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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

<https://escholarship.org/uc/item/3wn8897s>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 33(33)

ISSN

1069-7977

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Publication Date

2011

Peer reviewed

The effect of prompted causal identification in transfer of experimental design skills

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Abstract: A central goal of instruction is to enable learners to transfer acquired knowledge to future situations. For elementary school children in middle-high-SES schools, "explicit" instruction on the Control of Variables Strategy (CVS) that emphasizes understanding of the rationale for CVS has proven to be effective at promoting transfer to different contexts, even after extended time delays. However, when the same instruction was delivered to students in low-SES schools, near—but especially far—transfer rates were much lower. We tested our hypothesis that understanding the rationale for CVS—that only the focal variable should be contrasted so only it can affect the outcome—promotes far-transfer performance by comparing the outcomes of sixth-grade students given the standard explicit instruction to students additionally prompted to identify all possible causal variables in presented set-ups. As predicted, students given the additional prompts performed better on the far-transfer assessments in particular. This effect was greater for lower-knowledge students.