



Race for Attention: Competing Racial Stimuli and Working Memory

Guadalupe D.S. Gonzalez, B.A., David M. Schnyer, Ph.D.
The University of Texas at Austin



BACKGROUND

- Socio-cognitive research aims to better understand the mechanisms underlying racial bias
- Attention:**
 - Emotional attention may rapidly adapt to motivational shifts (Brosch & Bavel, 2012)
 - Attention to race can be influenced by top-down processes (Correll, Guillermo, & Vogt, 2014)
- Memory:**
 - Own-Race Bias (ORB) – better recognition/memory for own-race than cross-race faces (Meissner & Brigham, 2011)
 - Individuals with higher prejudice (indicated by IAT scores) encode Black faces with lower precision than individuals with lower prejudice (Sessa et al., 2012)
 - Never examined competition for attention between races – during the task participants attended to a single race (Black or White)
- Present Research:**
 - Implicit racial bias affects basic neurocognitive processes but few studies focus on the effects of competition for attention on working memory (WM)
 - The present research examined how racially biased attention and memory are expressed and maintained using a novel task
 - Research Question: In the context of competition for attention, how does race affect visual working memory?**

METHODS

- Participants:**
 - 49 White undergraduate students from UT Austin
 - 20 Hispanic/Latino
- Materials:**
 - Chicago Face Database (CFD) (Ma et al., 2015)
 - 40 White faces (20 M & 20 F) & 40 Black faces (20 M & 20 F)
- Procedure:**
 - Image Cue Working Memory Task (Wilken & Ma, 2004):** Participants indicated the location of a face in a previous array
 - Square Cue Working Memory Task (Wilken & Ma, 2004):** Participants indicated the race of a face presented in cued location
 - Health & Demographic Information Questionnaire**
 - Symbolic Racism 2000 Scale (SR2KS) (Henry et al., 2002)**

Some say that black leaders have been trying to push too fast. Others feel that they haven't pushed fast enough. What do you think?

Trying to push very much too fast
 Going too slowly
 Moving at about the right speed

How much of the racial tension that exists in the United States today do you think blacks are responsible for creating?

All of it
 Most
 Some
 Not much at all

5. Colorblind Racial Attitudes Scale (CoBRAS) (Neville et al., 2000)

Racism is a major problem in the U.S.

