

Virtual Reality Decision Making Program for Law Enforcement

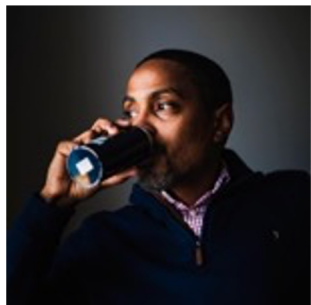


LAB FOR
APPLIED SOCIAL
SCIENCE RESEARCH

JIGSAW TEAM



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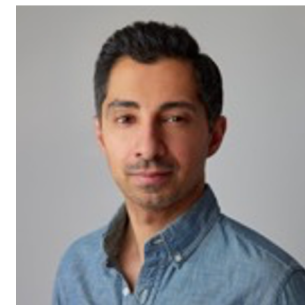
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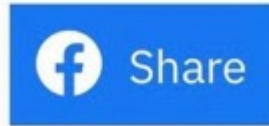
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UMD researchers partner with Google to create virtual reality police training

Victoria Stavish · 15 hours ago

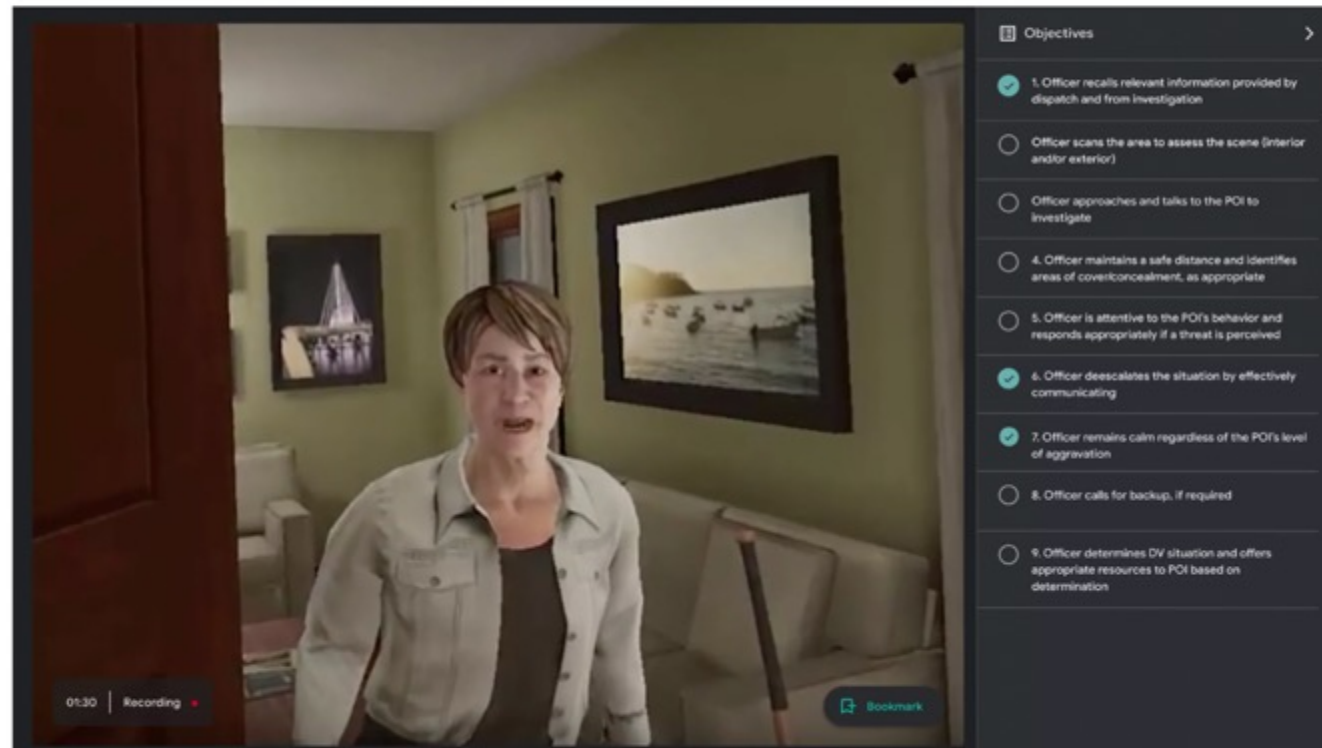


(Richard Moglen/The Diamondback)

Google's Jigsaw introduces VR simulator for police de-escalation



Bryan Walsh, author of [Axios Future](#)



Trainer's learning interface, shown during a domestic dispute scenario, allows instructors to evaluate police officers Des in virtual scenarios with different contexts. Credit: Jigsaw

Jigsaw, a technology incubator within Google, [is rolling out](#) a VR simulation platform designed to help train law enforcement on de-escalation techniques.

PARTNERS

In this next stage of work, we are transferring the Trainer technology to partners at four universities who each have diverse experience conducting research with and about law enforcement.

This coalition will take the research forward with goals that include measuring Trainer's efficacy, identifying contexts for effective deployment and contributing to the broader body of knowledge around policing. Our hope is that the Trainer technology can contribute alongside the many other important projects and initiatives that aim to keep communities safer.



The University of Cincinnati's Center for Police Research and Policy will test the viability of the Trainer technology across various officer demographics (e.g., race, sex, age, experience, assignment, etc.) and police agencies, and measure the impact on improving officers' confidence and self-reported use of de-escalation tactics and skills in the field. Data will inform improvements to Trainer, and assess what existing training programs would best pair with the technology.



