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Investigating the dynamics of stochastic learning processes: a didactical research perspective, its methodological and theoretical framework, illustrated for the case of the short term-long term distinction.

Chernoff, Egan J. (ed.) et al., Probabilistic thinking. Presenting plural perspectives. Dordrecht: Springer (ISBN 978-94-007-7154-3/hbk; 978-94-007-7155-0/ebook). Advances in Mathematics Education, 533-558 (2014).

Summary: Our didactical research perspective focuses on stochastic teaching – learning processes in a systematically designed teaching – learning arrangement. Embedded in the methodological framework of didactical design research, this perspective necessitates the iterative interplay between theoretically guided design of the teaching – learning arrangement and empirical studies for investigating the initiated learning processes in more and more depth. For investigating the micro-level of students’ processes, we provide a theoretical framework and some exemplary results from a case study on students (in grade 6) approaching the distinction between short term and long term in the teaching – learning arrangement “Betting king”.

Classification: K53 C33 D20 U63

Keywords: probability learning; law of large numbers; short term distinction; long term distinction; conceptual change; didactical design research; in-depth study; construction of learning environment; stochastic context; design experiments; students’ learning processes

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