

THE EFFECTS OF RACIAL AND GENDER BIASES ON  
THE DECISION TO SHOOT

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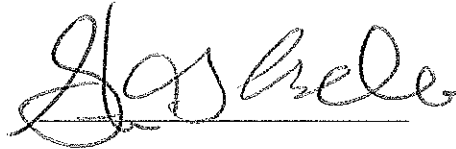


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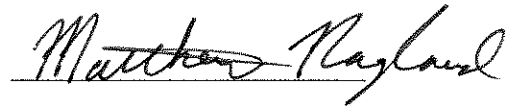
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THE EFFECTS OF RACIAL AND GENDER BIASES ON  
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A Thesis

Submitted to

The Graduate Faculty of  
Auburn University Montgomery

In Partial Fulfillment of the

Requirements for the

Degree of

Master of Science

Montgomery, Alabama

August 1, 2015

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by

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A thesis submitted to the Graduate Faculty of  
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[Racial biases, gender biases, decisions to shoot, weapons bias]

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## Abstract

The purpose of this study was to examine racial and gender biases in the decision to either shoot or not shoot armed or unarmed targets. The participants included psychology undergraduate students from Auburn University at Montgomery and Alabama law enforcement officers. The participants completed a visual simulation that included photos of Black and White males and females paired with a gun or cell phone. The participants had to make a split-second decision to either shoot or not shoot the armed or unarmed males or females via a computer task. The participants' reaction times and accuracy in the decisions to shoot or not shoot targets was measured. It was predicted that participants' would shoot armed males faster than armed females and it was predicted that participants' decision to shoot would be more accurate for armed males faster than armed females. It was also predicted that participants' decision to shoot armed Black males would be faster compared to armed White males. It was predicted that law enforcement officers would shoot armed targets more accurate than the undergraduates; however, the results revealed that law enforcement officers and undergraduates were equally accurate in their decision to shoot or not shoot. Surprisingly, results revealed that participant's decisions were not affected by gender or race in this experiment. The data revealed that the rates of time to shoot armed targets were consistent across genders and that participants' decision to shoot were equally accurate across genders. The results also indicated that the rates of time were consistent across races and that participants were equally accurate in their decision to shoot or not shoot Black and White targets.

*Keywords:* racial biases, gender biases, decisions to shoot, weapon bias

## Acknowledgments

I would like to thank Dr. Clarissa Arms-Chavez for her patience and words of encouragement during my graduate studies at Auburn University Montgomery. Times that I felt like I would not make it through, she has provided the words that were needed in order for me to keep pushing through the program. I am very appreciative of her guidance that she has provided not only for this thesis but through the whole graduate experience. She has taught me skills that I will use the rest of my career. I am truly thankful for everything you have done for me.

I would also like to thank the Department of Psychology at Auburn University Montgomery; especially those members of my thesis committee for their constructive input, valuable discussions, and patience.

To my friends, I will always treasure the memories of our time together in and out of the classroom. From last minute study sessions to Mexican food after our finals, thank you for your continued support and encouragement.

Finally, and most importantly, I would like to thank my family. Thank you to my parents, Patti and Mike Lindsey for your love, encouragement, understanding, advice, and editing my papers. I am very appreciative of your support and bringing me coffee after a long night of studying. I truly could not have done this without you and I will always be grateful. Furthermore, I would like to thank my husband, Codey Mishoe, for your love, patients, and support. Thank you for just listening when I need to get something of my chest and working hard to make sure we had food on the table and a roof over our head. I will always be grateful for you standing beside me along this journey. To all my other family members, thank you for your encouraging words and praying for me through this time.

# Table of Contents

<b>Abstract</b> .....	2
<b>Acknowledgments</b> .....	3
<b>Chapter 1, Review of Lecture</b> .....	5
1. Introduction .....	5
2. Racial Biases .....	7
3. Gender Biases.....	7
4. Proposed Hypotheses .....	10
<b>Chapter 2, Methods</b> .....	11
1. Design.....	11
2. Participants .....	11
3. Visual Simulation.....	12
4. Procedures .....	12
<b>Chapter 3, Results</b> .....	13
1. Reaction Time Analyses.....	13
2. Accuracy Analyses .....	14
<b>Chapter 4, Discussion</b> .....	15
1. General Discussion.....	14
2. Limitations and Future Directions.....	18
3. Conclusion.....	18
<b>References</b> .....	20
<b>Appendix A- Demographic Form</b> .....	25

