

DEVELOPING FRACTIONAL REASONING THROUGH BODY PERCUSSION

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A great deal of literature exists on the connection between mathematics and music, and new ways in which teachers can harness the synergies continue to be discovered. This Oral Communication is based on aspects of the first author's broader doctoral study. The study is exploring the integration of mathematics and music to support the teaching and learning of fractions at primary school level. It is guided by the theoretical framing of realistic mathematics education (RME) (Van den Heuvel-Panhuizen, 2003), which encourages designing experientially real activities from which informal discussion can lead to formal, vertical mathematization. The first author conducted a preliminary piece of action research trialling one of her RME design ideas. The research question she asked here was: 'How might body percussion be used as an intervention strategy for teaching fractions?'

This presentation will share some initial findings around the use of a specific body percussion activity designed to provide students with opportunities for deepening their conceptual understanding of fractions beyond the part-whole model. The activity trialled aimed at supporting Grade 6 students' understanding of the construct of fractions as ratio. It involved a clapping activity focusing on 'beats per bar' in music. This activity, based on the well-known clapping game, *Sevens!*, required students to clap a sequence of seven beats in different ways, getting faster and faster each round. Having taught the clapping activity to the Grade 6s, the first author then posed a set of problems which called on students' fractional reasoning. After completing the lesson, she critically reflected on her perceptions of the effectiveness of the strategy in her reflective research journal. She then transcribed the audio recording of the lesson and analysed the transcript data deductively using thematic analysis to identify patterns relating to the theoretical framing of RME. Data from her reflections and deductive analysis on this preliminary cycle of action research indicate that the body percussion activity certainly had the potential to serve as a realistic context for stimulating problem-solving requiring fractional reasoning around fraction as a ratio. Findings from the data will be shared in the presentation and will also be used to guide future iterations of using body percussion to support teaching fractions meaningfully.

References

Van den Heuvel-Panhuizen, M. (2003). The didactical use of models in Realistic Mathematics Education: An example from a longitudinal trajectory on percentage. *Educational Studies in Mathematics*, 54(1), 9-35.