Example images from the shoot/don't shoot task (left to right): armed white target, armed black target, unarmed white target, and unarmed black target.
Photos by Joshua Correll

Racial Bias in the Decision to Shoot?

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EDITOR'S NOTE: The findings in this article should be viewed as part of the body of emerging evidence helping researchers understand how race affects behavior. Although this research does not provide definitive answers, the contribution it makes to existing knowledge can be of value to the policing community. Importantly, this research supports what many in policing already believe: officers decide to shoot in response to perceived threats of weapons, not race.

In 2002, Correll and others published a paper titled, "The Police Officer's Dilemma."[1] The paper was, in part, a reaction to the death of Amadou Diallo, an unarmed black man who was shot and killed by New York police, who thought he had a weapon. In the media and in the public at large, this tragic incident raised questions about whether race influences police use of force, particularly whether police are more likely to shoot a black suspect than a white suspect. These questions have long been of interest to criminologists and sociologists.[2]

Bias Studies at the University of Chicago

Since 2000, investigators in the Stereotyping and Prejudice Research Laboratory in the Psychology Department at the University of Chicago have been working to develop and refine a first-person-shooter video game, which presents a series of images of young men—some armed, some unarmed—set against realistic backgrounds such as parks or city streets.[3] The player's goal is to shoot any and all armed targets but not to shoot unarmed targets. Half of the targets are black, and half are white. The laboratory is using this game to investigate whether decisions to shoot at a potentially hostile target can be influenced by the target's race.

This community study has been ongoing since 2000, and the participants are college students or residents in Illinois and Colorado. In the study, participants are instructed to press one of two buttons whenever a person appears on the screen. Participants are instructed that if the person, or target, is armed, they should press a button labeled "Shoot." If the target is unarmed, they are told to press a button labeled "Don't shoot." In either case, participants are instructed to respond as quickly as possible. To increase participants' attention during the task, and to motivate appropriate behavior, participants earned points for correct responses and lost points for errors.

> The study showed that police officers were no more likely to shoot a black target than a white target.

The results of this ongoing community study show clear patterns of racial bias by college students and community residents. First, community participants showed bias in the speed with which they could respond correctly to the targets. Community participants were faster to press "Shoot" in response to an armed target if that target was black rather than white, whereas they were faster to press "Don't shoot" in response to an unarmed target if that target was white rather than black. Second, community participants showed bias in the nature of the mistakes they made. In response to an armed target, community participants occasionally made a mistake by pressing "Don't shoot." They were more likely to make such a mistake if the armed target was white rather than black. By contrast, the community participants were more likely to mistakenly shoot an unarmed target if he was black rather than white. In essence, community participants were faster and more accurate when responding to targets that fit the kinds of stereotypes that the authors believe are prevalent in U.S. society (armed blacks and unarmed whites), but they were slower and more likely to make mistakes in response to targets that deviated from these stereotypes (unarmed blacks and armed whites).

In some ways, these results raised more questions than they answered. Foremost on that list was, would trained police officers show a similar pattern of bias?

Earlier sociological research had, in some cases, suggested that police were effectively unbiased in their treatment of black and white suspects.[4] In other cases, researchers suggested that police culture actually promoted racism among individual officers.[5]

Considerations for Laboratory Experiments

The laboratory's video game research, in which thousands of college students and community residents participated, has provided robust evidence of racial bias by this group in decisions to shoot. With this data set, it would be appropriate to assess if police officers hold the same racial bias in their decisions.

It is necessary to state clearly that the authors of this study recognize that this sort of computer task is a poor simulation of the phenomenon it seeks to understand. An officer's encounter with a potentially hostile suspect is a complex, emotional event in which the officer could be killed. No psychological experiment will ever recreate the intensity of such an experience. Nonetheless, this work is valuable because it offers greater experimental control than most research on officer-involved shootings.

