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An Investigation of the Relationship between the Weapon Focus Effect and In-Group Bias

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Abstract

Previous research has shown the potential of weapons to visually distract eyewitnesses from effectively encoding and remembering information about a perpetrator's physical appearance, a phenomenon referred to as the weapon focus effect. Also, prior research has shown enhanced memory for the physical appearance of in-group members relative to out-group members. The current experiment investigated the combined impact of weapon focus effect and in-group bias on memory for a perpetrator. To this end, participants viewed one of four identical videos in which the individual featured in the videos differed only in the clothes he wore (to manipulate in-group membership) and the object he held (weapon versus no weapon). Based on the previous research, I expected an in-group bias as well as a weapon focus effect to occur. In addition, I hypothesized that the weapon focus effect would lead to greater memory deficits than in-group bias; although, I hypothesized that the weapon focus effect would be weakened by the in-group bias.

An Investigation of the Relationship between the Weapon Focus Effect and In-Group Bias

For many years, psychologists from numerous subfields have individually studied in-group bias (e.g. Anthony, Copper, and Mullen, 1992; Meissner, Brigham, and Butz, 2005; Humphreys, Hodsoll, and Campbell, 2005; and Bernstein, Young, and Hugenberg, 2007) and the weapon focus effect (e.g. Pickel, 1999; Pickel, 1998; Loftus, Loftus, and Messo, 1987; and Pickel, Ross, and Truelove, 2006). Previous research has shown the potential of weapons to visually distract eyewitnesses from effectively encoding and remembering information about a perpetrator's physical appearance, a phenomenon referred to as the weapon focus effect (e.g. Loftus, Loftus, & Messo, 1987). Also, prior research has shown that persons tend to notice and remember information about the physical appearance of in-group members to a greater extent than members of their out-group (e.g. Bernstein, Young, & Hugenberg, 2007). However, previous research has never investigated the relationship between the weapon focus effect and in-group bias, information which has potential to be valuable for eyewitness identification procedures as well as legal studies.

The weapon focus effect occurs when the presence of a weapon in the hands of a perpetrator adversely affects eyewitness' ability to remember important details about the crime, such as the perpetrator's face or clothing. The first direct empirical support for the weapon focus effect was provided by two experiments conducted by Loftus, Loftus, and Messo (1987). In both experiments, the researchers presented participants with a series of slides depicting an event in a fast-food restaurant. Half of the participants, the weapon-present group, viewed slides in which the customer pointed a gun at the cashier while the other half of the participants, the weapon-absent group, viewed slides in which the customer handed a check to the cashier. In the first experiment, Loftus, Loftus, and Messo recorded the eye movements of the participants while

they viewed the slides. The researchers found that participants made more eye fixations on the weapon than on the check, and fixations on the weapon were longer in duration than fixations on the check. Hence, participants in the weapon-present condition were visually distracted by the weapon more than the participants in the weapon-absent condition were visually distracted by the check. In the second experiment, the researchers repeated the first experiment and then assessed the participants' memory for the physical appearance of the perpetrator. They found that participants in the weapon-present condition had poorer memory than participants in the weapon-absent condition.

Additional research on the weapon focus effect includes an experiment conducted by Pickel, Ross, and Truelove (2006) which examined whether weapons automatically capture attention or whether eyewitnesses can overcome the weapon focus effect if so instructed. The experimenters had participants listen to one of two lectures; the first lecture involved instructions to attend to the target individual (the perpetrator) and avoid fixating on the weapon while the second lecture involved instructions not relating to the weapon. Afterwards, both groups observed a staged event in which the perpetrator carried either a weapon or a book, and then the participants attempted to remember the perpetrator's physical appearance. The eyewitnesses who viewed the target individual holding a book had significantly better memory for the man's appearance than eyewitnesses who viewed the target individual holding a weapon. However, the participants who were lectured on the weapon focus effect did no better on memory tests than the participants who were not lectured on the weapon focus effect; thus, the experimenters concluded that eyewitnesses cannot overcome the weapon focus effect even when instructed to do so (Pickel, Ross, and Truelove, 2006).