1 - Strongly Disagree
 2
 3
 4
 5
 6 - Strongly Agree

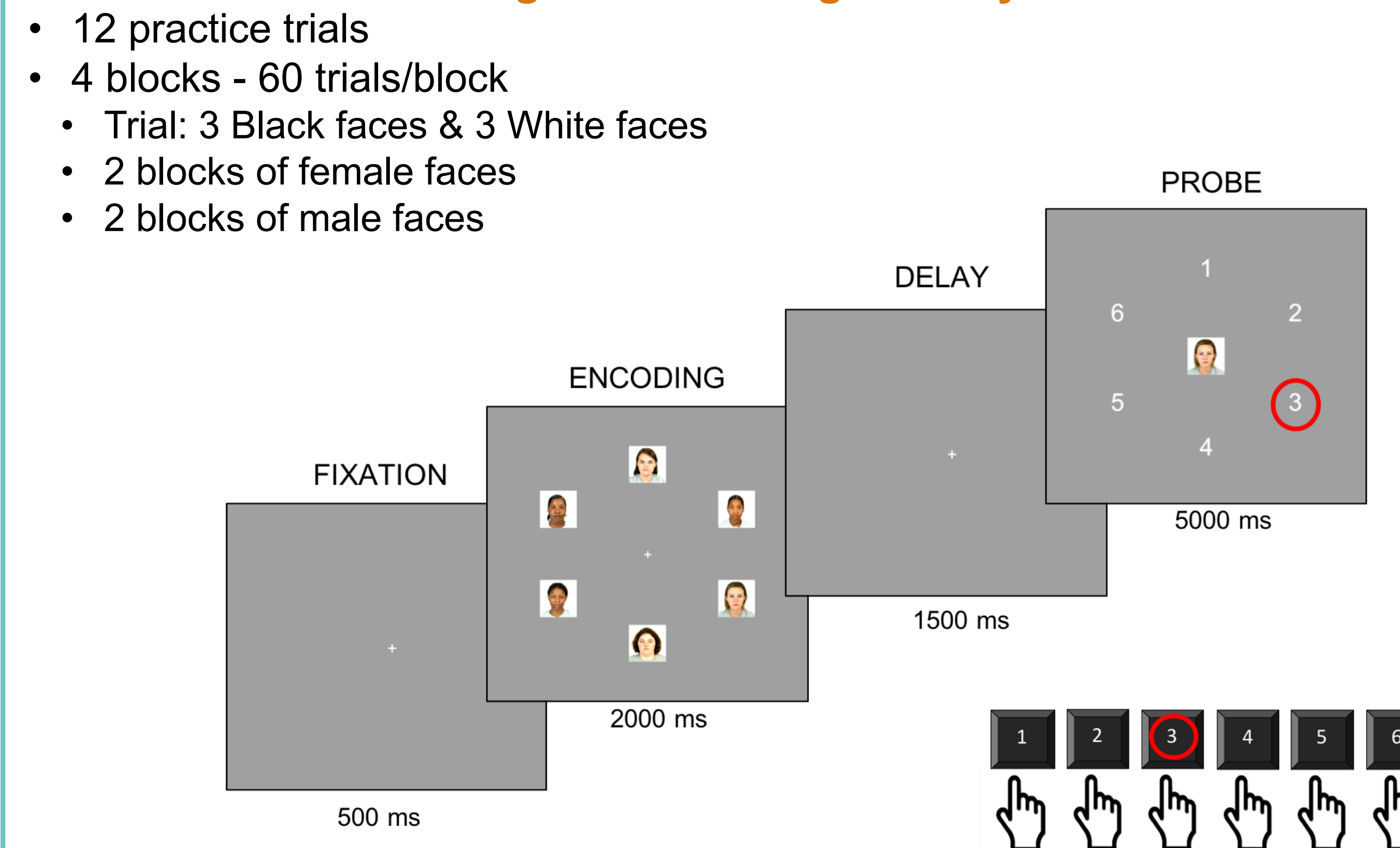
Race is very important in determining who is successful and who is not.

1 - Strongly Disagree
 2
 3
 4
 5
 6 - Strongly Agree

For more information on this project, please contact Guadalupe D.S. Gonzalez at lupitagon@utexas.edu

METHODS (CONT.)

