

Addressing the Learning Gap Through Talk in Mathematics Classrooms

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Effective use of talk in the classroom is “a powerful motor for the development of reasoning and the improvement of academic performance” (Mercer & Howe, 2012, p. 13). Everyday language, however, does not always mirror academic language, and it is the latter that is required to benefit from talk in the classroom. The challenges in academic language for mathematics are distinctive (Halliday, 1978). Students are required to use grammatical forms and phrases with which they may not be familiar (Schleppegrell, 2007). Talk that has clear, formal use of these new meanings and grammatical forms is needed to engage in the learning of mathematical concepts but the adjustment to these forms is particularly difficult for students from low socioeconomic status (SES) backgrounds who are less likely to be exposed to such language at home (Black, 2011). Consequently, low SES students become marginalised from the mathematical talk required to promote mathematical thinking (Prediger, 2019).

This is the premise that underpins our recently funded ARC Discovery project. In this short oral presentation, we set out the proposed cross-case comparison methodology based on a school-based participatory design. The project positions functional language as a key factor in determining the impact of a research-based intervention. Analysis of class discourse is based on the Scheme for Educational Dialogue Analysis (SEDA) (Hennessy et al., 2016) and on Halliday’s systemic functional linguistics.

Evidence from the cross-case comparison will indicate relationships between a language-based pedagogy and achievement in mathematics and identify the role of functional language in learning mathematics. The aim is to build a compelling evidence base of the relationship between talk and learning in mathematics with the potential to break the cycle of socio educational disadvantage.

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