

“I REALLY DIDN’T HAVE ANY PROBLEMS WITH THE MALE-FEMALE THING UNTIL ...”: SUCCESSFUL WOMEN’S EXPERIENCES IN IT ORGANIZATIONS

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Abstract. The gendered nature of organizations limits women’s opportunities for advancement. While women have made inroads into many male-dominated jobs, studies suggest they can be marginalized within masculine workplace cultures. In this paper, we examine the experiences of eleven women who have had successful careers in the male-dominated information technology field, to explore their perceptions of the barriers and opportunities women face. We find that our respondents have a tendency to downplay the significance of gender, even as they provide evidence that gender has shaped their careers. We argue that their reluctance to see how gender conditions women’s careers, combined with the technical nature of their field, may have facilitated their success, even though these factors serve as barriers for other women, and prevent meaningful change.

Key Words: gender; organizations; women; barriers; information technology

Résumé. Le fait que les organismes de travail marquent une différence entre les hommes et les femmes limite les occasions de promotions pour ces dernières. Tandis que les femmes percent dans de nombreuses professions dominées par les hommes, il arrive qu’elles soient marginalisées, comme le montrent des études menées sur des lieux de travail traditionnellement masculins. Dans cet article, nous nous pencherons sur l’expérience de onze femmes ayant réussi leur carrière dans les technologies de l’information, domaine où les hommes sont majori-

* Acknowledgments: Research for this paper was supported by a Social Science and Humanities Research Council of Canada INE grant entitled *Workforce Aging in the New Economy (WANE)*. We would like to give special thanks to Dr. Julie McMullin, principal investigator of the WANE project, for her support and feedback. We would also like to thank Tammy Duerden Comeau for her comments on an earlier draft of this paper. Thanks are also owed to the women who participated in this study for taking the time to speak with us about their experiences in the IT sector. Last, we would like to acknowledge the *Canadian Journal of Sociology* reviewers for all their valuable comments and feedback.

taires. Nous verrons de quelle manière elles appréhendent les obstacles et les opportunités qui se présentent aux femmes. Nous remarquons que les personnes interrogées ont tendance à minimiser l'importance du genre alors qu'elles sont la preuve qu'il a contribué à façonner leur carrière. Leur refus de voir combien le genre conditionne la carrière des femmes combiné au caractère technique de leur domaine aura peut-être, selon nous, facilité leur succès ; bien que ces facteurs constituent précisément des barrières pour d'autres femmes. Ce type de déni pourrait empêcher un changement significatif.

Mots clefs: genre; organismes; femmes; obstacles; technologies de l'information

INTRODUCTION

Most organizations in which men and women work are gendered: traditional gender relations, ideologies, expectations, and practices have been embedded in social institutions (Acker 1990; Adams and Welsh 2008:26; Britton 2000; Creese 1999). As Acker and others have shown, this gendered structure has tended to privilege the work of men, facilitating their recruitment, promotion, and workplace rewards, while limiting women's opportunities (Acker 1990; Britton 2000, 1997; Creese 1999; Mills and Helms Mills 2006). Especially in male-dominated fields, women are less able to live up to the image of the "ideal" worker and, hence, are less likely to be successful. While more women have recently broken through the proverbial "glass ceiling," many women are locked into lower paying, lower echelon, female-dominated jobs with little opportunity for advancement. At many levels, policy has been developed to facilitate the recruitment of women into new fields, to assist those trapped under the glass ceiling to advance, and to reduce the gender wage gap; these appear to have brought mixed success (Cotter et al. 2001; Drolet 2001).

To improve policy and create organizational change that fosters diversity, we may benefit from closer attention to the voices of women who have successfully blazed trails into traditionally male-dominated fields and jobs. Many studies have focused on the gendered nature of organizations and on women who have struggled, or on the challenges faced and sacrifices made by those few token women who make it to the top. More attention needs to be paid to the experiences of successful women to ascertain whether they identify strategies and circumstances that facilitate or hinder women's careers, especially in stubbornly male-dominated fields like information technology and engineering. Listening to successful women's perspectives will shed valuable light on both the opportu-

ities and barriers faced by women in gendered and male-dominated workplaces, and enhance our ability to develop effective policies.

In this paper, we examine the experiences of eleven women in the information technology (IT) field who have had successful careers, characterized by advancement and promotion. We explore their perceptions of the barriers and opportunities for women in this male-dominated field. In line with previous research we find that our informants downplay the significance of gender, even though they provide evidence that it has shaped their careers. We argue that this refusal to acknowledge the significance of gender, combined with the technical nature of their field, may have facilitated their success, even as these factors serve as barriers for other women. Women's reluctance (or inability) to see the ways in which gender structures their work and careers limits their ability to challenge the gendered structure of their workplaces, and thereby enhance opportunities for women more generally.

