

Abstract submitted for Celebration of Women in Australian Mathematical Sciences

Title: Self-Perception and Attitudes of Female and Male Year 5 and 8 Students towards Mathematics

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Session: Gender Equity and Diversity in Mathematics

AMSI's ChooseMaths initiative comprises a multilevel approach to increasing participation of women in the STEM pipeline and includes working directly with teachers and students across 120 schools in Australia, outreach activities such as *Girls Enjoy Maths* days in universities and schools and a mentoring program for female secondary students, career awareness and celebration of achievements of mathematics teachers and students at the annual awards day. As part of this initiative we conduct teacher surveys which measure teachers' confidence and competence in teaching mathematics at primary and secondary level and student interventions and surveys in the ChooseMaths schools which look at attitudes of students and measure their changes over time. The aim of the classroom interventions is to increase interest in, enjoyment of and engagement in mathematics of students from early primary school through to the end of secondary school, since stronger interest and engagement will lead to more participation and ultimately to higher achievements or performance in mathematics.

In this talk we focus on the pilot study of 2016 and the first main student surveys and interventions of Year 5 and Year 8 students in 2017. The classroom interventions include a pre- and post-survey and two mathematics-related activities. We describe the survey design and questions, the intervention activities and the data collection via mobile phones using *Plickers* and show survey results with emphasis on the different responses of girls and boys. Of particular interest are the results which relate to the change of self-perception and confidence of girls' ability to learn new mathematics from the pre- to the post-survey. This change is much larger than that of boys in the same school year and is surprisingly large and encouraging. The survey results show that the increase in self-perception and confidence is present in both year cohorts, although the Year 8 effect is smaller for girls and boys. We suggest interpretations of these results and discuss implications for future research and intervention programs.