gone out of their way to welcome women, and it is unlikely that they would provide the sort of environment that would challenge old ideas about the way the world should work. So one possibility for change lies in the fact that, as more women enter university engineering programs (a trend that is already occurring) the profession itself will become less "traditional", and old ideas will be challenged from engineering school on.

But social change is slow. There need to be other, practical, strategies that working women with children can make use of as they wait for more intangible social change. The first such strategy, one used, as I have already noted, by many mothers in engineering, is to work in large organizations with policies and precedents that make them at least nominally "family-friendly". This doesn't address the "dual-earner disadvantage", but it provides other, more formalized guarantees of job stability. If this isn't possible, another strategy I would suggest is to take advantage of structural change in the way engineering work is organized. In Alberta, as I noted earlier, downsizing in large companies has created many opportunities for consulting work. This work allows for more flexibility than many more permanent jobs, and it has become commonplace enough that it is recognized as a legitimate way to earn a living as an engineer.

The third strategy, linked to the second, is to make a virtue of career interruptions and job changes. Again using Alberta as my example, the restructuring of the 1980s changed the normative engineering career path from one characterized by long-term employment with a single employer to a much more mobile path characterized by multiple job changes. Many of the women and men I interviewed for my study had experienced these shifts, but what was very interesting was the way some chose to talk about their multiple-employer careers. I have written elsewhere (Ranson, forthcoming) about the way this multiple-employer career path has come to be described by some engineers as actually the ideal. They argue that it makes them much better qualified and more marketable engineers, because their experience is diverse, and not confined

to the narrow range of skills they would gain with a single employer. The point here is that change is framed in a positive light. Women with children are sometimes obliged to interrupt careers for reasons other than downsizing or layoffs, so it might be helpful to have a different way to think about the interruptions.

The fourth strategy is to recognize allies among male colleagues who also have children. The experiences of the fathers described above indicate that there are certainly some men who want to be more involved with their children than fathers in the past (and engineers of the old school) have been. There is now research to suggest that rigid workplace expectations may cause men to conceal the strength of their psychological commitment to their families (Pleck, 1993; Cohen, 1991, 1993). Clearly, then, it is in men's interests as well as women's to challenge workplace expectations that make such concealment necessary.

REFERENCES

- Andrews, A. and Bailyn, L. (1993) Segmentation and synergy: two models of linking work and family. In J. Hood (ed.) *Men, Work and Family*. Newbury Park: Sage.
- Canadian Council of Professional Engineers. (1998) *1997 National Survey of Professional Engineers and Professional Geoscientists*. Summary of findings: Draft final.
- Cohen, T. (1991) Speaking with men: application of a feminist methodology to the study of men's lives. *Men's Studies Review*, 8, 4, 4-13.
- Cohen, T. (1993) What do fathers provide? Reconsidering the economic and nurturant dimensions of men as parents. In J. Hood (ed.) *Men, Work and Family*. Newbury Park: Sage Publications, Inc.
- Collinson, D. and Collinson, M. (1997) "Delaying managers": time-space surveillance and its gendered effects. *Organization*, 4, 3, 375-407.
- Coltrane, S. (1996) *Family Man*. New York: Oxford University Press.
- Gerson, K. (1993) *No Man's Land: Men's changing commitments to family and work*. New York: Basic Books.
- Hochschild, A. (1997) *The Time Bind*. New York: Metropolitan Books.
- LaRossa, R. (1988) Fatherhood and social change. *Family Relations*, 37, 451-458.
- Pleck, J. (1987) American fathering in historical perspective. In M. Kimmel (ed.) *Changing Men: New directions in research on men and masculinity*. Newbury Park: Sage.
- Pleck, J. (1993) Are "family-supportive" employer policies relevant to men? in J. Hood (ed.) *Men, Work and Family*. Newbury Park: Sage Publications, Inc.
- Ranson, G. (1998) Retention of women in engineering: Good news and bad news from Alberta. Paper presented to CCWEST conference "Women in the workplace: achieving harmony". Vancouver, May 21-23.
- Ranson, G. (1998) Education, work and family decision-making: finding the "right time" to have a baby. *Canadian Review of Sociology and Anthropology*, 35 (4): 517-733.

Ranson, G. (2001) Engineers and the western Canadian oil industry: Work and life changes in a boom-and-bust decade. In V. Marshall, W. Heinz, H. Krueger and A. Verma (eds.) *Restructuring Work and the Life Course*. Toronto: University of Toronto Press.

Rappoport, R. and Bailyn, L. (1996) *Relinking Life and Work: Toward a better future*. Ford Foundation.

Seron, C. and Ferris, K. (1995) Negotiating professionalism: the gendered social capital of flexible time. *Work and Occupations*, 22, 1, 22-47.