

JUDGING THE PERCEPTUAL SIMILARITY OF OWN- AND OTHER-RACE FACES

INTRODUCTION

The Other-Race Effect (ORE) is the phenomenon where people are better at recognizing own-race faces than other-race faces (Messiner & Brigham, 2001; Penrod & Lee, 2021).

The Face Space Model posits that other-race faces are perceived to be more similar to each other than own-race faces and therefore, are less differentiated in the memory. (Valentine, 2001).

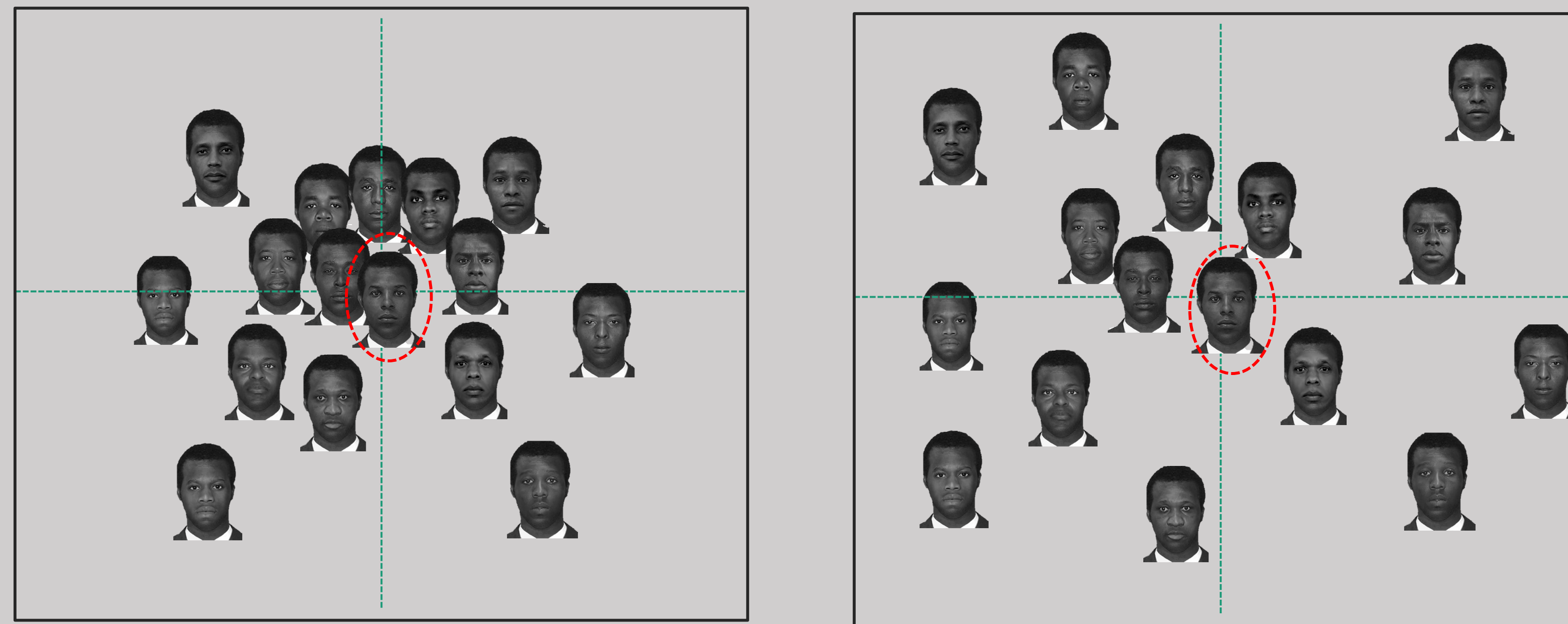


Figure 1. A hypothetical Face Space Model of psychological similarity for own- and other-race faces. *Left panel.* The predicted similarity space of White participants viewing Black faces. *Right panel.* The predicted similarity space of Black participants viewing the same black faces.

However, empirical tests employing multi-dimensional scaling (MDS) methods have not supported the Face Space account of the ORE. (Zhao et al. 2008; Correll et al. 2023).

