Motivation and STEM Research:
A collaborative webinar discussing the enhancement of motivation in STEM and STEM education

There is concern in Australia and internationally about shortages in STEM fields which contribute significantly to economic growth, and are seen as fundamental to many of the fastest growing occupations. Stagnant or declining participation in STEM has been of concern for some decades, for which a range of measures and solutions have been proposed. Motivation researchers have investigated how young people's beliefs about their abilities or talents, the value they attach to particular domains, and costs such as anxiety combine to predict their choices towards or away from pathways in mathematics and sciences. STEM education researchers have focused on supporting teachers to design integrated curricula to improve attitudes and engagement that underpin STEM careers. This collaborative webinar brings together experts in motivation and STEM education research to consider implications for enhancing students' motivation in STEM and addressing STEM engagement and participation.

Organisation		Role
	Ben Zunica, Ben Zunica is a secondary STEM educator and early career researcher at the University of Sydney. He was awarded his PhD for his thesis that focused on the pedagogical use of technology in secondary mathematics. Ben teaches secondary mathematics pedagogy, drawing on his 20 years' experience as an educator. His research focuses on improving mathematics teaching practice for the contemporary classroom, developing pedagogies that incorporate coding and mathematics in STEM projects and helping in-service teachers engage with academic research.	Chair
	Emma Burns, PhD is an ARC DECRA Fellow and senior lecturer of educational psychology at Macquarie University. Her research focuses on the socio-motivational factors and processes that impact adolescents' adaptive engagement, achievement, and development, especially in STEM. Specifically, she examines how high school students' relationships with their teachers impact their academic beliefs, values, and goals, and the multiple processes by which these factors impact their engagement and achievement over time.	Discussion Moderator

Panelists		Special focus
	Judy Anderson, PhD, an Honorary Associate Professor at the University of Sydney, was the Director of the *STEM Teacher Enrichment Academy* until 2020 delivering an innovative professional learning program to primary and secondary STEM teachers in NSW. An active researcher into teachers' beliefs and practices in STEM education she explored the impact of professional development on classroom practice. She is currently working with colleagues investigating the professional learning needs of out-of-field mathematics teachers, as well as secondary mathematics students' senior secondary subject choices.	Integrated STEM
	Sarah Buckley, PhD, is a Senior Research Fellow at the Australian Council for Educational Research (ACER). Sarah leads the Mathematics Anxiety and Engagement Strategy at ACER, which involves working with schools and preservice teachers to address barriers to mathematics engagement. Sarah's work in STEM engagement includes a recent project for CSIRO investigating way to improve young female students' engagement in digital technology. She has also worked on the Trends in International Mathematics and Science Study and other international assessments.	Mathematics anxiety & engagement
	Russell Tytler, PhD, is Alfred Deakin Professor of Science Education at Deakin University. He researches student engagement with reasoning and learning through the multimodal languages of science, socio-scientific issues and STEM curriculum policy and practice. He is widely published and has led a range of research projects, including current STEM projects investigating guided inquiry pedagogy for interdisciplinary mathematics and science, and Climate Change Education through representing scientists' practices. He is a member of the Science Expert Group for PISA.	Student engagement with STEM
	Helen M. G. Watt, PhD, is Professor of Educational Psychology at the University of Sydney and Director of Research Development, Social Sciences. She previously served at Monash, Michigan, Western Sydney, Sydney, and Macquarie Universities. Her longitudinal programs have implications for redressing gender imbalances in STEM (www.stepsstudy.org) towards which she founded Network Gender & STEM, and supporting career development of beginning teachers (www.fitchoice.org). She is Fellow of the Academy of Social Sciences in Australia, and the American Educational Research Association.	Mathematics and science expectancies, values & participation