GENDERED WORK, GENDERED WORKERS

According to Acker's (1990:26) seminal work on gendered organizations and institutions, the very concept of a "job" is gendered because it "assumes a particular gendered organization of domestic life and social production." In essence, Acker reveals that work as we know it is a product of history, built around a traditional division of labour in which women managed the household and raised children, and men devoted their days and, if necessary, their evenings to paid work. Most jobs — at least the well-paying "good" jobs through which workers attempt to build successful careers — were historically structured with this worker in mind: an abstract or ideal worker with a clear commitment to paid work and advancement, and without obligations that would limit the time he could devote to employment. The vast majority of jobs were not designed to be combined with other duties, like caring for others and managing a household. They were not structured to accommodate child-bearing, breastfeeding, and child-rearing, and while change has clearly occurred, jobs and child-rearing are not easily combined.

The problem for women, and a growing number of men, is that they do have outside obligations. Many women and men have to traverse two very different fields everyday — the home and the workplace — and each field has a different logic, organization, and time rhythm (Hochschild 1997; Smith 1990). Traditionally, men's ability to focus on the orderly organizational world is facilitated by the work of women in the home and in the workplace; women ensure that people are fed, clothes are clean, appointments are made, messages taken, and so on (Acker

1990; Smith 1990). Because of women's responsibilities, and because their experiences can lead them to see the world in different ways, women cannot always succeed in male-dominated environments to the extent that men can (Smith 1990).

WOMEN IN MALE-DOMINATED FIELDS

Male-dominated jobs typically have a masculine structure and a masculine organizational and occupational culture (Acker 1990; Marshall 1993; Miller 2004; Mills 1998; Mills and Helms Mills 2006; Roth 2004b). Many male-dominated jobs have been historically designed for men by men, to draw on masculine strengths and demonstrate characteristics valued in men. For instance, early discussions of the qualities necessary for managers emphasized the characteristics valued by early 20th century middle-class men, including authority, rationality, and self-control. Good managers, like good men, were unemotional, intelligent, fair, and able to interact well with subordinates and colleagues alike (Bendix 1963:301). Male-dominated professions like medicine, law, dentistry, and engineering were similarly typified by "masculine" characteristics including mental toughness, aggressiveness, rationality (and being unemotional), authority, competence, and a commitment to work that entailed long hours on the job (Hinze 1999; Pierce 1995; Adams 2000; Dryburgh 1999). Women entering these fields have met opposition as employers, colleagues, and clients question whether they have the qualities it takes to succeed. Women often face what is described as a double-bind (Hinze 1999; Marshall 1993; Roth 2004b; Pierce 1995). To perform their jobs well, they must demonstrate so-called male characteristics like toughness and aggressiveness, but simultaneously appear somewhat feminine, to avoid being derogated or criticized. Women are expected to be "feminine" on the job, but when masculinity is associated with competence, feminine women risk appearing incompetent (Roth 2004b:205). How do women cope?

Many women cope by adapting themselves to the masculine culture and traditional expectations as best they can (Marshall 1993; Pierce 1995; Snitow 1990). They consciously try to work and act like men on the job (Pierce 1995). Miller's (2004) study of women in the oil industry shows their assimilation strategies, adapting to the dominant masculine workplace culture to fit in and succeed. In a similar vein, Dryburgh (1999:681) shows how women in engineering tend to ally themselves with the existing work culture and identify with their male colleagues and employers; in doing so, these women seek to reduce the charge that

they are "unsuited for work in this male-dominated profession." Women in male-dominated jobs downplay their femininity, and function as "conceptual men" (Snitow 1990). The women in Miller's (2004) study often denied the existence of gender inequality, avoided sex stereotyping by withholding emotion in the workplace, and masked their femininity through their dress and demeanor (see also Hinze 1999; Marshall 1993; Pierce 1995).

For Marshall (1993:100), such an approach is a coping mechanism. This stage of coping she calls "muted": here women do not view organizational cultures as male-dominated, and they "deny the salience of gender" to their work. While this coping strategy clearly facilitates women's ability to inhabit and work in a male-dominated environment, Marshall (1993) believes that it also entails considerable strain (women have to work to remain blind to the gendered culture they inhabit). Some women enter a different stage ("embattled") when events and circumstances make it impossible for them to deny the importance of gender any longer; during this stage they are exposed to the gender inequality around them. This can evoke feelings of hostility and isolation, making the work environment a more combative, negative one. For some women, the trigger event appears to be pregnancy and childbirth. Child-bearing tends to alter the way in which women in male-dominated fields are viewed by their colleagues: it is difficult for them to remain "conceptual men" when they are also mothers (Blair-Loy 2003; Crump et al. 2007; Ranson 2005). Those who desire an active role in raising their children, find that their home responsibilities limit their ability to work as men (*ibid*).

Women who act as "conceptual men" sometimes pay a price for violating gender norms, and are criticized by colleagues and others for their lack of femininity (Pierce 1995; Roth 2004a; 2004b). To minimize this, some women adopt other strategies: for instance, some compartmentalize their lives, acting like men in many work settings, but adding feminine touches to their dress and demeanour in their interactions with subordinates and friends, and on their own time (Blair-Loy 2001; Hinze 1999; Pierce 1995). Other women in male-dominated jobs reject the traditional masculine definition of the ideal worker, and work on their own terms, finding alternative ways to be both good workers and good women. As Pierce's (1995) study of lawyers makes clear, however, this strategy is a risky one that can limit one's ability to succeed and advance (see also Hagan and Kay 1995).

