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## **Chapter IV**

# **Gender and Programming: Mixing the Abstract and the Concrete**

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## **Abstract**

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*This chapter seeks to examine a theory of gendered styles of programming which is predicated on differences in attitudes toward abstraction and black boxes. It critically explores the theoretical questions and issues raised and summarizes the design of an empirical, quantitative means of testing gender-based attitudes to black boxes, alongside and triangulated with ethnographic research into the experiences and attitudes of female students in relation to programming. The paradigm-shift represented by object-oriented programming is given particular consideration because of the claims made on its behalf within this debate, and as a special case of abstraction. The chapter concludes that there is no gendered difference in attitudes toward black boxes in programming, and that the reasons for female under-representation in computing lie elsewhere.*

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## Introduction

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This chapter seeks to deconstruct prevalent gender theories on abstraction in programming, and its possible role in the gendering of computing. Such a deconstruction will be critical, and even perhaps controversial, but is not necessarily a negative process. A too-ready acceptance of the supposedly natural inclinations and disinclinations of women and men when it comes to computers and programming has particularly troubling implications for the role of women in large-scale software development. While one of the conclusions is that positive initiatives should not be premised on stereotyped assumptions of gendered abilities, it was the counter-intuitive aspects—also informed, in a fashion, by stereotype—of Sherry Turkle and Seymour Papert’s research (1984b, 1992) that demanded interrogation. Males not wanting to look under the hood; females dismissing the general in favor of the particular, and forming personal relationships with machines? It simply did not compute! As one female programmer said, “Men in general have a greater interest in the background working of equipment and such likes.”

And so we undertook to investigate the ways in which gender has been, and may legitimately be, interpreted as a dimension of the computer programming curriculum. It is clearly reasonable to look for problems within the curriculum and to seek to reinvent computing culture and views of academic computing in the light of those problems; but the need for specifics also demands that we question all assumptions and categorizations around gender as well as our assumptions about computing. The differences in the extrinsic representation of women and men in computing do not have to have intrinsic correlatives in nature, or even in differences in their attitudes to computers. Nor do theories from other fields always translate well into the specifics of computing. Even social explanations sometimes base themselves on assumed natural differences. Open-minded research, grounded in the practicalities of programming, will provide a surer footing for action to redress the gender imbalance in computer science. As with debugging, the wrong “fix” can generate more bugs than it solves.

The objective of this chapter is therefore to explore the gender imbalance in computer science degree enrolment by examining the ways in which gender has been and may be interpreted as a dimension of the computer programming curriculum. This exploration focuses on the use of black boxes—prepackaged routines, including objects as well as library procedures. The design of the means to test gendered attitudes to black boxes is summarized along with indicative quantitative data arising from such experiments, and these are further triangulated with ethnographic interview data.

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