



Environmental considerations: Re-negotiating the E in STEM Education

Susan Blackley
Curtin University, Australia

Rachel Sheffield
Curtin University, Australia

OVERVIEW OF THE RESEARCH

There is little debate that protecting eco-systems and sustaining the environment is important, critical even, now and in the future. From an educational perspective, there is an imperative to provide authentic, ecology-based learning experience for all students. In the Australian Curriculum, Environmental *Sustainability* is a cross-curricula priority. More specifically, there are also outcomes in the Australian Curriculum Science in the sub-strands, *Science as a Human Endeavour* and *Science Understanding* (Biological sciences) that focus on the environment: caretaking, respect, and an awareness of the complex connectedness of biotic and abiotic factors. Seemingly Science, Technology, Engineering, and Mathematics (STEM) education has concurrently risen as the new panacea to address economic and employment issues globally. This paper posits that STEM education could be re-imagined by addressing the E as “Environmental considerations”, and that this could provide a more cogent and inclusive approach to addressing environmental issues. Integrated and authentic STEM education could not only provide a space to investigate environmental issues but also offer a frame to image and implement solutions or *resolutions*. In this paper we explore this notion and consider how STEM education could look as *STEnvironmental considerationsM* in elementary schools, either within classrooms or elsewhere in the school.

INTRODUCTION TO THE AUTHORS

Dr. Susan Blackley is specialist teacher and scholar in mathematics education and professional studies, Susan is a research and teaching academic in the School of Education at Curtin University. Her current research lies in digital pedagogies, digital andragogy, teacher identity, digital portfolios, and STEM education. Dr Blackley is an active member of Australia’s Science, Technology, Engineering and Mathematics (STEM) community.

Dr. Rachel Sheffield is an outstanding science educator and advocate for STEM education, and teaches in the School of Education at Curtin University. Her research areas include: teacher identity, digital portfolios, digital andragogy, and STEM education. Dr Sheffield has contributed significantly to the science education community in Western Australia through her various roles in the executive of the Science Teachers’ Association.



IMPLICATIONS FOR PRACTICE:

When the 'E' in STEM education is viewed as "Environmental considerations" educators necessarily need to adjust their pedagogy to embrace difficult questions as a means of contextualizing inquiry in their classrooms. The authenticity of the questions they pose to their students directly impacts upon the resolution of or propositional solution to actual issues or problems: local, national or global. In this way, the STEM inquiry can be tailored to the interests of the school community and individual students.