Image Cue Working Memory Task

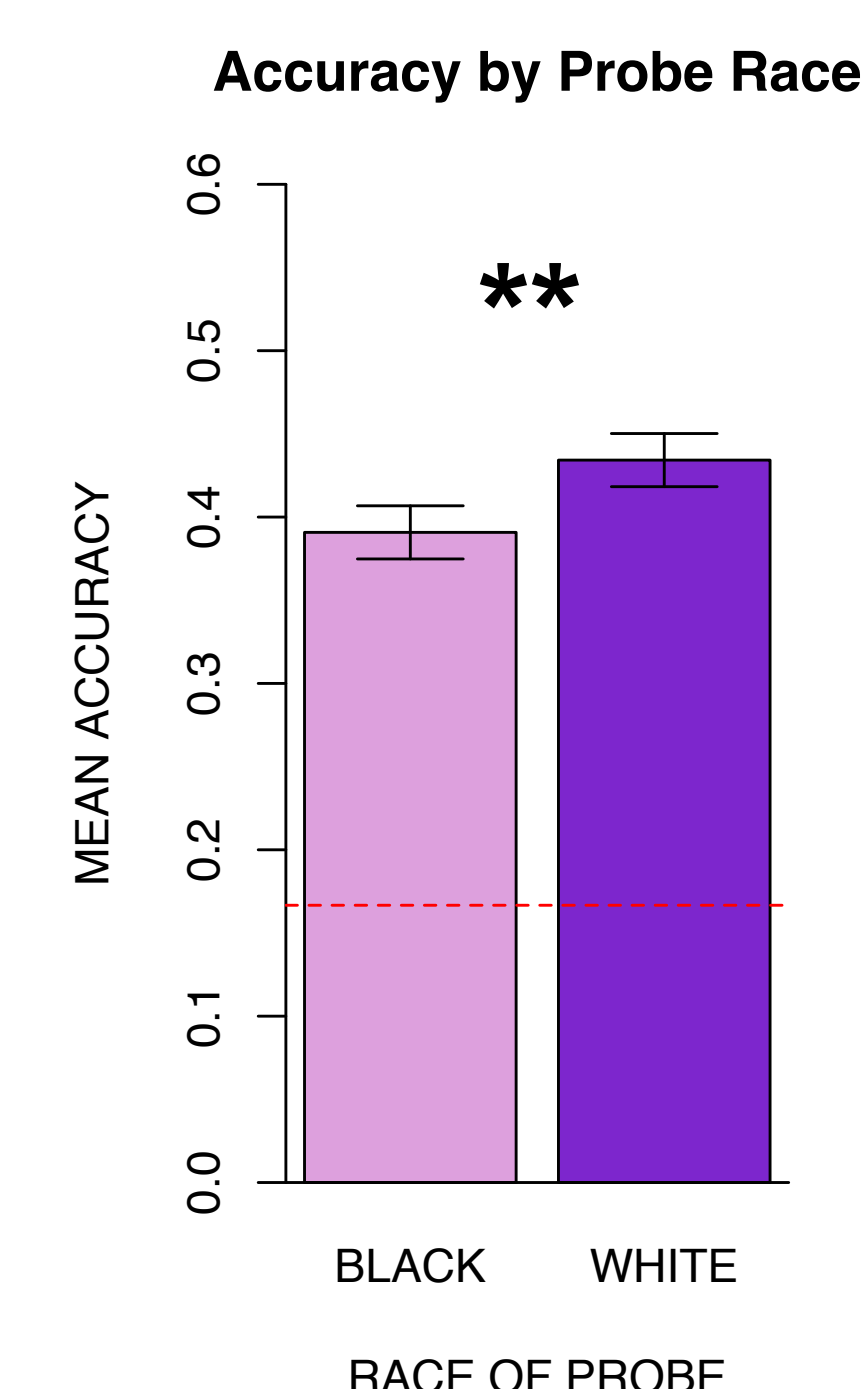


Data Preprocessing

- Excluded:
 - Incorrect trials
 - Trials with false starts (Reaction Times (RTs) < 300 ms)
 - Trials with long RTs (RTs > 2.5 SDs from mean)
 - Trials with no responses