In the world outside the laboratory, encounters with black and white criminal suspects may differ in innumerable ways. For example, black and white criminal suspects may inhabit entirely separate neighborhoods that differ in terms of social and economic opportunities, poverty levels, the prevalence of violent crime, or other indicators of disadvantage. Suspects of different races may also respond to the police differently by speech and actions, showing more or less hostility. Any particular officer-involved shooting involves a host of idiosyncratic factors that have the potential to undermine researchers' attempts to understand the factors that lead to the final outcome.

By contrast, a computer-based experiment allows researchers to control carefully the information available to participants. It holds constant the nature of the environment in which the encounter occurs, the visibility of the weapons, and even the position and orientation of the targets' bodies. As a result, this kind of research can isolate the unique influence of race on participants' decisions to shoot. The authors certainly do not believe that an experimental approach can ever provide a substitute for the careful analysis of data from real-world encounters. Rather, both experimental and correlational investigations contribute valuable information that helps to create a more complete understanding of the way race affects behavior.

Expansion of Study to Police Officers

The Denver, Colorado, Police Department (DPD) reached out to the University of Chicago to replicate, and expand, its studies of potential racial bias in decisions to shoot. Comparing its police officers with members of the Denver community was of particular interest to the department.

Community members and Denver police officers provide an important comparison because they live and work in the same environment. These two groups inhabit the same neighborhoods and encounter the same population demographics (including racial distributions, poverty rates, crime rates, and so on). Differences between the police and the community, then, should not be due to differences in the cultural environment.

First Denver Study

In the initial phase of this research (Denver study 1), three distinct groups of participants were studied: 124 police officers from the DPD, 127 members of the Denver community, and finally a group of 113 officers drawn from 14 states across the United States. This last group was labeled as the "national officers" to reflect the diversity of its origins.

Each participant performed a simple computer task involving the decision to shoot. The game presented a series of 100 male targets, which appeared on the screen one by one. Some of these targets were black, and some were white. In addition, some targets were armed and appeared on screen holding a pistol in a conspicuous position. Other targets were unarmed, instead holding an innocuous object, like a cellular telephone or a wallet. Across the entire game, participants saw 25 armed black targets, 25 armed white targets, 25 unarmed black targets, and 25 unarmed white targets. As in the initial Chicago experiment, participants were asked to press a button labeled "Shoot" if the target was armed; if they believed the target was unarmed, participants were instructed to press a button labeled "Don't shoot." They were given 850 milliseconds to make this decision. Incorrect responses (such as shooting an unarmed target) or responses that were too slow prompted negative feedback, including an aversive auditory tone and a loss of points. Correct responses prompted positive feedback and a gain of points.

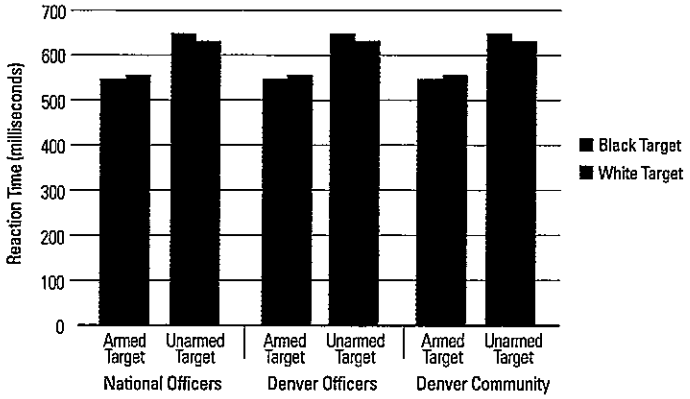

Figure 1. The amount of time participants in each sample took to respond to the four target types is depicted. All three samples showed significant bias, shooting armed black targets more quickly than armed whites and choosing not to shoot unarmed whites more quickly than unarmed blacks.

This study allowed the examination of two primary indices of performance. The first index was reaction time. Researchers examined how quickly each participant, whether a police officer or a community member, could make correct decisions, namely, shooting armed targets and pressing the "Don't shoot" button when unarmed targets appeared (see figure 1).

