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Confidence in Context: How Self-Beliefs Shape Discovery

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Abstract

Learning in discovery environments requires learners to regulate hypothesis testing and evidence integration in the absence of external instruction. Changes in task-specific confidence are often interpreted as signals of learning progress, yet its relationship to performance varies across learners. In the present study, we examined whether the informativeness of local confidence change in a discovery task depends on learners' global self-efficacy. Participants completed a discovery task while providing trial-wise judgments of learning (JOLs). Baseline self-efficacy predicted initial, task-specific confidence but not objective performance during training or posttest. Instead, increases in JOLs over training reliably predicted posttest performance. Further analyses suggested that the strength of this relationship varied with learners' self-beliefs, such that confidence growth was more tightly coupled with performance for learners with lower self-efficacy. Together, these findings indicate that confidence change is not uniformly diagnostic of learning in discovery tasks and that global self-efficacy serves as an important boundary condition shaping when confidence change facilitates discovery.