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**Prodromou, Theodosia; Pratt, Dave**

**Harnessing the causal to illuminate the stochastic.**

Hewitt, Dave et al., Research proceedings of the British Society for Research into Learning Mathematics. Vol. 25 (1). ,. 136-143 (2005).

This study builds on prior work, which identified that students of age 11 years had sound intuitions for short-term randomness but had few tools for articulating patterns in longer-term randomness. This previous work did however identify the construction of new causal meanings for distribution when they interacted with a computer-based microworld. Through a design research methodology, we are building new microworlds that aspire to capture how students might use knowledge about the deterministic to explain probability distribution as an emergent phenomenon. In this paper, we report on some insights gained from early iterations and show how we have embodied these ideas into a new microworld, not yet tested with students. (orig.)

*Classification:* K53 C33

*Keywords:* lower secondary; randomness; concept formation; intuition; distributions; probability; educational research; random variables