## **Review of Literature**

### **Introduction**

Three recent deaths have sparked worldwide protests and social media movements to begin around the world. The first death, which planted the seed for such movements and protests, occurred when George Zimmerman, a neighborhood watchman, shot and killed Trayvon Martin, an unarmed young Black male. The incident occurred while Martin was walking through Zimmerman's neighborhood that had a recent outbreak of reported robberies (Muskak, 2013). A few years later, Eric Garner, an unarmed Black male, perished after being put into a chokehold by a New York Police Officer. Garner's death then sparked widespread protests and caused the #Blacklivesmatter social media movement to grow. While protests continued over the Garner incident, the focus suddenly shifted to Ferguson, Missouri only three weeks later when Michael Brown, another unarmed young Black male, was shot and killed by Darren Wilson, a white police officer (Robinson, 2015). The killing of Michael Brown has caused uproar all around the world and thousands of people have participated in protests and marches to stand against the mistreatment of unarmed Black males.

In the past decade, social psychologists have also conducted research on police decisions to shoot and the influence that racial biases may have on their decision (Correll, Judd, Salder, & Wittenbrink, 2007). The current social movement has only drawn more attention to the idea of a weapon bias where people will falsely claim that they saw a weapon, normally a gun, when they actually saw a harmless object in a Black individual's hand (Bishara & Payne, 2009; Payne, 2006). In the hands of police, White individuals are approximately four times less likely than Black individuals to endure the use of force by police (Goff & Kahn, 2012). Most of the past research has focused on racial biases



affecting the decision to shoot, but there is little research that has involved the possible effects gender biases can have when making the decision to shoot.

According to the Bureau of Justice Statistics (2013), the population of jails midyear of 2012 consisted of 87% males. Males participate more in crime, are seen as being more violent, and are more often involved in the criminal justice system compared to females (Cohen & Harvey, 2006). Examining racial and gender biases in shooting decisions is important because past research has revealed these biases can influence other types of decisions. A recent study found that males and females are equally likely to receive a citation when they are stopped; however, males are twice as likely as females to be arrested and searched by police (Lyons, Scheb, & Wagers, 2009). This leads to the specific question: Do racial and gender biases affect the reaction times of undergraduate students and law enforcement officers deciding to “shoot or not shoot” armed or unarmed targets? To the best of my knowledge, there have been several studies investigating the effect of racial biases have on the decision to shoot (Bishara & Payne, 2009; Correll et al., 2007; Correll, Park, Judd, & Salder, 2012; Lewinski & Vicker, 2012; Plant & Perche, 2005; Payne, 2001; Payne, 2006). There are only two studies that have examined the effect gender bias has on the decision to shoot (Plant, Golpen, & Kunstman, 2011). The research that examined the effects racial biases have on the decision to shoot has involved comparing police officers’ decisions to people in the community. Moreover, the particular study that investigated gender biases on the decision to shoot did not include police officers as participants. Thus, the present study will investigate both the effects of racial and gender biases have on law enforcement officers’ and undergraduates’ decisions to shoot targets.

## **Racial Biases**

Studies of the effect of racial biases have on people's decisions to shoot are similar, but each has manipulated and changed aspects of the other studies (Correll et al., 2007; Correll, Park, Judd, & Salder, 2012; Lewinski & Vicker, 2012; Plant & Perche, 2005; Payne, 2001). These studies varied in participant pools/types and the races of the targets. For example, Correll et al., (2007) and Correll, Park, Judd, & Salder, (2012) conducted studies in which participants were presented with a video simulation. The simulation contained many photos of males (targets) of different races, but mostly White individuals and Black individuals. In these photos, the males were holding either a gun or another object which was the same color as the gun. The participants were instructed to accurately and quickly respond by either pressing a button that is labeled "shoot" or "not shoot" within 850ms. Findings indicated that participants were faster and more accurate in their response when faced with armed Black males than when shooting armed White males. Moreover, participants were faster and more accurate when responding "not shoot" to an unarmed White male compared to an unarmed Black male (Correll et al., 2007). A recent study suggested that the reason for the robust results is that people see young Black males as a greater threat, influencing people to shoot armed Black males faster and more accurately than armed White males (Correll, Urland, & Ito, 2006). Much of the evidence supports the notion that negative racial biases occur mostly towards Black males when it comes to a person's split-second decision to shoot or not shoot targets. To further investigate the split-second decision to shoot, gender biases needs to be examined.