Overall, the literature suggests that women who assimilate and remain unaware of (or de-emphasize) the significance of gender in male-dominated workplaces may obtain occupational gains, at least in the short-term (Hinze 1999; Miller 2004). Yet women can have difficulty

working on the same terms as men, as Acker (1990) and Smith (1990) have argued. Roth's (2004a; 2004b; 2004c) research on women securities workers on Wall Street provides further support. The women in her study were often not as successful in bringing clients as their male colleagues, because clients preferred to work with those similar to themselves (white men). Deals and solid working relationships with colleagues and clients were often developed in male environments: on the golf course, at strip clubs, at a bar after work. Women were rarely included in these outings, and many would have been uncomfortable if they were. Women's exclusion from these settings sometimes resulted in poorer social networks, weaker client relationships, and lower incomes (Roth 2004b; 2004c). To counter their disadvantage, some women found ways to improve their interactions with clients; for instance, they took up golf, and sought common ground with their clients to build relationships (Roth 2004c). But, the most successful women in Roth's study had other advantages: they had mentors; they had valued and rare expertise within their firms; or they went into "nerdy" quantitative fields where worker productivity and output were more objectively measured (Roth 2004b).

While there are clearly disadvantages for women working in male-dominated environments, research like Roth's suggests that some circumstances can improve women's chances of success. Mentorship, valued expertise, and output that is easily measured appear to be important. Chiu and Leicht (1999) argue that rapid expansion of employment opportunities can also facilitate women's employment and promotion in male-dominated fields. All of these factors may bode well for women in Information Technology work: a technical field, requiring a great deal of expertise that has expanded rapidly over the past 40 years. In the next section we briefly review the literature on women in IT.

WOMEN IN IT

There is a small but growing body of literature on women's participation in computer science and information technology work. This field is an important one to examine closely given trends in women's employment. While women have been moving into male-dominated fields like management, medicine, and law fairly rapidly, and other fields like engineering, somewhat slowly over the past 20 years, the percentage of women in information technology occupations actually decreased in the last 15 years. In the early 1990s, women in Canada made up roughly 30% of all IT workers; by 2005 they comprised only 25% (Wolfson 2006). Having said that, although it may be too early to tell, it appears that women are

gradually increasing their involvement in IT during the 2000s: women comprised only 22% of workers in the field in 2003.

In the IT field, women tend to be segregated into a few, "less desirable" jobs (for example, database analysts, web designers, and systems testing technicians) characterized by low pay and high unemployment rates, compared to other IT occupations (Demaiter 2004; Gunderson et al. 2005; Habtu 2003). Despite these trends, IT has a long history of female employment and women have held prominent positions in the field. The reasons behind the recent decline are not entirely clear. What is clear is that women are less likely to undertake formal education in the field, and that even in high school, boys typically spend more time on computers and are more interested in technology than are girls (Looker and Thiessen 2003; Wright 1996).

An increasing number of studies exploring women's participation (or lack of thereof) in computing and IT note the presence of a masculine occupational work culture. Work in technology and information technology is socially perceived as masculine (Faulkner 2000). The stereotype of an IT worker is that of an antisocial geek, with taped glasses, locked in a tiny dark corner with a computer, working day and night punching out code, while rarely interacting with others face-to-face (Crump et al. 2007; Kendall 2000, 1999; Wright 1996). The computer geek is usually depicted as a young male with poor social skills. Such images do not blend easily with images and stereotypes of femininity (Wright 1996).

While these images largely reflect stereotypes, and may be of limited influence, studies suggest that IT workers possess a gendered occupational identity that excludes women. Wright (1996) argues that computer workers share an occupational masculinity — an identity and culture combining dominant elements of hegemonic masculinity with characteristics deemed important to engineering and computing work, such as technological skill, independence and individualism, aggressiveness and competitiveness. While this occupational masculinity may bind male workers together, it excludes women, thereby discouraging their entrance into the field, and hastening their exit. Wright claims that to understand why the proportion of women in the IT field is dropping, we need look no further than the masculine culture in which the work takes place. Other studies corroborate her argument. In the UK, Panteli et al. (2001:15) explored computing employment; their study identified a "strong masculine ideology of computing," that they argued was driving women away from careers in the field. In Canada, Duerden Comeau and Kemp (2007) found that IT workplaces were male-dominated settings rife with masculine imagery and interactions. The IT workers they interviewed repeatedly drew on masculine imagery of war (workers spoke of "conquering," or "earn-

ing their stripes”) and sports (“being competitive,” “playing with the big boys,” and being a “team player”) to describe their work.

