Secondary Mathematics Teachers’ Probabilistic Reasoning

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Research Apprenticeship Report Abstract

This exploratory qualitative research study uses observations and semi-structured interviews to examine secondary mathematics teachers’ understanding of probability and their use of probabilistic reasoning in teaching two activities designed to extend students’ models of exponential relationships. Teachers tended to neglect the probabilistic elements of these activities because: they do not like probability, they are afraid to teach probability, their knowledge of probability is weak, and they do not often explore connections outside of the unit they are teaching. The misapplication of the equal likelihood principle, the representativeness heuristic, and the outcome approach were common weaknesses. None of the teacher used probability distributions to provoke student refinement of probability models. Teachers’ movement to student centered learning is slow and difficult. Traditional teachers need more training in basic probability and more experience with student based learning activities before they can successfully apply a teaching strategy based on a “models and modeling perspective”.