Reaction Time Index: The study found that all three groups—Denver police officers, national police officers, and members of the Denver community—showed significant bias in their reaction times, and the groups did not differ in terms of the magnitude of that bias. The groups were uniformly faster to shoot an armed black target, relative to an armed white target, and uniformly faster to press the "Don't shoot" button for an unarmed white target, relative to an unarmed black target. Officers and community members alike, it seemed, responded more quickly to targets that conform to stereotypes.

Error Index: The second index of performance concerned the likelihood of an error. As with the reaction times, the frequency with which each participant made a mistake—either shooting an unarmed target or choosing not to shoot an armed target—was examined. An analytic technique called *signal detection theory* allowed researchers to calculate the criteria used in this study.[6] Lower criteria suggest that participants are more willing to shoot (favoring the shoot response), whereas higher criteria suggest an unwillingness to shoot (favoring the don't-shoot response). Figure 2 provides the results of this analysis.

The Denver community members showed pronounced racial bias: they set a much lower criterion for black targets than for whites. But critically, neither the Denver nor the national officers showed evidence of such a bias. The officers set statistically equivalent criteria for both white and black targets—they were no more likely to shoot a black target than a white target.

Follow-up Study

In a follow-up study (Denver study 2), which investigated only Denver community members and Denver police officers, the task of deciding whether to shoot was made more difficult by forcing participants to respond more quickly. In this study, participants had only 630 milliseconds (a bit over half a second) to react to the targets. This change was designed to reveal

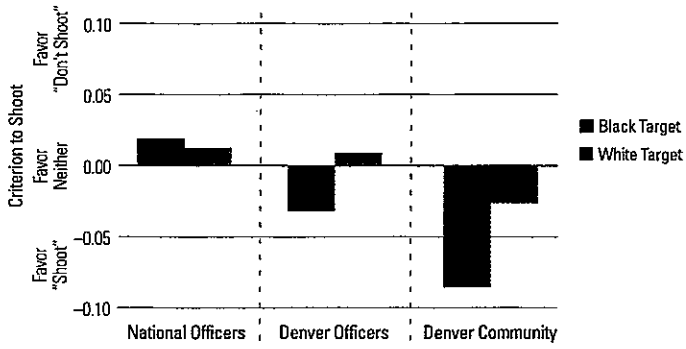

Figure 2. The criterion to shoot white and black targets is depicted. Community members showed significant bias: a lower, more lenient criterion for black targets than for white targets. Police did not show significant bias: they used statistically equivalent criteria for both whites and blacks.

whether the police officers in the first study demonstrated an apparent lack of bias only because the video game was simply too easy for them.

By making the task sufficiently challenging, researchers hypothesized that police might show racial bias, just like the community. A group of 31 officers and a group of 45 community members were recruited to perform the computer task. Bias was assessed by examining the criterion for the decision to shoot. Interestingly, the second study yielded results similar to the first: although community members showed clear evidence of bias, setting a much lower criterion for black targets than for white targets, police showed no evidence of bias in their criteria to shoot.

Additional analyses, based on Denver studies 1 and 2, revealed that police outperformed community members in a variety of ways. First, police were faster to make correct decisions (shooting armed targets or choosing not to shoot unarmed targets). Second, they were more likely to make correct decisions. Third, police were generally more conservative in their decisions to shoot. Whereas community members were rather trigger-happy, police were relatively cautious.

> The study demonstrated that the officers' decisions about whether or not to shoot were unaffected by the target's race.

Results of the Studies

In summary, both the Chicago study and the Denver studies demonstrated that community members showed consistent evidence of bias. Although Denver police officers, like the community members, showed evidence of bias in terms of their reaction times, the similarities between their performance and that of community members ended there. Unlike the community (and unlike thousands of undergraduate students who have participated in this research since 2000), Denver officers showed no bias in their ultimate decisions. In other words, the presence of a counterstereotypic target (such as a black man with a cell phone) may have delayed a Denver officer's response, but it did not cause the officer to make a mistake. Ultimately, officers' decisions about whether or not to shoot were unaffected by the target's race.

