

THE PROCESSES AND OUTCOMES OF PROFESSIONAL
LEARNING IN AN INNOVATIVE SCHOOL: THE
CONSTRUCTION OF AN EXPLANATORY MODEL

Thesis submitted by

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Abstract

Science and mathematics education in Australian senior secondary years is experiencing declining enrolments, negative student attitudes, a shortage of qualified teachers and a curriculum that lacks relevance to contemporary life (Masters, 2006, Smith, 2003, Tytler, 2007). Such evidence calls for transformation in secondary science and mathematics education and acknowledges that teachers' professional learning is central to achieving required transformation. Fulton Senior Secondary School¹ is a purpose built school designed to respond to the perceived crisis in teaching and learning of science and mathematics in the final years of schooling. It is also the site in which this qualitative interpretive case study was conducted. The purpose of the research was to investigate the processes and outcomes of teachers' professional learning in a setting that was designed to promote innovation and reform.

The research, conducted over a period of six years, used grounded theory methods to answer questions about what supported and sustained teachers' learning, and what were the outcomes of this learning for teachers, students and the school. To achieve an authentic account of the teachers' lived experiences, I positioned myself as an insider-researcher, working intensely and thoughtfully with staff at Fulton over a period of six years. The study revealed the nature of the interactions between contextual conditions, organisational elements and relationships factors that influenced teachers' professional learning. An explanatory model of professional learning was developed as an outcome of the theorising process. This identified the importance of alignments between: teachers' capacities, characteristics and sense of personal agency; and specific contextual conditions, organisational elements and relationship factors. Successful alignments were identified as affordances² for teachers' learning and formed the basis of the explanatory model. In essence, the contextual conditions, organisational elements and relationship factors of Fulton provided the architecture of an explanatory model of professional learning. The teachers acted as explorers of this architecture.

The research revealed that teachers brought existing beliefs and practices to Fulton, but through incidental and intentional learning, these beliefs and practices were expanded and often changed. Teachers developed deep understanding of many factors associated with effective pedagogy including: learning and learning processes; new science and mathematics content;

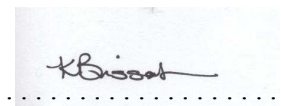
¹ Fulton Senior Secondary School is a pseudonym for an innovative Australian high school catering for students from years 10 – 12.

² An affordance is generated when environmental conditions enable the actors using the environment to achieve a desired goal.

effective curriculum design; and authentic assessment processes. The teachers were open to challenges and recognised their roles as learners in achieving the vision of the school. Their outcomes varied, but each teacher's learning influenced both the students and the school as a learning organisation. There was considerable evidence that the investment in teachers as learners was pivotal to achieving the vision of transforming science and mathematics education in the senior secondary years at this school.

Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

A rectangular box containing a handwritten signature in black ink. The signature appears to be 'K. Bissaker'.

.....
Kerry Bissaker 17/9/2009

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This research has been a significant journey and the outcomes are a reflection of the commitment of the teachers and leadership team at [Fulton] to learning and seeking to improve models of schooling not just for students at the school but for all those interested in reshaping schools with future perspectives in mind. The teachers and leadership team have supported and encouraged my research and acted as critical friends and co-researchers. I especially thank the teachers who acted as case studies and in particular, Jayne. Her commitment and enthusiasm helped to maintain my own and the opportunity to work closely with her was an absolute privilege.

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