Not only is the culture of IT masculine, but studies also suggest that the very notion of competence in the field is also gendered. Peterson’s (2007) study of IT consultants in Sweden finds that stereotypically male traits are celebrated while feminine traits are devalued. Those consultants who experienced layoffs (regardless of gender) were seen as not possessing sufficient “toughness” — a characteristic “seen as central to the computer culture [as well as] the confident image of the professional engineer” (Peterson 2007:345; Dryburgh 1999; Wright 1996). The IT fields women have been channeled into are narrow, technical, and perceived to require more feminine skills such as “an interest in design, user-friendliness, and appearance” (Peterson 2007:346; Ruiz Ben 2007).

The IT environment is not only culturally and discursively unfriendly to women, it appears to be structurally so as well. Crump and Logan (2000) argue that the competitive, high pressure, aggressive nature of the IT industry makes it extremely challenging for women to return to the IT field after childrearing.

To summarize, there is an extensive literature illustrating that work is gendered, and that work in male-dominated occupations, like those in the Information Technology (IT) field, has a masculine culture and image that may limit and condition women’s participation. Nevertheless, there are many women who have worked in the IT field for a lengthy period of time, and many women who have had long, successful careers. What does it take to succeed in this environment? Previous studies have pointed to an attitude that downplays the significance of gender, and certain job and organizational characteristics (for example, expanding opportunities, technical field) as facilitating women’s success. In this paper, we explore the careers of successful women in IT, to identify the factors that provide barriers and opportunities for them.

METHODOLOGY

To explore women’s perceptions of IT work and the barriers and opportunities it holds for women, semistructured interviews with eleven women working in eight different IT organizations across Canada were conducted. The sample was a nonrandom, convenience sample. Participants ranged in age from 30–57 with the majority of the women between the ages of 50–57. Eight of the women were married, two women were divorced and one woman’s marital status was unassigned. Nine of the women had children and two of the women were childless. Participants

worked in various organizations across Canada, in the provinces of British Columbia, Alberta, Saskatchewan, and Ontario. The majority of the women (with the exception of one woman who owned her own IT firm) worked in IT departments in larger organizations from a variety of different industries. The women worked in various IT positions: IT manager, consultant, company vice-president, owner, IT director, analyst, database administrator, and programmer (see Appendix for a general overview of the study participants). All of the women had been in the IT field for some time, and most had held several different positions, and had successful careers in the IT field. These women are "successful" in that they have carved out a career in a largely male-dominated field, have been promoted to high level positions of authority, and in several cases have become owners, presidents, and CEOs within their organizations.

To participate in the study, women had to be currently working in an information technology occupation. All of the respondents were also affiliated with a Canadian national IT professional association. This organization provided a list of contact information for ten female IT workers. Eight of these initial ten agreed to participate in the study. The remaining three study participants were recruited through information provided by other respondents.

The women in this study are unique for a number of reasons. First, the women represent a particular subset of highly prestigious women. The majority of women interviewed are in middle to upper positional levels within their organizations. Therefore, this sample does not reflect the majority of women in IT; yet respondents do provide insight into the thoughts, perceptions, and experiences of a select, privileged, and highly successful group of IT workers. Second, the women are unlike many other IT workers because of their involvement in a professional association: most IT workers in Canada are not active members of national professional associations (which are small in size and include only a small percentage of workers in the field). Not only are these women professionally active, but some have participated in a national initiative to recruit women into the field. As a result, study participants may have a vested interest in making IT appear to be an attractive career for women.

The small sample size and the uniqueness of study participants prevent generalization. Nevertheless, this study is informative precisely because it explores the experiences of a small and unique group — women who have successfully pursued careers in IT and who have an interest in having other women follow them into the field. By exploring their perceptions of the barriers and opportunities open to them and women more generally, we gain insight into the experiences and strategies of successful women that will provide insight into the factors encouraging

and discouraging the recruitment and advancement of women in male-dominated fields more generally.

Interviews were carried out over a three-month period between August and October 2003. Eight of the interviews were conducted over the telephone, two took place face-to-face, and one woman answered the questions in writing and via email. We acknowledge the fact that the mixed format of face-to-face interviews, telephone interviews, and interviews via email is not ideal; however, the women in this study live very busy lives and out of respect for them we decided that telephone interviews would be the most efficient approach. Moreover, while the first method often yields different results than the other two interview strategies, we were happy with the fullness of all of our replies. All interviews, with the exception of the one that was written, were audio taped and transcribed verbatim. Interviews varied in length and lasted anywhere from thirty minutes to one hour. Interviews were semistructured and included open-ended questions under two general headings: 1) women's career histories and 2) women's experiences in the IT sector.

The first section of the interview explored respondents' current job, past job, and educational background. They were asked questions about how they got involved in IT, the recruitment process, the types of tasks/duties they perform in their current job, and the structure and nature of the IT organization in which they work. The second section of the interview focused more specifically on the participants' experiences as women working in IT occupations. The women were asked about equality within the workplace, opportunities and barriers for women, and why they thought women were turning away from IT occupations. Further they were asked to discuss the impact on women's careers of having children.

All transcriptions were downloaded into the qualitative software program NVivo. Transcripts were read several times, analyzed, and coded into emergent themes. In this study, we focus on several of these themes and questions, most specifically the following: 1) Do respondents believe that gender has shaped their workplaces and their work experiences? 2) Does having children affect women's ability to do their jobs and progress in their careers? 3) What factors might encourage or discourage women's entrance and advancement in the field?