At Georgetown Law, the Center for Innovations in Community Safety's Active Bystandership for Law Enforcement (ABLE) project will draw upon Trainer technology in its work to build a police culture of active bystandership that prevents misconduct and mistakes and promotes officer wellness. Georgetown University will integrate Trainer technology to provide ABLE participants with a broader range of virtual interactive training scenarios and provide Georgetown and independent researchers a controlled setting for studying the impact of ABLE training on reducing policing harm.



The University of Maryland's Lab for Applied Social Science Research will use Trainer to accelerate and expand its work on understanding disparities in policing outcomes by focusing on what virtual scenarios can teach us about bias in policing. Research will measure physiological inputs and track the relationship between police officers' emotions, attitudes, identities, and officers' behavior during interactions with the public with the goal of creating more equitable encounters with law enforcement.



The Culturally Relevant Computing Lab and National Training Institute on Race & Equity (NTIRE) at Morehouse College will study the impact of this technological training on law enforcement and community empathy, seeking to understand whether a similar training simulation could be designed to build positive relationships with Black adolescents and local officers. NTIRE will offer students of historically Black colleges and universities (HBCUs) opportunities to serve as co-facilitators in anti-bias trainings of police officers and as research assistants on projects designed to mitigate implicit and explicit bias in the criminal justice system.

POLITICS & THE NATION

Role-playing helps police do their job without firing their gun

At a time when use of force is increasingly under scrutiny, experts say training simulations are a key way to reduce the number of times officers use firearms

BY CAREN CHESLER

If confronted by the man a few months earlier, the four police officers from Inglewood, Calif., might have killed him.

But the officers had practiced situations like this in simulation training, learning to slow their responses and look for other options. As the man walked toward them, insisting he was armed with a knife and a gun, they used their cars as barricades and fired foam projectiles that are far less lethal than bullets. Eventually, they handcuffed the man and took him for a psychiatric evaluation.

"The officers did feel the training prevented them from using deadly force," Sgt. Joseph Cupo, who oversees training for the Inglewood Police Department, said of the June 2020 incident, weeks after the police killing of George Floyd in Minneapolis launched a national conversation on public safety. "It gave them the knowledge to recognize the event for what it potentially could be, and to go through some alternative methods to bring it to resolution."

At a time when police use of force is increasingly under scrutiny, experts say training simulations are a key way to reduce the number of times police fire their weapons. There are a variety of role-playing options and a growing body of evidence that they work. Some use live actors, others project videotaped scenarios on screens that wrap around the room. A few places, including a laboratory at the University of Maryland, helped design virtual reality headsets that surround officers with videos or computer-generated images, like in a video game.

Experts say each approach can be valuable so long as it feels realistic. The key is that the officer isn't just learning de-escalation skills in a classroom but is acting them out, over and over, until they become second nature.

"Giving police officers the ability to practice these scenarios, particularly when they're very young in their careers, is really important," said Rashawn Ray, a sociology professor who heads up the Lab for Applied Social Science Research at the University of Maryland at College Park.

Both he and Robin Engel, a criminal justice professor at the University of Cincinnati, noted that police officers generally



PHOTOS BY BILL O'LEARY/THE WASHINGTON POST



TOP: Rashawn Ray, a sociology professor, heads up the Lab for Applied Social Science Research at the University of Maryland.

ABOVE LEFT: Genesis Puentes watches a simulated encounter, at the lab, which is developing training for police de-escalation.

ABOVE RIGHT: Connor Powelson, a researcher, is transported to the driver's seat of a police car through a virtual-reality headset.

that led to the police shooting of Breonna Taylor, an unarmed Black woman whose boyfriend exchanged gunfire with police.

But proponents say it helps po-

hands and whether they're perspiring. The agency also reviews body-camera footage as "game film," department spokesman Dan Keashey said, to show officers

Axon, the creator of the Taser, offers a virtual-reality headset in which actors play out fraught scenarios and the trainee makes choices, such as whether to use a

gun. "That's why a lot of agencies are moving toward the virtual reality," Wall said. "It works, and it's less expensive."

ing with police, and then switch back to the officer's role. Griffin said such training leaves officers better able to recognize the cognitive or mental health issues they may be confronting on the job.

Most virtual-reality simulations require a trainer or the officer to press a button to get the subject in the video to respond to a particular action. But Jigsaw, the technology incubator for tech giant Google, has created a program called Trainer that uses artificial intelligence, based on data gathered from law enforcement and civil rights groups, to prompt actions and responses.

Every time officers put on a headset, their experience is different. The scenarios offer hundreds of potential outcomes — albeit with avatars that do not appear completely human, a technological limitation that experts say can prevent the user from becoming completely immersed in the scene.

Axon expects to upgrade its virtual-reality headsets next year to include similar artificial intelligence direction.

On a recent day at the University of Maryland lab in College Park, researcher Connor Powelson put on a virtual-reality headset and was transported to the driver's seat of a police car, making a traffic stop in a working-class neighborhood.

Powelson, who is White, walked up to the driver, who is Black, and said, "My name is Officer Powelson. I stopped you because you ran a stop sign back there."

As he asked for the license and registration, a woman across the street began recording the interaction with her cellphone and yelled, "Leave the poor kid alone!"

The officer turned. "Ma'am, you're allowed to film, but I need you to stay over there."

The situation felt a little tense, like anything could happen.

