Feedback Both Helps and Hinders Mathematics Problem Solving

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**Focus**

*Does feedback facilitate learning during math problem solving?*

*Do the effects of feedback depend on the learner’s prior knowledge?*

**Method**

**PARTICIPANTS**

108 children who could not solve math equivalence problems correctly (ages 7 – 9; *M* age = 8.4 years; 67 girls, 41 boys).

**DESIGN AND PROCEDURE**

Children participated in a one-on-one tutoring session followed by an immediate posttest. They were assigned to one of four conditions based on a crossing of two factors: strategy instruction (yes vs. no) and feedback (present vs. absent).

**Conditions**

**KNOWLEDGE MANIPULATION**

First, we manipulated children’s knowledge. Children in the *Instruction* group received instruction on a correct strategy. Children in the *No-Instruction* group completed a filler task.

**FEEDBACK MANIPULATION**

Second, children solved 12 math equivalence problems. Children in the *Feedback* group received trial-by-trial right/wrong feedback, and children in the *No Feedback* group did not.

**Results: Intervention and Posttest**

**INTERVENTION PROBLEM SOLVING**

For no-instruction group, feedback facilitated generation and use of correct strategies. For instruction group, feedback facilitated generation and use of incorrect strategies.

**POSTTEST PERFORMANCE**


**Prototypical Strategy Activity by Condition**

<table>
<thead>
<tr>
<th>Condition</th>
<th>No Feedback</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>No Instruction</td>
<td>No Instruction/Feedback</td>
</tr>
<tr>
<td></td>
<td>Perseverate on same incorrect strategy</td>
<td>Generate new correct strategy</td>
</tr>
<tr>
<td></td>
<td>Perseverate on same correct strategy</td>
<td>Generate/use variety of incorrect strategies</td>
</tr>
</tbody>
</table>

**References**