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Logan, Tracy; Lowrie, Tom; Diezmann, Carmel M.

Co-thought gestures: supporting students to successfully navigate map tasks.

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Summary: This study considers the role and nature of co-thought gestures when students process map-based mathematics tasks. These gestures are typically spontaneously produced silent gestures which do not accompany speech and are represented by small movements of the hands or arms often directed toward an artefact. The study analysed 43 students (aged 10–12 years) over a 3-year period as they solved map tasks that required spatial reasoning. The map tasks were representative of those typically found in mathematics classrooms for this age group and required route finding and coordinate knowledge. The results indicated that co-thought gestures were used to navigate the problem space and monitor movements within the spatial challenges of the respective map tasks. Gesturing was most influential when students encountered unfamiliar tasks or when they found the tasks spatially demanding. From a teaching and learning perspective, explicit co-thought gesturing highlights cognitive challenges students are experiencing since students tended to not use gesturing in tasks where the spatial demands were low.

Classification: C52 C53 G22 G23

Keywords: co-thought gestures; map tasks; spatial reasoning; navigating

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