In order to determine a possible cause of the weapon focus effect, Pickel (1998) has conducted further research. Initially, she hypothesized that the unexpectedness of a weapon causes the weapon focus effect. In her experiment, participants viewed videotapes depicting interactions in business establishments. The perpetrator was either empty-handed or held different objects that varied in unusualness. Afterwards, eyewitnesses attempted to describe the perpetrator's physical features and clothing. If the perpetrator held an object, the participants identified the object the perpetrator had held and attempted to identify the perpetrator in a photo lineup. If the perpetrator was not holding an object, the participants indicated this was so. Although, the percentage of participants who correctly identified the target in the photo line-up did not vary by condition, the participants' memory for typical objects (e.g. scissors or wallet in the context of a hair salon) was significantly worse than their memory for unusual objects (whole chicken or handgun in the context of a hair salon). Thus, Pickel concluded that the unusualness/ unexpectedness of a weapon may cause the weapon focus effect (Pickel, 1998).

Another series of experiments conducted by Pickel (1999) investigated how context influences the weapon focus effect. In the first experiment, participants viewed videotapes depicting a male perpetrator armed with a gun. Half the participants viewed a videotape in a context where a gun would be unexpected, a baseball field, and the other half of the participants viewed a setting in which a gun is commonly seen, a shooting range. Then, participants were asked to provide descriptions of the perpetrator, complete a memory questionnaire, and attempt to identify the perpetrator in a photo lineup. The researchers found that participants who watched a videotape featuring an armed man provided less accurate descriptions of him if the action occurred in the setting in which a gun is unexpected (baseball field) than commonly seen

(shooting range). As a result, Pickel (1999) concluded that context influences the weapon focus effect.

In a subsequent experiment, Pickel (1999) investigated whether the occupation of the perpetrator had an effect on participants' memory for the physical appearance of the perpetrator. The videotapes viewed by the participants depicted a male perpetrator dressed either as a police officer or as a Catholic priest, and he carried either a handgun or a cellular phone. Pickel hypothesized that a weapon focus effect would occur if the gun was inconsistent with the target's occupation. For example, participants should remember less about the priest if he held a gun rather than a phone because they should consider it unusual for a priest to carry a gun (Pickel, 1999). The participants' descriptions were less accurate if they had viewed a perpetrator carrying an object that was inconsistent with his occupation and better if the object and occupation were not inconsistent. Given the results of her work, Pickel concluded that the weapon focus effect may occur because weapons are surprising and unexpected within many contexts in which they appear (Pickel, 1999). In other words, the weapon focus effect may be a result of the unusualness/ unexpectedness of a weapon.

In addition to research pertaining to the weapon focus effect, prior research has shown that persons tend to remember information about the physical appearance of in-group members better than information about the physical appearance of out-group members. For example, an experiment done by Meissner, Brigham, and Butz (2005) investigated cross-racial facial identification by way of manipulating race as the indicator of group membership. Initially, the Caucasian and African American participants were presented with photographs of 20 Caucasian and 20 African American males standing in front of a grey background. Afterwards, participants did a filler task and then were presented with the same photographs as well as 20 more

photographs of Caucasian males and 20 more photographs of African American males. For each photograph, the participants were instructed to indicate whether they had previously viewed the face or if the face was "new" and to indicate their confidence in their decision. The researchers found that false recollections with high ratings of confidence occurred more often when participants encoded and responded to unfamiliar other-race faces thereby demonstrating the now in-group bias (Meissner, Brigham, and Butz, 2005).

Another experiment examining cross-racial facial identification was conducted by Humphreys, Hodsoll, and Campbell (2005). The researchers utilized a change blindness paradigm by way of presenting Caucasian and Indian Asian participants with scenes depicting White Caucasian and Indian Asian students. Afterwards, changes were made either to the faces of the students, the bodies of the students, or an independent object in the background. Then participants were once again presented with the scenes. Changes in Caucasian faces were detected faster than changes in Indian Asian faces by Caucasian participants whereas changes in Indian Asian faces were detected faster than changes in Caucasian faces by Indian Asian participants. There was no effect of race on the detection of body-part changes or on the detection of changes to background objects. The researchers concluded that the results suggested that both Caucasian and Indian Asian participants attended equally well to scenes depicting students from the other race, but despite this they remained less sensitive to other-race faces (Humphreys, Hodsoll, and Campbell, 2005). Thus, when it came to detecting changes in faces, participants displayed an in-group bias for persons of their own race.

