A Meta-Problem Behind the Diverse Perspectives on the Underrepresentation of Girls in Information and Computing Technology Subjects

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ABSTRACT

The percentages of girls in developing countries studying information technology subjects in the post-compulsory years of education has remained persistently low: often under 25%. This is despite the fact that this particular phenomenon has been the subject of international enquiry for over two decades. The persistence of this pattern raises questions about the extent to which the factors influencing girls’ decision making are fully understood and associated questions about the ways in which both the problem and solution are most usefully conceptualized. This paper explores the limitations of dominant ways of explaining girl’s underrepresentation in information technology courses and careers and argues the need for a more holistic approach to designing and enacting interventions. It draws particular attention to the need for ongoing research in this area which seeks to map the persistence of narrow and limiting understandings of gender that continue to thrive in contemporary IT and school contexts. Furthermore it highlights the associated need for teachers to be equipped with skills that allow them to contest and challenge these understandings while also designing IT related subjects that are engaging and relevant to girls and to boys.

Keywords: Anti-Essentialism, Gender, Girls and Technology, Information Technology, Teacher Education

INTRODUCTION

While girls in developed and developing countries are widely recognised as avid users of information technology they remain underrepresented in the diverse areas associated with the creation of IT1 products and services (Anderson, Lankshear, Courtney, & Timms, 2008; Hafkin & Huyer, 2007; Hilbert, 2011). For more than twenty years diverse forms of educational and social research have shown that girls in Australia (and many culturally

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similar contexts such as the US and the UK) are underrepresented in a range of key locations: within IT related courses at schools (with enrolments in Australia remaining consistent at less than 20%) (Lynch, 2007); in ICT programs at university level (where participation in Australian courses peaked at 26% in 1989 and declined to 20% by 2005) (Fisher, 2007); and in the IT profession generally where women are believed to account for between 16% and 20% of professional positions while making up less than 3% of the total numbers of specialist electronic and communication technicians (see for examples Anderson et al., 2008; Multimedia Victoria, 2008). 

Analysis of Australian and international data sets has often focused on the impact and consequences of this persistent underrepresentation including practical implications for the information and technology industry which faces ongoing personnel shortages in information technology professions (AAUW, 2000; Hafkin & Huyer, 2007; Lynch, 2009). Attention has also been drawn to the range of social, economic and political implications that this underrepresentation has for women as a group. A central argument here is that opting out of IT as an area of study has clear implications for girls’ future career paths, including the potential to reduce their chances of employment within lucrative and “in demand” industries, and, indeed, curtail their ability to contribute to the construction of the kinds of technologically mediated futures that impact upon their lives into the short and long term future (Wentling & Thomas, 2004). 

While there is widespread agreement that these statistics indicate the existence of a significant and important problem (both for girls/women as a group and for IT industries seeking a larger, quality pool of potential employees) there is less agreement about how the situation can or should be addressed (an excellent discussion of some of these issues is found in Cohoon & Aspray, 2006). Indeed, over the past ten years it has become increasingly apparent that the same patterns of underrepresentation can be interpreted in dramatically different ways and that these various interpretations can lead, in turn, to quite different responses. Drawing upon extensive literature reviews of relevant research and making particular use of data collected during a large scale empirical research project that investigated the reasons why girls do, or do not, choose to study ICT in the post-compulsory years of their education, this paper explores the phenomenon of girls underrepresentation in post-compulsory information technology courses (at school and at university). It does so by focusing on three different ways in which the problem is defined and the associated ways in which ‘solutions’ are conceptualised and enacted.

The first section of the paper explores the ways in which underrepresentation can be explained by identifying fundamental (generic, gender neutral) problems with IT subjects. The second section investigates the ways in which underrepresentation is linked to a more specific failure of IT education (and the IT industry) to demonstrate sufficient understanding of girls’ seemingly particular, unique needs or interests. The third section of the paper responds to the fact that despite the popularity (and familiarity) of these first two ways of defining the problem, participation trends have not actually improved. From that basis the paper puts forward the need for a new approach to interpreting the nature of the problem and for conceptualising the size and scope of potential solutions. In this work I draw upon anti-essentialist re-reading of claims relating to the relationship between gender, girls and information technology education. The aim throughout is to highlight the potential for research to look beyond dominant and familiar explanations for girls’ underrepresentation and to reconceptualise, in the process, what reform in this area might require.
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