

## Student Engagement in Mathematics

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Student engagement in mathematics and mathematics learning has been a concern for educators for many years (Attard, 2011). There have been many studies and reports that have suggested ways to improve student engagement in mathematics lessons, and these seem to offer some useful approaches. In this presentation, we discuss some of the key factors related to student engagement in primary mathematics learning as have been identified in the literature reviewed. In particular, pedagogical approaches will be explored, including the use of textbooks and investigations (Langer-Osuna, 2015), and classroom factors including teacher rapport (Attard, 2011) and peer interactions (Way, Reese, Bobis, Anderson, & Martin, 2016). Finally, we will discuss issues of student engagement vis-à-vis other variables including gender, previous achievement, and socio-economic status. The initial findings presented here will underpin some empirical work that is to be subsequently undertaken.

### References

- Attard, C. (2011). The influence of teachers on student engagement with mathematics during the middle years. In J. Clark, B. Kissane, J. Mousley, T. Spencer, & S. Thornton (Eds.), *Mathematics: Traditions and new practices: Proceedings of the 34th Annual Conference of the Mathematics Education Research Group of Australasia* (pp. 68-74). Adelaide: MERGA.
- Langer-Osuna, J. M. (2015). From getting “fired” to becoming a collaborator: A case of the co-construction of identity and engagement in a project-based mathematics classroom. *Journal of the Learning Sciences*, 24, 53–92.
- Way, J., Reese, A., Bobis, J., Anderson, J., & Martin, A. (2015) Improving student motivation and engagement in mathematics through one-to-one interactions. In M. Marshman, V. Geiger, & A. Bennison (Eds.), *Mathematics education in the margins: Proceedings of the 38th Annual Conference of the Mathematics Education Research Group of Australasia* (pp. 627–634). Sunshine Coast, QLD: MERGA.

## Testing Inquiry-Based Mathematics Competencies

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In a Danish development and research project in mathematics with focus on inquiry, a primary ICT test has to be developed, which will be able to determine development in students’ mathematical competences. In order to build on earlier research, a systematic literature review was performed. The output from 1,280 articles (only 55 included) was that several foci were important: the connection between problem-posing and problem-solving, the use of visual representations, the advantages and disadvantages of ICT tests, frameworks and conditions regarding emotions, measurement of metacognitive aspects, and mathematical reasoning and thinking processes. I will discuss 10 principles in designing an inquiry-based mathematics competencies test.

(2017). In A. Downton, S. Livy, & J. Hall (Eds.), *40 years on: We are still learning! Proceedings of the 40th Annual Conference of the Mathematics Education Research Group of Australasia* (p. 692). Melbourne: MERGA.