Beyond studying race as a factor of group membership, researchers have discovered that group membership may be manipulated in other ways. A series of experiments conducted by Bernstein, Young, and Hugenberg (2007) determined that an in-group bias can be achieved by

manipulating university affiliation as a factor of group membership or by way of dividing participants into artificially created groups. The first experiment manipulated group membership via university affiliation; the researchers presented participants which were students from Miami University with faces labeled as fellow Miami University students or labeled as students from Marshall University. In the second experiment, participants were given a phony personality test in which they were determined to be either red personalities or green personalities. Afterwards, they were presented with faces on green backgrounds and faces on red backgrounds; hence, group membership was manipulated as a factor of an experimentally created artificial personality type. In both the first and second experiments, recognition performance was better for faces categorized as in-group members. In the first experiment, the Miami University participants recognized faces labeled as Miami University students better than faces labeled as Marshall University students. In the second experiment, participants deemed red personalities remembered faces on red backgrounds better than faces on green backgrounds while participants deemed green personalities remembered faces on green backgrounds better than faces on red backgrounds. The researchers concluded that these results suggested that social-cognitive mechanisms of in-group and out-group categorization are sufficient to elicit performance differences for in-group and out-group face recognition (Bernstein, Young, and Hugenberg, 2007).

The primary purpose of the present research was to determine the effects of in-group bias on the weapon focus effect. In the present study, I evaluated the memory of college students who viewed one of four virtually identical videotapes, differing in only the clothes worn by the featured perpetrator (to manipulate group membership) and the object held by the perpetrator. The four videos contained either 1) a perpetrator dressed as an in-group member, carrying a

weapon (in-group/ weapon condition), 2) a perpetrator dressed as an in-group member, carrying a non-weapon (in-group/non-weapon condition), 3) a perpetrator dressed as an out-group member, carrying a weapon (out-group/ weapon condition), or 4) a perpetrator dressed as an out-group member, carrying a non-weapon (out-group/ non-weapon condition). After viewing the assigned video, each participant completed two memory questionnaires. The first questionnaire concerned pre-weapon memory for the scenery featured in the video (Questionnaire One) while the second questionnaire inquired about post-weapon memory for the physical features of the male perpetrator featured in the videos (Questionnaire Two). Based on previous findings, I predicted that an in-group bias as well as a weapon focus effect would occur. In addition, I hypothesized that the weapon focus effect would be stronger than the in-group bias; however, I hypothesized that the weapon focus effect would be weakened by the in-group bias.

Methods

Participants

The participants were 79 General Psychology undergraduates from Gustavus Adolphus College who received academic credit towards their General Psychology courses for participating in the study. There were 47 females and 32 males; each was randomly assigned to groups: out-group/ weapon condition (n=23), out-group/ non-weapon condition (n=16), in-group/ weapon condition (n=19), and in-group/ non-weapon condition (n=21).

Materials

I used 4 virtually identical videotapes, differing in only the clothes worn by the featured perpetrator and the object held by the perpetrator. Each video was approximately three minutes and twenty four seconds. In all videos, the perpetrator was shown carrying a black bag and walking into a building, up two flights of stairs, and into a laboratory. Once the perpetrator

entered the laboratory, he placed his bag down and proceeded to remove his winter clothing, revealing either typical college student clothes or a postal worker uniform. Then he removed an object from his bag, either a knife or a book, and he walked up to the female bystander who was facing away from the perpetrator. Finally, the perpetrator walked out of the laboratory, down the stairs, and out of the building. The clothes worn by the perpetrator and object held by the perpetrator varied according to condition: the out-group/ non-weapon videotape featured a perpetrator dressed as a postal worker, carrying a knife; the out-group/ weapon videotape featured a perpetrator dressed as a postal worker, carrying a book; the in-group/ weapon videotape featured a perpetrator dressed as a college student, carrying a knife; and the in-group/ non-weapon videotape featured a perpetrator dressed as a college student, carrying a book.

I also used two different questionnaires containing questions with varying themes. Questionnaire One contained questions concerning the scenery featured in the videos and was used to assess participants' memory for details prior to the introduction of the weapon or non-weapon (knife or book) as well as group membership (college student or postal worker) (see Appendix A). Questionnaire Two contained questions concerning the physical appearance of the male perpetrator featured in the videos and was used to assess participants' memory for details after the introduction of the weapon or non-weapon and group membership (see Appendix B).

Procedures

Each participant arrived at the basement of the Gustavus Adolphus College Library Audio Visual Room One at their designated time, was greeted by a female experimenter, and was assigned a participant number. The experimenter proceeded to describe the required steps of the study which included directions on watching the video and completion of Questionnaires One and Two.