## **Gender biases**

Gender biases have been studied for many years and across many circumstances. Gender bias is “treating someone less favorably because of a person's sex” (U.S Equal Employment Opportunity Commissions, n.d). While police officers stopped, searched, and arrested young Black motorists the most compared to any other type of motorist, the study found that police officers also searched and arrested a higher level of male motorists when compared to female motorists (Lyons, Scheb, &Wagners, 2009). These results show that police officers have racial and gender biases when it comes to decision making. When it comes to the court system, females have significant advantages over males in sentence decisions (e.g. females receive less restrictive and sentence length; Ryon, 2013). The rationale for these types of sentence decisions is due to women being seen as weak, less threatening than males, and less likely to blame for such actions (Ryon, 2013; Cortney & Fearn, 2008). Also studies have suggested that males identify with physical aggression more than females (Archer, 2004; Parrott, Sloan & Zeichner, 2012). Females hold the characteristics of being prosocial, compassionate, and empathetic; whereas males are more likely to support violence (Hughes &Tuch, 2003). Such findings suggest that females are seen as less threatening from the perspective of our court system, community, and police officers.

Prior studies used only pictures of males in the video simulations rather than both males and females (Correll et al., 2007). To our knowledge, one particular study has used the aspects of gender and racial biases in the decision to shoot or not shoot (Plant, Golpen, &Kunstman, 2011). First, a computer simulation presented photos of White males' and females' faces paired with a weapon or neutral object (e.g., wallet or cell

phone). Participants were then instructed to act like a police officer and determine if they would shoot/don't shoot the armed or unarmed targets. Using a keyboard, the participants were asked to press a buttons to "shoot" or "not shoot." Results revealed that participants were more likely to mistakenly not shoot the armed female targets than to mistakenly shoot unarmed female targets. As for the male targets, participants were equally likely to mistakenly not shoot armed White males and mistakenly shoot unarmed White males. The findings also indicated that participants were less likely to mistakenly shoot unarmed White females than the unarmed White males.

Finally, a second study which Plant and colleagues conducted included Black and White males and females as targets. The participants were presented with the same simulation that was mentioned in the previous study, except with facial images of college-age Black and White males and females. Results revealed that the participants were more likely to mistakenly shoot unarmed Black males compared to White males. Further, the study concluded that participants were more likely to mistakenly shoot unarmed Black males compared to unarmed Black females or the unarmed White females. Both studies revealed that participants were faster at responding to the female targets compared to the male targets. Participants also responded more quickly to Black targets compared to White targets. Participants also responded faster to the trial that had a gun then to the one with the natural object. This evidence supports the notion that people view females less threatening. With this knowledge, the targets that will be used in the present study will be both White and Black males and females. The participants, however, will also include undergraduates and law enforcement officers.

The reaction times and accuracy of individual's split-second decision to shoot or not shoot targets has shown to be different when comparing police officers to people in the community. A recent study discovered that police officers made the decision to shoot or not shoot the targets faster compared to people in the community. Decision-making by police officers was faster due to training in detecting weapons. The study also revealed that police officers were more correct at choosing to shoot or not shoot the targets when compared to the people in the community (Correll et al., 2007). Police officers having more correct responses is generally due to the notion that people in the community are known to be more "trigger happy;" meaning that people in the community are not used to making the decision to shoot, leading them to shoot more often than police officers (Correll et al., 2007; Correll, et al., 2012; Lewinski & Vicker, 2012; Plant & Perche, 2005; Payne, 2001; Payne 2006).

### **Hypotheses**

Knowing the racial biases, gender biases, and the differences between police officers and people in the community, it is predicted that participants' will shoot armed males faster than armed females. It is also predicted that participants' decision to shoot unarmed White males will be faster compared to unarmed White females. A further prediction is that participants' decision to not shoot unarmed Black females will be less accurate compared to unarmed White females. It is also predicted that participants' decision to shoot armed Black males will be faster compared to armed White males. Also, it is predicted that participants' decision to shoot armed Black males will be more accurate than armed Black females. Moreover, it is predicted that law enforcements officers will shoot armed targets more accurate than undergraduates will shoot armed

targets. The last prediction is that law enforcement officers will be faster in their decisions to shoot or not shoot armed or unarmed targets compared to undergraduates. The method will be similar to Plant, et al.,(2011).

