

Navigating Stereotypes: The Influence of Gender Stereotype Threat on Heading Recall Performance

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Research Question

How does gender stereotype threat impact performance on a heading-recall task?

Introduction

- Stereotype threat has been shown to impair performance in different domains when members of the stereotyped group are made aware of the stereotype [1].

- When the task is sufficiently difficult, gender stereotype threats have impaired performance in spatial orientation tasks [2].

- This finding has not been extended to sense-of-direction tasks, specifically heading-recall tasks.

- Sense of direction refers to the framework that keeps track of the body's facing direction relative to its environment. Heading-recall refers to the ability to retrieve the body's orientation given a learned scene [3].

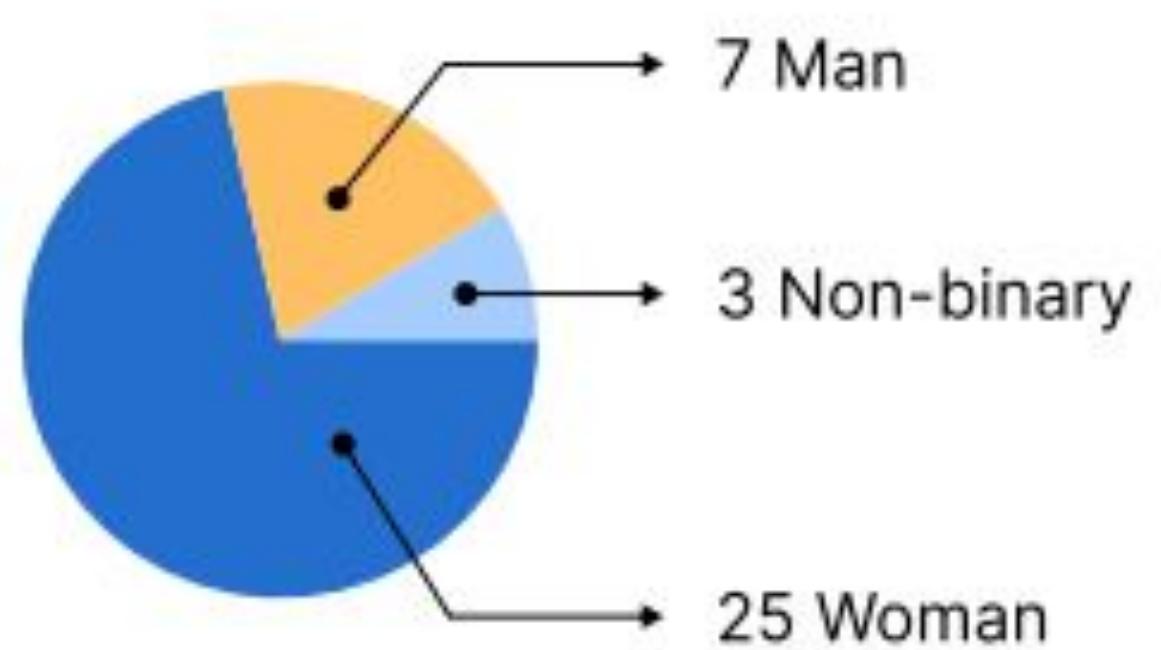
Hypothesis

Because of the existing stereotype that men outperform women in navigational and spatial orientation tasks, we hypothesized that exposure to the gender stereotype will increase men's accuracy on the heading-recall task and decrease women's accuracy.

