

Introduction

- Research shows that Self-controlled (SC) practice leads to enhanced learning when compared yoked counterparts¹
- Two theories exist to explain this phenomenon:
 - The informational perspective²
 - The motivational perspective³
- 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 enhances 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?”

Group	Choice	Prompt
SC	Yes	Yes
YT	No	No
YP	No	Yes

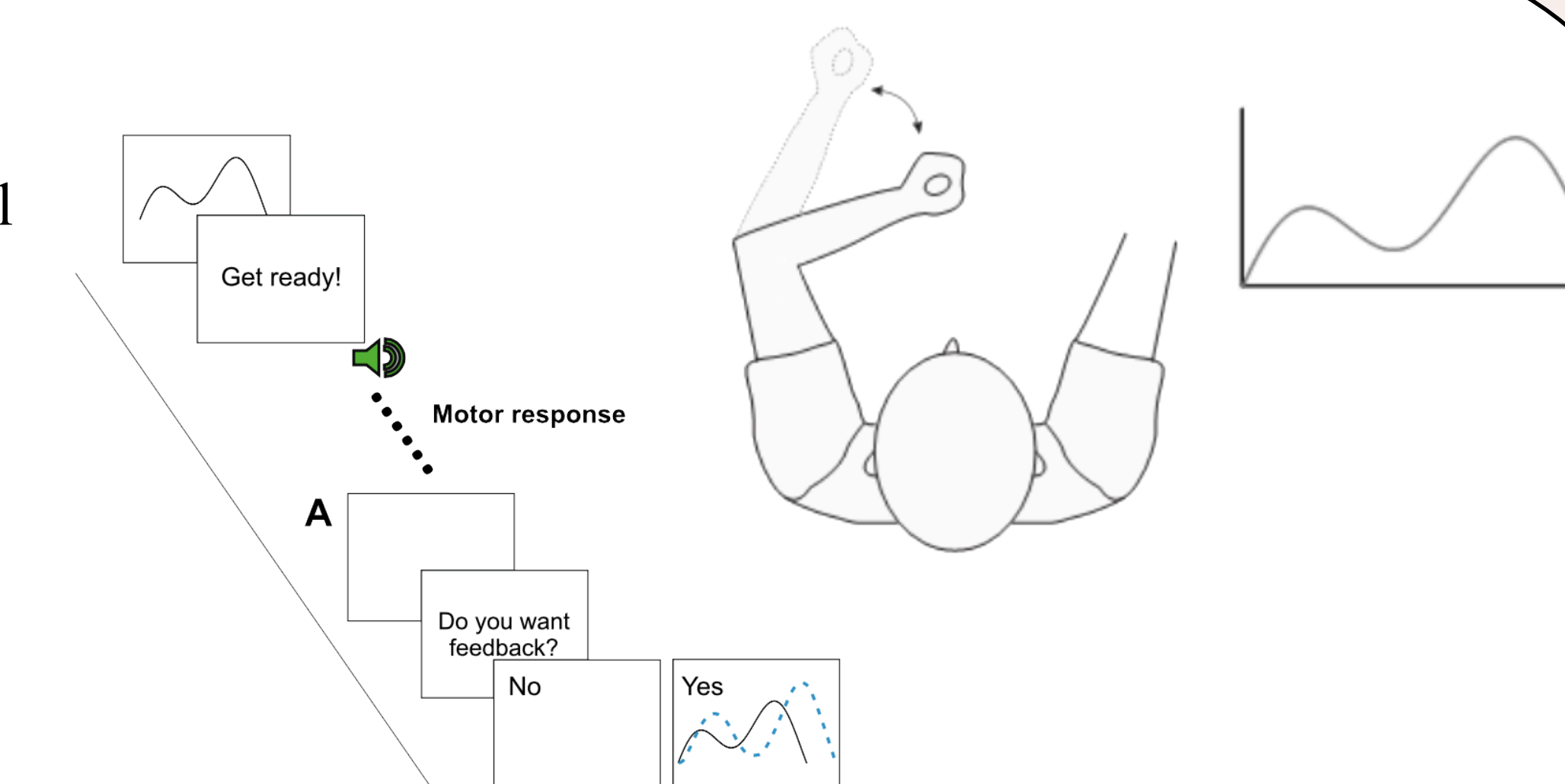


Figure 1. Illustration of the task and experimental protocol

- 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

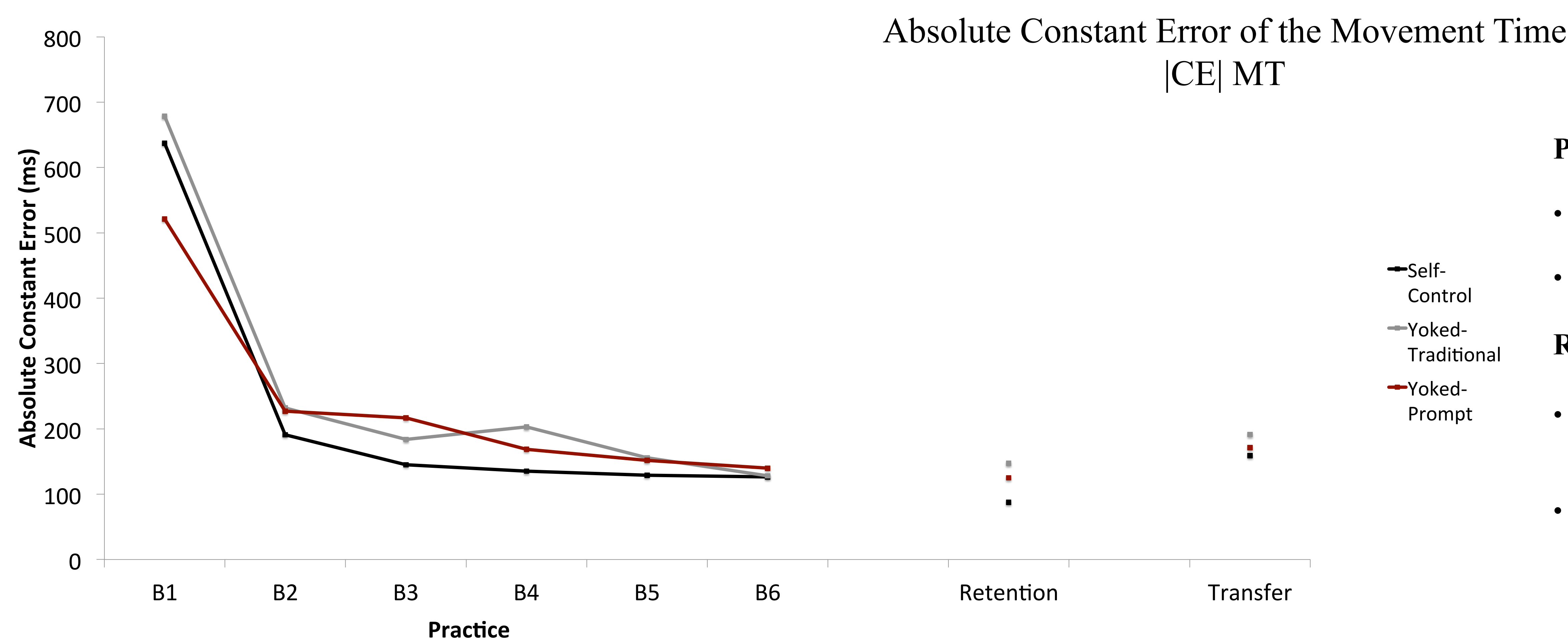


Figure 2. The mean absolute constant error of the movement time of the Self-Control, Yoked-Traditional, and Yoked-Prompt groups as a function of practice, retention and transfer block

Practice

- Performance significantly improved over practice blocks ($p < 0.05$)
- 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 ($p < 0.05$)
- ANOVA revealed no significant differences between Self-Control, Yoked-Traditional, and Yoked-Prompt groups ($p > 0.05$)

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 performs 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

- ¹ - Wulf, G. (2005). Self-controlled feedback is effective if it is based on the Learner's performance. *Research Quarterly for Exercise and Sport*, 76(1), 42-48. <https://doi.org/10.1080/02701367.2005.10599260>
- ² - Carter, M. J., & Ste-Marie, D. M. (2017). An interpolated activity during the knowledge-of-results delay interval eliminates the learning advantages of self-controlled feedback schedules. *Psychological Research*, 81(2), 399-406. <https://doi.org/10.1007/s00426-016-0757-2>
- ³ - Sanli, E. A., Patterson, J. T., Bray, S. R., & Lee, T. D. (2013). Understanding self-controlled motor learning protocols through the self-determination theory. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2012.00611>

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Contact: bdavi043@uottawa.ca