METHOD

PsiZ has demonstrated perceptual and semantic restructuring in domains such as bird identification (Lawrance, VSS, 2024) and individual differences in Japanese Kangi, NBA basketball players, and music genres (Mah, VSS, 2024).

In Experiments 1 & 2, we applied PsiZ in a “Show 4- Choose 1” similarity task to infer the participants’ psychological embeddings for own- and other-race faces

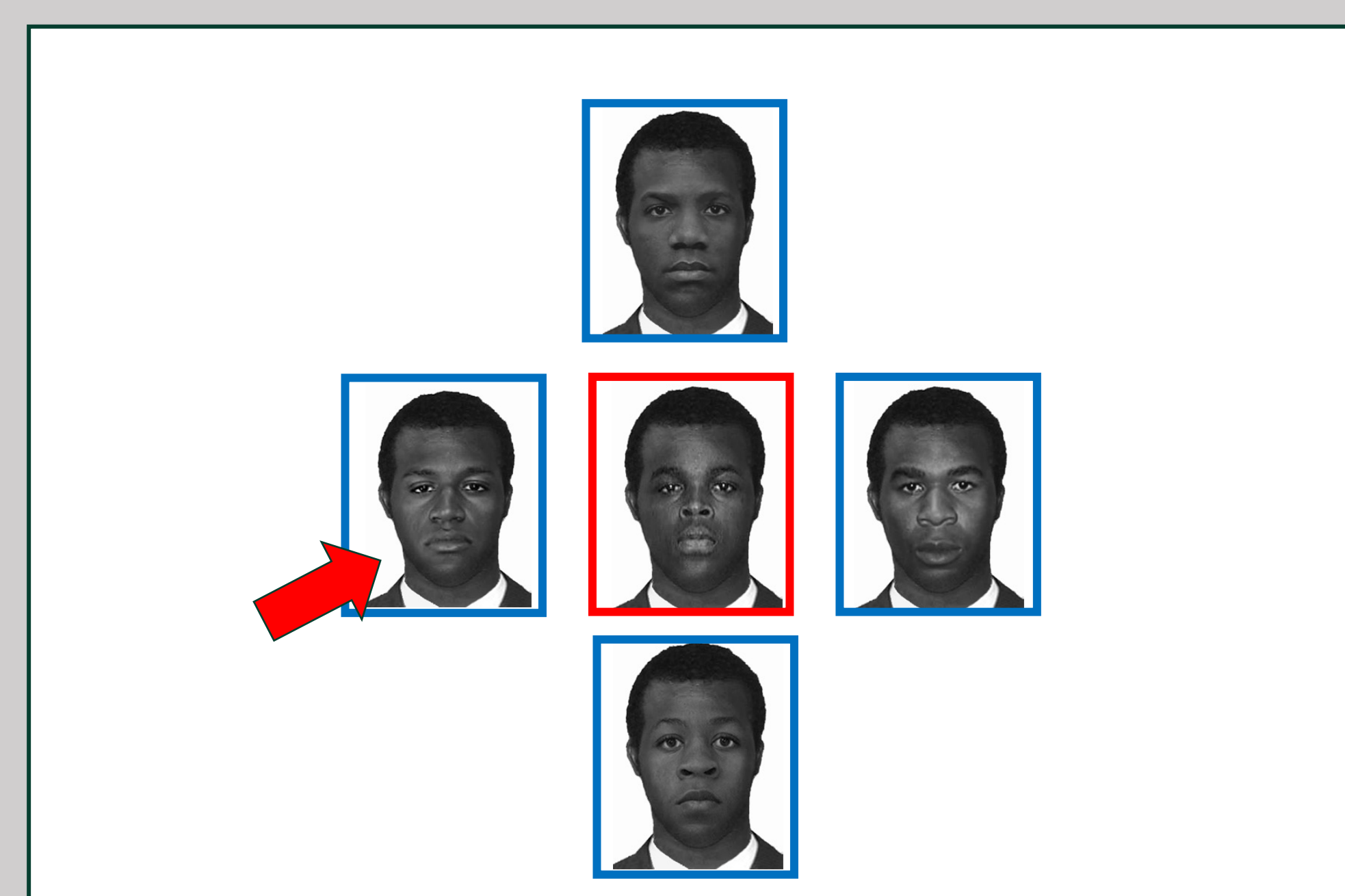
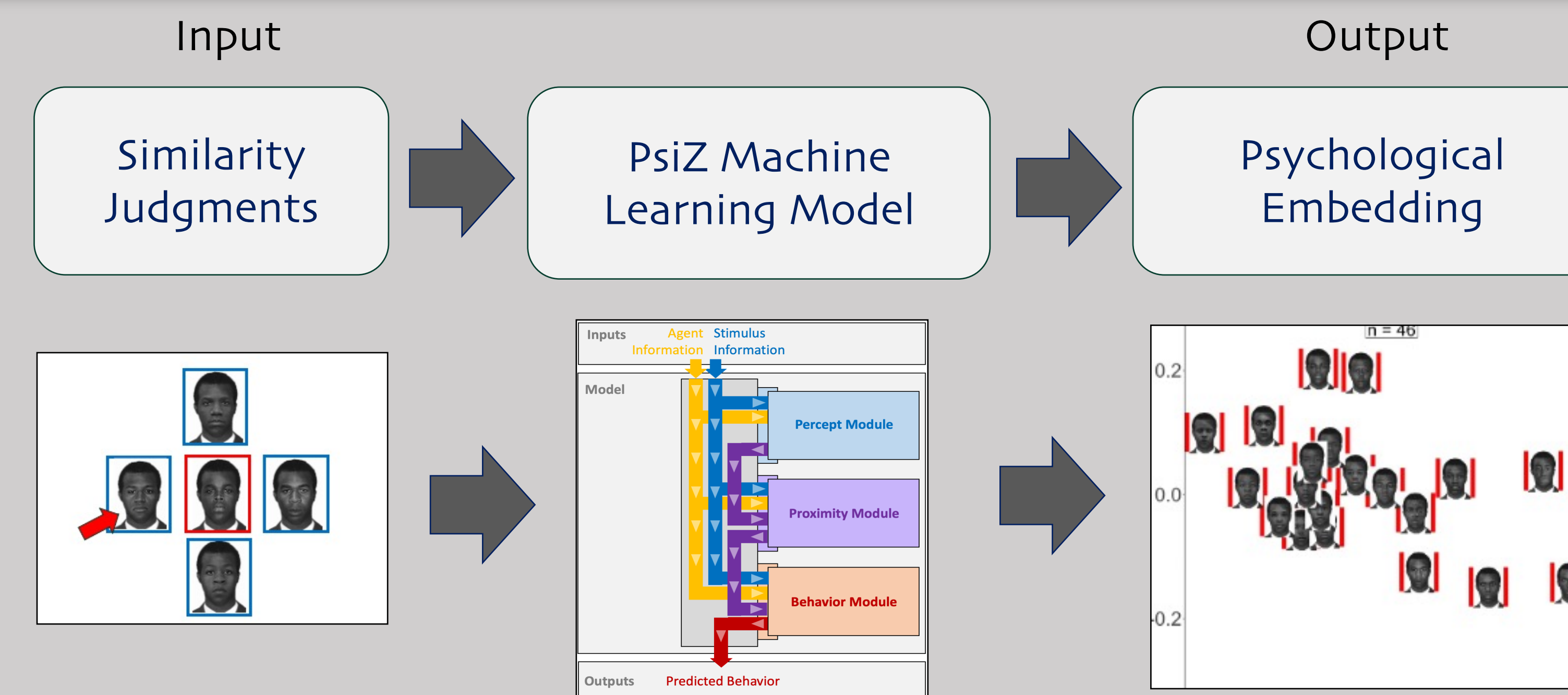


