



# Investigating the relationship between state boredom and response criterion

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## BACKGROUND

- Attentional Blink:** Phenomenon where a participant is unable to identify a second target because a first target is presented too closely in succession (200-500ms) to the second target.<sup>4</sup>
- State Boredom:** An individual's experience of boredom in a given moment.<sup>2</sup>
- Multidimensional State Boredom Scale (MSBS):** 29 Questions in five-factor structure with subscales of disengagement, high arousal, low arousal, inattention, and time perception.<sup>2</sup>
- Response Criterion:** Measure of a participant's willingness to say a signal is present in an uncertain situation.<sup>5</sup>
- Perceptual Sensitivity:** Study of how well a participant can perceptually detect a stimulus.<sup>5</sup>
- Is there a significant correlation between participant's state boredom and response criterion?

## METHODS

- Protocol:** MSBS-pre-test, AB trials, Control trials, MSBS-post-test, demographic survey
- RVSP stream:** 1 letter every 100 ms
- AB task:** Identify the white letter and then report if an X was present or absent in the letter stream
- Control task:** Ignore the white letter and report if an X was present or absent in the letter stream

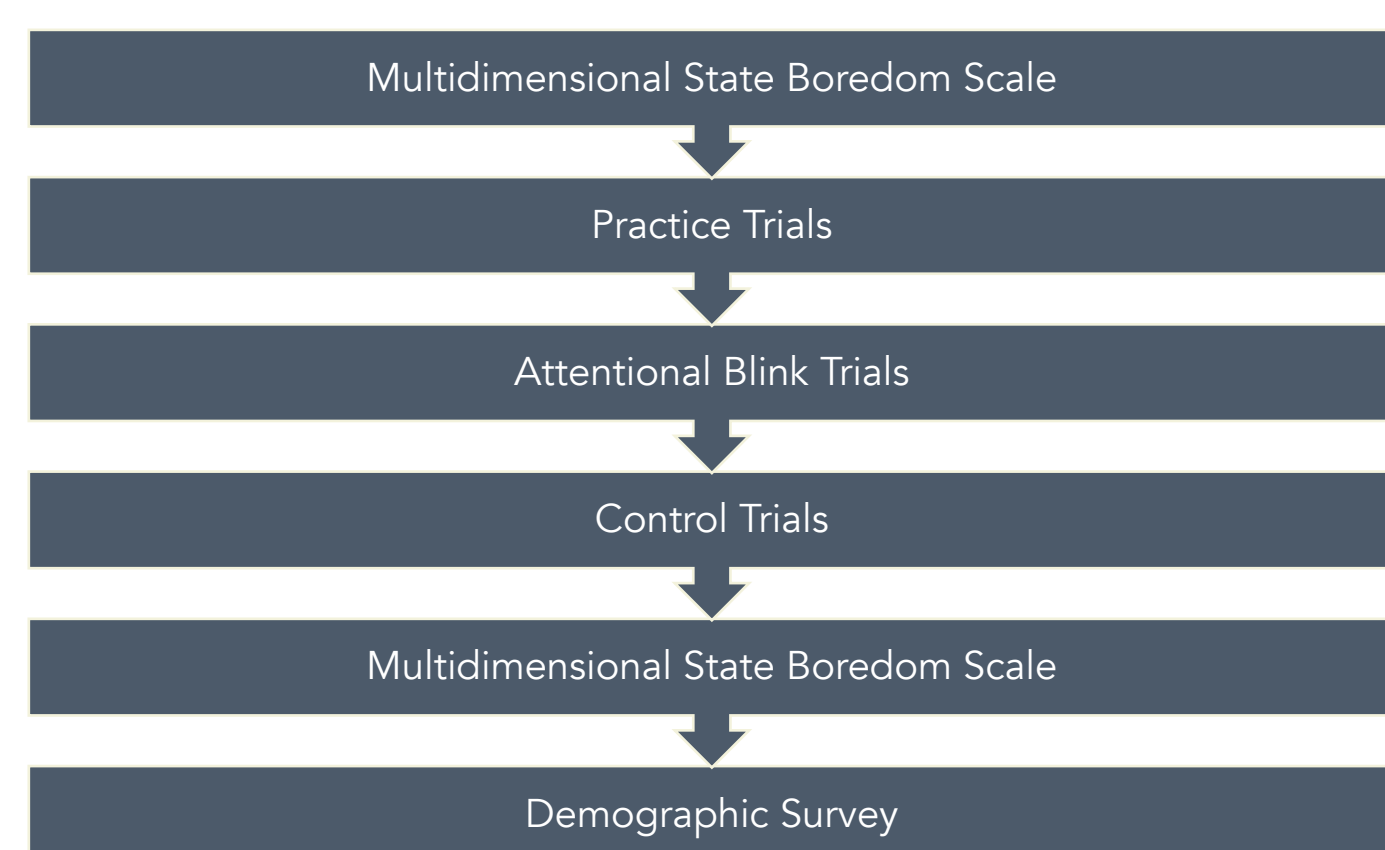


Figure 1A: Order of Events

- Trial Format:**

  - 16 Practice Trials
  - 160 AB Trials
  - 160 Control Trials

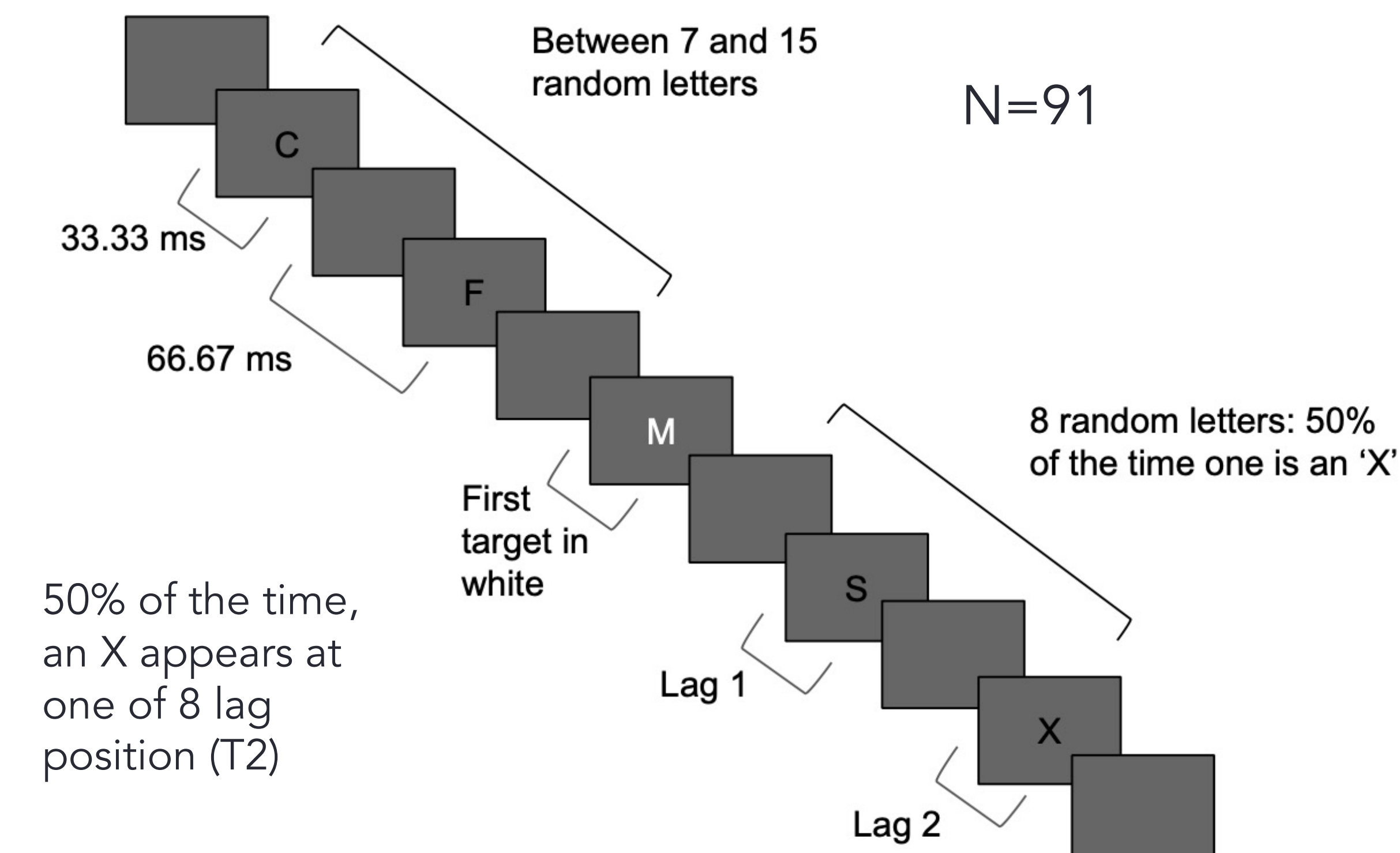
