The effect of reward value on implicit memory

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Animals, including humans, can prioritize their behaviour to maximize reward. Do people have a bias to items associated with higher values, even when there is no current advantage in doing so? We thought such a bias might be useful in realistic learning situations. One would think this question has already been tested; however, previous studies investigating the effect of reward value on memory have used procedures for which there is a rational advantage to learning about high-value more than low-value items. To avoid this confound, in our procedures, learning only about high-value items could earn the same amount of reward as learning about only low-value items. Participants had to bet on, or against, a single word at a time (36 words total), where each word was associated with a probabilistic reward (high-value words: 80% chance of earning 10 points, 20% of 1 point; vice-versa for low-value words). In a subsequent, unrewarded lexical-decision task, we found enhanced accessibility (faster lexical decision response times) for the high-value than low-value words. However, both high- and low-value words were recalled equally during free recall. In a second experiment, we asked whether the bias would generalize to deterministic reward outcomes and a larger stimulus set (48 words). Both the lexical-decision bias and free recall effects were replicated. This may be the first effect of value on behaviour, a fundamental bias that may 'snowball' into larger and more complex biases in learning, favouring high-value over low-value items, as those items are re-used in future learning experiences.