



Primary Pre-Service Teachers' Beliefs About Challenging Mathematical Tasks

Tammy Tran

John The Baptist Primary School
tammy.tran001@syd.catholic.edu.au

Janette Bobis

The University of Sydney
janette.bobis@sydney.edu.au

Challenging mathematical tasks have been shown to be important for promoting conceptual understanding, learner autonomy, and mathematical reasoning (Bobis et al., 2021). However, the very nature of challenging mathematical tasks may be one reason why primary teachers are reluctant to implement them, due to teachers' beliefs that if students struggle with the task, then they would become less engaged (Cheeseman et al., 2013). As beliefs impact how teachers feel, act, and think about mathematics and could impact pre-service teachers (PSTs) knowledge development (Maasepp & Bobis, 2014), understanding and changing teachers' beliefs about challenging tasks is important and can impact their future teaching. This study aimed to answer the following research questions: *What beliefs do primary PSTs hold towards challenging mathematical tasks? How do primary PSTs perceive that their initial teacher education (ITE) program impacted their beliefs and knowledge about challenging mathematical tasks?*

To answer these research questions, this study used Maasepp and Bobis' (2014) adapted framework of primary PSTs' mathematical beliefs to structure the survey items and interview questions. Fifty-seven PSTs across four year-levels in an ITE program completed an online questionnaire, and four participants were individually interviewed. Descriptive statistics was used for both the questionnaire, and a deductive coding process was used for the interview data.

Analysis of primary PSTs' beliefs through the questionnaires revealed a general growth mindset regarding their own learning (Dweck, 2008). However, interview data uncovered instances of a fixed mindset in PSTs concerning student learning with challenging tasks. PSTs' perceptions of how their ITE programs influenced their beliefs and understanding of challenging tasks were in line with Maasepp and Bobis' findings (2014), showing that, overall, participants held favourable views of challenging tasks. Surprisingly, nearly 30% of participants exhibited these positive beliefs even before formal exposure in their ITEs. These findings are important as new curricular around the globe emphasise problem-solving and reasoning—processes inherent in challenging tasks; and ITE programs can change or reshape PSTs' beliefs by emphasizing the importance and affordances of challenging math instruction.

References

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