

**ZMATH 2016b.00798**

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**Making comparisons between observed data and expected outcomes: students' informal hypothesis testing with probability simulation tools.**

Stat. Educ. Res. J. 9, No. 1, 68-96, electronic only (2010).

Summary: We examined how middle school students reason about results from a computer-simulated die-tossing experiment, including various representations of data, to support or refute an assumption that the outcomes on a die are equiprobable. We used students' actions with the software and their social interactions to infer their expectations and whether or not they believed their empirical data could be used to refute an assumption of equiprobable outcomes. Comparisons across students illuminate intricacies in their reasoning as they collect and analyze data from the die tosses. Overall, our research contributes to understanding how students can engage in informal hypothesis testing and use data from simulations to make inferences about a probability distribution.

*Classification:* K50 K90 U70 K70

*Keywords:* statistics education research; middle school; technology; informal inference; data distribution; variation

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