

Gender and Information technology – an ARC-Linkage project

Between 2005 and 2008, a team of researchers from the University of Western Sydney, Charles Sturt U, and Deakin U conducted a research project in collaboration with the education departments of NSW, Victoria and South Australia. The book reference is J. Lynch (ed) *Gender and IT: Ongoing challenges for Computing and Information Technology Education in Australian Secondary Schools*. Canberra: ACSA/Common Ground. The summary below is based on chapters written by members of the research team for the book¹. It contains some verbatim excerpts from draft book chapters, and the statements are referenced against chapters that expand on each point.

1. The numbers of students (boys and girls) choosing to study Computing and Information Technology (CIT) subjects at the senior secondary level is has declined since 2001².
2. Girls' participation in these subjects is persistently low and has decreased significantly in recent years.³
3. The 'girls and IT' problem has been overshadowed by other gender-based debates (eg. boys and literacy, girls and body image) in recent years and it is not seen by teachers, schools or students as a genuine educational problem⁴.
4. Those students who perceive their own ability with CIT to be *high*⁵ are not highly represented among senior CIT subject enrollees. [Those with high perceived CIT ability often do not choose to study senior CIT subjects.] Girls who perceive their own ability with CIT to be high are even less likely than boys with similar perceptions to enrol in senior CIT subjects.
5. Those students who perceive their own ability to be *average* are overrepresented among CIT enrollees.
6. 70% of those students who perceive their own ability with CIT to be high say they learn more at home than at school⁶.
7. The formal secondary CIT curriculum in each state is characterised by discontinuity between junior and senior secondary years. Discontinuities in content and philosophy⁷, the absence of a publicly recognised body of knowledge and subject culture⁸, and tensions between senior CIT subjects and CIT education as it manifests in junior year cross-curricular ICT initiatives⁹, arguably lead to difficulties in

¹ The summary was compiled by Juli Lynch (Ed) *Gender and IT: Ongoing challenges for Computing and Information Technology Education in Australian Secondary Schools*. Canberra: ACSA/Common Ground

² Downes' analysis describes a dramatic decline in the period from 2001 to 2005 in NSW.

³ Downes' analysis based on NSW data describes a drop from 32% to 24% in the period from 2001 to 2005. Figures are similar in other states, with national figures hovering around 25%.

⁴ See Rowan chapter for summary and discussion of the recent history of gender debates and related educational reforms.

⁵ Based on the *perceived Information Technology Ability* (pITA) construct developed by Vickers and Ha.

⁶ See Vickers and Ha chapter for analysis and discussion.

⁷ See Downes' discussion of the NSW context.

⁸ See Harris chapter for analysis and discussion.

⁹ See Harris chapter for analysis and discussion.

promoting senior CIT subject, and contribute to students' (and others') misconceptions about these subjects.

8. CIT teachers as a group come from very diverse backgrounds, having taken a variety of pathways to develop knowledge in this curriculum area; they therefore respond in different ways to the context of CIT in schools.
9. CIT teachers report a lot of teacher anxiety (among their other colleagues) in relation to the use of computing technologies across the curriculum areas at the junior secondary level¹⁰.
10. In response to the nature of work in CIT industries, CIT syllabus documents tend to promote project-based pedagogies¹¹. However, the degree to which such pedagogical directives are implemented in CIT classrooms is mitigated by such things as individualistic assessment regimes, investments in textbooks and practices surrounding their use, and erratic teacher PD opportunities¹². CIT students tend to report more traditional approaches to teaching and learning, with occasion tokenistic digressions into project work.
11. Stereotypical understandings of identity, particularly those discourses that concern gender, ethnicity and class, have a direct impact on the construction of student interest within CIT education¹³. Students often employ limiting understandings of gender that depend on binary oppositions. Technical skills and very difficult technical tasks are highly valued and are largely perceived to be the domain in which boys are competent, while girls are positioned as enjoying tasks that involve communication and design, tasks and skills that are frequently less valued¹⁴.
12. Girls' perceptions of CIT education continue to be ambivalent and complicated by gender-inflected readings of what is creative (and what is not), what is interesting (and what is not) and what is practical (and what is not)¹⁵.
13. Some students and teachers use shaming practices as a means of policing the normalisation of gender. Such practices impact on students' self of self, their sense of competence and interest in CIT¹⁶.
14. Simplistic, longstanding, easily circulated, but limiting explanations of gender differences (eg. essentialist explanations based on binary oppositions) tend to dominate in students' and teachers' discussions of the low participation of girls in CIT¹⁷. The effects of these limiting explanations of gender are compounded by narrow understandings of CIT educational pathways and careers¹⁸.

¹⁰ See analysis in Reid and Van Den Akker chapter.

¹¹ See Gannon's analysis and discussion of the NSW *Information and Software Technology Years 7-10 Syllabus*.

¹² See Gannon chapter for analysis and discussion.

¹³ See Robinson and Davies chapter for analysis and discussion.

¹⁴ See Robinson and Davies chapter.

¹⁵ See Gannon chapter for an analysis of how these binaries operate within student transcripts.

¹⁶ See Robinson and Davies chapter.

¹⁷ See Rowan chapter for analysis and discussion.

¹⁸ See Rowan chapter.