

## POSTER PRESENTATION

### Using a Problem based learning approach (PBL) and the United Nations sustainable development goals to solve the world's wicked problems

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#### Abstract

*Educating citizens with a strong background in STEM-related knowledge and skills is a priority for responding successfully to pressing global challenges, as advocated by the United Nations Educational Scientific and Cultural Organization (UNESCO, 2016). These challenges include but are not limited to a range of environmental and community issues pertaining to the United Nations sustainable development goals (UN, nd). (Sheffield & De Kok, 2021)*

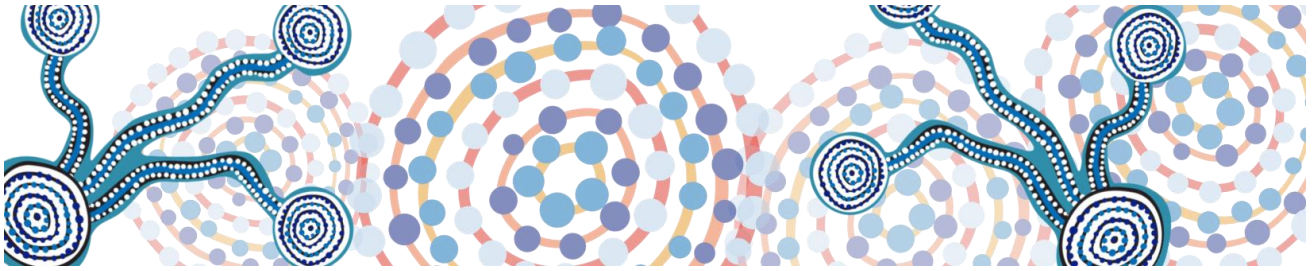
In this unit, students selected one of the United Nations sustainable development goals (UNSDG) (UN, nd) and developed a solution to their own real-world 'wicked' problem. Using the Hasso-Plattner design thinking model (2017) they identified a problem, researched, ideated, prototyped and then trialed and tested a possible solution. Each of the UN sustainable development goals (SDGs) have targets to be achieved by the year 2030, and Australia's progress towards achieving its targets are reported. Students found a real life problem in their lives that they wanted to investigate that they were then able to connect to the UNSDGs. This provided an opportunity for students to have unique, personal and perhaps vulnerable experiences as they struggled to design projects that stimulated their awareness of sustainable development values. Two key aspects of transformative learning theory have been embedded into the design of the unit to engage students deeply in the process and practicalities of problem-based learning (Taylor & Taylor, 2019). 'Relational knowing' involves students learning to connect empathically and compassionately with themselves, their community and the natural world. 'Practical knowing' involves students in developing their agency to take transformative social action in their community.

#### Acknowledgement

Dr Rachel Sheffield acknowledges the Traditional Custodians of the land on which we meet and pays respects to their Elders past and present.

#### Speaker Profile

Dr Rachel Sheffield is an Associate Professor in the School of Education at Curtin University in Perth. She researches and publishes in science, STEM education and professional identity and is currently exploring the transversal competencies and their role in STEM. Her research and grants in STEM education has seen her



travel to India, Indonesia and Malaysia supporting pre-service teachers and primary students to develop expertise in STEM content and 21st century skills. The STEMInist research group she co-founded supports women in STEM education and it was nominated for the 2019 Premiers Science Awards and the 2020 UNESCO Prize for Girls in Science for the impact on women in STEM. ([www.steminists.weebly.com](http://www.steminists.weebly.com)).

## Website links

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