Methodology

Participants

35 undergraduate students from Carnegie Mellon University



Procedure

Experimental Conditions

No Priming Condition No script presented

Priming Condition 1: Men > Women

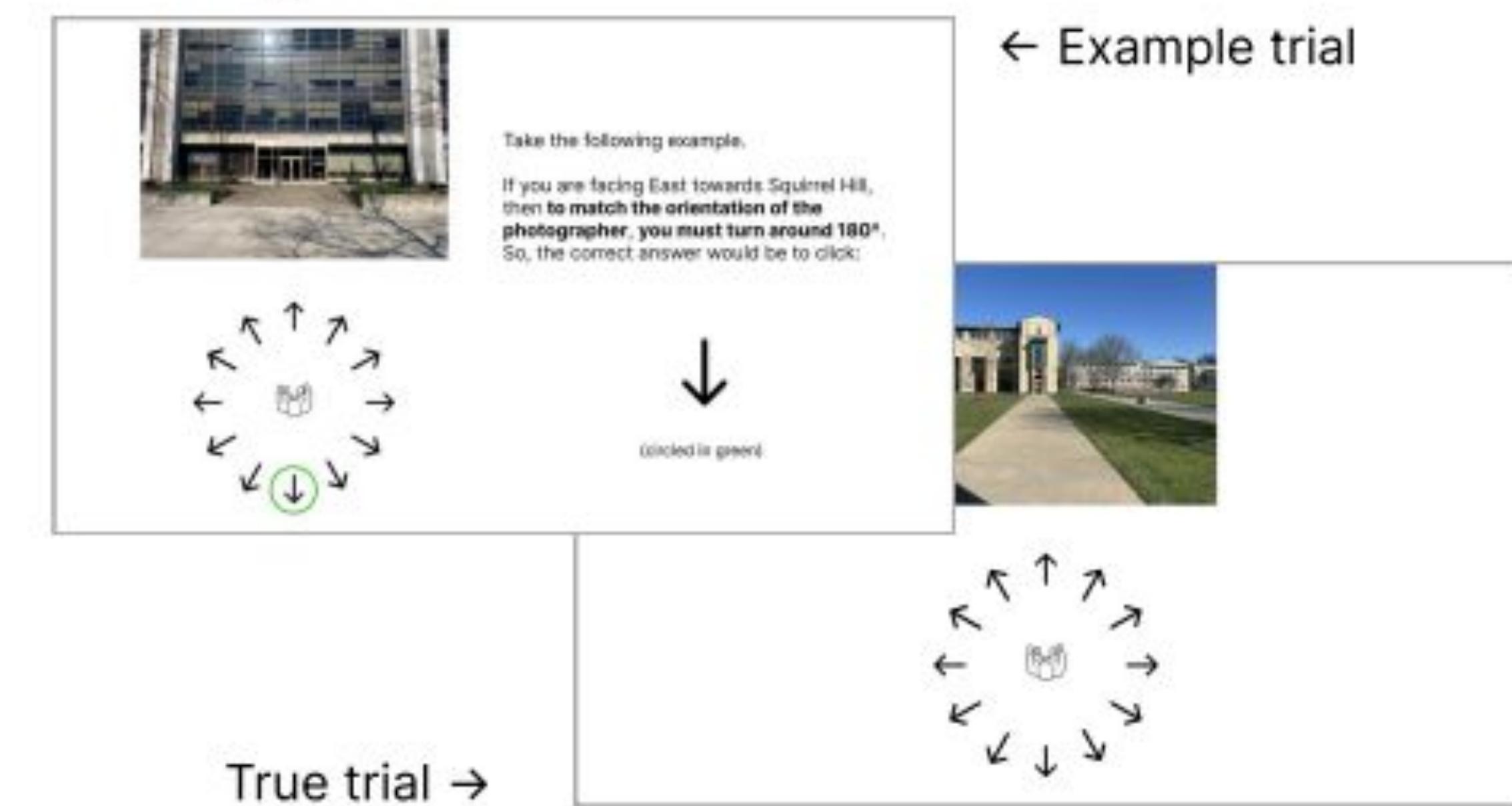
Priming Condition 2: Women > Men

Participants read the following a priming text before completing the experimental tasks:

It has been found that males and females use different strategies when navigating, although males are often found to outperform females on sense of direction tasks.

