Learning from errors: Effects of feedback timing and warnings on cue–target and error–target recall

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Abstract

Erroneous guessing with corrective feedback enhances recall, with immediate feedback often outperforming delayed feedback. According to the errors-as-mediators hypothesis, immediate feedback strengthens error–target associations, improving recall. Alternatively, the semantic encoding and episodic discrimination hypothesis posits that immediate feedback facilitates strategic inhibition of errors, enhances target encoding, or both.

This study examines how feedback timing (Immediate vs. Delayed) and post-error warnings (Warning vs. No Warning) impact recall. Participants studied weakly related word pairs (e.g., "swim–float") by guessing the target and receiving feedback either immediately, after a 5-minute delay, or with an immediate warning and delayed feedback.

In Experiment 1, delayed feedback reduced cue–target recall, while warnings modestly mitigated this effect without reaching statistical significance. Experiment 2 revealed that delayed feedback improved error–target recall, while warnings nonsignificantly impaired recall.

These findings challenge the errors-as-mediators hypothesis, suggesting that immediate feedback optimizes learning by enhancing encoding and episodic salience of the correct target.

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