Rationales Behind Problem-Solving Implementation: Perspectives From Primary Mathematics Teachers

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The Australian Curriculum (ACARA, 2022) and international documents (National Council of Teachers of Mathematics (NCTM), n.d.; Organisation for Economic Co-operation and Development (OECD), 2024) position problem-solving as a key proficiency, prompting teachers' rationales for its implementation. This qualitative case study examined the rationales given by two primary school teachers for implementing mathematical problem-solving and explored how these rationales shaped their instructional practices.

This study was conducted as part of a larger research project in a Transition-to-Year-12 non-government school in Greater Western Sydney and involved two primary teachers of a Year 5–6 class and a Year 4 class. Data were collected through semi-structured interviews conducted at mid- and end-year points. Interview transcripts were analysed using a combination of inductive thematic analysis (Braun & Clarke, 2006) and deductive analysis.

Both teachers framed their implementation of problem-solving around three key rationales. Firstly, they pointed to future preparedness viewing problem-solving as essential for success in high school and beyond, highlighting the importance of real-world application and noting that problem-solving tasks support students to see the connection between mathematical concepts and authentic contexts. Secondly, problem-solving was seen as creating opportunities to address strategies explicitly, using modelling and discussion embedded within the context of mathematical problems. Thirdly, teacher interview data associated problem-solving with student confidence and engagement, suggesting that implementing such tasks promotes positive attitudes toward mathematics and encourages persistence.

By examining these rationales, the study provides understanding into the belief-practice relationship and highlights the need for professional learning that supports teacher mathematics problem-solving values and attitudes. Specifically, it demonstrates how teachers' rationales reveal underlying beliefs that shape instructional choices, thereby offering insight into areas where targeted professional learning may foster more consistent alignment between beliefs and practice.

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