Participants were randomly assigned to one of the four conditions. They were told they would be viewing a video of a postal worker or a college student, depending on their assigned condition. The participants were also told they would be completing questionnaires concerning their memory for the videotapes. Then they viewed the video corresponding to their assigned condition. Immediately afterwards, participants completed a distracter task which involved solving a Sudoku puzzle for 7 minutes and 30 seconds. Then, each participant completed Questionnaire One and then Questionnaire Two at their own pace. Subsequently, participants were fully debriefed about what the study was actually examining and were given background information concerning the weapon focus effect, in-group bias, and a contact number in case they had any other questions or concerns.

Results

Questionnaire One queried participants about details of the video scene prior to the introduction of the weapon or group membership manipulation and was intended to assess the extent to which memory for the scene was similar across videos. Figure 1 shows the mean percent accuracy as a function of condition. A one-way between subjects analysis of variance (ANOVA) using an alpha level of .05 was employed to examine pre-weapon memory of the scene as a function of condition. As is apparent in Figure 1, there was no statistically significant effect of condition ($F(3, 75) = .941$, $p < .05$). Thus, memory for video details that occurred prior to weapon and group membership manipulation did not vary by condition.

Of primary interest was performance on Questionnaire Two concerning post-weapon memory. Figure 2 shows the mean percent accuracy as a function of condition. A one-way between subjects ANOVA using an alpha level of .05 was employed to examine post-weapon memory of the physical appearance of the perpetrator as a function of condition. As is apparent

in Figure 2, there were no statistically significant effects ($F(3, 75) = .585$, $p < .05$). Thus, although performance was relatively high concerning post-weapon memory, it did not vary significantly by condition.

Although there were no statistically significant effects of condition on post-weapon memory, I examined each of the questions individually to determine whether weapon focus and/or group membership influenced performance on any aspect of one's memory. Table 1 displays the average accuracy on each question in Questionnaire Two concerning post-weapon memory as a function of condition. The results reveal some intriguing differences as a function of the type of questions that were asked. Of special interest are questions 5, 8, 13, and 18 which are highlighted in Table 1. Further statistical analyses of these questions reveal significant effects. Firstly, using information from Questionnaire Two, a one-way between subjects ANOVA using an alpha level of .01 was employed to investigate the relationship between the accuracy on Question Five (bottoms worn by the perpetrator) and group membership. As is apparent in Figure 3, there was statistically significant effect ($F(1, 77) = 18.478$, $p < .01$) suggesting that participants that viewed a videotape featuring an in-group member (college student) had better memory of the bottoms worn by the perpetrator than participants that viewed a videotape featuring a perpetrator dressed as a out-group member (postal worker).

Using information from Questionnaire Two, a one-way between subjects ANOVA using an alpha level of .01 was employed to evaluate the impact of group membership on accuracy of Question Eight (color of footwear). An alpha level of .01 was utilized. As is apparent in Figure 3, there was statistically significant effect ($F(1, 76) = 20.589$, $p < .01$) suggesting that participants that viewed a videotape featuring an out-group member (postal worker) had better

memory for the color of footwear worn by the perpetrator than participants that viewed a videotape featuring a perpetrator dressed as an in-group member (college student).

Another a one-way between subjects ANOVA using data from Questionnaire Two was employed to investigate the impact of weapon presence on accuracy of Question Thirteen (color of top 2). An alpha level of .05 was used. As is apparent in Figure 3, there was statistically significant effect ($F(1, 77) = 4.269$, $p < .05$) suggesting that participants that viewed a videotape featuring a non-weapon (book) had better memory of the color of top 2 (the t-shirt revealed after the weapon or non-weapon was revealed) worn by the perpetrator than participants that viewed a videotape featuring a perpetrator carrying a weapon (knife).

Finally, using information from Questionnaire Two, a one-way between subjects ANOVA was employed to investigate the impact of group membership on accuracy of Question Eighteen (hair length). An alpha level of .01 was utilized. As is apparent in Figure 3, there was statistically significant effect ($F(1, 77) = 6.300$, $p < .01$) suggesting that participants that viewed a videotape featuring an in-group member (college student) had better memory of the perpetrator's hair length than participants that viewed a videotape featuring a perpetrator dressed as a out-group member (postal worker).

Discussion

My first hypothesis stated that an in-group bias as well as a weapon focus effect would occur. Although there was no overall in-group bias or overall weapon focus effect for post-weapon memory, an in-group bias was present in Questions Five and Eighteen from Questionnaire Two, and the weapon focus effect was found for Question Thirteen in Questionnaire Two. However, there was the complete opposite of an in-group bias in Question Eight from Questionnaire Two: the participants that viewed one of the videos featuring a

member of their out-group did significantly better on Questionnaire Two than participants that viewed one of the videos featuring a member of their in-group. As a result, the possibility for an overall weapon focus effect or an overall in-group bias was diminished.

