



Developing Pre-service Teachers' Understanding of Numeracy

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Numeracy (or mathematical literacy) encompasses the capacity to use mathematics effectively across a wide range of contexts. In Australia, numeracy is identified as a general capability to be developed in all learning areas (ACARA, n.d.) and it is expected that teachers explicitly address numeracy inherent in the subjects they teach. Pre-service teachers, therefore, need to begin to develop effective numeracy teaching strategies during their Initial Teacher Education (ITE) program. This paper reports on the findings of a study designed to contribute to the limited research base informing the design of courses that address this need.

The study builds on earlier work with practising teachers that developed a framework for teacher identity as an embedder-of-numeracy and provided insights into the development and trajectory of this identity (Bennison, 2020). Shifting the focus to pre-service teachers, this study investigates how a course in an ITE program – *Literacy and Numeracy Across the Curriculum* – contributes to shaping a future teacher's initial identity as an embedder-of-numeracy. Data comprises two course tasks completed at the beginning of the course and interviews conducted at the end of the course. Data analysis was through the lens of the 21st Century Numeracy Model (Goos et al., 2014). This paper draws on data from two pre-service teachers – one preparing to teach Biology and Agricultural Science and the other preparing to teach English and History – chosen to represent different learning trajectories.

Findings suggest that the *Literacy and Numeracy Across the Curriculum* course had some impact on the two pre-service teachers' understanding of numeracy and their capacity to identify how it could be embedded in the subjects they were preparing to teach. Before completing the course, neither pre-service teacher was confident in her capacity to demonstrate appropriate strategies to support students' numeracy learning in her respective curriculum areas. Following the course, both pre-service teachers were able to articulate a richer personal conception of numeracy and provide examples of how numeracy could be embedded in the subjects they were preparing to teach. The findings also highlight the different starting points and learning trajectories for pre-service teachers completing such courses. The two pre-service teachers, for example, commenced the course with very different previous experiences of mathematics at school, resulting in different levels of mathematical knowledge and attitudes towards mathematics. There were also differences in the way the two pre-service teachers conceptualised numeracy. While the findings from the study are promising, there is a need to further grow the research base underpinning the design of courses supporting pre-service teachers to embed numeracy in the subjects they will teach.

References

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