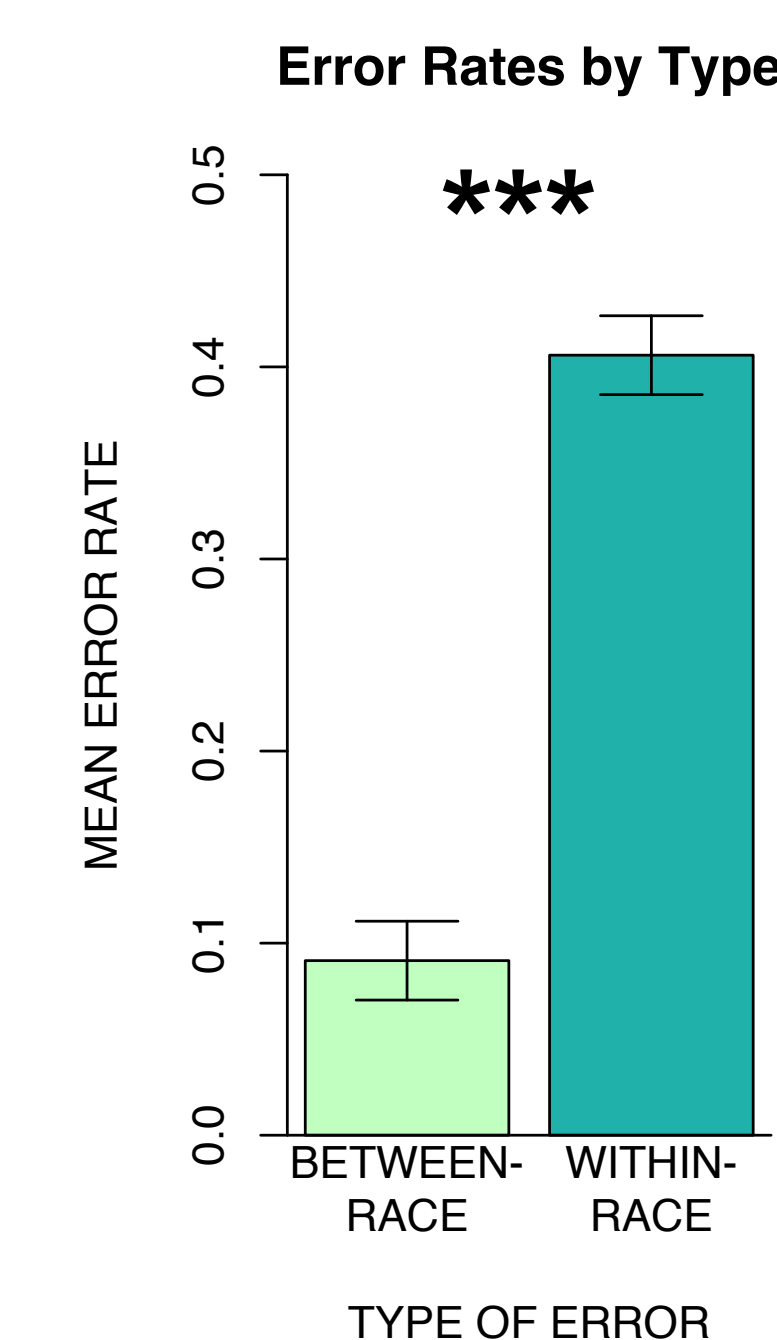
RESULTS

Participants remembered White (own-race) faces better than Black (cross-race) faces.



Participants had better accuracy for the location of White (own-race) ($M = .39, SD = .06$) than Black (cross-race) ($M = .43, SD = .06$) faces ($F(1,48) = 14.95, p < .001, \eta_p^2 = .24$).

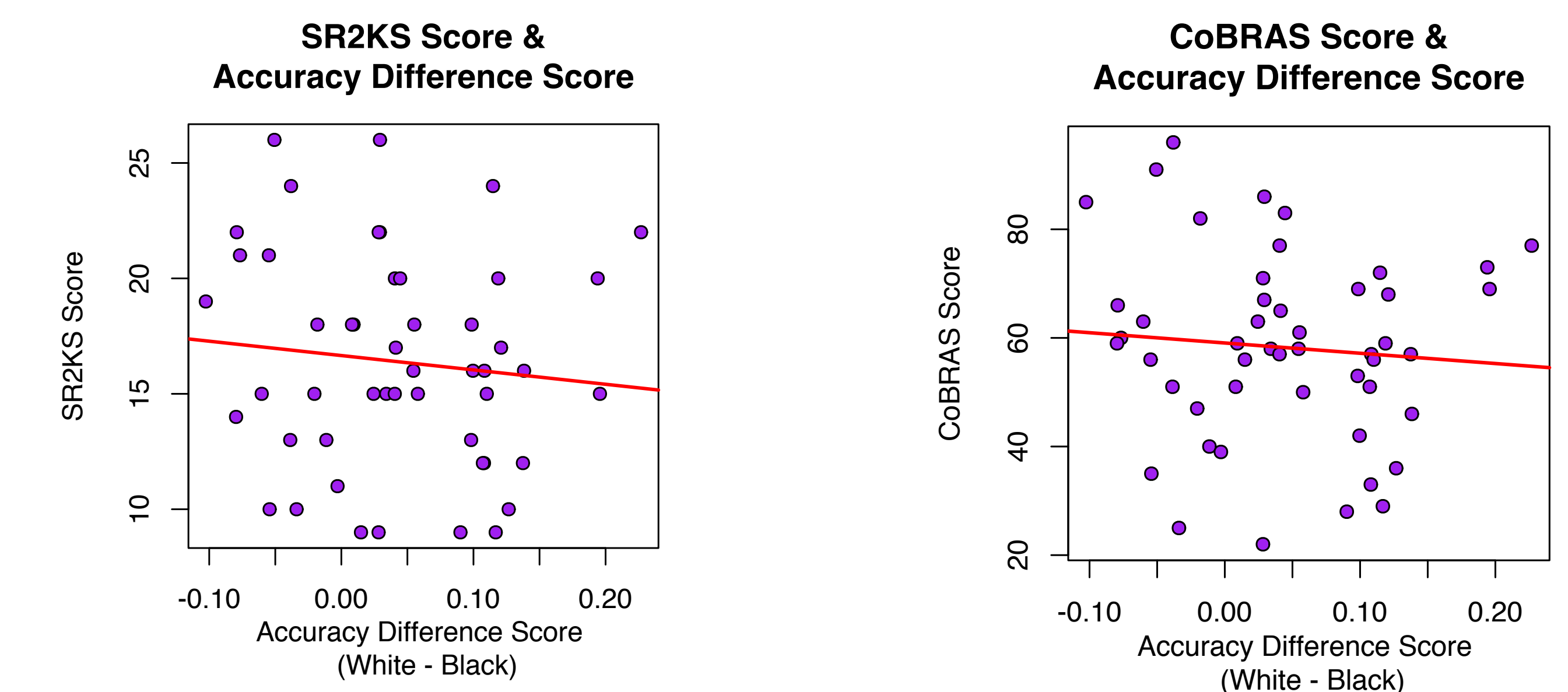
Participants made more within-race than between-race errors.



