

TEACHING STRATEGIES AND PROBLEM-SOLVING: INTEGRATION OF INDIGENOUS SCIENCE AND STEM

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This presentation provides an exploration of academic staff teaching strategies and problem-solving in an Australian university charged with the design and delivery of a first-year Unit for undergraduate students which integrates the learning of Indigenous science and academic writing in STEM. The Unit is an original innovation for the institution and is being taught jointly by teachers/facilitators from the Centre for Aboriginal Studies and the Faculty of Science and Engineering. Drawing on Yunkaporta's (2009) Aboriginal pedagogy framework and Vygotskian (2013) social constructivism, we explore classroom teaching strategies and problem-solving utilised by academic staff to facilitate the effective delivery of Indigenous Science and STEM. Reflections were collected from teaching staff and analysed utilising descriptive grounded theory methods (Glaser & Strauss, 1967). Preliminary findings suggest a range of teaching strategies and problem-solving approaches undertaken by staff to address challenges of teaching a Unit of diverse epistemologies and knowledge systems. This study will also add to the emerging literature on the ongoing integration of Indigenous knowledge with STEM as well as provide examples of enactment.

REFERENCES

- Glaser, B., & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, Aldine Publishing Company.
- Schreiber, L.M., & Valle, B.E. (2013). Social constructivist teaching strategies in the small group classroom. *Sage Journals*, 44 (4). <https://doi.org/10.1177/10464964134884>
- Yunkaporta, T. (2009). *Aboriginal pedagogies at the cultural interface*. Professional Doctorate (Research) thesis, James Cook University. Retrieved from: <https://researchonline.jcu.edu.au/10974/4/04Bookchapter.pdf>

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