

ZMATH 2014a.00783

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Words, numbers, & numeracy: diminishing individual differences in Bayesian reasoning.

Learn. Individ. Differ. 28, 34-40 (2013).

Summary: High numerate individuals tend to be more successful probabilistic problem solvers than those lower in numeracy. These individual differences, however, can be modulated through the presentation format of external information, although discrepancies have been reported. The present investigation addressed these discrepancies using formally equivalent Bayesian reasoning problems differing in numerical format and problem complexity. As previously observed, with a complex problem all participants were at floor level with probabilistic information, while individual differences emerged with natural frequency data. In sharp contrast, with a simple problem, differences between numeracy levels were diminished with natural frequencies, with group differences emerging only with probabilistic formats. Accordingly, the impact of numeracy in Bayesian reasoning depends both on numerical format and verbal complexity, and further suggests that lower numerate individuals are not inherently unable to reason in a Bayesian-like manner.

Classification: K45 K55 D55 C45

Keywords: numeracy; Bayesian reasoning; statistical format; problem structure; verbal complexity; individual differences

doi:10.1016/j.lindif.2013.09.004