Selected papers presented at the 7ᵗʰ Network Gender & STEM Conference, 18-20 July 2024 in Heidelberg, Germany

In association with

2024 Network Gender & STEM Conference Report

Birgit Spinath, Katharina Reschke & Zoe Maj Sander

Heidelberg University, Germany

Corresponding Author* Contact: birgit.spinath@psychologie.uni-heidelberg.de
ORCID: Spinath, Reschke, & Sander

ABSTRACT

The co-convenors of the Network Gender & STEM 2024 Conference July 18-20 at Heidelberg University, Professor Birgit Spinath, Katharina Reschke and Zoe Maj Sander, present an overview of the conference's central theme, structure, and highlights.

KEYWORDS: Network Gender & STEM; journal special issue; conference report

CONFERENCE OVERVIEW AND THEME

Following the successful return to in-person meetings, the 2024 Network Gender & STEM Conference was held in Heidelberg, Germany, hosted by Birgit Spinath, Katharina Reschke, and Zoe Maj Sander from Heidelberg University. The 7th biennial conference of the international Network Gender & STEM (www.genderandSTEM.com) welcomed around 200 participants from 22 countries, bringing together researchers, educators, policymakers, and practitioners from all over the world. The conference with the overarching theme "Future directions in theory, research, policy and practice" united experts from scientific disciplines including psychology, educational science, sociology, and different fields of STEM.

The conference explored the multiple interconnected factors that influence gendered educational and career choices in STEM, intending to advance both theory and practice and inform research, interventions, and policymaking. Keynotes addressed interventions, intersectionality, and giftedness. A feature panel addressed policy and practice issues, while a distinguished symposium focused on gender in the context of artificial intelligence. Central questions to the 2024 conference included: What factors shape course, apprenticeship, and field-of-study choices for girls, women, boys, and men? How do parents, peers, and teachers influence these decisions? And how can schools, socializers, and companies promote girls' and women's engagement in STEM studies and careers?

PROGRAM

The conference opened in the Great Hall of Heidelberg University. In addition to the local organizing team, Professor Silke Hertel, Vice-Rector for Student Affairs and Teaching, was also present and welcomed participants from all over the world to Germany's oldest university.

The scientific program included three keynotes and the feature panel "Policy and practice initiatives tackling gender equity and diversity in STEM at scale", moderated by the Network Gender & STEM co-convenors, Professor Rebecca Lazarides and Professor Helen Watt. The panelists included Sahar Yadegari, director of VHTO, Dr. Alison Every, Director of STEM Careers at the Australian Academy of Technological Sciences and Engineering, and the three keynote speakers of the conference: Professor Ulrich Trautwein (University of Tübingen, Germany), Professor Nilanjana Buju Dasgupta (University of Massachusetts Amherst, USA), and Professor Nicole Else-Quest (University of North Carolina at Chapel Hill, USA). In addition, the program was enriched by 100 individual paper presentations, nine symposia, as well as 29 posters with an award for the best student-led poster won by Janne Groß from Leuphana University Lüneburg, Germany.

The three keynote speakers offered complementary perspectives on gender, diversity, and inclusion across the STEM pipeline. Professor Ulrich Trautwein discussed gender disparities in gifted education and STEM participation, drawing on longitudinal findings from the Hector Children's Academy Program. His talk highlighted early gender differences in nomination patterns, educational trajectories, and motivational outcomes among talented primary school students. Professor Nilanjana Buju Dasgupta presented research on "social vaccines" that foster belonging, self-efficacy, and meaning, which are key psychological ingredients that help underrepresented students thrive in STEM. Through a series of

field and laboratory studies she demonstrated how targeted, low-cost interventions can yield lasting benefits for marginalized groups in STEM. Professor Nicole Else-Quest emphasized the importance of intersectionality for the future of STEM education, participation, and innovation. She explored how connecting micro-, meso-, and macro-level analyses can reveal embedded inequalities across social categories and guide more equitable interventions. Drawing on transdisciplinary theory and evidence, she illustrated strategies to apply intersectionality in research, STEM culture, and policy to foster a more inclusive, innovative, and transformative STEM landscape.

The individual paper presentations highlighted a range of interrelated factors influencing participation and persistence in STEM. Key themes included motivational beliefs, mindsets, and affective experiences; the roles of teachers, other role models, and relationships; and the impact of sociocultural and cultural influences on educational and career choices. Several papers focused on interventions and support structures designed to foster belonging, empowerment, and sustained engagement in STEM, while others examined career development, intersectionality, and diversity across the STEM pipeline. Collectively, these contributions underscored the complex interplay of individual, relational, and contextual factors shaping STEM trajectories.

The conference concluded on Saturday evening with a dinner at Schlosshotel Molkenkur. Delegates enjoyed beautiful summer weather and stunning views over Heidelberg's Old Town and the Neckar River. The last evening of the conference offered a relaxed atmosphere to unwind and provided a memorable and fitting conclusion to the 2024 conference in Heidelberg.

Prof. Dr. Gerda Hagenauer, Dr. Michaela Katstaller, and Christina Stubler, for their dedication and efforts in preparing the upcoming conference.