Previous research assists in explaining the lack of an overall in-group bias. Most previous research investigating the cross-category effect, the tendency for an in-group bias to occur, manipulates "race" or "age" as the factor determining participants' group membership. [Anthony, Copper, and Mullen (1992); Meissner, Brigham, and Butz (2005); and Humphreys, Hodsoll, and Campbell (2005)]. In comparison, manipulating "occupation" as the factor determining participants' group membership has been done less frequently; hence, "occupation" may not be a profound enough indicator of group membership for the current study. In other words, "occupation" may not elicit strong enough feelings of identity and group membership to cause an in-group bias. Consequently, more profound indicators of group membership may overshadow "occupation."

In the current study, the perpetrator featured in all four videos was of the age of a college student. All the participants were also of the age of a college student. As a result, "age" may have overshadowed "occupation" in that the occupation of the perpetrator did not matter because participants automatically viewed the perpetrator as a member of their in-group since he was within their age range. In conclusion, my manipulation of group membership may not have resulted in an overall in-group bias for Questionnaire Two concerning post-weapon memory because "age" may have overshadowed "occupation."

Furthermore, the lack of an overall in-group bias may have been caused by a weak manipulation of occupation. In the video depicting an in-group member, the perpetrator was wearing jeans and a typical college student t-shirt; in the video depicting an out-group member,

the perpetrator was wearing postal worker pants and a postal worker t-shirt. Thus, only two articles of clothing were altered across conditions; as a result, the manipulation of occupation may not have been dramatic enough to cause the predicted in-group bias. However, before the participants viewed the video they were assigned, the participants were explicitly told they would be watching a video featuring a postal worker or a video featuring a college student. Hence, the manipulation of occupation should have been evident to all participants.

Although there was not an overall in-group bias, there was a main effect in Questions Five and Eighteen which concerned post-weapon memory (see Table 1). Question Five asked what kinds of bottoms the perpetrator was wearing while Question Eighteen asked about the perpetrator's hair length (see Appendix 2). These questions may have shown an in-group bias because they may have been more difficult questions compared to the questions which did not reveal any significant main effects. In other words, a ceiling effect may have been present in the questions in which no main effects were found because those questions may have been too easy for any effects of condition to be apparent. However, a few of the questions with no identifiable significant main effects did not have high accuracy scores. Thus, more research should be done in order to explain the presence of an in-group bias in Questions Five and Eighteen.

In addition to explaining the lack of an overall in-group bias, previous research assists in explaining the lack of an overall weapon focus effect. It has been suggested by various experiments and meta-analytic reviews that the weapon focus effect is caused by the elevation in levels of anxiety and arousal as well as the unexpectedness of the weapon (Steblay, 1992; Loftus, Loftus, & Messo, 1987; Shaw and Skolnick, 2001; Pickel, 1998; and Kramer, Buckhout, Eugenio, 1990). These previous experiments list various important elements when it comes to the weapon focus effect: type of weapon, use of the weapon, and the importance of resemblance

to real life. Previous experiments which resulted in a weapon focus effect tended to utilize weapons which would cause increased levels of arousal and anxiety; normally, a handgun was used (Steblay, 1992; Loftus, Loftus, and Messo, 1987; Shaw & Skolnick, 2001; Pickel, Ross, Truelove, 2006; and Pickel, 1998). In comparison, the weapon-present videos in the current study featured a kitchen knife which may not sufficiently increase levels of arousal and anxiety to create a weapon focus effect. Thus, the lack of an overall weapon focus effect in my study may be a result of the type of weapon utilized.

Moreover, in previous studies, the weapon was actually used as weapon; namely, it was used to threaten a victim, cause anxiety, and/or achieve a crime (Loftus, Loftus, and Messo, 1987; Shaw & Skolnick, 2001; Steblay, 1992; Pickel, 1998; and Pickel, Ross, Truelove, 2006). The weapon featured in the weapon-present videos of the current study was not used in such a manner. Rather, the weapon was merely carried at the side of the perpetrator. Additionally, in the current videos, the perpetrator walked up behind the bystander, stopped and looked into the camera, walked towards the door, exited the room that the bystander was occupying, and proceeded to walk down the hallway. As a result, the window of opportunity for a crime to be committed or for the weapon to be used as a weapon in another way had closed. This in turn allowed the participants to compose themselves by way of decreasing their levels of arousal and it gave them additional opportunity to view the scene thereby providing the opportunity to encode and remember information about the perpetrator after it was clear the weapon would not result in any negative consequences. Furthermore, the threat of the weapon was not directed towards characters in the video or the actual participant; the increases in the levels of arousal would have been much greater if this were the case.

