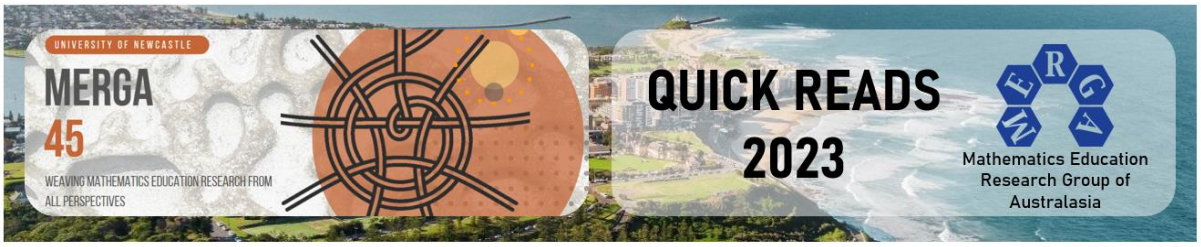

Generative teacher practitioners: Enacting adaptive expertise in and beyond the classroom

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As researchers we have focused on a range of aspects of student learning and teaching practice to improve outcomes for students. My challenge for this paper is to bring together and make sense of the connections between generative teaching, generative teachers and adaptive expertise (Anthony et al.2015; Carpenter et al., 2004; Yoon et al. 2019).

Much of our research on improving teaching and learning, including my own concerning equity in the classroom and assessing mathematical reasoning, has focussed on student reasoning and sense making and being inclusive and responsive to the students' and their cultural context that is, generative teaching. To develop these practices, teachers must take responsibility for the creation and generation of their own knowledge. That is, generative teacher practitioners continuously seek to improve their knowledge of students, mathematics and mathematics learning through deliberative reflection. Deliberative reflection needs to be collaborative so that teachers can challenge and question each other's thinking. This has occurred in my projects when teachers and school mathematics leaders met to assess students' reasoning work samples, and plan and conduct lesson study projects or teaching sprints (a type of action research). More recently researchers have explored the notion of adaptive expertise. Whereas routine experts teach efficiently in standard situations, adaptive experts innovate whilst also developing efficiency. According to Yoon et al. (2019) adaptive experts have a deep level of understanding of content and students. They use this knowledge to act flexibly when planning and teaching in the classroom. They also engage in deliberate practices involving regular reflection.

My current project is using this framework to explore primary teachers' adaptive expertise when co-planning and co-teaching a sequence of interdisciplinary mathematics and science lessons. I am proposing that these three concepts, generative teachers, adaptive expertise and generative teaching, need to be inter-related if we are to improve the learning experience and outcomes in mathematics. That is, generative teachers need to develop their knowledge, innovate in their teaching practice, and be flexible in the classroom, in order to be inclusive and responsive and promote sense making and reasoning.

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