

**A PILOT STUDY ON TEACHING PROBABILITY IN PRIMARY SCHOOL**

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*This poster reports on a pilot study in a Dutch fifth-grade class in which it is investigated how primary school mathematics education can be enriched by offering students tasks that provide them with opportunities to develop probabilistic reasoning. The tested teaching sequence focuses on combining a theoretical approach to probability with an empirical approach to probability.*

**BACKGROUND OF THE STUDY**

Probability is increasingly being included in curricula, beginning in primary school in many countries. Research had also shown that it is possible for young students to reason probabilistically (Lindmeier & Reiss, 2014). In the Netherlands, probability is not part of the primary school curriculum for the grades 1-5. We investigate what a teaching sequence for probability in grade 5 could constitute. The core concept in our teaching sequence is sample space: focusing on prompting students to identify all possible outcomes together with their frequencies of occurrence and taking this as a criterion for making decisions about probability. In this approach, we follow Bryant and Nunes (2012) who have emphasized the importance of having understanding of the sample space in the early stages of learning probability. Only when students realize how the qualitative likelihood of events depends on the possible outcomes, they can reason about probability. Perceptual epistemic resources (cf. Abrahamson, 2014) are used to support the understanding of the theoretical probability. Hereafter, the theoretical probability is connected to the empirical probability – by having students carrying out or simulating probabilistic experiments – aiming to deepen their understanding of probability. To support this understanding embodied experiences are used. Our research question is: *How does students' understanding of probability, and related higher order thinking, develop over this teaching sequence on probability?*

**SET UP OF THE STUDY**

Currently we are piloting the teaching sequence consisting of six lessons. One *fifth-grade* class of 25 students participates in this pilot. The development of their understanding of probability will be evaluated both qualitatively and quantitatively. Based on video-recordings of the lessons crucial level-shifting task characteristics and problem solving activities will be identified. The findings from this analysis will be connected with data obtained from a test on mathematics-related higher-order thinking that is administered before, and after, the teaching sequence, and from lesson-specific mini-tests that are administered at the end of every lesson. The poster that will be presented at ICME 13 will show the results of this pilot study.

**References**

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- Lindmeier, A., & Reiss, K. (2014). Wahrscheinlichkeitsvergleich und inferenzstatistisches Schließen: Fähigkeiten von Kindern des 4. und 6. Schuljahrs bei Basisproblemen aus dem Bereich Daten und Zufall. *Mathematica Didactica*, 37, 30–60.