GENDER AND THE IT WORKPLACE

Opportunities and Barriers for Women in IT

Respondents were asked questions about gender equality in the workplace, and barriers and opportunities for women in IT. The women in

the study were overwhelmingly optimistic. Nine of the eleven women emphasized that they felt equal to men in the IT workplace. The following three women's quotes are illustrative:

Yes, I've never felt that I was at a disadvantage (or an advantage) because I am a woman. (Samantha, Database analyst)

In my day-to-day life, I don't see where there appear to be differences [between men and women]. (Kathy, IT founder/owner/president)

Yes I do [feel men and women are treated equally]. There are not very many women here, but ...[laugh] yes; I have never encountered any ... [sentence not finished]. (Margaret, Programmer)

Nevertheless, eight of the eleven women (including most of those who claimed equality above) continued to identify moments or incidents in which gender did appear to be an issue. Illustrative are the comments of one IT strategist. When asked about equality on the job she replied:

Overall, within [the workplace] yes [I am treated equally]. Have I run into the occasional single situation where one particular person did not maybe follow that? Yes, but I think that is typical of human nature. (Cindy, Systems Engineering Manager)

Like this respondent, many other women in our study initially replied that gender was not an issue, but then qualified that statement by providing contrary evidence.

In general, absolutely yes [I feel I have been treated equally]. I guess, I mean my blanket opinion is there are always biases out there in the world, against all kinds of things. And, so any particular bias, you can bump into. And, or you may not. It just isn't a ... I have never felt that I had a general problem because I was a female. It's true; I have bumped into a couple situations where it was a real issue with one person. But you know you can do that with anything, right? You are too tall, too short, too fat, too skinny, you're a woman, you're a man, doesn't matter. (Kathy, IT Founder/owner/president)

There is a tough one [question].... Yes; by and large, I would say yes. I have been fairly treated. There are certainly, you know, individual places where you can point to incidences that kind of make your hair stand on end. Highly aggravating, but I guess if you are going to be a woman in business and management, you better grow a thick skin, and know when to fight the battles. (Candace, IT manager)

The other women interviewed support these comments. There was a tendency to say there were no gender-related problems, and then provide evidence that gender was, at least sometimes, an issue. With few exceptions though, the women dismissed these incidents, and described them as normal. Problems were seen as the fault of isolated individuals, or typical of gender interactions everywhere, and hence, many claimed, not something to worry about. Instead, women just had to grow a thick skin and ignore it. Like other women in male-dominated environments, then, women in IT appear to be reluctant to acknowledge the ways in which gender shapes their work experiences.

More evidence of a masculine culture in IT was provided by respondents when asked whether there were any barriers to women's participation in the field. Women would typically reply that there were no barriers and no differences in how men and women were treated; upon elaboration, however, respondents identified incidents when gender did serve as a barrier. For example, one vice-president states:

Well, I have had good experiences.... You know, I have risen to be a vice-president and I am just thinking about — I have been given promotions when I have been able to perform, no matter what job I have been in. So that has been fair ... I have been *challenged* at times working for a manufacturing company and walking on the plant floor and dealing with the guys on the plant floor in your role. There is that male-female thing you just got to deal with. But I have never been treated unfairly in terms of promotion. (Carol, IT Vice-president)

Another respondent, Mary, denied any awareness of gender-related problems, but then documented difficulties with some male colleagues:

Until about 10 years ago ... less than 10 years ago ... I didn't realize that there were not an equal number of women in IT.... I guess I was just a heads-down geek and never looked around and recognized the fact. But, until it was brought to my attention I didn't recognize it, which has to mean that I had never felt any different than anybody else I was working with ... I have never felt any sort of systemic gender bias. I have worked with a couple of guys who were absolute pigs ... but you always find guys like that. They are out there ... you know that ... we all know that. One in particular didn't talk to me until he — until I had proven to him that I was as smart as he was. But that wasn't because I was a woman.... (Mary, IT Director)

Thus, our respondents argued that gender bias was not evident in IT. The "male-female thing" was always present, but the women had a tendency to dismiss it. Many of our respondents were reluctant to see their problems with their male co-workers as a gender issue. Kathy, quoted above, claimed the problems were the same whether the issue was

height, gender, or whatever. Mary's comments indicate that gender is relevant, but not in a structural way; some men treat women poorly, she indicates, and women have to deal with that. While our respondents were in a male-dominated field, in male-dominated organizations, and sometimes described a male work culture, they rarely defined the problems as structural, tending to view them as problems with individuals.