## **Method**

### **Design**

The experimental design was a 2 (Employment Type: undergraduate student vs. law enforcement officer) X 2 (Target Race: Black vs. White) X 2 (Target Sex: Male vs. Female) X 2 (Weapon Type: gun vs. cell phone) mixed measures between subjects design. The study used a visual simulation, which measured the reaction times and the accuracy of participants' decisions to shoot or not shoot the photos of Black and White males or females.

### **Participants**

Participants were 37 Auburn University at Montgomery undergraduate students and 53 law enforcement officers. The undergraduate students consisted of 86.5% females. Additionally, there were 54.05% Black undergraduate students and 40.53% White undergraduate students. The age mean for undergraduate students was 20 years old. Only 10% of undergraduate students self-reported having firearms training. The undergraduate students were recruited by receiving mandatory research credit for participating in the study.

Alabama law enforcement officers were recruited through emails from the administration of departments, as well as word of mouth, and the officers that volunteer for the study stayed confidential from all heads of the police departments. The majority of the law enforcement officers were male (95%). Furthermore, 71.7% of law

enforcement officers were White and the mean age of Law Enforcement Officers was 35 years of age. All law enforcement officers self-reported having fire arms training and attending an average of two firearm training classes a year.

### **Visual Simulation**

The visual simulation was organized and completed through the use of Superlab 4.5 software (2007). The visual simulation included 80 photos of 10 Black males, 10 White males, 10 Black females, and 10 White females. For each individual, however, only 40 photos were randomly presented: 5 photos for each group (e.g. black males paired with a gun). The photos consisted of Black and White males' and females' faces paired with a gun or cell phone. The picture of the gun or cell phone was superimposed on the photo of each face to allow the face to be clearly visible. Before each photo appears on the screen, the participants saw a white screen with a plus sign for 250 ms. This white screen was used to direct the participants' view of focus. After the 250 ms, the photos appeared on the screen for 850 ms, one at a time. The participants were instructed to respond as accurately and quickly as possible in that 850 ms by either pressing button 4 to "shoot" or button 5 to "not shoot" on the Cedrus RB-830 response pad. To encourage incentive for the participant the instructions included a fake point system. The participants were told they would earn 5 points for correctly not shooting an unarmed target or 10 points for correctly shooting an armed target. Furthermore, the participants were told for an incorrect response, they would lose 20 points for shooting unarmed target or 40 points for not shooting an armed target. Participants were lead to believe that if they did not respond in 850 ms than it would cost them 10 points (Correll

et al, 2007). Before the participants began the visual simulation, they received five practice trials to familiarize with the “shoot” or “not shoot” buttons.

## **Procedure**

When participants arrived, they were guided to a cubical with a computer. When seated at the cubical, participants were asked to read and sign a consent form. Next, they were told to read the computer screen for further instructions online. The participants were given the instructions to accurately and quickly respond to the targets on the screen by determining if they wanted to “shoot” the target or “not shoot” the target. The five practice trials were given, and then the participants completed the actual test. Once participants completed the visual simulation, they were instructed to fill out a demographic form and they read the debriefing form online where they were thanked and debriefed. The demographic form can be found in the Appendix.

## **Results**

### **Reaction Time Analyses**

Consistent with previous research (Zárate, Sanders, & Garza, 2000; Zárate, Stoeber, MacLin, & Arms-Chavez, 2008), only correct response times (RTs) between 200 ms and 800 ms were analyzed. RTs below 200 ms are considered too fast for participants to have correctly completed the task. When the aggregate means were evaluated for normality, the response latencies were normally distributed. Thus, no transformations were needed or performed.

This data was first analyzed within a 2 (Employment Type: student vs. law enforcement officer) X 2 (Target Race: Black vs. White) X 2 (Target Sex: Male vs.



Female) X 2 (Weapon Type: gun vs. cell phone) mixed design ANOVA with reaction time as dependent variable.

