From Where I Stand:
An Analysis of Female Software Engineers Struggling for Acceptance in I.T. Careers

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Two-Page Summary

Since the late 1970's, women's participation in Information Technology (I.T.) careers has dropped from a high of 35% to a stubborn $20 \pm 5\%$ (NCWIT2016, 2016). This, despite rapid growth in software engineering and associated I.T. fields, and an overall deficiency of I.T. workers (TEKSystems, 2017; USBLS, 2015a, 2015b).

This research presents an analysis of ten interviews. All ten interviewees were women with I.T. careers of at least five years, though typically significantly longer. The analysis is presented through the lens of Max Weber's theory of Ständ, Class, and Party, (Weber, 2015), Pierre Bourdieu's theory of Symbolic / Social / Cultural capital (Bourdieu, 1984, 1985), Bourdieu's theory of Habitus (Bourdieu, Passeron, & Nice, 1990), Andrew Abbot's views on professional identity (Abbott, 1988), and Étienne Wenger's framework of Communities of Practice (Wenger, 1998). The goal is to understand better the norms which govern I.T. culture, show how these women have suffered under their imposition, yet thrived in their careers nonetheless.

	Men	**Women**
Symbolic Capital	$	$
Cultural Capital	$	$$$
Social Capital	$	$$

Table 1: The Cost of an I.T. Career

Bourdieu's theory of symbolic, cultural, and social capital grounds the analysis directly in the women's experience. In the I.T. workplace, all interactions are based on – and require – all three forms of capital. The difficulty women encounter is in the *cost* of their interactions. A conceptual diagram of the difference in capital costs between men and women is illustrated in Table 1. Given a constant cost for men, women require more cultural capital and *far* more social capital than men to accomplish the same goal.

In this study, Bourdieu's theory of symbolic / cultural / social capital interacts closely with his theory of Habitus. Whereas Table 1 describes the *cost* women pay for interactions, the Habitus sets and controls their *price*. The sexism component of the I.T. habitus sets higher career costs for women than men. The reproductive quality of habitus enforces those costs throughout women's careers, and even ensures younger female software engineers will pay as

the older ones did.

Three major themes emerge from the interview analysis: early influences, loss, and recovery. Early influences explain how the interviewees chose I.T. as a career and illustrates some of the basic, personal motivation which still informs their decision to pursue it. This section also examines the role of friends and family (especially the influence of fathers), education, and seminal mentoring. A common thread through these experiences is the nurturance and personal acceptance exhibited by their role models, which they experienced long before they chose an I.T. career. Their experience with role models also provided psychological sanctuary during difficult times.

The section on loss carefully examines how the women internalized the male-dominant I.T. culture to their own detriment, how external factors reinforced this internalization and habitual repetition, and the grief which resulted. Most of the loss experienced by female software engineers is systematic: caused by a structure of confluent factors rather than one factor in particular. Most loss is also experienced as an aggregate of interactions, rather than any one interaction in particular.

The I.T. workplace is male-dominant, as is its culture. This culture imposes male-oriented rules and norms on all I.T. workers, but clearly this culture has a disproportionate and adverse effect on women. The culture restricts women's bodies, personalities, or abilities. This includes both *realized* expression (actions, personal traits, or abilities they've actually done or expressed) and *potential* expression. The result of imposing these norms is the first and greatest loss women experience: loss of self. Loss of self entails a curtailing of person, personality, or ability according to imposed rules. Imagine the word "**don't**" sounding in your head; the source can be one or more people, an institution, or yourself. The result, though, is always the same: a diminution of some aspect of self.

Finally, the essay examines the factors by which the interviewees recover from loss, including personal resilience, self-care practices, and the construction of women's support networks. The women interviewed here showed that they could not and did not stay in a state of permanent loss. Their personal resilience bolstered by external supports, they improved their situation to a livable – if not always comfortable – new status quo. Women's resilience to the effects of the I.T. habitus comports with Wenger's theories on communities of practice. In a knowledge-based profession such as I.T., learning is essential for the continuation of one's career. If Wenger's theory is correct, community must be formed *somehow*, in order to support the learning necessary to sustain a career.

Leadership implications for the problem of sexism in I.T. are numerous. First is the problem of initiative. Leaders who would change the I.T. culture must confront the "you go first" problem: both I.T. workers and management know their workplace would benefit from better cohesion, but both believe the other "should go first" to solve the problem. Leaders will need to bring both together simultaneously, to commit to rejecting and replacing the current sexist I.T. culture. This commitment will require continuous negotiation, new ideas, and reliable feedback mechanisms (Kramer & Enomoto, 2014).

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