Figure 2. “Show 4 - Choose 1” similarity task. Participants are asked to select which of the four reference images (blue boxes) is most similar to the center query image (red box).



Experiment 1

Participants: Recruited on Prolific platform, 46, 45 and 40 self-identified Black, White and Asian participants, respectively.

Stimuli and task: 40 images of Black, White and Asian faces from the Race Face Database (Tanaka, Different Minds Repository). Each face was shown once as query and the four within-race reference images were chosen randomly.

Results

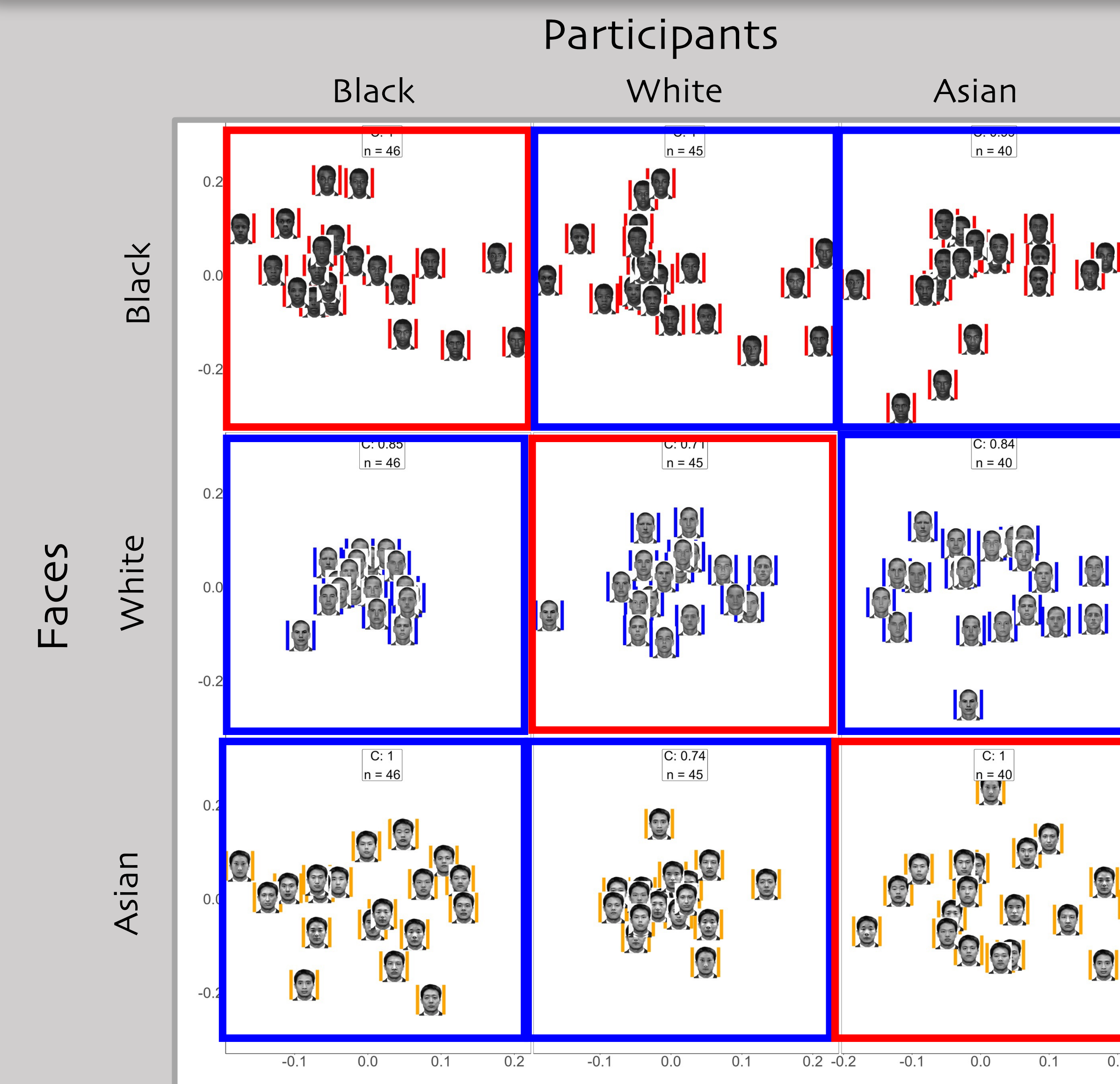


Figure 3. Psychological embeddings for the participants’ own-race (red box) and other-race faces (blue box). Based similarity judgments, psychological embeddings were generated with PsiZ for own- and other-race faces.