Of the eleven women in the sample, only one respondent identified a structural gender bias within IT organizations. We quote her at length because her comments are insightful:

[The old boys network] is definitely an issue as you get older and as you progress. I mean I see it all the time. The old boy's network will prevent women from growing in their careers. I mean you have to be super smart, super intelligent, like way above average to go beyond a certain level because the glass ceiling is definitely there. But you got to break it. You got to keep trying to break it. When you find companies, like one of the reasons I left [her old company] was because of that. They had a huge glass ceiling and it was so apparent by the numbers ... you try and break it and try and break it and after 10 years you go, okay enough already! I am leaving. You go to a company like [her current employer] and go WOW – the president of the company is a woman. This is great! There is no glass ceiling and you do well. So, I think you have to kind of find ... there are still lots of companies, lots of them, very old, archaic, conservative companies, that are never going to change and you know — and if you can't beat them — just leave them.... Yeah, leave them because you know what? They don't deserve you. You can do better.... And we beat ourselves, as women we beat ourselves on the head going 'oh my god, something is wrong with me.' We tend to take that attitude that it has got to be me.... So we need to have confidence to say to ourselves that we are pretty darn good. And we need to move on.... A lot of companies don't [give opportunities to women] because they just can't seem to get out of that thinking. They are run by these stodgy old guys and they can't seem to get out of that mindset ... they just can't, they have just been brought up ... it is cultural. (Debbie, Vice president)

Debbie's comments suggest that while not all IT firms are gendered male, many of them are, and there is a cultural mindset that acts against women. She differs from other women in this study in arguing that structural barriers are in place, and that the culture of IT may act against women. She also argues that there is a tendency for women to see barriers as their own fault, and not see them as systemic. This statement finds support from our other respondents, who, as we have seen, tend to normalize negative interactions with male co-workers, arguing that women are always going to run into the occasional man that treats them poorly. Most would seem to agree with "Julia" who declared that any barriers

were not “artificial” and “imposed” but “barrier[s] we choose ourselves” (Julia, IT Manager).

To summarize, our respondents stressed the opportunities open to women in IT, and downplayed gender-related barriers. Nevertheless, most women recounted negative experiences in which gender was an issue. Even when they documented problems, they were quick to dismiss them as problems with isolated individuals or barriers women created for themselves. Like women in other male-dominated jobs, women in IT appear to turn a blind eye to the gendered culture they inhabit, and to perhaps work as “conceptual men.” Previous research suggests this can be harder to do upon child-bearing. What impact does having children have on women’s IT careers?

CHILD-REARING AND IT

We asked women whether having children had any impact on their careers. Nine of the eleven women in our sample had children, and eight of the eleven stated that having children negatively affected a woman’s IT career. The remaining three respondents held that while having a child could negatively affect one’s career, IT was no different than many other male-dominated careers in this respect. Candace argued that people looked at her differently after she had children:

It is an attitude thing. My experience was that people had a very different attitude to me pre-children and post-children.... Before children, I was always accepted as someone that was the go-to person, and I really didn’t ... I really didn’t have any problems with the male-female thing pre-children. Once I had children, I noticed that it, not with everybody, but with some people, especially the men (some of the women too, though) it started to creep in. Oh, she’s a woman so she is not going to be able to do this for us, or you know, you know she has other responsibilities so can we ask her to do that. (Candace, IT Manager)

Because the IT field, as other male-dominated fields, has been defined for men, by men, men and women in this job may question whether a woman with children can do her job effectively. IT work changes quickly, and workers are expected to be up-to-date, constantly learning, and frequently on-call (Adams and Demaiter 2008). Such a structure is not easily combined with maternity leaves, and childcare responsibilities. Our conversations with the women in this sample reinforce this point.

If a woman takes a leave for even a short period of time [to have a child], it’s an uphill battle to bring yourself up to speed when you do return to the field. (Samantha, Database analyst)

Well, IT changes very, very quickly. One year out, it means that it is going to take you probably 3–4 months to catch up and that is a lot of dedication to make that catch up. (Cindy, Systems Engineering Manager)

Being away from any job puts you out of sight and out of mind, is going to delay your promotion path probably. In IT, because things are changing all the time, you can quickly become out of date. If you are gone for a year, that is a long time in IT terms. If you do that two or three kids in a row, then it's really a long time. So, in cases like that, it probably could affect your career, your progression, slow it down somewhat. (Mary, Director/manager IT department)

So there is a challenge. I don't know if it is any different — it may be different than some other jobs because in some IT, well, the way I came up in the department is I worked very long hours on projects with very tight deadlines. So, that makes it difficult for raising a family, so you need a very supportive spouse if that is the way you are having to work. (Julia, IT manager)

Overall, the respondents were unanimous in believing that having children affected women's ability to do their jobs the same as men. This finding is particularly interesting in light of the women's earlier comments that gender was irrelevant. Again, the emphasis is less on structural and cultural barriers, than on individual attitudes and decision making. Respondents argue that women who choose to have children have to be dedicated and hard-working to keep up-to-date and maintain their employability. Even then, their experiences in IT suggest that they might be treated differently by their colleagues, and seen as less capable.

Ultimately, while having children did disrupt women's ability to work as men did, it did not necessarily encourage our respondents to see gender as an issue in the workplace. Nevertheless, it is clear that women with children had trouble fitting into the gendered work role.

