

# Time Perception Can Influence Performance Time Predictions

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## Abstract

People are often inaccurate when they predict how much time they will need to do future tasks. Two experiments show that bias in task performance time predictions is correlated with individual differences in time perception. The longer participants think a given time unit (e.g., 60 seconds) is, as measured with prospective duration judgment tasks, the less time they predict they will need to do other tasks they are asked to perform. The effect only occurs when the time perception tasks precede the performance time predictions, indicating that the time unit used in a performance time prediction can be influenced by a duration judgment task.

## Introduction

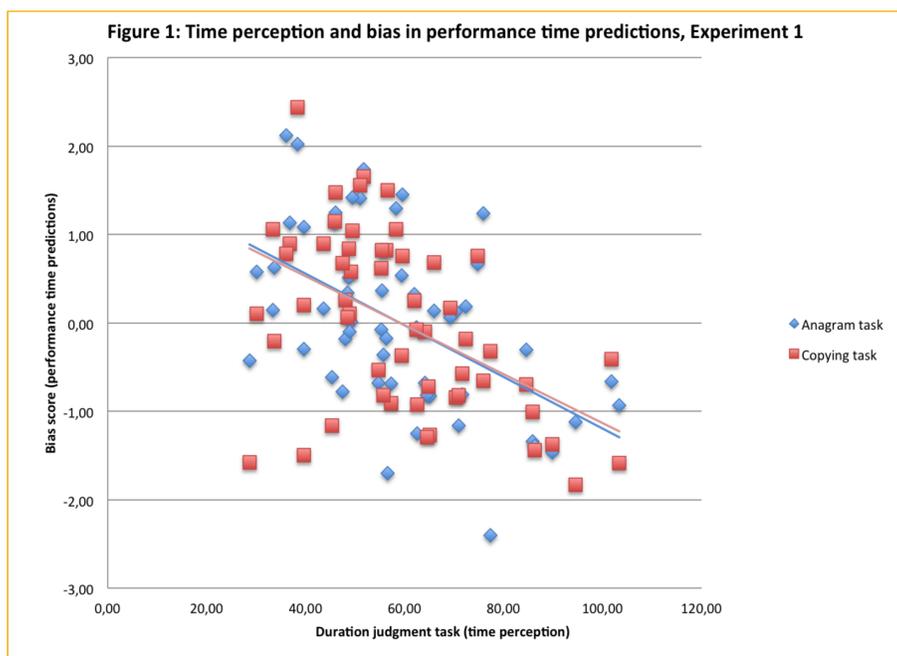
- Performance time predictions are often inaccurate (Halkjelsvik & Jørgensen, 2012).
- Underestimates of future tasks (the planning fallacy) has been explained by people ignoring previous experiences with similar tasks (Kahneman & Tversky, 1979), or by biased memories of previous tasks (Roy, Christenfeld, & McKenzie, 2005).
- We argue that individual differences in time perception may also influence performance time predictions. **For example, a person who thinks that one minute is a long time, should feel able to do more work in this time, and will predict to need less time to do a task.**

## Experiment 1

- Participants (55 MTurk workers) were given a prospective duration judgment task, where they were asked to look at the computer screen and push a button after 60 seconds had passed.
- We attempted to manipulate time perception between groups: one group watched a blank screen, while another group saw rapidly changing pictures. According to the attentional model of prospective duration judgments (Block & Zakay, 1997) time should feel longer in the “blank” condition, since more attention can be directed to the passing of time.
- Next, participants predicted how long they would need to do a simple anagram task (create three new words with at least three letters using the letters in “hammer”) and a copying task (write an exact copy of this code: e6lhr89s...), which they subsequently performed.

## Results

- Duration judgment task: participants pressed the button after 55.4 s in the “blank” condition and after 62.9 s in the “pictures” condition,  $F(1,53) = 2.525, p = .118$ .
- Performance time predictions: there was no difference between groups,  $F$ 's < 1. Regardless of group, there was however a clear correlation ( $r = -.552$ ) between subjective time perception and bias scores in predictions.



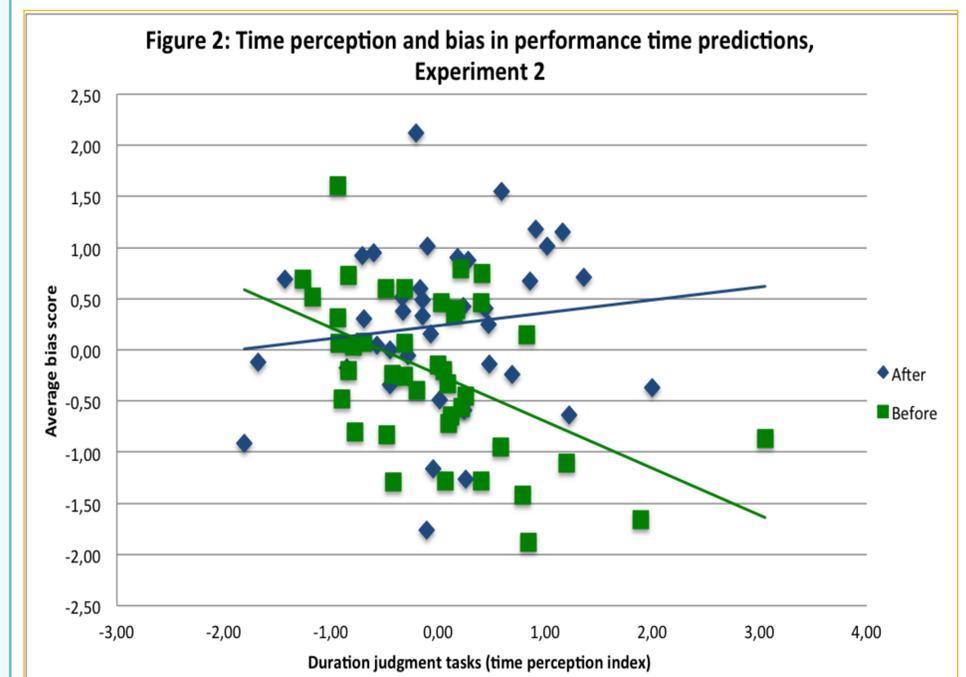
- As shown in Fig. 1, the longer a participant thinks that one minute is, the more (s)he underestimates how long unrelated tasks will take.**

## Experiment 2

- Does the correlation found in Experiment 1 reflect stable individual differences in time perception, or did the duration judgment task in itself influence subsequent performance time predictions?
- 80 MTurk workers did a prospective duration judgment task with six trials either **before** ( $n = 41$ ) or **after** ( $n = 39$ ) predicting how long it would take to copy a short text and to find some differences between two pictures.

## Results

- Duration judgment task: there was no significant difference between conditions,  $F$ 's < 1.
- Fig. 2 shows that there was a relationship between perceived time and bias in performance time predictions in the before- ( $r = -.494$ ) but not the after-group ( $r = .126$ ).**



## Discussion

- Individual differences in time perception influence subsequent performance time predictions
- The effect only arises when duration judgment tasks are done *before* predictions
- This indicates that the time unit (e.g., minutes, seconds) used in performance time predictions can be influenced by time perception tasks

## References

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