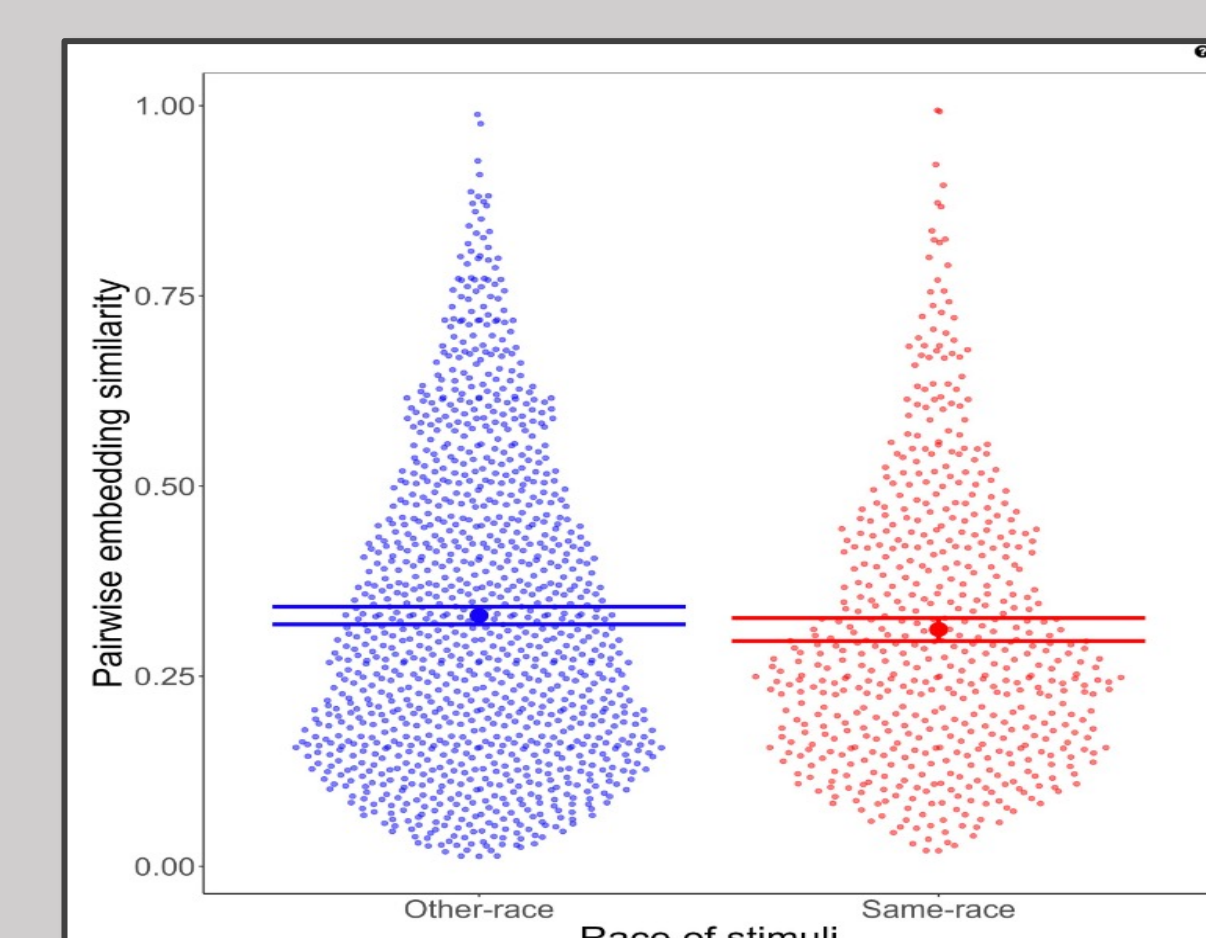


Figure 4. The pairwise similarity values for own- and other-race face images showed no difference, $t(1231.3) = 1.88, p = .06, d = .09$ [95% CI: .007, .19]. Bayesian analysis resulted in a BF_{01} of 3.36 – moderate evidence against an ORE.

Experiment 2

Participants: 40 White participants (University of Victoria, Canada) and 40 Asian participants (Zhejiang Sci-Tech University, China)

Stimuli and task: 10 images of Asian and White from Chicago database. Each face shown twice as query and the within-race reference images were randomly selected.