Men > Women Example Script

Heading Recall Task



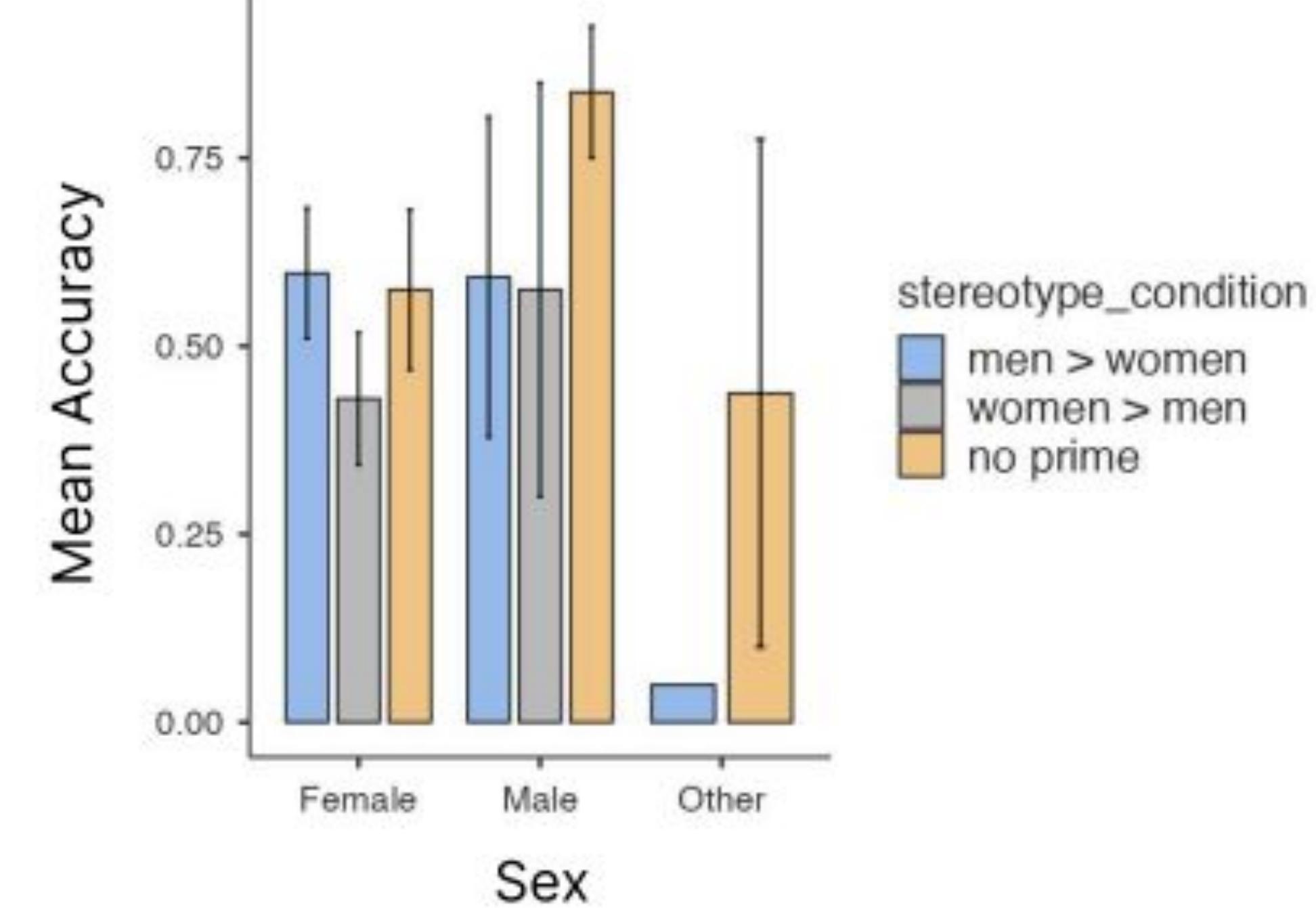
- Participants conducted the experiment on campus, initially facing one of the cardinal directions (N, S, E, W).
- They viewed a series of campus photos and select the arrow indicating the direction necessary to align with the photographer's orientation.
- Practice:** 8 trials with immediate feedback on accuracy.
- Experiment:** 40 trials without feedback.

