Precrastination and procrastination effects appear in a reach-to-grasp task

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Introduction

Rosenbaum, Gong, and Potts (2014) tested participants on a simple task with a fascinating result. Participants walked down a 16’ alley and passed by four pillars on the left and four on the right. A bucket was placed on one of the pillars on the left and one on the right. The 16 combinations of bucket placements were tested on different trials. Participants were instructed to pick up and carry whichever bucket seemed easier. Rosenbaum and colleagues predicted that participants would prefer to procrastinate and pick up the bucket closest to the end of the alley. Surprisingly, 257 participants over nine experiments preferred the bucket closest to the start of the alley. The preference to choose the first bucket and exert more physical effort to carry it a long distance was called precrastination. We explored the sensorimotor mechanisms of the precrastination effect by testing it in a setup that would facilitate measures of cognitive processing; specifically, we attempted to replicate the precrastination effect in a reach-to-grasp paradigm.

Method

Fifty-two participants reached down a 35-cm alley with their dominant hand and chose to grasp a 3.1-cm block either on the left or the right and move it to the end of the column. Fig. 1 shows the condition where the block on the left is in the first position and the block on the right is in the fourth position. There were 16 different ways the two targets could be placed. These 16 conditions were pseudorandomly presented 8 times for a total of 128 trials. Each condition had an approach score, which was calculated as the approach distance to the left block divided by the approach distance to the left block plus the right block. The approach score for the condition in Fig. 1 is 1 / (1 + 4) = 0.2. These scores ranged from 0.2 to 0.8.

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\text{Approach score} = \frac{AL}{AL + AR} = \frac{1}{1 + 4} = 0.2
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Results

Whereas all participants in the study by Rosenbaum and colleagues (2014) chose to precrastinate, we were surprised by a range of behaviours by our participants: 23 participants precrastinated (r ≥ .29; Fig. 2), 20 procrastinated (r ≤ -.29; Fig. 3), and 9 had showed neither behaviour (r > -.29, r < .29).

Results, continued

We predicted that reaction time would be shorter in conditions where the decision between the left and right blocks was easy compared to conditions where the decision was difficult. It should be easy to decide which block to pick up when the blocks are as far away as possible from each other. This occurs when the blocks are three rows apart, as shown in Fig. 1. In contrast, it should be difficult to decide which block to pick up when they are one row apart. This possibility was analysed with a 3 Rows Apart (one, two, three) by 2 Group (precrastinators, procrastinators) mixed-design ANOVA (Fig. 4).

There was only a significant main effect of Group (Fig. 4), F(1, 41) = 4.6, p = .038, \( \eta^2 = .10 \); precrastinators had much shorter reaction time than procrastinators. Our hypothesis that the number of rows between the blocks would determine the difficulty of the decision was not supported.

Conclusions

- Some of our participants precrastinated and some procrastinated. In contrast, all participants in the study by Rosenbaum and colleagues (2014) precrastinated
- The duration of information processing was comparable in all conditions
- Information processing was much shorter for precrastinators than procrastinators
- We are still comparing the trajectories of pre- and procrastinators