Results

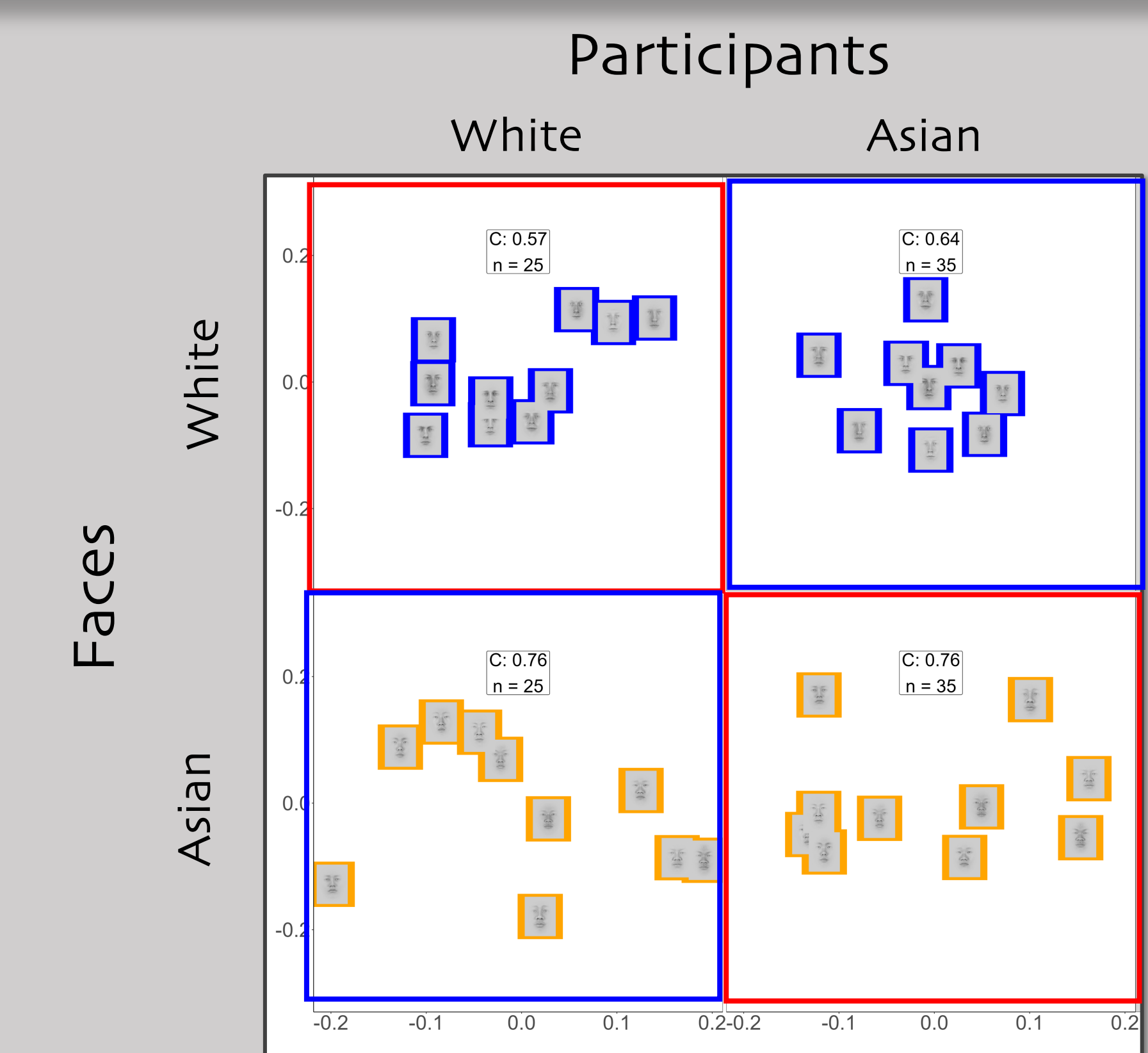


Figure 5. Psychological embeddings for the participants’ own-race (red box) and other-race faces (blue box)