While it was predicted that participants would shoot armed males faster than armed females, the data failed to reveal a significant Target Sex main effect,  $F(1, 88) = .09, ns$ . Furthermore, the data also failed to produce the predicted Target Race main effect,  $F(1, 88) = .019, ns$ . There was no significant Target Race Weapon Type interaction,  $F(1, 88) = 2.7, ns$ . However, it was found that all participants responded significantly faster to individuals shown with a gun ( $M = 562, SD = 46$ ), than to individuals shown with a cell phone ( $M = 578, SD = 48$ ),  $F(1, 88) = 42.7, p < .0001$ . Results revealed that law enforcement officers were significantly faster at identifying the gun ( $M = 559, SD = 48$ ) than undergraduate students ( $M = 567, SD = 48$ ),  $F(1, 88) = 4.6, p = .036$ . Therefore, as predicted, results revealed that law enforcement officers were significantly faster at identifying the gun when compared to undergraduate students

### **Accuracy Analyses**

Accuracy refers to participants correctly pressing the “shoot” button when a target was armed and pressing the “don’t shoot” button when a target was not armed. As such, Chi Square analyses were conducted with the categorical variable of correct (i.e., 1) vs. incorrect (i.e., 0) as the dependent variable. While it was predicted that participants would be more accurate when shooting unarmed White females when compared to unarmed Black females, the data failed to find any significant difference,  $X^2(1) = .0039, ns$ . Therefore, participants were equally accurate when presented with unarmed Black females and unarmed White females. Furthermore, it was predicted that participants would be more accurate to shoot armed males than armed females; however, the analyses

failed to find any significant difference,  $X^2(1) = .6214$ , *ns*. Participants' were equally accurate in their decisions to shoot or not shoot males and females. While it was predicted law enforcement officers would shoot armed targets more accurately than undergraduates, the results fail to produce the effect  $X^2(1) = .5219$ , *ns*. Therefore, law enforcement officers and undergraduates were equally accurate when shooting armed targets. Analyses did reveal that there was a marginal effect between the participants' decisions to shoot armed Black males than armed White males  $X^2(1) = .0618$ , *ns*. Meaning that participants were slightly more accurate when shooting armed Black males compared to White males; however, the effect was not significant.

### **Discussion**

The purpose of the current study was to determine if racial and gender biases affect people's decisions to shoot or not shoot armed or unarmed targets. Past research has indicated that participants were faster at responding to female targets compared to the male targets and that participants responded more quickly and accurately to Black targets compared to White targets (Correll et al., 2007, Plant, Golpen, & Kunstman, 2011). Based on prior research, the current study proposed seven hypotheses.

Two of the hypotheses involved predictions about the effects of target gender on participants' decisions to shoot or not shoot targets. First, it was predicted that participants would shoot armed males faster than armed females. It was also predicted that participants' decisions to shoot unarmed White males would be faster compared to unarmed White females. However, the results failed to support those hypotheses as the data revealed that the rates of time to shoot armed targets were consistent across genders. Furthermore, it was predicted that participants' decisions to shoot armed Black males

would be more accurate than armed Black females. However, the results also failed to support that hypothesis as the data showed that participants' decision to shoot were equally accurate across gender. Therefore, participant's decisions were not affected by gender in this experiment.

The next group of hypotheses centered on the effects of target race on participants' decisions to shoot or not shoot targets. First, it was predicted that participants' decisions to not shoot unarmed Black females would be less accurate compared to unarmed White females. The data again failed to support this hypothesis. Surprisingly, the results instead indicated that participants were equally accurate when presented with unarmed Black females and unarmed White females. It was also predicted that participants' decisions to shoot armed Black males would be faster compared to armed White males; however, the results indicated that the rates of time were consistent when participants were presented with Black and White males. Therefore, the results revealed that race did not affect participants' decisions to shoot or not shoot targets.

Finally, it was predicted that law enforcement officers would shoot armed targets more accurately than undergraduates would shoot armed targets; however, the results revealed that law enforcement officers and undergraduates were equally accurate in their decision to shoot or not shoot. The last hypothesis predicted that law enforcement officers would be faster in their decisions to shoot or not shoot armed or unarmed targets compared to undergraduates. Along with previous research, our results indicated that law enforcement officers were indeed faster at shooting the gun compared to undergraduates.