But there also were some glitches, including prolonged delays where the driver wasn't saying anything, or moments when the simulated dialogue didn't make sense.

Ray, the sociology professor, said the slow Internet connection in the basement lab was partly culpable. Overall, he said, officers who have reviewed the systems found it "slightly more realistic" than other training simulations they have seen.

The technology gives trainers a





Pause

Debrief

Objectives

- 1. Officer recalls relevant information provided by dispatch and from investigation
- 2. Officer scans the area to assess the scene (interior and/or exterior)
- 3. Officer approaches and talks to the POI to investigate
- 4. Officer maintains a safe distance and identifies areas of cover/concealment, as appropriate
- 5. Officer is attentive to the POI's behavior and responds appropriately if a threat is perceived
- 6. Officer deescalates the situation by effectively communicating
- 7. Officer remains calm regardless of the POI's level of aggravation
- 8. Officer calls for backup, if required
- 9. Officer determines DV situation and offers appropriate resources to POI based on determination

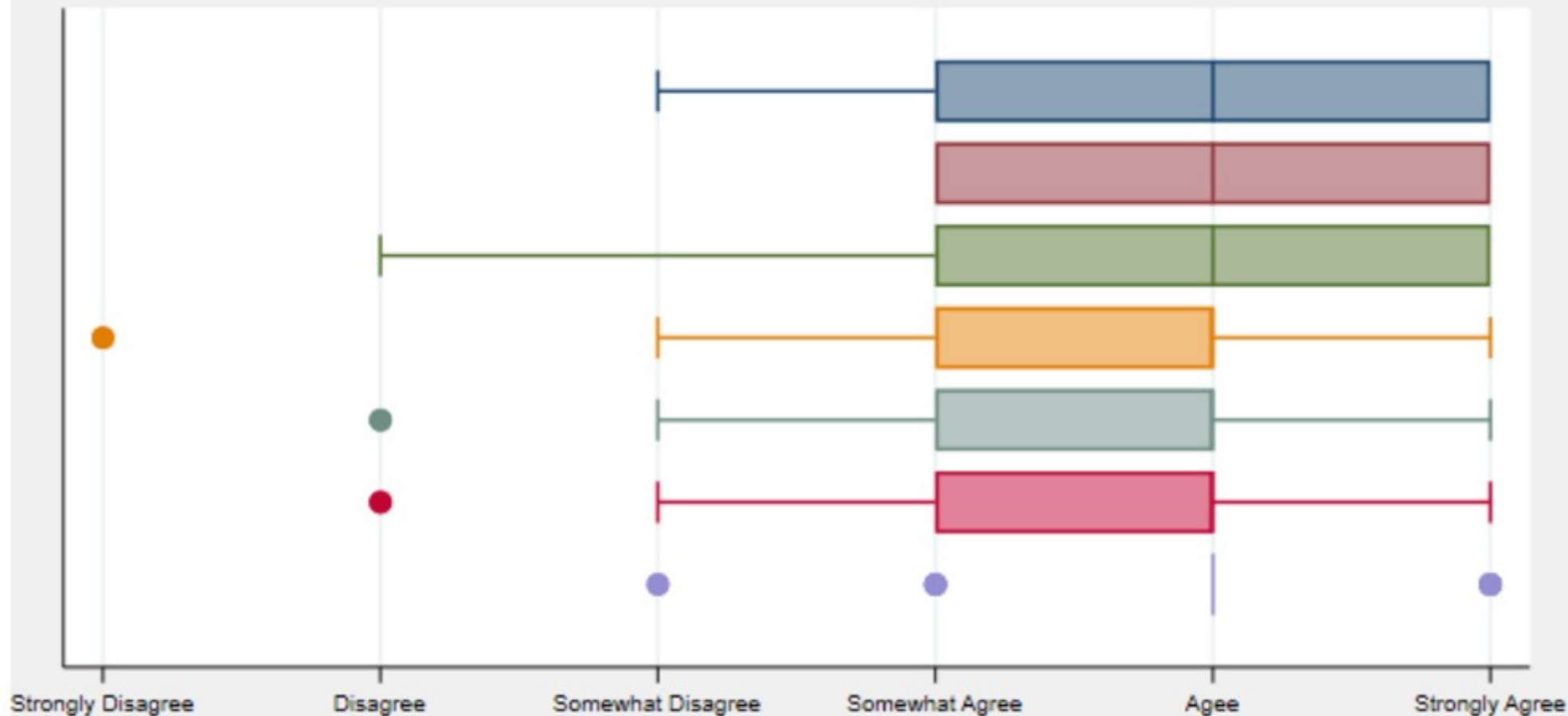


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Recording

Bookmark

Wellness Check POI Evaluations



Verbal Expressions Expected

Behavior Expected

Mannerisms Expected

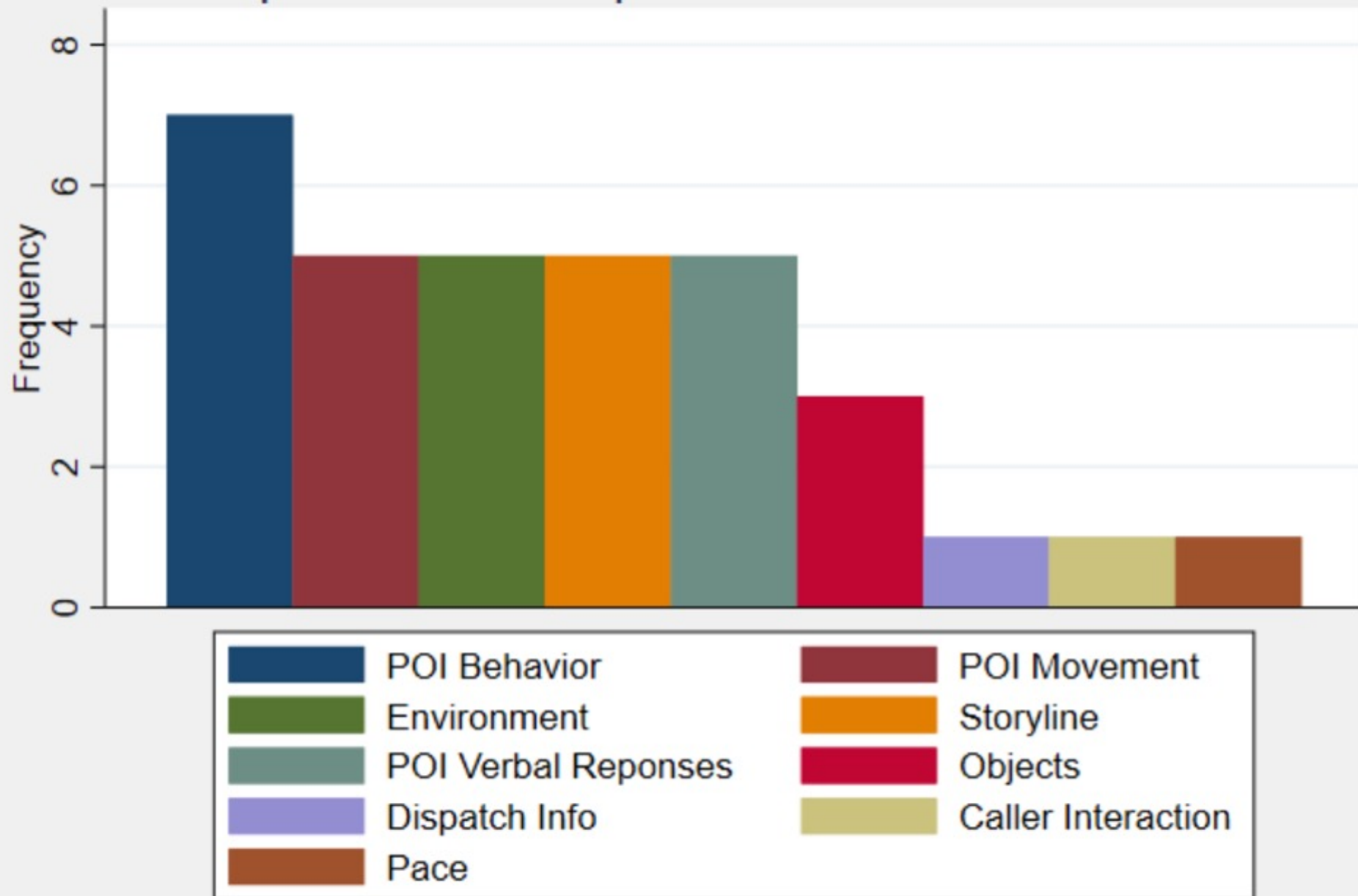
Facial Expressions Realistic

Comprehension

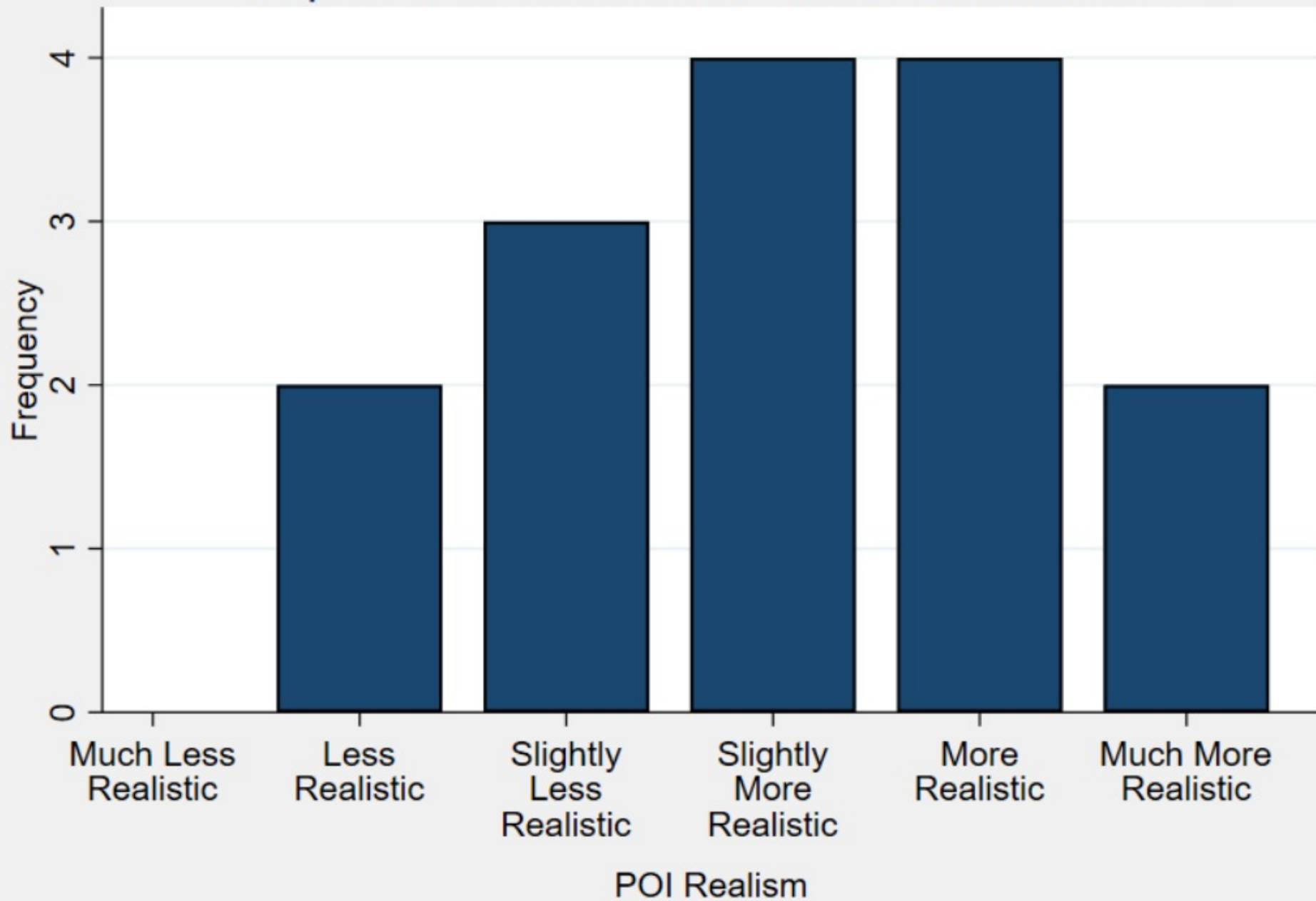
Reponses Natural

Emotions Natural

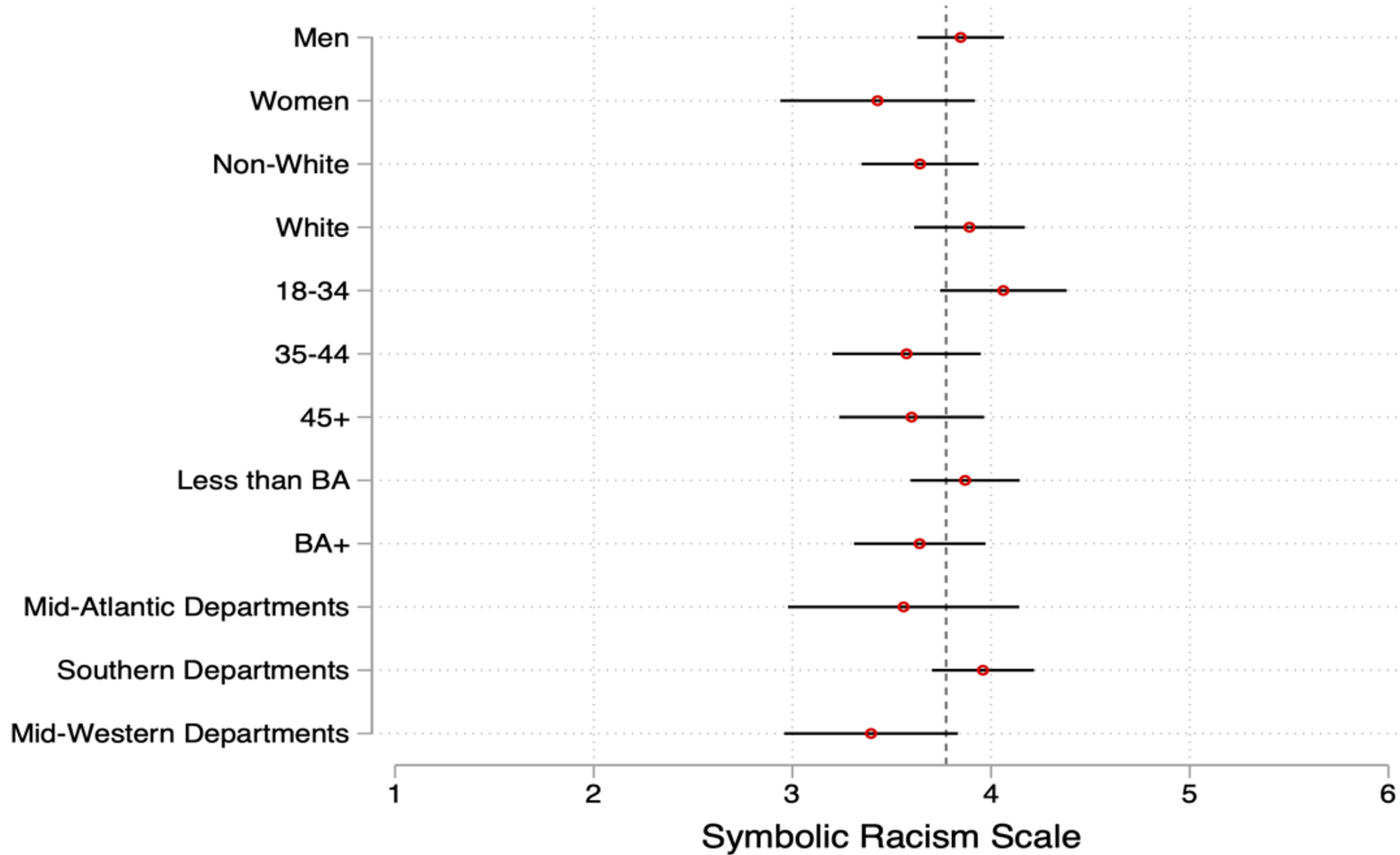
WC Open-Ended Responses Coded: Realistic Factors



