Beliefs about the Active, Bodily experience Mathematics learning activities: an explorative teacher survey in Australia

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This exploratory study investigates Australian primary and secondary mathematics teachers' perspectives on Active, Bodily experience Mathematics (ABM) learning activities. Grounded in embodied cognition theories, these activities aim to integrate physical movement and sensory experiences into mathematics education to deepen understanding and engagement. The study employed a mixed-method approach, combining an online survey with follow-up interviews, to uncover teachers' expectations, challenges, and perceived barriers in implementing ABM activities.

The results reveal that while the teachers in the sample generally acknowledge the potential benefits of ABM activities—such as enhancing students' conceptual understanding, providing meaningful and long-lasting learning (e.g. built upon solid cognitive roots), improving mathematical visualisation skills, and fostering a greater engagement—they also face significant obstacles. These include difficulties in classroom management, particularly due to class size, the variability of students within the same classroom, and students' behaviour during active learning opportunities. Additionally, the teachers in the sample mentioned a lack of appropriate spaces and resources, as well as time constraints related to both the preparation of ABM activities and the time required to conduct them in class.

The study highlights a significant challenge in reconciling the benefits of ABM activities with the demands of standardised testing, which many teachers view as a primary objective in their teaching practice. Moreover, an unsupportive school culture, especially denoted by conventional views on what is expected of a math lesson, is perceived as another barrier.

Furthermore, within the sample, secondary school teachers often consider ABM activities less suitable than their primary school counterparts. Frequently, the reasons why they believe that these activities are not necessarily applicable to their school grades are the pressure because of the curriculum demands and the belief that limited contents can be covered through them. Despite this, some educators express a desire to incorporate more ABM activities but feel constrained by practical limitations and the need for specific guidance and preparation.

The findings suggest that while there is enthusiasm for ABM activities, behind intentions their broader adoption is hindered by the realities of classroom practice and resistance rooted in beliefs related to mathematics teaching and learning in schools. Future research should focus on developing strategies to overcome these barriers and explore ways to better align ABM activities with curriculum requirements. Additionally, further investigation is needed to understand how ABM activities can be effectively integrated into teaching practices across different educational levels, particularly in secondary schools, where their implementation faces greater resistance.

For more information, please refer to the following paper presented at the 46th Annual Conference of MERGA in July 2024.
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