The results of any single study must be treated with caution and a degree of skepticism. Although these studies suggest that police officers are not affected by a target's race, the limitations of this work must be acknowledged. By performing a laboratory study of the decision to shoot, researchers fundamentally change the nature of a shoot/don't shoot situation. Unlike officers on the street, the participants in these studies know that they are safe—that their lives are not in actual jeopardy—and they know that "shooting" a target causes no real harm; it is just a sort of game. These data must therefore be viewed as part of a body of evidence, including laboratory experiments, case studies, and sociological investigations of police behavior in the real world. Each of these approaches provides valuable information, one piece of the puzzle, and in combination they may ultimately provide a more comprehensive and effective understanding of how race affects police use of force.

Despite these limitations and a recognized need for further study, the data from these studies offer some grounds for optimism. First, police officers dramatically outperformed community residents on a variety of performance measures (such as speed and accuracy). Second, officers showed no evidence of racial bias in the decision to shoot, even when the task was made more difficult. This suggests, at a minimum, that the officers were ultimately able to overcome the influence of race in this simulation, something that community residents simply could not do.

It must be acknowledged that the officers in these studies did show pronounced racial bias in their reaction times. Even with extensive training and experience, police still seem to call stereotypes to mind when they see a black target on the computer screen; however, the officers were ultimately able to override those associations and respond in an unbiased fashion. This persistence of stereotypes serves as a reminder to the law enforcement community, and to U.S. residents more generally, of the potential influence, even in subtle ways, race can have. Nonetheless, these findings clearly offer optimism about the state of modern police training. ❖

Notes:

[1]Joshua Correll et al., "The Police Officer's Dilemma: Using Ethnicity to Disambiguate Potentially Threatening Individuals," *Journal of Personality and Social Psychology* 83 (2002): 1314–1329.

[2]See, for example, James J. Fyfe, "Who Shoots? A Look at Officer Race and Police Shooting," *Journal of Police Science and Administration* 9 (1981): 367–382; and William A. Geller, "Deadly Force: What We Know," *Journal of Police Science and Administration* 10 (1982): 151–177.

[3]The Stereotyping and Prejudice Research Laboratory in the Psychology Department at the University of Chicago is devoted to understanding the effect of group membership on perceptions of others and of self. The laboratory studies a variety of topics, such as the tendency for racial outgroups to trigger a sense of danger as well as the ability of an ingroup to foster a sense of common purpose and belonging. The laboratory's work is guided by a desire to understand these phenomena and the psychological processes that promote them. The ultimate goal is to bring this knowledge to bear on real-world issues (such as a police officer's decision to shoot or reactions to group conflict). For more information, readers can visit the laboratory's Web site at http://home.uchicago.edu/~jcorrell/index.html or contact Dr. Correll via e-mail at jcorrell@uchicago.edu.

[4]Michael D. Reisig et al., "Suspect Disrespect toward the Police," *Justice Quarterly* 21, no. 2 (2004): 241–268; and William Terrill and Michael D. Reisig, "Neighborhood Context and Police Use of Force," *Journal of Research in Crime & Delinquency* 40 (2003): 291–321.

[5]Warren Christopher, *Report of the Independent Commission on the Los Angeles Police Department* (Darby, Pennsylvania: DIANE Publishing, 1998); John E. Teahan, "A Longitudinal Study of Attitude Shifts among Black and White Police Officers," *Journal of Social Issues* 31 (1975): 47–56; and John E. Teahan, "Role Playing and Group Experience to Facilitate Attitude and Value Changes among Black and White Police Officers," *Journal of Social Issues* 31 (1975): 35–45.

[6]Signal detection theory states that nearly all reasoning and decision making takes place in the presence of some uncertainty. Signal detection theory provides a precise language and graphic notation for analyzing decision making in the presence of uncertainty. The general approach of this theory has direct application for researchers in terms of sensory experiments such as the Denver studies.