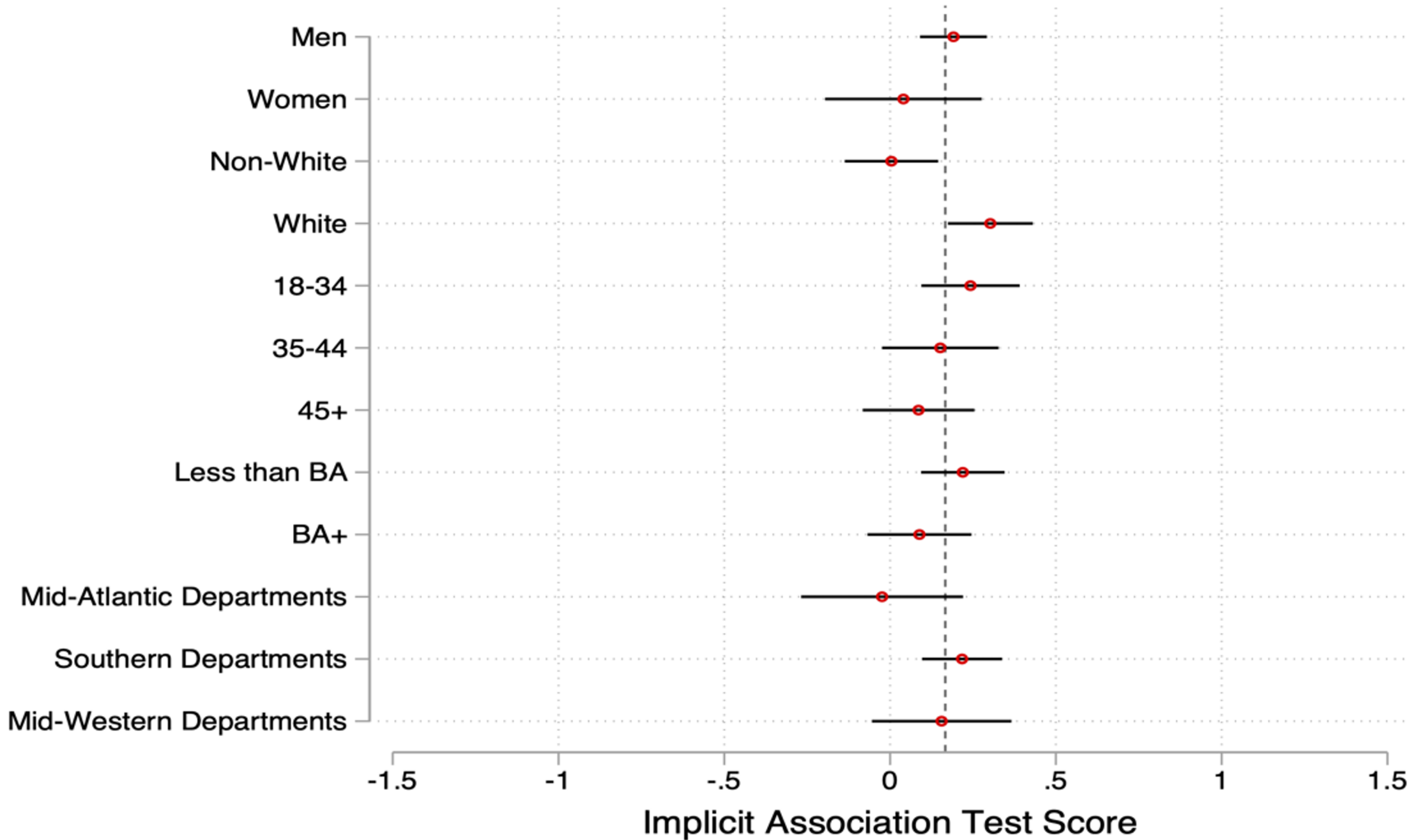
Compare POI Realism to Other Simulated POI