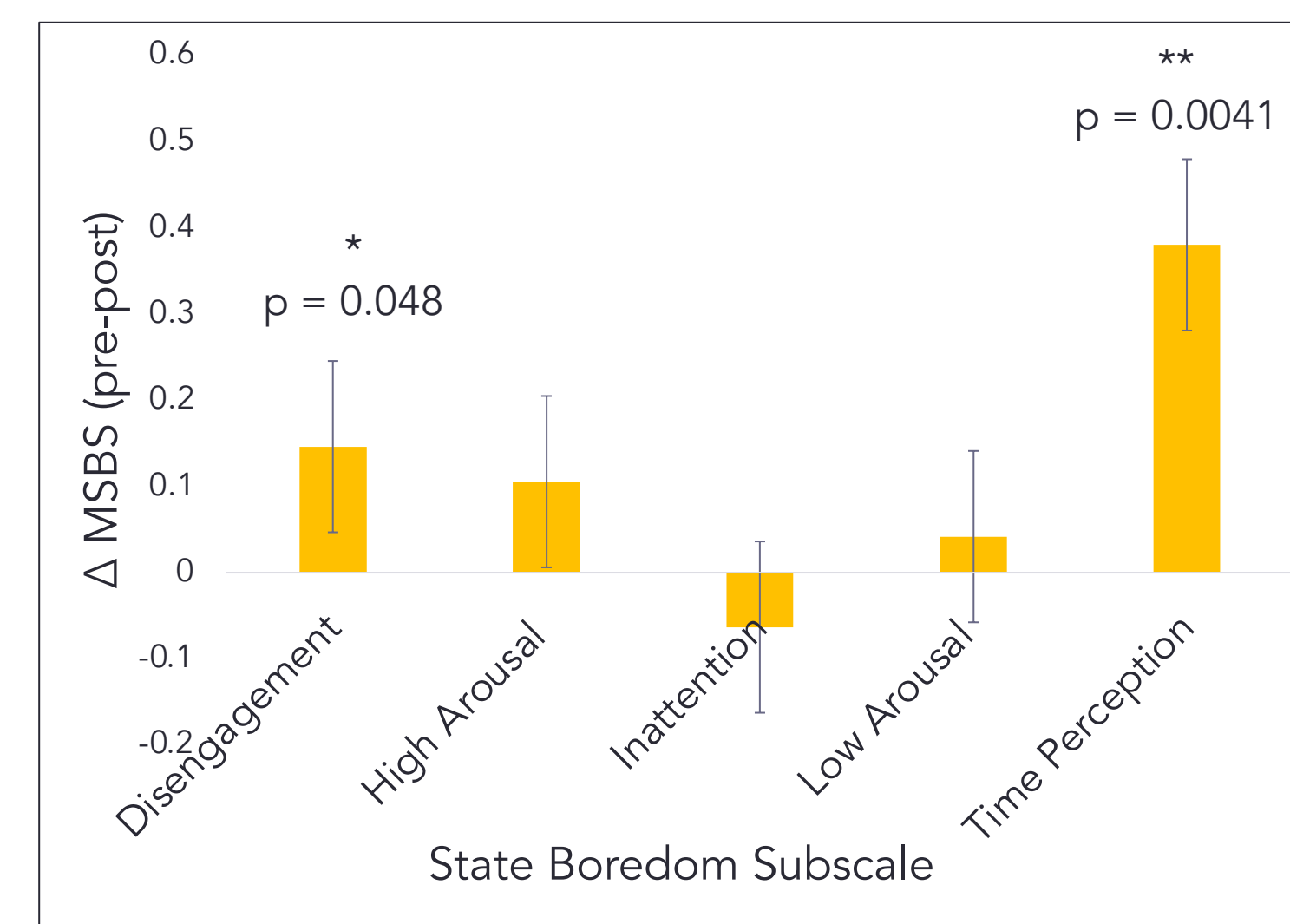
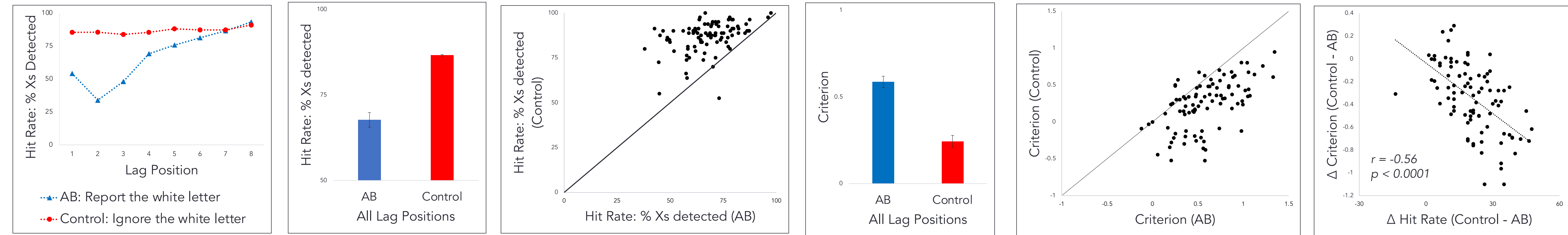
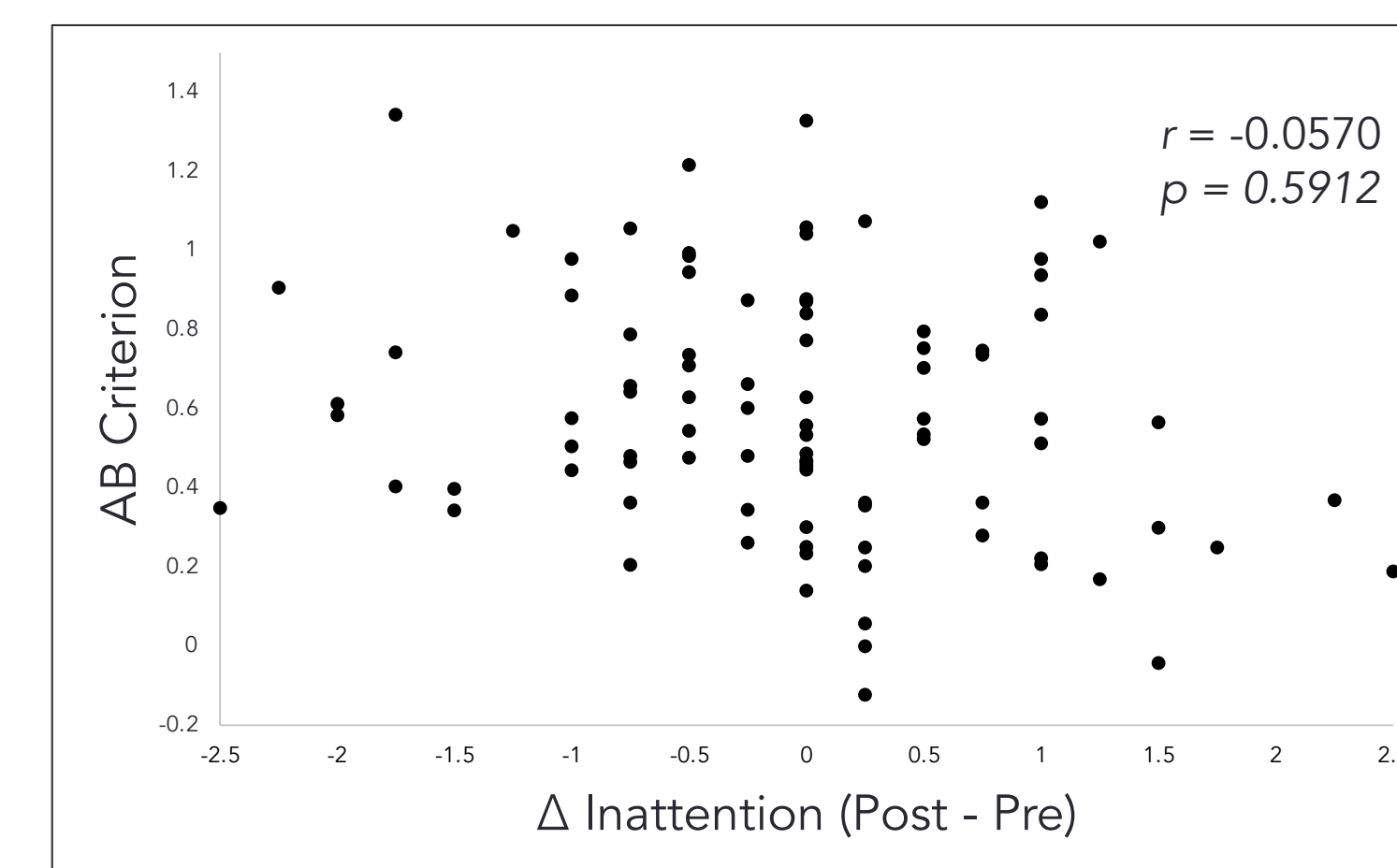
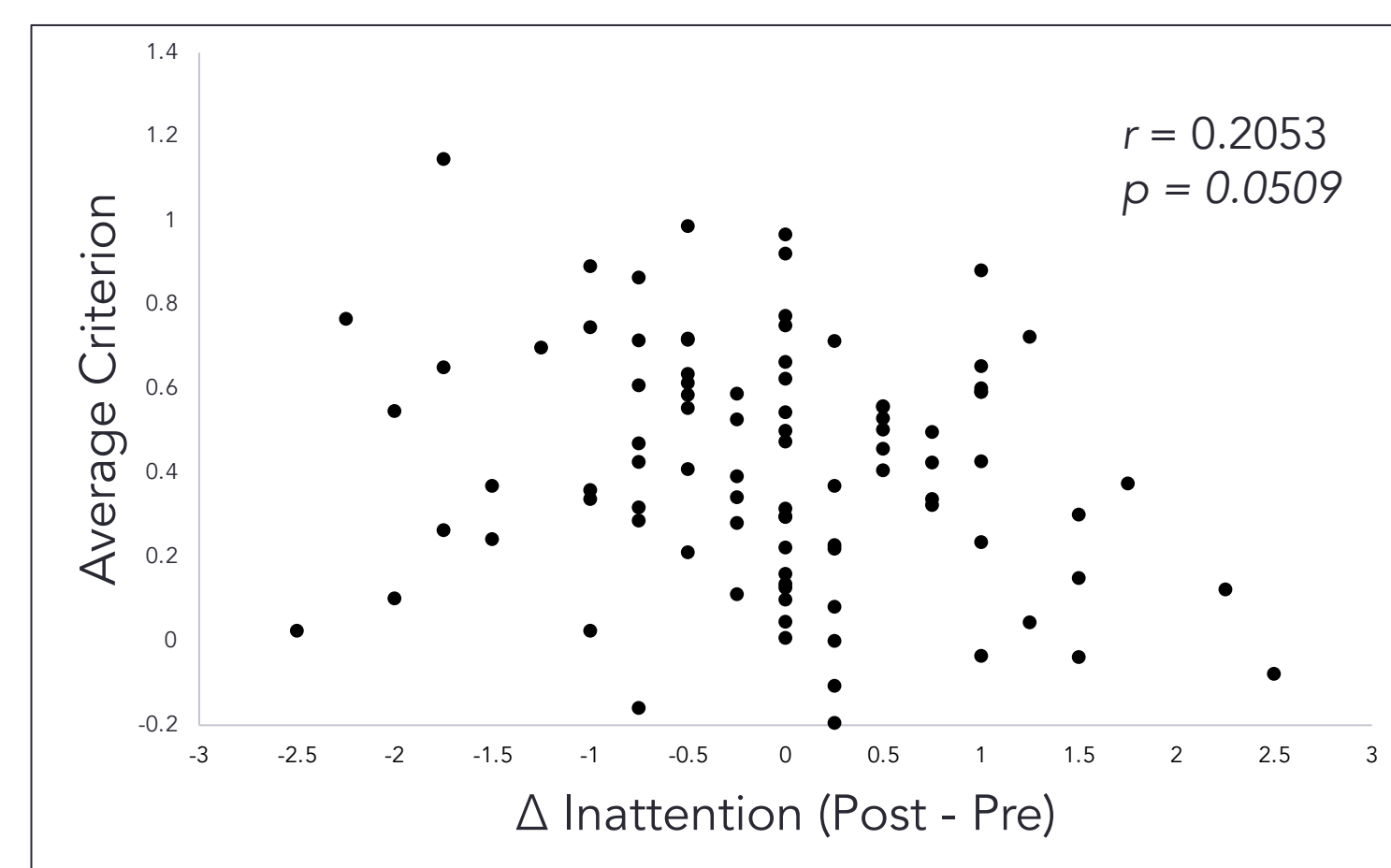
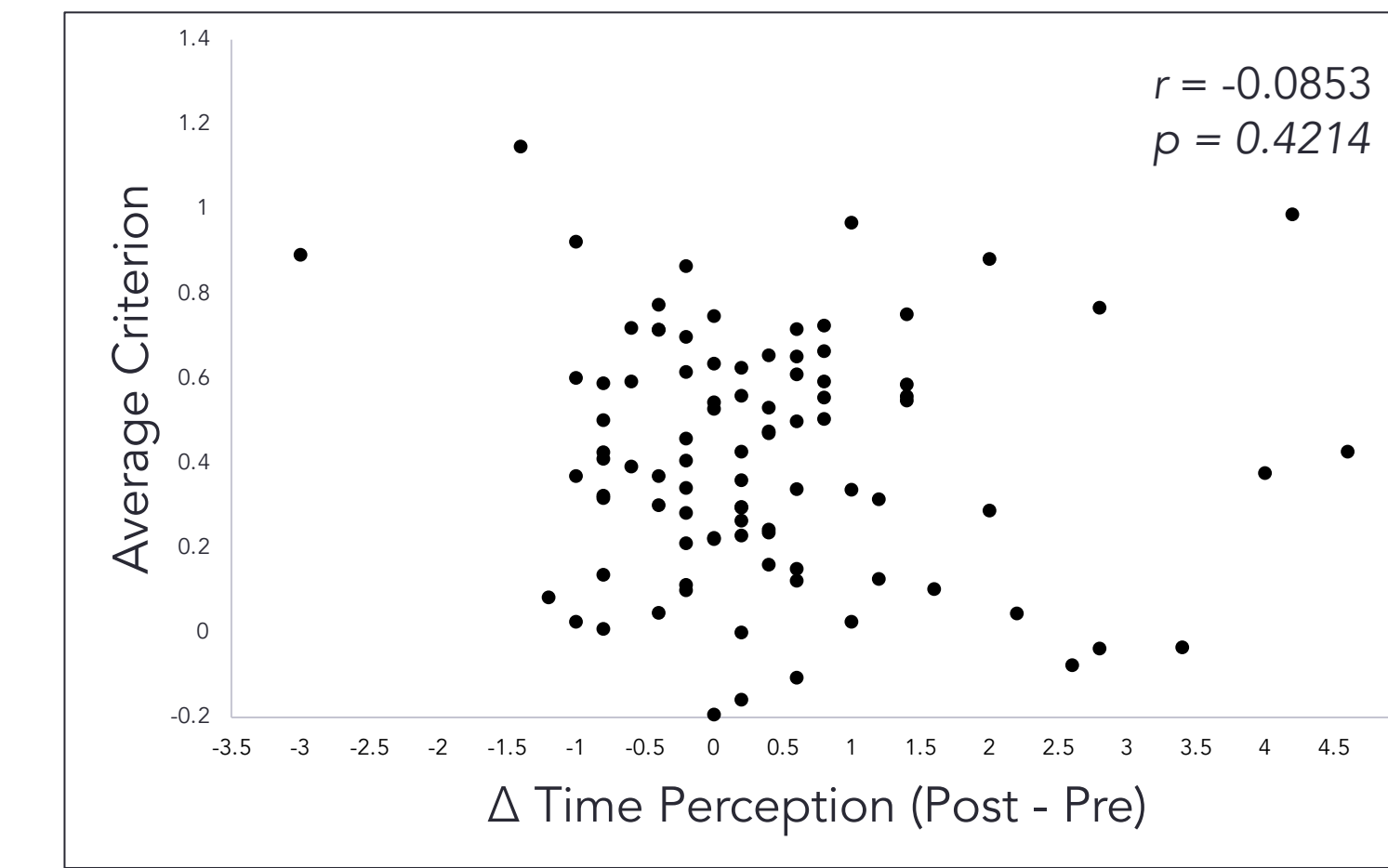
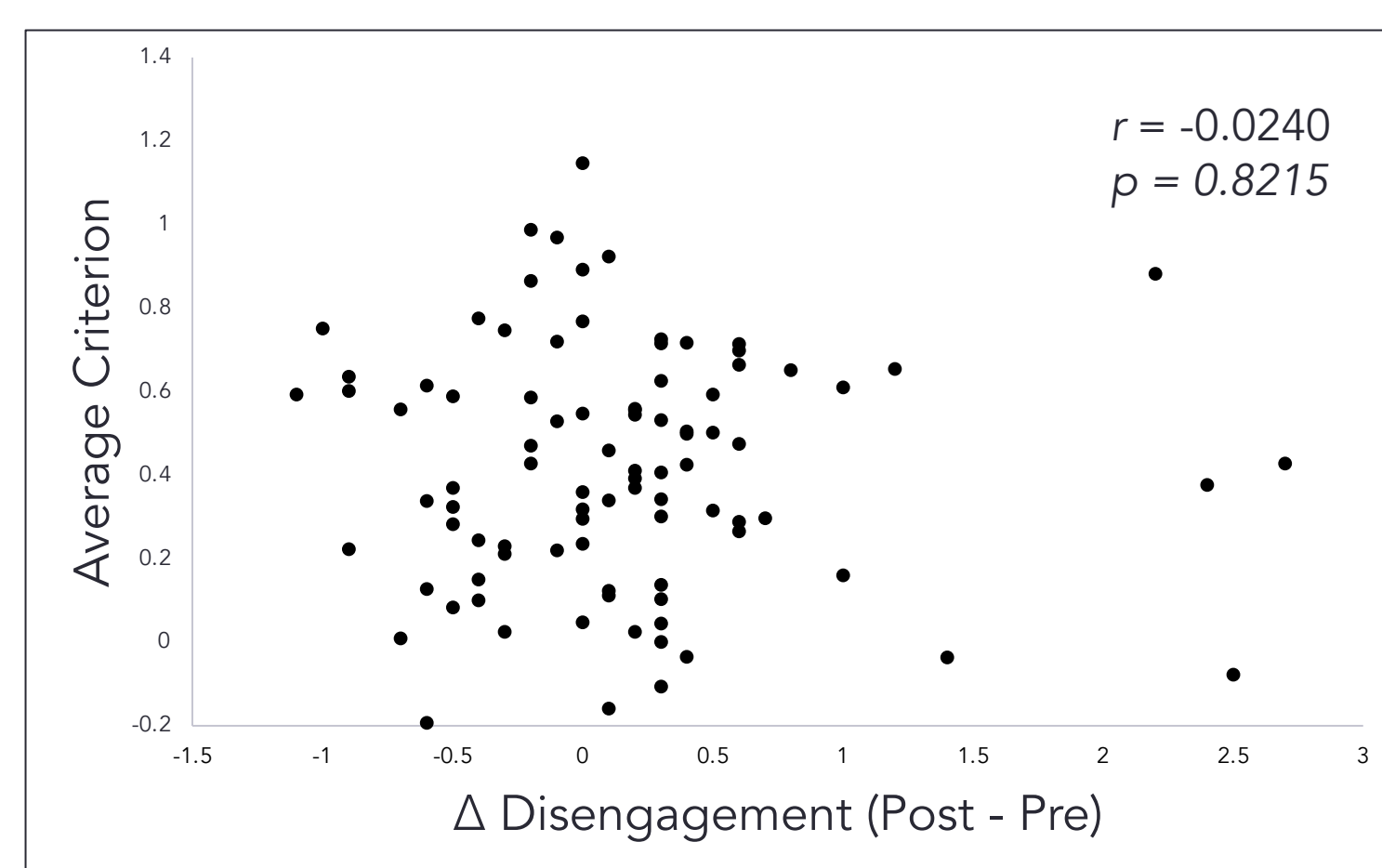


