
THE “DEFT” PROJECT

Joel Black^a, Naomi Borwein^b, Florian Breuer^c, Peter Ellerton^d, Jo-Ann Larkins^a, Judy-anne Osborn^c, Malcolm Roberts^c

Presenting Author: Judy-anne Osborn Judy-anne.Osborn@newcastle.edu.au

^aSchool of Science, Engineering and Information Technology, Federation University, Churchill, VIC, 3842, Australia

^bFaculty of Education, Western University, London, Ontario, N6G1G7, Canada.

^cSchool of Mathematical and Physical Sciences, University of Newcastle, Callaghan, NSW, 2308, Australia.

^dSchool of Historical and Philosophical Inquiry, University of Queensland, Saint Lucia, QLD, 4072, Australia.

KEYWORDS: Student, Expertise, Schema, Professional Development

The student experience of university is shaped in part by what lecturers – who are significant figures and role models – expect of students. In particular, what is the type and quality of thinking that we expect students to be engaging in? The DEFT (Developing Expertise Fostering Thinking) Project is a Professional Development Project being co-created and undertaken by a group of university lecturers across diverse institutions and contexts. We are interested in how our students think, what they think about, and how we can be more effective and precise in fostering thinking amongst our cohorts.

This work builds on scholarly literature on the nature of expertise – the quality we want to develop. In particular we draw upon the PhD of one of our number, Peter Ellerton, who leads the University of Queensland Critical Thinking Project. We also draw upon inspiration from considerations as to the nature of mathematical thinking. Our work is strongly but not exclusively contextualized within the Mathematical Sciences. The approach is a praxis approach, drawing upon the growing practical expertise of each of us as educators working within Universities in Australia and Canada.

In working together across diverse institutions and time zones, we are utilising videoconferencing for regular meetings in which we discuss our work and approaches. We discuss our current practices, and reflect upon these in the light of our theoretical framing. A keystone of the work is the assumption that (both for ourselves as educators and our students as developing professionals in diverse field) the development of expertise relies upon building understanding and conceptual schema through (deliberate) practice.

Proceedings of the Australian Conference on Science and Mathematics Education, The University of Sydney and University of Technology Sydney, 2 - 4 October 2019, page 13, ISBN Number 978-0-9871834-8-4