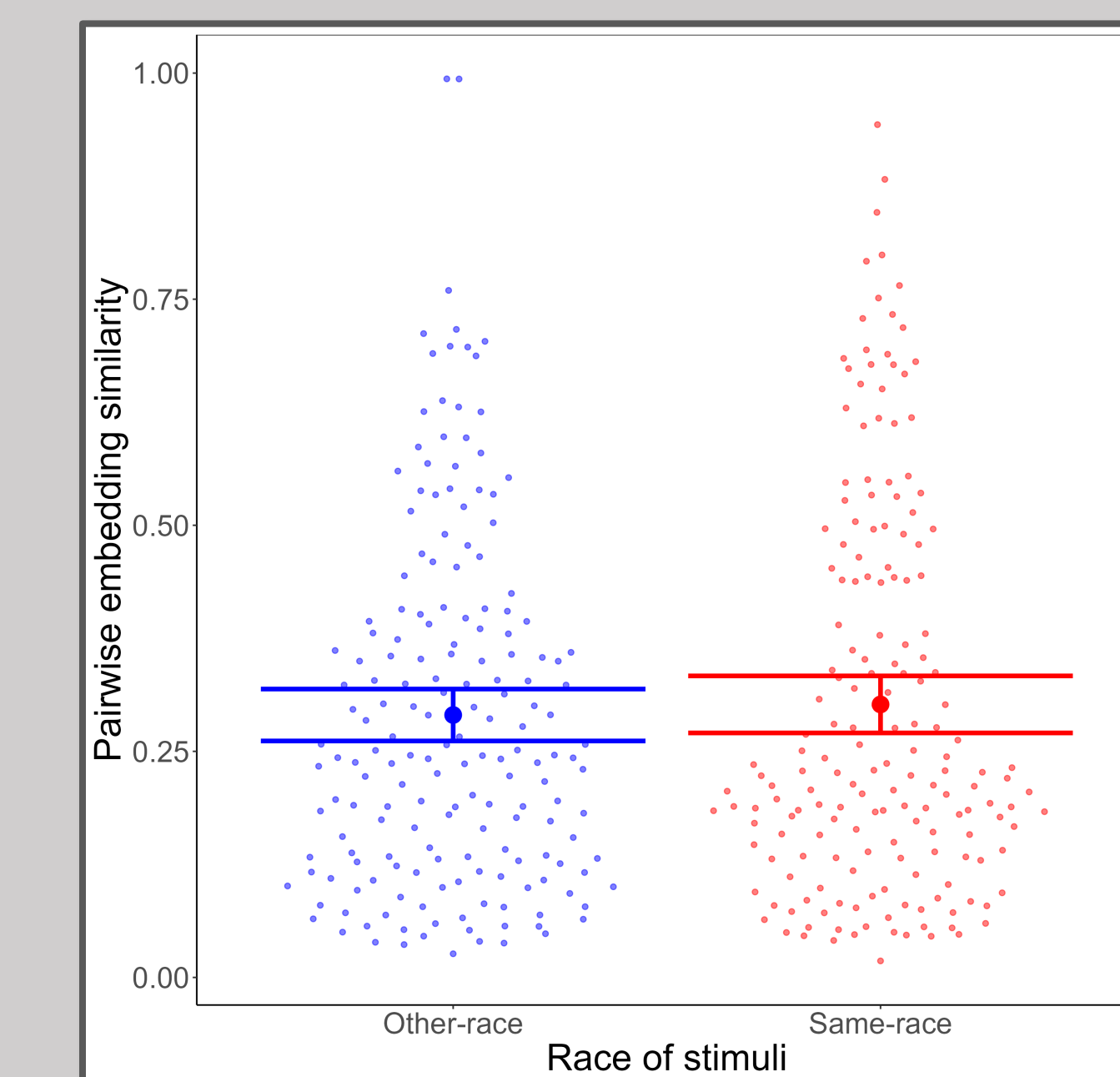


Figure 6. Pairwise similarity values for the own- and other-race face images showed no difference, $t(1231.3) = 0.538, p = 0.59, d = .09$ [95% CI: .031, .054]. Bayesian analysis resulted in a BF_{01} of 7.47 – again moderate evidence against an ORE.

CONCLUSIONS

Consistent with the previous MDS findings, we found little evidence to support the Face Space account of the ORE.

One explanation for our null effect is the Face Space describes how own- and other-race faces are stored in memory whereas the MDS and PsiZ methods involve perceptual judgments.

Future directions in our lab will test participants’ memory for own- and other-race faces with PsiZ.

Research supported by:



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