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NETWORK GENDER & STEM educational and occupational pathways and participation

About the Network Gender & STEM

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About the Network Gender & STEM

BACKGROUND AND REVIEW

From the late 1970s, the underrepresentation of girls and women in STEM fields in many countries has been considered problematic, and the subject of policies, research and interventions (e.g., OECD, 2006; World Economic Forum, 2014). Gender differences in STEM participation and associated factors continue to occupy researchers concerned with gender equity. Fewer girls and women are sustained in STEM pathways. Many have argued that girls restrict their future educational and career possibilities by opting out of STEM pathways in high school, or soon after, which can impact their future income potentials (Meece, 2006). In addition to the negative impact on gender equity, societies are losing much-needed STEM workforce talent (e.g., OECD, 2017).

The international "Network Gender & STEM: Educational and Occupational Pathways and Participation" (www.genderandSTEM.com) was formalised in 2010. Since then, it has attracted more than 200 members, including researchers, scientists, policy-makers, and education practitioners. The Network also runs a website and a dedicated Facebook group (https://www.facebook.com/groups/GenderandSTEM/), has published regular newsletters, and held four conferences to date.

The collection of papers in this special issue reflects selected presentations given at our fourth Network conference, which took place July 31–August 2, 2018, at the University of Oregon, Eugene, USA, hosted by Jenefer Husman.

The theme was "Reimagining who does STEM and why through research, education and action". Keynote speakers included:

- Alice Pawley (Purdue University) 'Shift the default: Ruling relations and broadening participation in engineering education',
- Kathryn Scantlebury (University of Delaware) 'Pursing entanglements: Implications of (new) material feminism for STEM education',
- Kimberly A. Scott (Arizona State University) 'Misappropriating narratives and other issues with broadening STEM participation for women of color', and
- Helen M. G. Watt (University of Sydney) 'Gendered career decisions: Lifelong, lifewide, STEM-wide'.

As well, an invited feature Symposium 'The social contexts of girls' and women's developing sense of belonging in STEM' was organised by Campbell Leaper (UC—Santa Cruz) also including Sandi Simpkins (UC—Irvine), Catherine Riegle-Crumb (University of Texas at Austin), Amanda Diekman (Miami University) and Allison Master (University of Washington).
Preceding conferences and associated Special Issues in the *International Journal of Gender, Science and Technology* are outlined below:

- 2016 conference (Newcastle UK): 'Girls' and women's participation in STEM: Past lessons and possible futures': Vol. 10, No. 2 (2018)
http://genderandset.open.ac.uk/index.php/genderandset/issue/view/30

- 2014 conference (Berlin): 'Gender and STEM: What schools, families, and workplaces can do?'
Part 1: Vol. 7, No. 2 (2015)
http://genderandset.open.ac.uk/index.php/genderandset/issue/view/21
Part 2: Vol. 8, No. 1 (2016)
http://genderandset.open.ac.uk/index.php/genderandset/issue/view/23

- 2012 conference (Amsterdam): 'Gendered pathways towards (and away from) STEM fields': Vol. 5, No. 3 (2013)
http://genderandset.open.ac.uk/index.php/genderandset/issue/view/16

The conferences and special issues are an initiative of the "Network Gender & STEM: Educational and occupational pathways and participation". The Network conferences have marked the beginning of a more coherent way of exchanging information, as collectively we work to find new ways to implement research findings in both policy and practice. There exists an urgent need to integrate complementary perspectives that address the question of how pathways into STEM can be facilitated at various points in the educational and occupational development of students and young adults. Additionally, it is important to move beyond results that highlight only single aspects of formative influences and outcomes.

Members of the Network share the objectives of

(i) gaining greater insight into the various connected aspects of career choices and professional careers of girls/women (and boys/men) in the direction of STEM;
(ii) detecting new approaches to improve and address the underrepresentation of girls/women in STEM.

UPCOMING NETWORK CONFERENCE AND FUTURE DIRECTIONS

The Network will hold its fifth biennial conference on July 30–August 1, 2020 at The University of Sydney, Australia. This conference is being hosted by Helen Watt and Judy Anderson, together with organising team Janette Bobis (USyd), Kathryn Holmes (Western Sydney University), Tracy Durksen (University of NSW), Rebecca Lazarides (University of Potsdam), in collaboration with VHTO, The Netherlands.

The theme of the 2020 conference is 'STEM Education for the New Work Order: Policy, Practice and Partnerships'. The 2020 Network conference represents a partnership with the STEM Teacher Enrichment Academy to bring together researchers, educators, policymakers, industry representatives and the public to interrogate person-in-context influences towards, or away from, diverse STEM pathways across stages and settings. What are the needs for a STEM workforce of 2030? New, interdisciplinary drivers are transforming work and education policy and practice in response to social and environmental challenges and technological advancement. What is the role of STEM for the new work order, and how can we engage and prepare all young people including girls and women?

Themes will include:
- individual, family, teacher and peer processes which impact STEM engagement and participation;
- key factors and good practices to promote vs. deter STEM engagement and learning within school, university and workplaces;
- positive action measures: STEM initiatives, schemes, networks and organisations;
- developments in STEM & preparing workers for the future;
- the role of higher education institutes, government, industry, public policy and career development policies to enhance women's and men's participation in STEM research, commercialisation and public impact.

Keynote speakers are Professors Sue Thomson (Deputy CEO Research, ACER), Ana Deletic (Pro Vice-Chancellor Research, UNSW), Mustafa Özbilgin (Professor of Organisational Behaviour, Brunel Business School) and Network Patron Jacquelynne Eccles (Distinguished Professor, UC-Irvine). A feature panel is being organised by Bernhard Ertl, host of the upcoming 2022 conference in Munich.

The 2020 conference webpage (www.genderandSTEM2020.com.au) contains the call for proposals, registration information and the final program will be available here. The inclusion and integration of cutting-edge research from diverse disciplines with relevant scientific and scholarly expertise—alongside input from STEM professionals, policy-makers, and educators—will collectively break new ground and stimulate fresh lines of study concerning the persistent problem of gender and STEM participation in order to enable a better understanding of the current state of knowledge, and charting directions for future research. We look forward to our ongoing collaboration in this shared endeavour.

For further details about our Network, please refer to the Network website: www.genderandSTEM.com

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