Refvik, K. A. S. & Bjerke, A. H. (2022). Computational thinking as a tool in primary and secondary mathematical problem solving: a literature review. Nordic Studies in Mathematics Education. 27 (3), 5–27.

Abstract

In this systematic literature review, we investigate the connections between computational thinking and problem solving in the context of primary and secondary mathematics education. We do this by exploring how and at which steps in the mathematics problem-solving process seven peer reviewed studies report on the inclusion of computational thinking concepts, practices and perspectives. Overall, the studies show that it is possible and at times beneficial to include computational thinking in mathematics problem solving. However, more research is needed to see whether simply including computational thinking and its programming tools enhances students' problem-solving skills in mathematics.

Kim André Stavenæs Refvik

Kim André Stavenæs Refvik is PhD. fellow at Volda University College. His research interest focuses on digital tools and technology in mathematics education and, more specifically, how students understand and use programming and computational thinking in mathematics. He is also engaged in teacher education and in-service teacher education on programming and mathematics.

Annette Hessen Bjerke

Annette Hessen Bjerke is associate professor of mathematics education at Oslo Metropolitan University, Norway. Her research interests focus on mathematics teacher education, with specific emphasis on pre-service teachers' theory-practice transitions, and teachers' developing self-efficacy and subject matter knowledge. She is engaged in the introduction of computational thinking in mathematics across grades.