



Editorial

The growth in mobile and especially smart phone usage has rapidly altered the way in which we interact with information and communication technologies. Early ICT adoption was critiqued as potentially disadvantaging women due to relatively lower access to computers, poorer internet connectivity as well as lower skills and technical confidence so that interventions to support women's access were deemed necessary. Our special issue in 2011 on [*Women in ICTs through the Lifecycle*](#) outlined much of the contemporary debate on this issue. This theme is taken up in the first of our empirical papers in this current issue [*"I just have to have it" or "It's enough for me"? Gendered tendencies in attitudes towards and usage of mobile communication technology*](#), in which Nadine Witt and Heather Hofmeister use discourse analysis to examine how German men and women position themselves in relation to the mobile phone in private and occupational life. They show how there are still strong gender dimensions in the discourse around mobile communication technology. Perhaps these findings are specific to the German location and context – it would be interesting to see more research from other countries along these lines.

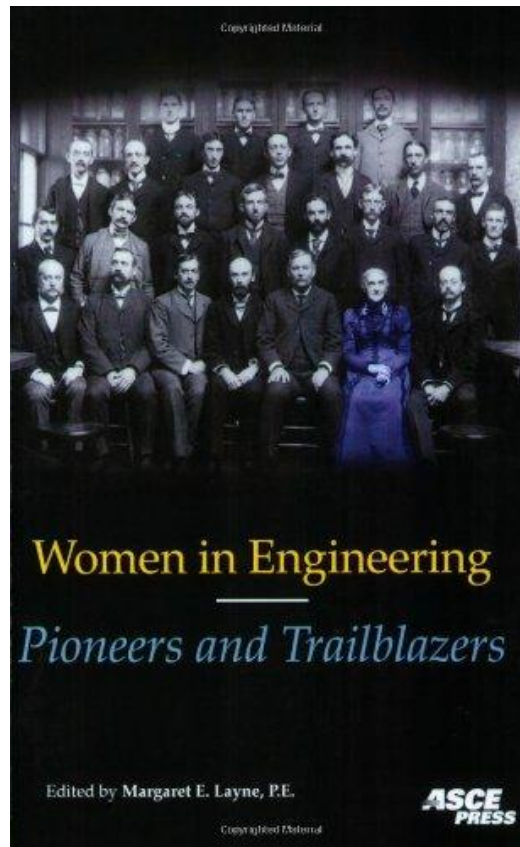
In a recent high profile court case in Silicon Valley, Reddit CEO Ellen Pao attempted to sue her former employers for sexual harassment and discrimination, and while the case was not successful, the court heard shocking evidence of blatantly sexist practices in the high tech sector. In the light of these revelations, it is hardly surprising that young women have complex and conflicting attitudes to careers in this sector. In their paper [*Gender Differences in College Students' Perceptions of Technology-Related Jobs in Computer Science*](#), Joseph Appianing, and Richard Van Eck address the perceptions of mid-Western US female college students to studying and working in the computing sector. A questionnaire called VIES – a variant of the Eccles expectancy-value model - was developed to measure university students' perceptions of technology related jobs in computer science using the constructs of value, interest and expectations for success. Statistically significant differences were found between men and women on all of the VIES subscales. The women placed less value on and also had low expectations for success in pursuing careers in the sector and were less inclined to want to carry on studying computer science at higher levels.



Astronomy presents an interesting field for an examination of gendered relationships to STEM – while entry requirements for higher education study are similar to physics, there are much higher numbers of women studying and indeed working in this field. In their paper [*Barriers Beyond Equity: An Exploratory Study of Women Graduate Students' Career Pathways in Astronomy*](#), Ramón Barthelemy, Melinda McCormick and Charles Henderson present a case study of five women astronomy graduates and investigate why they did not drop out but instead persisted, perhaps offering some insight that could be transferred to more gender unequal disciplines such as physics. Key to their findings is that women are motivated not just by the objective success measures of an academic career, but also view career success as incorporating work life balance and the ability to pursue other life goals.

One of the reasons we originally set up the International Journal of Gender Science and Technology in 2009, was in order to support the diffusion of knowledge and good practice. Our intention from the outset was to encourage communication between researchers, practitioners and policy makers to bring about some kind of synergy and communication between the many initiatives and interventions aimed at to recruiting and retaining women and girls in STEM. To this end we have published a total of 15 practitioner based case studies in GST that report on and evaluate specific interventions (including one in this issue that is focused on the training of science teachers). The focus on evaluation of interventions and their impact raises the question of how far new interventions are being based on evidence about 'what works'. This was the concern of a US funded project Women in STEM Knowledge Center which has produced a database of nearly 1000 articles relating to Gender and STEM. Elizabeth Creamer has undertaken a systemic review of 142 practice oriented publications from this database in her paper [*A Synthesis of Practice-Oriented Literature in Gender and STEM*](#) and her research found that between 1995 and 2009 there had indeed been an increase in evidence based practice, although many projects were still not engaging with previous work and 'reinventing the wheel'.

Teachers clearly have a strong role in supporting or inhibiting girls' progression in STEM subjects. Unconscious bias has been shown to be strong, robust and easily perpetuated and yet it is rare to find gender stereotyping specifically addressed in the training of STEM teachers. Anita Hussenius, Kristina Andersson and Annica Gullberg in their case study [*Spotting the Science Culture - Integrating Gender Perspectives into Science Courses*](#) show how teaching about gender theories as well as highlighting science as culture has been integrated into science courses within teacher education programs (early childhood education to lower secondary) in Sweden. Some of the additions to the courses included gender theories and analyses, critiques from feminist science philosophers, reflective tasks, as well as written assignments. In their paper the authors discuss experiences from the project and illustrate the value that a widened critical perspective can bring to higher education. They describe with illustrative examples how this was implemented in practice.



Finally, Ruth Carter's review of [*Women in Engineering: Pioneers and Trailblazers*](#) by Margaret E. Layne, reminds us again how far we have travelled since the early days of women entering engineering and indeed all STEM professions. These formidable women broke stereotypes and conventions against the odds and it is important to remember them and celebrate their achievements in each new generation.

Clem Herman, on behalf of the editorial executive: Helen Donelan, Barbara Hodgson, Gill Kirkup, Victoria Pearson, Elizabeth Whitelegg