

**SCAFFOLDING SCIENCE:
A PEDAGOGY FOR MARGINALISED STUDENTS**

Bronwyn Mary Parkin

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Thesis declaration

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Abstract

At a time when scientific literacy is recognised as essential for participatory Australian citizenship, science education has struggled to find a pedagogy that engages educationally marginalised students while at the same time assisting them to them becoming scientifically literate. The study reported here, titled *Scaffolding science: a pedagogy for marginalised students*, investigates an alternative pedagogic paradigm, scaffolding pedagogy, based on socio-cultural, language-focused principles. It draws on three complementary theories: Vygotsky's sociocultural activity theory, Halliday's systemic functional linguistics, and Bernstein's theory of pedagogic discourse.

The methodology is a classroom discourse analysis of a series of lessons around energy transformation with 7-8 year-old students in a suburban disadvantaged early primary classroom. Its focus is two-fold: firstly it provides a pre- and post-topic analysis of the oral and written performance of a number of case study students to ascertain changes in their language use. Secondly, it provides a discourse analysis of classroom interactions in the seven lessons in the topic. It identifies the changing nature of teacher scaffolding techniques across time as students gradually appropriate scientific language, as well as identifying the issues encountered by the teacher as she endeavoured to develop a principled scaffolding pedagogy in the teaching of science.

The study argues that student use of scientific language is fundamental to the ongoing learning of scientific knowledge. It supports the development of summary texts, called *focus texts*, to assist the teacher in a consistent use of scientific language, increasing the opportunities for its appropriation by marginalised students.

The study identifies the paradox of 'hands-on' science which brings about high student engagement, but neglects the development of the required language because of its situated nature. It proposes pedagogic strategies that may help to ameliorate the current situation in primary school science education.

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