Do feedback prompts contribute to the self-controlled practice learning advantage?
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Introduction
- Research shows that Self-controlled (SC) practice leads to enhanced learning when compared to yoked counterparts.
- Two theories exist to explain this phenomenon:
  - The informational perspective
  - The motivational perspective
- SC participants are prompted during practice trials, “Would you like feedback?”, whereas yoked participants are simply given a feedback schedule selected by their SC counterpart
- Methodological confound: it is possible that the prompt (and not just choice) leads to enhanced learning

Research Question
- Does the prompt self-controlled learners receive during practice lead to improved learning when compared to their yoked counterpart?

Methods
- 60 right-handed participants were quasi-randomly assigned to one of three experimental groups: 20 Self-Control (SC), 20 Yoked-Traditional (YT), and 20 Yoked-Prompt (YP)
- SC group given choice over their feedback schedule via prompt
- YT group given no choice over their feedback schedule and no prompt
- YP group had no choice over their feedback schedule, but given a prompt after each trial asking “Would you have liked feedback?”

Table 1
<table>
<thead>
<tr>
<th>Group</th>
<th>Choice</th>
<th>Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>YT</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>YP</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Waveform matching task consisting of two rapid elbow extension-flexion movements
- Spatial and temporal goals (900ms during acquisition, 1150ms during transfer)
- During acquisition participants performed 60 trials with feedback on 20 of the trials (33% feedback schedule)
- To assess learning, participants performed 24-hour delayed retention and transfer tests consisted of 10 no feedback trials each

Results
Absolute Constant Error of the Movement Time |
<table>
<thead>
<tr>
<th>CE</th>
<th>MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>100</td>
</tr>
<tr>
<td>B2</td>
<td>200</td>
</tr>
<tr>
<td>B3</td>
<td>300</td>
</tr>
<tr>
<td>B4</td>
<td>400</td>
</tr>
<tr>
<td>B5</td>
<td>500</td>
</tr>
<tr>
<td>B6</td>
<td>600</td>
</tr>
<tr>
<td>Retention</td>
<td>700</td>
</tr>
<tr>
<td>Transfer</td>
<td>800</td>
</tr>
</tbody>
</table>

Practice
- Performance significantly improved over practice blocks (< 0.05)
- No Group x Block interaction (p > 0.05)

Retention & Transfer
- One-tailed t-tests revealed that the Self-Control group performed significantly better than Traditional-Yoked group (< 0.05)
- ANOVA revealed no significant differences between Self-Control, Yoked-Traditional, and Yoked-Prompt groups (> 0.05)

Discussion
- Since there are no significant findings, no strong conclusions can be made about the results and whether a prompt causes a significant learning difference
- A trend is seen in the results where YP preforms more similar to SC than YT, which suggests that the information processing perspective provides a better interpretation of self-controlled learning advantages
- A feedback prompt MAY contribute to self-controlled learning advantages
- Future research should continue to explore the possible benefits of a prompt for self-controlled learners

References

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