Officer Characteristics



Officer Characteristics



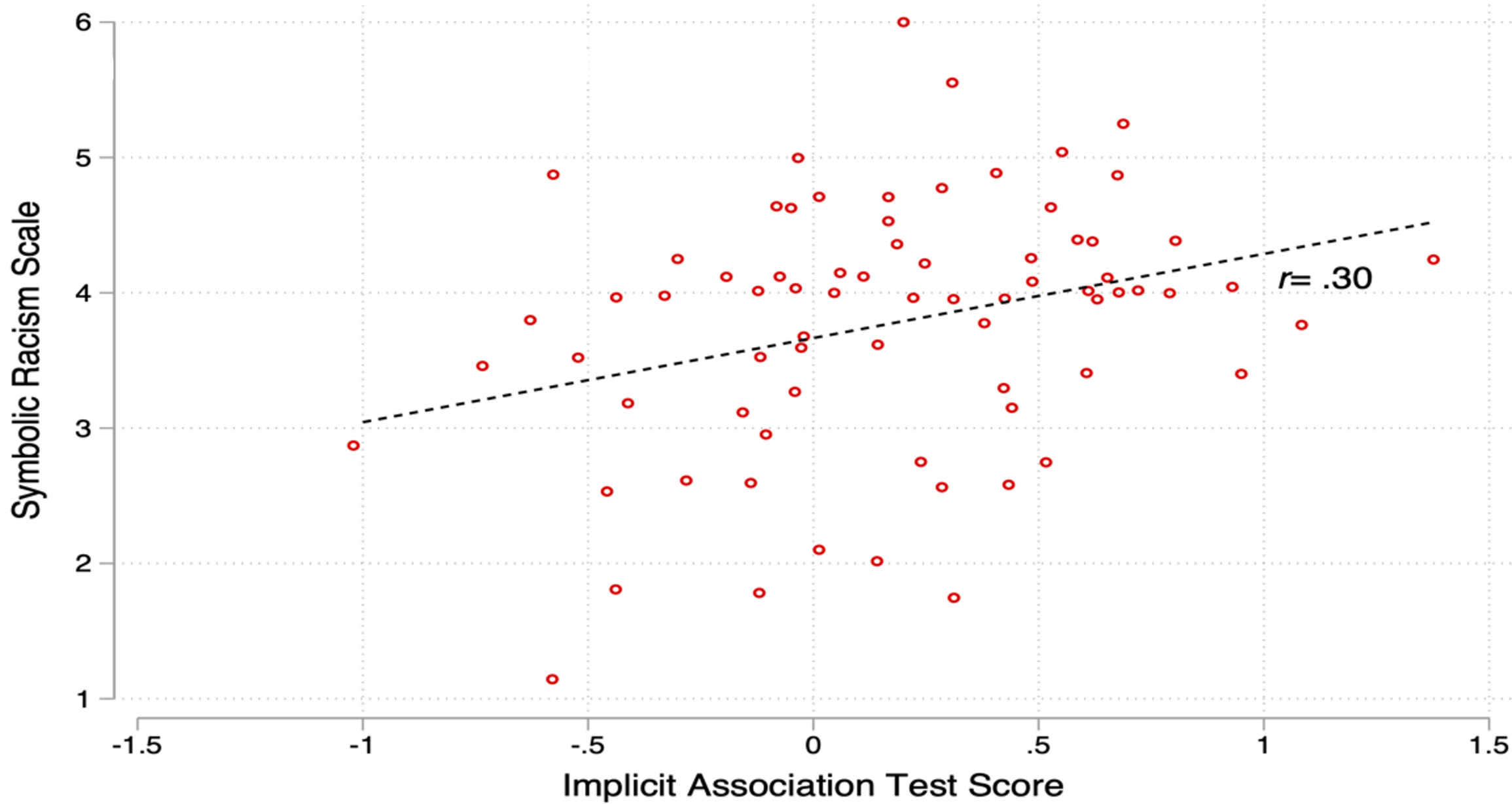
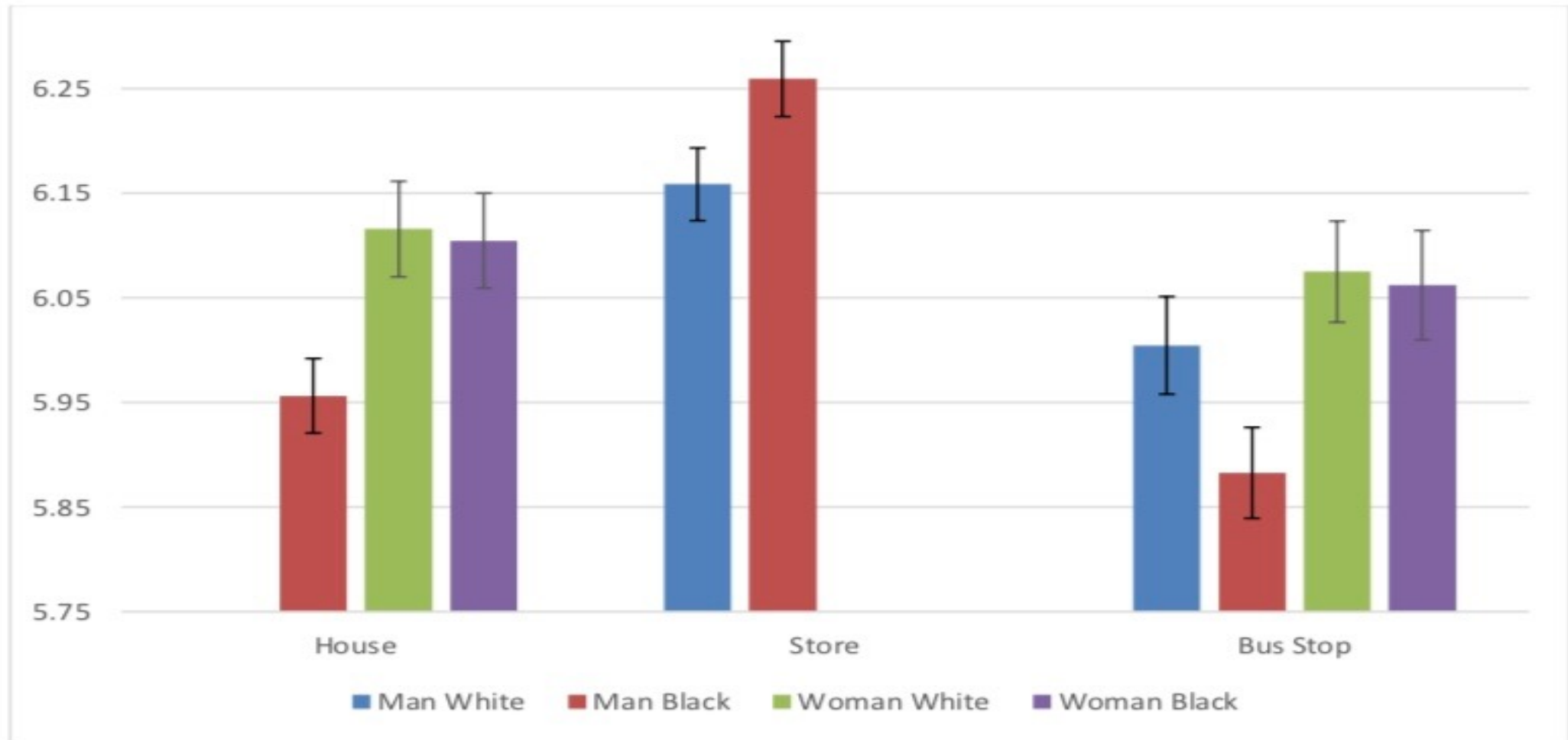
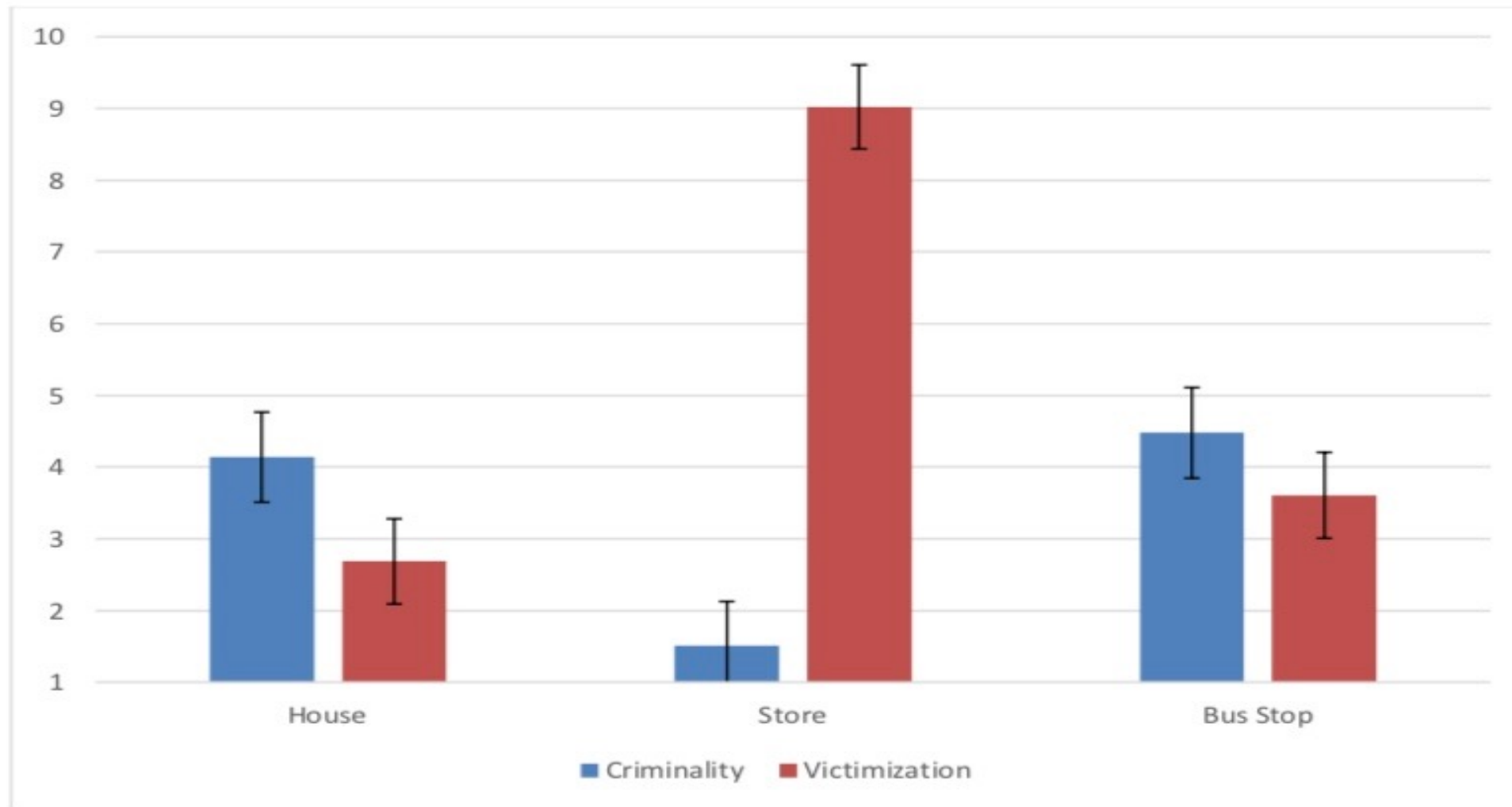


Figure 3. Predicted Deference Ratings by Experimental Condition and Scenario



Higher scores indicate more respectful language when interacting with the person of interest. Persons of interest are programmed to interact with officers similarly and only differ in their race and gender. Error bars are 95 percent confidence intervals.

Figure 4. Perceived Criminality and Victimization of Persons of Interest by Scenario



Higher bars indicate perceptions of higher likelihood that the person of interest is “a criminal” and “a victim” in the scenario. Error bars are 95 percent confidence intervals.

