Creating Inclusive Engineering and Science Classes

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What's your research question?	This research project aims to enhance gender inclusivity in engineering and computer science classes. The overarching question guiding the initial stage of the research is "what are educators' practices and students' experiences with respect to gender inclusion in engineering student teams in an Australian research-intensive university?"
Main point of your idea…	Team work is an important element of engineering education. However, research suggests that both engineering students need support to develop inclusive teams (Tonso, 2007), and engineering and science educators need support to facilitate inclusive practices within their classes (Beddoes & Panther, 2018; Peters, 2018). This project aims to gather data relating to the student experience and the perceptions of teaching staff relating to inclusion in engineering and science teamwork activities. This baseline data will be combined with findings from extant research to develop evidence-based learning resources and training materials to enhance teaching staff capabilities to support inclusive student teamwork within their engineering and science classes. These will be delivered through an in-person training workshop. As the project progresses, the implementation of changes to teaching methods and classroom practices will be monitored and measured to determine their impact on the student experience.
Importance of your idea…	This project will contribute to creating high quality, broadly educated engineers. Industry will benefit from graduates in engineering and mathematical sciences who are more broadly educated than previously, to practice inclusively and to lead inclusive teams. This is likely to enhance diversity in the profession and engineering project outcomes. In terms of Teaching and Learning, this research contributes to the understanding and practice of inclusive learning, specifically in the context of teamwork within engineering and science classes. Further, the project aligns directly with the forum theme of 'Vision& Voice' by drawing on the voices of both students and educators to form the basis for improvement of educator capability.
What is the context?	The research is being conducted in an urban, research-intensive university in Western Australia. It draws on student experiences and educator practices within engineering and computer science departments of this university.
Does it require a methodology? If yes, what is it?	The research methodology is informed by a feminist theoretical perspective, which assumes that engineering and science education is gendered and the experiences of women participating in engineering and science studies are shaped by gender dynamics. The project utilises a variety of methods for data collection and analysis across multiple stages including on-line survey, student focus groups and semi-structured interviews with educators.

What (if any) are the meta issues?	This research contributes to addressing the issues of gender inclusion in science, technology, engineering and mathematics. Initiatives in the 1980s frequently focused on supporting women to assimilate in gendered cultures. In contrast, this project is an example of research that is based on recognition of the necessity for systemic change. The research also contributes to awareness of students' and educators' experiences of increasingly prevalent student teamwork in higher education.
What are the implications for SoTL?	This project has direct implications for SoTL as the findings will add to the understanding of teaching methods and practices that enhance inclusive learning, specifically in the context of teamwork within engineering and science classes.
Is there a professional practice outcome and is it applicable across disciplines?	The research approach and the findings would be of interest to teaching and learning scholars from disciplines other than engineering and science. There is strong potential for the application of the research approach across disciplines. Comparison of findings would further increase the understanding of inclusive learning within university classrooms. Ultimately, we hope that graduates who have learned to work in inclusive teams will lead inclusion in engineering teams.
What is your key question to or insight sought from the 'critical friends'?	We are interested in receiving feedback on the initial stages of our project and we would be interested in exploring opportunities for collaboration with interstate and international researchers, and scholars from other disciplines.