Although there was not an overall weapon focus effect, there was a main effect in Question Thirteen concerning post-weapon memory (see Table 1). Question Thirteen asked about the color of top 2, the t-shirt worn revealed after the perpetrator took off his jacket and pulled the weapon or non-weapon out of the bag (see Appendix 2). This question may have shown a weapon focus effect because it may have been a more difficult question compared to the questions which did not reveal any significant main effects. As previously noted, a ceiling effect may have been present in the questions in which no main effects were found because those questions may have been too easy for any effects to be acknowledgeable. However, a few of the questions with no identifiable significant main effects did not have high accuracy scores. Thus, more research should be done in order to explain the presence of a weapon focus effect in Question Thirteen.

In addition to expecting main effects of weapon and group membership, I also hypothesized that the weapon focus effect would be stronger than the in-group bias. Although, I assumed the weapon focus effect would be weakened by the in-group bias. These predictions were not realized in the data. Future research which is successful in establishing main effects would provide a better opportunity for assessing the possibility of an in-group, weapon focus interaction. In order to do so, prospective research should manipulate group membership by way of “race” or “age” since each of these characteristics has been found to create the cross-category effect, the tendency for an in-group bias to occur. In addition, future research should make use of a weapon which has already been proven to cause a weapon focus effect, such as a handgun. This weapon should be utilized as a weapon; for example, it could be used in the portrayal of a crime or to threaten a character in the video. Lastly, future research should mind the importance

of the resemblance to real life by way of creating a professional video with trained actors or having an actual staged event presented in front of the participants.

References

Anthony, T., Copper, C., Mullen, B. Cross-racial facial identification: a social cognitive integration. *Personality and Social Psychology Inc. 18* (3), 296-301.

Bernstein, M. J., Young, S. G., & Hugenberg, K. (2007). The cross-category effect: mere social categorization is sufficient to elicit an own-group bias in face recognition. *Association for Psychological Science, 18* (8), 706-712.

Humphreys, G. W., Hodsoll, J., & Campbell, C. (2005). Attending but not seeing: the "other race" effect in face and person perception studied through change blindness. *Visual Cognition, 12* (1), 249-262.

Kramer, T. H., Buckhout, R., & Eugenio P. (1990). Weapon focus effect, arousal, and eyewitness memory: attention must be paid. *Law and Human Behavior, 14* (2), 167-184.

Loftus, E. F., Loftus, G. R., & Messo J. (1987). Some facts about "weapon focus." *Law and Human Behavior, 11* (1), 55-62.

Meissner, C. A., Brigham, J. C., Butz, D. A. (2005). Memory for own- and other-race faces: a dual-process approach. *Applied Cognitive Psychology 19*, 545-567.

Pickel, K. L. (1999). The influence of context on "weapon focus" effect. *Law and Human Behavior, 23* (3), 299-311.

Pickel, K. L. (1998). Unusualness and threat as possible causes of "weapon focus." *Memory, 6* (3), 277-295.

Pickel, K. L., Ross, S. J., Truelove, R. S. (2006). Do weapons automatically capture attention? *Applied Cognitive Psychology, 20*, (871-893).

Shaw, J. I. & Skolnick P. (2001). Sex differences, weapon focus, and eyewitness reliability. *The Journal of Social Psychology, 134* (4), 413-420.

Steblay, M. N. (1992). A meta-analytic review of the weapon focus effect. *Law and Human Behavior, 16* (4), 413-424.