Participants made more within-race ($M = .41, SD = .07$) than between-race ($M = .09, SD = .07$) errors ($F(1,48) = 476.67, p < .001, \eta_p^2 = .91$).

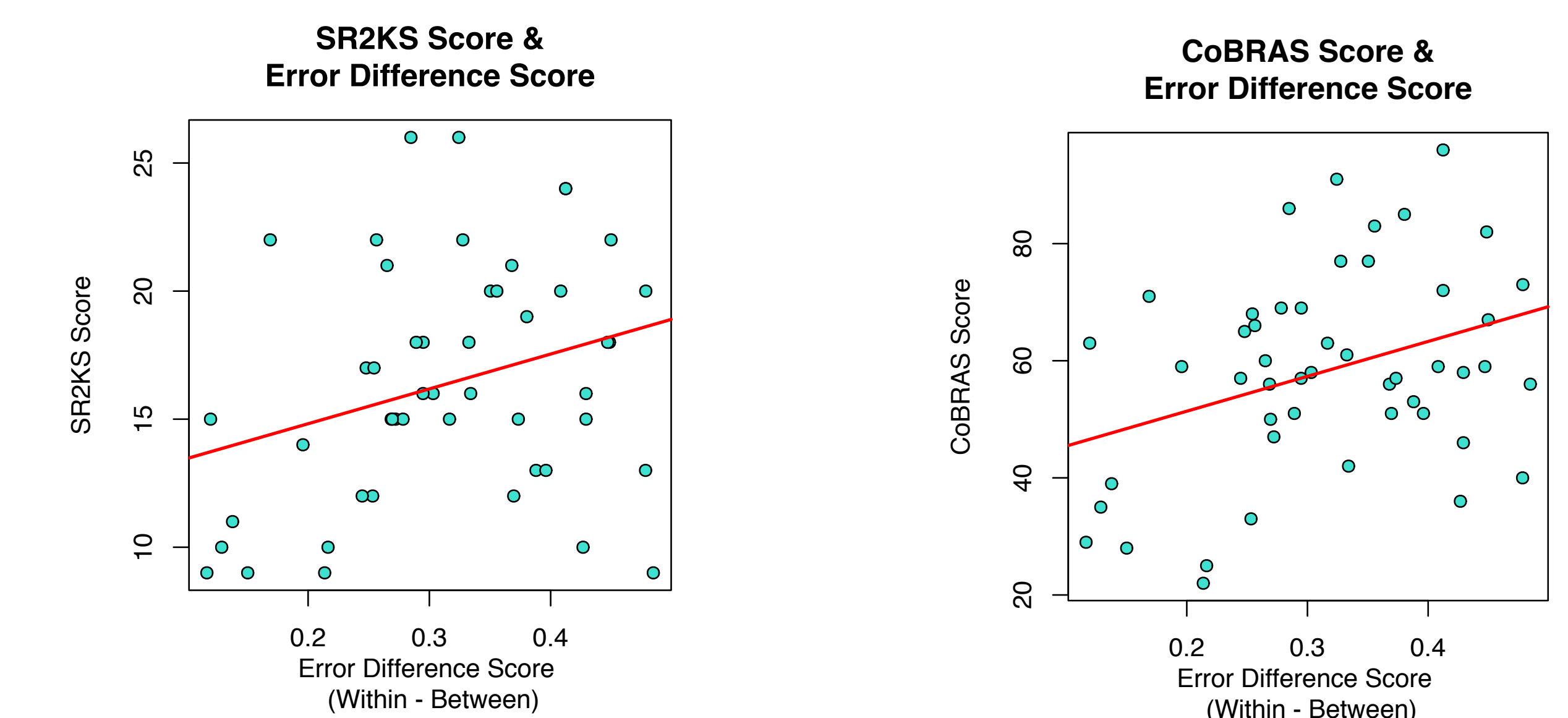
RESULTS (CONT.)