Unlike past research, the results revealed that race and gender did not have a significant effect on participants' decisions to shoot or not shoot. This brings up the question of why the current study failed to replicate the weapon bias. It is important to note that the current study was conducted from September 2014 through January 2015. During this time, the media and social media were flooded with the social movement surrounding unarmed Black men and law enforcement. Phrases generated from the Michael Brown incident such as "hands up, don't shoot" and "an unarmed black person is killed every 28 hours" became the symbol of this movement and have also caused awareness of racial biases all around the world (Ye Hee Lee, 2015). Furthermore, the coverage that this social movement has received in the media and social media has contributed to the large amount of awareness that surrounds this social issue. Protestors have used social media, such as Facebook and Twitter, to encourage people to join this fight for the mistreatment of Black men. For instance, the Facebook page Black Lives Matter has 48 thousand members and there were more than 3.6 billion tweets about the events that occurred in Ferguson surrounding Michael Brown's death on August 14, 2014 (Hitlin & Vogt, 2014). Through August 9, 2014 to August 25, 2014 there were 13.5 million hash tag #Ferguson tweets on Twitter (Grinber, 2014). Additionally, celebrities have made comments, songs, and engaged in discussions on media that surround this social movement. For example, during the 2015 Grammy show celebrities such as Pharrell Williams, Beyonce, Prince, and John Legend all addressed this social movement by either discussing black lives matter or putting their hands up symbolizing the phrases "hands up, don't shoot" during their performance (Seemayer, 2015). Furthermore, this social movement has been covered by news channels all around the world, which

contributes to the increase in social awareness regarding racial biases. Networks like CNN and Fox News has spent numerous hours broadcasting about events that surround this social movement (Firszt, 2014). Perhaps this tremendous amount of coverage by the media surrounding this social movement has caused people to become more careful or mindful while taking the experiment due to the timing.

### **Limitations and Future Directions**

This study only used Auburn University at Montgomery psychology undergraduates and Alabama law enforcement officers, which limited the ability to generalize to society at large. Future research should use a broader range of participants such as people from different communities and police officers from different states. With the lack of ability for generalization because the experiment was conducted in a lab setting, this led us to sacrifice external validity for experimental control. Future studies could investigate these phenomena in more realistic settings. One way this could be done is by making the participants actually shoot a fake gun to measure people's accuracy in the shot. In this experiment, participants pressed buttons on the computer to shoot or not shoot, which did not take into account the accuracy of a participant actually hitting the target. Police officers, when anxious, shoot faster, are distracted more easily, and their visual orientation is altered (Nieuwenhuys, A., Savelsbergh, G., & Oudejans, R., 2012). Including and analyzing the accuracy of hitting the target will add more external validity to the experiment and it adds another variable that participants have to worry about, which could alter the results of the experiment.

## **Conclusion**

The purpose of the current study was to examine weapon biases. Previous research has shown that gender and racial biases can affect people's decision to shoot or not shoot armed or unarmed targets; however, the current study did not find this affect. The time the study was conducted, the social movement flooded media and social media. This continued social movement has focused on finding justice for unarmed Black men when dealing with Law Enforcement. Additionally, this social movement also involved fighting to end racial profiling and police brutality, de-militarization of local Law Enforcement Officers, and for the development of legal reforms that make it easier to hold police accountable (Roth, 2014). This constant reminder and social awareness could have affected the responses of the participants. Research has shown that awareness of racial biases can affect people's behaviors and decisions (Ghoshal, Lippard, Ribas, & Muir, 2012). This social awareness of racial biases could explain why the current study results did not replicate the weapon bias.

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Appendix A  
Demographic Form

AGE: \_\_\_\_\_

SEX (Circle one): M or F

ETHNICITY (Check next to one):

- \_\_\_\_\_ White
- \_\_\_\_\_ Hispanic or Latino
- \_\_\_\_\_ Black or African American
- \_\_\_\_\_ Native American or American Indian
- \_\_\_\_\_ Asian / Pacific Islander
- \_\_\_\_\_ Other

Have you anytime been employed as a Law Enforcement Officer?

- A. Yes
- B. No

If yes, how long have you been employed as a Law Enforcement Officer?

\_\_\_\_\_

Do you have any firearms training?

- A. Yes
- B. No

If yes, how many firearms training sessions do you have per year?

\_\_\_\_\_