Recruitment and Careers in IT

Research on women in IT suggests that the masculine culture of the job may scare women away. As we have seen, however, our respondents tended not to acknowledge the presence of a gendered culture, and held that gender was not a barrier for women. How do they explain the low representation of women in the field? They tend to blame the masculine image or stereotype of IT for turning young women away. As Carol, an IT vice-president explains, "it is the picture of what the profession is that probably turns a lot of women off." According to Olivia, there "is a stigma out there thinking that if you are an IT person, you are a geek." An IT director further holds that "to a large extent there is a lack of

understanding. People in general, and teenage girls in particular, think of IT and computers as a guy thing” (Mary). The vision of IT as an isolating and difficult job may also turn women away.

If you ask them [young girls] about working in computing ... their vision is of a very isolating job where you work on your own. Your job is to sit in your probably dark little office, pounding out code all day long with no interaction with people. (Mary, IT Director)

I think that a lot of it has to do with how people, kids, view IT people.... I think a lot of girls think being in IT is very difficult. It is very hard work and they could never do it. For some reason, I don't know why, they would feel that way. But they do and you have to have your maths and sciences in order to get a computer science degree and a lot of them don't do well in math and science.... (Olivia, IT Analyst)

A lack of female IT role models, and a lack of encouragement from guidance counselors, were also identified as factors limiting the recruitment of women. Overall, respondents argued that it was the image of IT work that kept women away, but that this image was a false one. The solution to bringing women into the field was to provide role models and dispel the misconceptions.

Despite these negative images of IT work, all of our respondents were drawn to the field. When asked why, they documented specific opportunities and serendipitous events. Most of the women in our study had not considered IT as a career, until an event or opportunity brought the field to their attention (see also Crump et al. 2007). One of the respondents in our study happened to run across a pamphlet in a guidance counselor's office, while another was intrigued by an IBM display at a fair. Others liked math and working with machines and thought the field sounded interesting. Some women “just kind of fell into it” (Olivia, IT analyst). Two of our respondents were influenced by male family members (brothers, fathers) who were in the field and encouraged their entrance. Interestingly, few of our respondents mentioned the “image” of IT as a factor encouraging or discouraging their own participation.

Although women's entry into IT was somewhat unanticipated, many of the women reported rapid career success once in the IT field. As one respondent states,

It was an up-and-coming new field when I joined. They were literally taking people off the streets so it was an exciting new field.... The opportunity came up for me to apply for programming at the bank and so I applied on speculation and got in. (Julia, IT Manager)

The rapid expansion of the computing field in the 1980s, in particular, opened up many doors:

Well, I started off, like I said as a typical — I did the programmer systems analyst route, all with [one company]. So, I did all of the normal IT kinds of things and whether by luck or good management or what, an awful lot of those jobs, I sort of fell into the area of working on the user side of the project rather than the technical side, and just found it very comfortable. So, I worked my way up through the ranks.... The thing about starting at the beginning like I did, there was nobody ahead of us. We were promoted very rapidly because organizations needed senior IT people and there were none, you know. So, we were the oldest and the most experienced people even though we were kids. So we just went streaking up. I did programmer, analyst, manager, director, and executive director in record time. Got to the top and was still really young and I didn't have anything left to do there so I just decided to strike out on my own.... So, I have had my company now since then [the late 1980s]. (Kathy, IT owner/president)

These stories are interesting in light of the literature identifying factors that might facilitate the participation and promotion of women in male-dominated environments. Chiu and Leicht (1999) argue that gender equality is more likely in periods of expanding employment opportunities. The women in our sample clearly benefited from rapid expansion in the IT field in the 1980s. Opportunities were available to those with expertise in the field (or even those willing to acquire it) (Demaister 2004; Ensmenger 2001). Further, Roth (2004b, 2004c) argue that women in the securities profession whose specialties were more technical and objective, and those with valued expertise, obtained greater advancement than those in other specialties. The women in our sample had the required IT technical expertise, and this appears to have benefited their career advancement as well. While the women in Roth's study were at a disadvantage in jobs requiring the building of client relationships, this does not appear to be the case for women in IT. The image of men in IT as antisocial nerds may have benefited women who have tended to move into and advance in the client-service side of the field. While the result is sex segregation, with women clustered in the client-oriented areas, this segregation does provide an avenue for advancement and promotion.

To summarize, our respondents claim that the image of IT turns women away. Previous research argues that the gendered culture and structure of IT limits women's involvement in the field. Women in our sample have had a great deal of success in the field regardless. Few of them are willing to acknowledge the presence of a gendered culture. If the culture has scared some women away, the successful women have been able to "grow a thick skin" and ignore it. This has likely facilitated

their progress in the field. At the same time, they may have benefited from a rapid expansion of employment and from having their objective, technical expertise, and their social skills rewarded by employers. Later cohorts of women may have been less fortunate. As we have seen, when employment growth slowed during the 1990s, fewer women entered the field, and women's exit rates were high (Wright 1996). Women in our study were able to turn a blind eye to the gendered subculture as long as they were being promoted (as Carol's earlier comments suggest). As job opportunities became slimmer in the 1990s, the gendered subculture may have become more evident and harder to take (as Wright 1996 suggests) leading some women to leave the field. Women's tendency to turn a blind eye to the gendered culture of IT has allowed it to persist and it may be a barrier to later cohorts of women entering the field.

