

Science & engineering goals: Learning about the control-of-variable strategy from picture books

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Abstract

Children struggle to conduct controlled tests, even with explicit instruction (Chen & Klahr, 1999). How learners approach multivariable tasks can be affected by task goals; a scientist uncovers causal regularities whereas an engineer produces effects (Klahr, et al., 2011). This study investigated whether science vs. engineering goals presented in a narrative picture book influenced childrens ability to conduct a controlled test.

Six-to-8-year-olds (N=72) were first pre-tested on their ability to design a controlled test of a variable predicting how far a ball travels down to a ramp. Children were then read a picture book that contained a science (conduct controlled test) or engineering (create faster ramp) goal. Next, they completed an identical post-test and transfer-test with two new variables. Childrens ability to design a controlled test improved significantly from pre- to post-test ($p=.008$) and marginally from pre-test to transfer ($p=.067$) in both conditions, suggesting that children learned from both goals.