

# Chapter 1

## Women, Men and Programming: Knowledge, Metaphors and Masculinity

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### ABSTRACT

*This chapter explores aspects of the gendering of computer science and IT, related to epistemological issues of what computing is and what type of knowledge counts. The chapter is based upon an interview study of how students and professionals in the field of computer science, perceive programming in a broad sense. Much of the earlier research on the under-representation of women in IT education and the IT industry has tended to focus on factors and aspects where women and men differ in their relation to IT and computers. Inspired by feminist research, it is suggested that developing an understanding of the problem of gender and IT requires a more complex analysis than a dualistic focus on differences between men and women. This chapter analyzes interviews with a range of Swedish male and female students and professionals from the field, in relation to gender with respect to metaphors of programming, inclusion and exclusion, the notion of beautiful code, understandings of masculinity and programming, and the idea of dedication.*

### INTRODUCTION

Some 25 years ago, I took a mandatory course in programming as part of my engineering program. At the time, I found programming very dreary, and something that only nerds could enjoy. I had little sympathy for my (primarily male) classmates who seemed obsessed with programming problems and

told stories about waking up in the middle of the night with the long sought for solution to a particular problem and writing it down on whatever empty surface that was at hand. Some twenty years later, I was back at university, doing a PhD in Human-Computer Interaction, and decided to do a course in java programming, constructing user interfaces. To my great surprise, I was completely and utterly enraptured. I found programming great fun, creative, and virtually addictive. In fact, I so much enjoyed

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programming that I seriously regretted my 20 year old decision never to program, and never to enter a career in programming.

Being a woman, I am certainly not alone in making that decision. Women are under-represented in nearly every sector of education and professional life in which work with IT (information technology) is the main focus, i.e. designing, developing, operating and maintaining systems or products based on IT.

There is a large body of research on the under-representation of women in IT education and the IT industry internationally (see, for instance: Trauth et al., 2004; Selby et al., 1998; Camp, 1997). Much of this research focuses on factors and aspects in which women and men differ in their relation to IT and computers; that women have less experience with computers and programming from young age, for instance, and that women have less confidence in technical areas. Whereas some research seems to relate the problem to biology, discussing inherent differences in men and women (the essentialist approach), most of the research is grounded in a social constructionist perspective focusing on the social construction of male and female identities in relation to IT and computing (Trauth et al., 2004).

The number of women in IT-related educations and programmes in Sweden is currently low and even falling. The same trend has been reported in the US, the UK and a number of other Western countries. Extensive efforts have been made to reverse this decline in women's participation in the IT sector, not least in the area of recruiting and retaining women in higher IT education. In a two-plus-two year program at the Carnegie-Mellon University, the authors identified a number of key factors for the success in getting women students to their computer science program (Fisher & Margolis, 2002). Despite the success reported at Carnegie-Mellon, few other universities seem to have been able to reproduce their results. In Sweden, Chalmers University of Technology introduced a reformed Computer

Science and Engineering program (D++<sup>1</sup>) in order to increase the number of women. Despite an initial success, the initiative has been a failure as regards recruiting and retaining women students (Wistedt, 2001).

Feminist research suggests that the problem of gender and IT is far more complex than a mere matter of under-representation that focuses on differences between men and women. Corneliusen (2003) uses the concept of subject positions to discuss how gender is constructed in relation to computers, shaping the way real men and women orient themselves in relation to these gendered subject positions. Björkman (2005) suggests that the problem is an epistemological one, i.e. a problem of what knowledge counts and whose knowledge counts in computer science and IT. Cukier et al. (2002) discuss the narrow definition of IT that dominates the discourse, and advocate a broader definition of IT including not only the technical bits but also the applications. Clegg (2001) discusses the relation between gender, education and computing and argues that gendered practices have pervaded the area of computing throughout its history and that these practices have maintained an "outsider" position for women and girls.

In this paper, based upon my recent study of how Swedish students and IT professionals perceive computer science and programming, I discuss some aspects of the gendering of computer science and IT.

## **Social Construction of Sex/Gender**

Sex or gender is one of the most basic and persistent categorisations that people make in understanding ourselves and our surroundings (West and Zimmerman, 1987). It is a categorisation that is never silent, which means that there is virtually no human activity that is "gender neutral". There is never a situation in which an individual is not a girl/woman or a boy/man. The development and use of IT are emphatically not gender neutral.

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