Figure 1

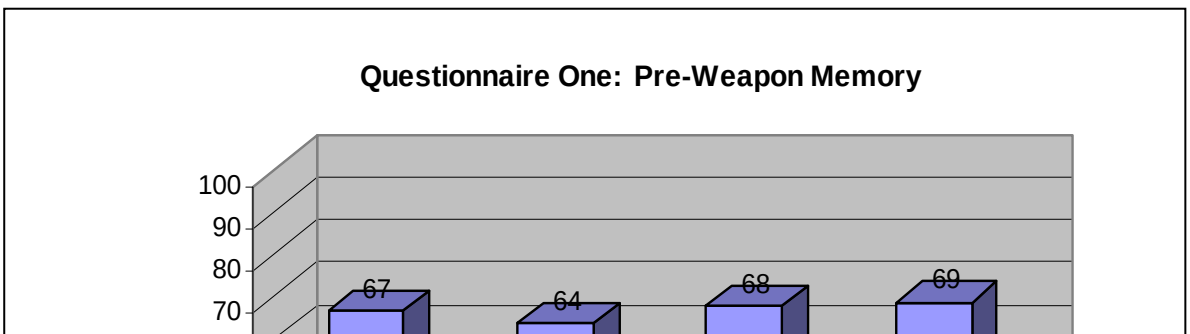

Figure 2

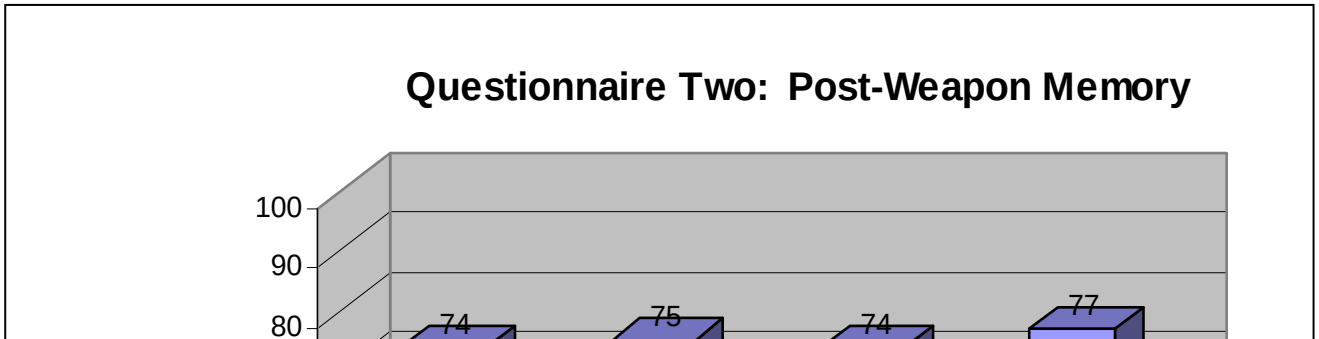

Table 1

Average Accuracy on each question in Questionnaire Two concerning post-weapon memory within each Condition: Out-group/Weapon, Out-group/Non-weapon, In-group/Weapon, and In-group/Non-weapon

Question Topic	Group			
	In-group/ Weapon	**Out-group/ Weapon**	**In-group/ Non-weapon**	**Out-group/ Non-weapon**
1) type of object	1	1	1	1
2) hair color	0.579	0.609	0.714	0.686
3) kind of top 1	0.789	0.87	0.857	0.813
4) color of top 1	0.368	0.435	0.476	0.688
5) kind of bottoms	**0.947**	**0.435**	**0.81**	**0.5**
6) color of bottoms	0.737	0.826	0.762	0.563
7) kind of footwear	0.474	0.522	0.286	0.563
8) color of footwear	**0.211**	**0.783**	**0.286**	**0.688**
9) hat	0.737	0.739	0.857	0.875
10) glasses	0.895	1	0.952	1
11) earrings	0.947	1	1	1
12) kind of top 2	0.789	0.739	0.762	0.75
13) color of top 2	**0.368**	**0.565**	**0.667**	**0.75**
14) gloves	0.368	0.696	0.762	0.375
15) ethnicity	0.947	1	1	1
16) height	0.842	0.87	1	0.875
17) body type	0.789	0.739	0.81	0.812
18) hair length	**0.421**	**0.174**	**0.619**	**0.375**
19) facial hair	0.368	0.304	0.19	0.313
20) age	0.947	1	0.905	0.938
21) tattoos	1	1	0.952	1
22) color of bag	0.842	0.739	0.762	0.625
23) teeth	1	0.913	1	1
24) occupation	1	0.652	1	0.688
25) scarf	0.947	0.957	0.775	0.813
Average Score	0.743	0.748	0.733	0.775

Note: Questions that are highlighted represent those where statistically significant main effects occurred.

Figure Captions

Figure 1. Percent Accuracy on Questionnaire One concerning Pre-Weapon Memory within each Condition: Out-group/Weapon, Out-group/Non-weapon, In-group/Weapon, and In-group/Non-weapon.

Figure 2. Percent Accuracy on Questionnaire One concerning Pre-Weapon Memory within each Condition: Out-group/Weapon, Out-group/Non-weapon, In-group/Weapon, and In-group/Non-weapon.