Figure 1B: Example of AB Trial

## ATTENTIONAL BLINK RESULTS



- We replicated the classic attentional blink effect using hit rate:  $t(90) = 15.2, p < 0.0001$
- We show higher average hit rate in the control trials than the AB trials:  $t(90) = -15.38, p < 0.0001$
- We show that decision criteria becomes more conservative when sensitivity is low, also known as the Neyman Pearson objective<sup>3</sup>:  $t(90) = -10.8, p < 0.0001$
- We show the change in criterion is strongly correlated with the magnitude of the hit-rate based attentional blink effect:  $r = -0.56, p < 0.0001$



## BOREDOM RESULTS

- The AB task modulates two subscales of state boredom: disengagement ( $p = 0.048$ ) and time perception ( $p = 0.0041$ )
- The average criterion across AB and control trials shows no correlation with their change in state boredom (post-pre) for subscales of:
  - Disengagement:  $r = -0.0240, p < 0.05$
  - Time perception:  $r = -0.0853, p > 0.05$
  - Inattention:  $r = -0.2053, p > 0.05$
- The criterion of the AB trials shows weak negative correlation with their change in inattention:  $r = -0.0570, p > 0.005$

## CONCLUSION

- There was no observed relationship between the subscales of state boredom and response criterion.

## REFERENCES

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## FUTURE DIRECTIONS

- Repeat study in person format to determine repeatability of results and impact of testing environment.
- The COVID-19 pandemic has increased boredom levels and made people that time is passing slower than normal.<sup>1</sup>
- Further investigation of state boredom to account for the psychological changes due to the COVID-19 pandemic and its impact on attentional abilities.