Surveys

Gender Difference Beliefs
Self-reported Sense of Direction

Results

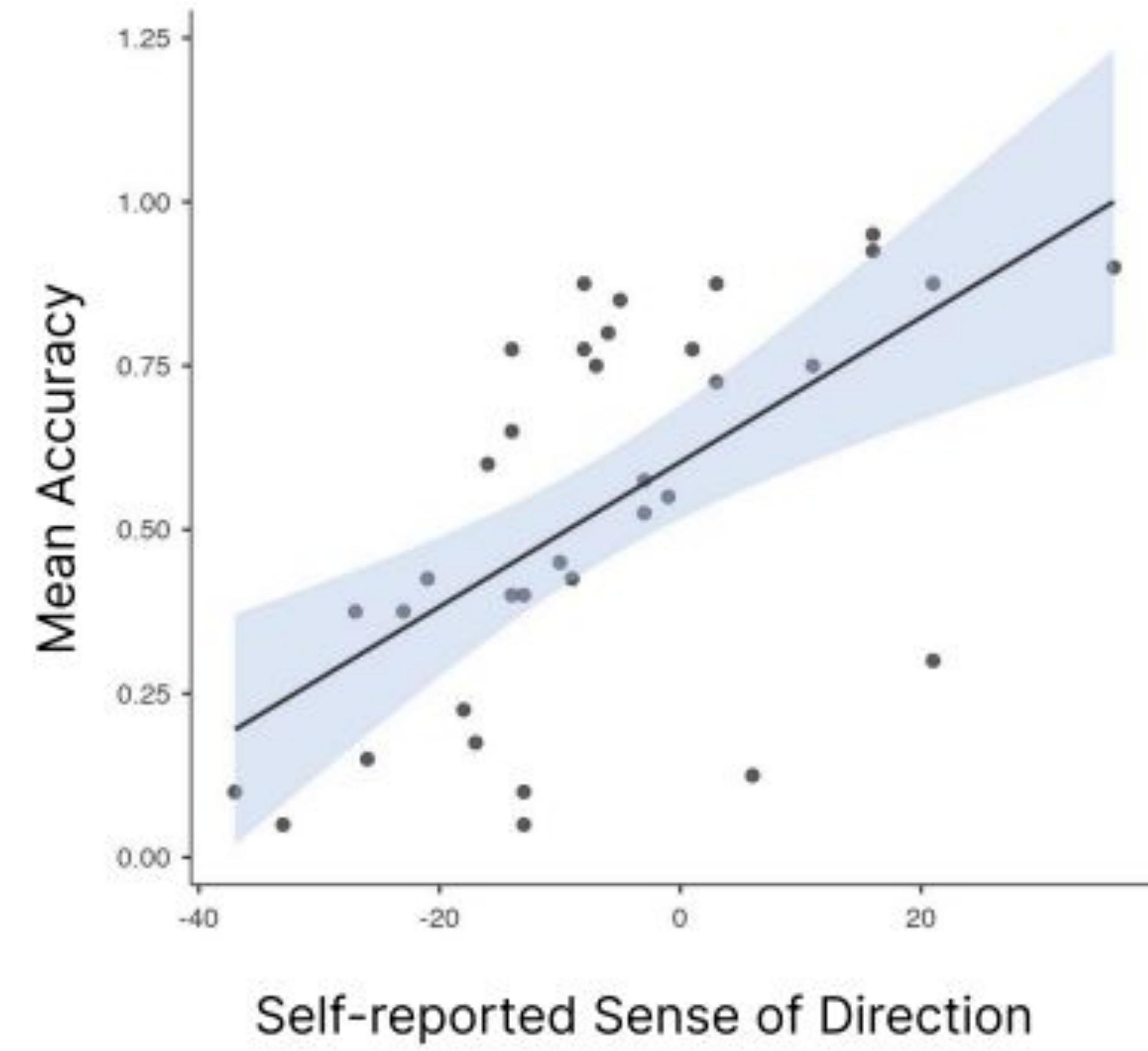
Mean Accuracy by Sex and Stereotype Condition



ANOVA

- No significant main effects of sex ($p = 0.256$) or stereotype condition ($p = 0.201$) on mean accuracy.
- There was also no significant interaction between the two factors ($p = 0.657$).

Mean Accuracy by Self-Reported Sense of Direction



Linear Regression

- Self-reported SOD significantly predicted mean accuracy scores ($R^2 = .37$, $t(33) = 4.39$, $p < .001$).

Discussion

- Failed to confirm our hypothesis. **Stereotype threat did not reliably impair performance.**
- Successfully replicated Sholl et. al's finding: self-reported sense-of-direction is highly predictive and correlated to heading-recall task performance.

Limitations:

- Recruited significantly more women (25) than men (7), causing a gender imbalance.
- Some reported unfamiliarity with locations in photographs, affecting their ability to determine directions.
- A large proportion of responses were incomplete, attributed partly to technical issues and partly to the task's perceived difficulty.

Future Directions:

- Testing a more diverse participant pool
- Vetting location familiarity
- Examining salience of stereotype threat priming

References

- Allison, C., Redhead, E. S., & Chan, W. (2017). Interaction of task difficulty and gender stereotype threat with a spatial orientation task in a virtual nested environment. *Learning and Motivation*, 57, 22–35. <https://doi.org/10.1016/j.lmot.2017.01.005> <https://doi.org/10.1037/0022-3514.69.5.579>
- Aronson, J., Lustina, M. J., Good, C., Keough, K., Steele, C. M., & Brown, J. (1999). When White Men Can't Do Math: Necessary and Sufficient Factors in Stereotype Threat. *Journal of Experimental Social Psychology*, 35(1), 29–46. <https://doi.org/10.1006/jesp.1998.1371>
- Sholl, M. Jeanne, et al. "Allocentric-Heading Recall and Its Relation to Self-Reported Sense-of-Direction." *Journal of Experimental Psychology. Learning, Memory, and Cognition*. vol. 32, no. 3, May 2006, pp. 516–33. PubMed, <https://doi.org/10.1037/0278-7393.32.3.516>.