

## Chapter 3

# Women in IT Careers: Investigating Support for Women in the Information Technology Workforce<sup>1</sup>

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### ABSTRACT

*Research on the declining numbers of women in the Information Technology (IT) workforce focuses on 'filling the pipeline' by attracting women into IT disciplines at colleges and universities. This research looks at the other end of the pipeline, examining both barriers and support structures that have helped women persist in their IT careers. The chapter draws from extended interviews with 38 women who have been successful in planning their careers and navigating a male-dominated industry. It focuses on what women cited as barriers and as areas of support, in response to open-ended questions about their careers and career paths. The interviewees, drawn from nine industry sectors, represented a wide breadth and depth of experience. Half were at the professional level, and half at the managerial or executive level in organizations that varied from single-person consulting firms to large institutions.*

### INTRODUCTION

This chapter discusses the results of open-ended interviews with women in various stages of careers in Information Technology (IT). The research focuses specifically on support structures, formal and

informal, that women identified and the perceived benefit of these support structures. The objective of this chapter is to examine the perspective and experience of women in industry. Specifically what they can teach us about what helped them in their careers, mentoring program effectiveness and work accommodations for women. Practical experiences can inform women seeking careers

DOI: 10.4018/978-1-60960-759-3.ch003

in IT about biases they face prior to entering the workforce. These experiences can also help industry and academia programs prepare women before they enter the IT workforce.

## **BACKGROUND**

Women are underrepresented in IT college programs (Computer Information Systems, Computer Science, Management Information Systems), and the numbers of women in IT careers is declining. Many attribute this to the declining interest of women seeking degrees in technology related disciplines, a phenomenon dubbed the ‘pipeline’ problem (Blickenstaff, 2005; Camp, 1997; Soe & Yakura, 2008). Mitigation strategies have resulted in changes to IT academic curricula, the establishment of mentoring and role model programs, as well as the development of women’s networking programs to reduce feelings of isolation among women. The assumption is that if IT curricula are more accessible to people without programming backgrounds, more women may be attracted to the discipline (Sloan & Troy, 2008). Coursework that emphasizes the context and implications of the use of technology, may better attract and retain women students than ones that emphasize technology for technologies’ sake, (Stiller & LeBlanc, 2003). Mentoring programs and anti-isolation programs help to support women in IT academic and professional careers (Simard, Henderson, Gilmartin, Schiebinger, & Whitney, 2008). However, despite these efforts to attract and retain women, the number of women in IT careers is at an all time low, and dropping quickly.

There is ample evidence of this decline. In 1996, the Information Technology Association of America reported that women made up 41% of the IT workforce, but by 2002, the percentage dropped to 34.9% (Hollis, 2003). An NCWIT report (Ashcraft & Blithe, 2009) gives slightly different figures (in 1991, 36% of the IT jobs were held by women, down to 24% in 2008), but

the downward direction is the same. The NCWIT report also noted that women seem to face a mid-career ‘fight or flight’ moment, in which many of them opt out of the IT profession, in spite of indications that 74% of them were highly satisfied with their careers.

Many researchers in the overlapping areas known as STEM or SET (Science, Engineering, Technology) education have focused on the reasons for the dearth of women in these disciplines, either as students or faculty (Bystydzienski & Bird, 2006). Sappleton and Takruri-Rizk (2008) described the approaches of different disciplines to study the problem, and explained that the reasons for the under-representation appeared complex. Guzman, Stam, and Stanton (2008) pointed out distinct differences in IT occupational culture, which suggests that while IT careers are similar to SET or STEM careers, one cannot assume they are identical.

In research on women and IT careers, the issue of “opting out” by women who have successfully navigated finding an IT job is an interesting one. Some researchers concluded that the decision of women to start families explained this opt out (Armstrong, Riemenschneider, Allen, & Reid, 2007). Other studies demonstrated that men and women differed little in what attracted them to IT careers or what factors they valued if they persisted in them (McKinney, Wilson, Brooks, O’Leary-Kelly, & Hardgrave, 2008; Kuhn & Joshi, 2009). In an interview with Computer-World (Melymuka, 2005), Dorie Culp explained women’s attrition by saying, “Our research shows that work/life balance is an excuse women give when they leave so they can leave gracefully. But the reality of why they leave is the culture -- the way it marginalizes women.”

Addressing similar issues for women in engineering, Faulkner (2007) asserted that it was not a failure to socialize women into the discipline that needed to change. Rather the discipline needed to change so that it no longer devalued women. In her ethnographic study of engineers in a building design engineering consulting company, Faulkner

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