Accuracy was not associated with explicit racial attitudes.



The accuracy difference score (Black – White) was not associated with symbolic racism scores ($p > .05$). Likewise, the accuracy difference score (Black – White) was not associated with colorblind racial attitudes scores ($p > .05$).

Error rates were associated with explicit racial attitudes.



Greater error rate differences (within – between) were associated with greater symbolic racism scores ($r = .30, t(47) = 2.14, p = .04$). Likewise, greater error rate differences (within – between) were associated with greater colorblind racial attitudes scores ($r = .35, t(47) = 2.54, p = .01$).

SUMMARY & CONCLUSIONS

- White participants showed an own-race WM bias when encoding the location of multiple racial stimuli
 - Explicit racial attitudes were not associated with accuracy on the WM task
- Consistent with previous research (Taylor et al., 1978), participants made more within-race than between-race errors, suggesting that they were automatically encoding racial category information and these patterns were associated with explicit racial attitudes
 - Greater negative views towards African Americans (indicated by higher SR2KS scores) were associated with more within-race than between-race errors
 - Greater colorblind racial attitudes (indicated by higher CoBRAS scores) were associated with more within-race than between-race errors
- We are currently investigating whether these WM effects generalize to other races

REFERENCES

Henry, P. J., Sears, D. O., Psychology, P., Jun, N., & Sears, D. (2002). The Symbolic Racism 2000 Scale. *Political Psychology, 23*(2), 253–283.

Ma, D. S., Correll, J., & Wittenbrink, B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior Research Methods, 47*(4), 1122–35.

Meissner, C. A., & Brigham, J. C. (2001). Thirty years of investigating the own-race bias in memory for faces: A meta-analytic review. *Psychology, Public Policy, and Law, 7*(1), 3–35.

Neville, H. a., Lilly, R. L., Duran, G., Lee, R. M., & Browne, L. (2000). Construction and initial validation of the Color-Blind Racial Attitudes Scale (CoBRAS). *Journal of Counseling Psychology, 47*(1), 59–70.

Sessa, P., Tomelleri, S., Luria, R., Castelli, L., Reynolds, M., & Dell'Acqua, R. (2012). Look out for strangers! Sustained neural activity during visual working memory maintenance of other-race faces is modulated by implicit racial prejudice. *Social Cognitive and Affective Neuroscience, 7*(3), 314–321.

Taylor, S. E., Fiske, S. T., Etcoff, N. L., & Ruderman, A. J. (1978). Categorical and contextual bases of person memory and stereotyping. *Journal of Personality and Social Psychology, 36*(7), 778–793. <http://doi.org/10.1037/0022-3514.36.7.778>

Wilken, P., & Ma, W. J. (2004). A detection theory account of change detection. *Journal of Vision, 4*(12), 11–11.

ACKNOWLEDGMENTS

This work was supported by a Ford Foundation Predoctoral Fellowship to Guadalupe D.S. Gonzalez. We would like to thank Bianca Chavez, Marissa Hansen, and Fariya Sahadat for assisting with data collection.