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A detection theory investigation of sensitivity and bias in recognition memory.

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Abstract

Within Signal Detection Theory (SDT) it is accepted that the measures of sensitivity and bias are independent of each other. However, the independence of bias and sensitivity with respect to an individual's behaviour is uncertain. In the current study two experiments were completed to investigate this question. In a Yes/No recognition memory task for words, eight participants each completed 27 blocks of 120 trials, presented and scored on a computer. Nine blocks were completed in Experiment 1 and 18 in Experiment 2. In Experiment 1 sensitivity was altered by means of changes in word imagery levels. Measures of sensitivity and response bias were obtained when participants were tested with either high, medium, or low imagery words. In Experiment 2 bias was manipulated by artificially weighting the consequences of correct and incorrect responses. Analysis of the results was undertaken using both parametric and nonparametric SDT measures of sensitivity and bias. Analyses of variance showed that there were no statistically significant relationships between imagery level (an indirect measure of sensitivity) and response bias. However, a correlational analysis between the individual sensitivity measures and response bias indicated that, when there were no external biasing factors, response bias became less pronounced response bias as sensitivity increased. The study also indicated that participants' natural response biases tended to be conservative.

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