DISCUSSION

Research has documented the presence of gendered organizations, jobs, and organizational cultures that limit and condition the participation of women. Some research has suggested that women in these environments downplay the significance of gender (Marshall 1993; Miller 2004). This may be a coping strategy facilitating the ability of women to work just like men. Successful women in IT appear to be similar to their counterparts in other male-dominated fields to the extent that they deny the relevance of gender, even as they point to specific instances where gender clearly shapes their interactions with their colleagues, their work experiences, and others' assessments of their competence. While it is not clear that this is a "strategy" adopted by women in IT, it seems likely that such an attitude facilitates women's ability to interact with their colleagues and do their work. As Marshall (1993) argues, women who are aware of gender inequality in the workplace often have tense relationships with their colleagues and experience stress, strain, and hostility. Accepting the status quo can be easier. Further, there is likely a selection effect at work. If Wright (1996) and Panteli et al. (2001) are correct that the masculine culture in IT is driving women out of the field, then those who stay behind, like those in our sample, are more likely to be somewhat immune to, or accepting of the culture (as were the engineers studied by Dryburgh, 1999).

The women in our sample also may have downplayed the significance of gender because the context in which they worked provided opportunities for promotion. In an expanding field, with needed expertise, and valuable social skills, opportunities for advancement were available

for many women in IT. As opportunities for advancement become more limited, it will be interesting to see if women's attitudes towards the masculine IT culture change.

Ultimately, women who survive in gendered environments may de-emphasize the significance of gender, to fit in with their male co-workers. This contributes to a reluctance to see gender structures acting against women, and a general acceptance of the masculine workplace structure and culture as it exists. It may have been easier for women in IT to hold this attitude given the availability of promotion opportunities. Nevertheless, their attitudes have significant implications for the recruitment of women into the field, and for the success of organizational strategies that may be designed to encourage the participation of women. Although many of our respondents are in a position to enact diversity strategies, and most report having a keen interest in seeing more women enter the field, their inability to recognize the ways in which gendered organizational cultures limit and condition women's participation, constrains their ability to bring about meaningful change. Hence the gendered culture remains in place. Those entering the field today may face a hostile culture and a poorer environment for job advancement.

FUTURE RESEARCH

Future research should explore more closely women's strategies for adapting to masculine occupational cultures, and how these strategies may foster or hinder policies aimed at facilitating the employment and advancement of women. Although the women in our study want to see more women enter the field, they seek to do so by altering women's perceptions of IT, not by making changes to the structure and culture of the field itself. Our research was limited by its small sample size and lack of generalizability. Future research is needed to ascertain whether the experiences of our respondents apply to others in the IT field, and other male-dominated specialties. Future research is also needed to explore how women's career trajectories are influenced by child rearing.

In addition, given that the majority of the women in our study entered the IT field in an era of rapid employment expansion (1970s and 1980s), there is a need for longitudinal research exploring cohort effects to determine how the nature of the market upon entry into the field determines career experiences, and whether later cohorts who entered IT in tighter labour markets had different experiences. Moreover, future research needs to explore more closely how the recent industry volatility and the greater reliance on formal education and credentials shape

women's entrance and advancement in the field today. Future research should also expand our understanding of women in gendered organizations, male-dominated occupations, and IT more specifically by identifying and interviewing women who have entered and left the field of IT.

Last, a number of the women in our study owned their own IT businesses. Future research could explore in greater detail these women owner's perspectives of the culture of their workplace. Do these women IT owners perceive problems within their woman-led companies? This research could help us better understand the influence of the wider national culture (influenced by legislation) on gendered relations within the workplace.

CONCLUSION

In the end, despite changing social attitudes, and the presence of organizational policies aimed at increasing women's participation and promotion in male-dominated fields, gender remains an issue in the workplace. Women continue to experience barriers, and women who seek to combine childcare and paid work face many challenges. There is still a great deal of work to be done to create policies that help foster greater diversity and gender equality. In IT, this might start by educating and informing the present workforce of women in the field about the existing cultural and structural inequalities, so that these women, in turn, can make change and educate future generations of women interested in a similar career path.

Appendix: Profile of Sample Frame

<i>Name</i>	<i>Marital Status</i>	<i>Children</i>	<i>Age</i>	<i>Occupation</i>
Samantha	Married	No	39	Database Analyst
Candace	Married	Yes	55	IT Manager
Carol	Unknown	Yes	58	IT Vice President
Julia	Married	Yes	57	IT Manager
Olivia	Married	Yes	53	IT analyst
Cindy	Divorced	Yes	54	Systems engineering manager/systems support
Robyn	Married	Yes	46	Engineering manager/systems support
Kathy	Married	No	54	IT founder/owner/president
Debbie	Married	Yes	40	IT Vice-President
Margaret	Divorced	Yes	30	Programmer
Mary	Married	Yes	56	IT Director of Information Systems

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