STEM EDUCATION AS A PEDAGOGY THAT REVEALS PRIMARY STUDENT'S 'SUPER-POWERS'

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AIMS

Our aim is to contribute to the discussion around the conference theme, *Shaping the future with STEM education*, by framing STEM education as a pedagogical approach that can shape student's general capabilities, aspirations and agency.

SOURCES OF EVIDENCE

The University of Sydney STEM Teacher Enrichment Academy (Primary Program from 2017 to 2025) has worked with approximately 560 teachers from over 200 primary schools across NSW, supporting them with year-long professional learning for engaging their students in interdisciplinary STEM projects. Copious amounts of quantitative and qualitative data have been collected over the years to provide evidence of positive changes in teachers' knowledge and confidence, and in students' dispositions towards STEM disciplines and career aspirations. (For example, Anderson et al., 2019; Anderson et al., 2024). In the current discussion we focus on the key characteristics of the Academy's STEM education approach that stimulate the creativity, resilience and resourcefulness of both teachers and students (Way et al., 2022, Way et al., in press).

MAIN ARGUMENT

We argue that supporting teachers to take a skills-oriented focus to learning (rather than being content-driven) allows them to move towards more student-centred experiential learning and to value both creativity and critical thinking. Students become motivated to gain new knowledge and skills to apply to their solution-seeking endeavours. As both teachers and students gain confidence in applying collaborative design-processes to problem-solving they are empowered to tackle real issues that are meaningful to them and their communities. Students come to realise that everyone has something to contribute to shaping the future of communities in which they live.

CONCLUSIONS

Framing STEM education as a pedagogical approach to develop effective design and problem-solving processes in contexts that students care about, allows (in the words of a STEM Academy teacher in 2019) each child to discover their own previously hidden 'super-power', and that applying their super-power in collaboration with others can achieve exciting and meaningful outcomes.

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