Appendix A

Questionnaire One: Pre-Weapon Memory concerning the scenery featured in the videos

Please circle the BEST answer; only circle one.

1. What was the featured location of the video?

a. shopping mall b. grocery store c. public library d. bathroom e. college

2. What was the picture on the outside of the building of?

a. rabbit b. globe c. crucifix d. book e. man

3. What was the weather like?

a. raining b. very cloudy c. snowing d. sunny e. stormy

4. Which of these objects was visible outside of the building?

a. parking lot b. playground c. fire hydrant d. church e. phone booth

5. How many persons were featured in the video?

a. one b. two c. three d. four e. five

6. Which one these items were featured in the first hallway the man walked down?

a. posters b. television c. couch d. bookcase e. shelves

7. Which one of these items was featured in the room the man walked into?

a. computer b. coffee mug c. picture frame d. bottled water e. bird

8. Was there overhead lighting in the room the man walked into when he was in the building?

a. yes b. no

9. Which one of these items was featured in the room the man walked into?

a. mouse b. blowup shark c. bar of soap d. flower vase e. toaster

10. Were there handrails on the staircase?

a. yes b. no

11. What was the color of the stairs on the staircases?

a. white b. brown c. black d. grey e. red

12. Were there any trash cans featured in the video?

a. yes b. no

13. Were there any light fixtures in the hallways?

a. yes b. no

14. Were there any posters in the hallways?

a. yes b. no

15. Which one of these items was clearly seen in a room the man walked by?

a. birds b. plants c. books d. clothes e. beverages

16. What was the color of the door of the room the man walked into when he was in the building?

a. black b. white c. brown d. grey e. red

17. What was the color of the large case hanging on the wall in the room the man walked into when he was in the building?

a. black b. red c. green d. yellow e. white

18. Which one of these items was featured in the room the man walked into?

a. blowup grasshopper b. guitar c. bed d. oven

e. curtain

19. How would you describe the room the man walked into?

a. study hall b. laboratory c. kitchen d. computer lab e. bedroom

20. What was the man walking on when he entered the building?

a. grass b. boardwalk c. parking lot d. country road e. sidewalk

21. How many circular pieces of art were hanging on the wall in front of the man when he first entered the building?

a. 1 b. 2 c. 3 d. 4 e. 5

22. How many flights of stairs did the man walk up after he entered the building?

a. 1 b. 2 c. 3 d. 4 e. 5

23. How many flights of stairs did the man walk down after he removed an object from his bag?

a. 1 b. 2 c. 3 d. 4 e. 5

23. What was on the bulletin board to the left of the man when he first entered the building?

a. papers b. stickers c. envelopes d. pictures e. posters

24. Were there any posters in the building the man entered?

a. yes b. no

25. Which of these items were on the staircase?

a. paper b. book c. fish tank d. plant e. statue

Appendix B

Questionnaire Two: Post-weapon memory concerning the physical appearance of the perpetrator featured in the videos

Please circle the BEST answer; only circle one.

1. What did the man take out of his bag?

a. kitchen knife b. book c. hat d. pencil e. notebook

2. What was the color of the man's hair?

a. white b. brown c. red d. grey e. blonde

3. What kind of top was the man wearing when he walked into the building?

a. t-shirt b. sweater c. jacket d. sweatshirt e. raincoat

4. What was the color of the man's top when he walked into the building?

a. black b. brown c. blue d. grey e. white

5. What type of bottoms was the man wearing?

a. jeans b. work pants c. khakis d. shorts e. sweat pants

6. What was the color of the bottoms the man was wearing?

a. black b. blue c. white d. brown e. yellow

7. What kind of footwear was the man wearing?

a. running shoes b. boots c. formal dress shoes d. sandals

e. casual shoes

8. What was the dominant color of the man's footwear?

a. white b. brown c. blue d. black e. orange

9. Was the man wearing a hat when he walked into the building?

a. yes b. no

10. Did the man have glasses?

a. yes b. no

11. Was the man wearing any earrings?

a. yes b. no

12. After the man set his bag down in the room, what kind of top was the man wearing?

    a. t-shirt b. sweater c. jacket d. sweatshirt e. raincoat

13. After the man set his bag down in the room, what was the color of the man's top?

    a. black b. brown c. blue d. grey e. white

14. Was the man wearing gloves at any point during the video?

    a. yes b. no

15. What was the man's ethnic background?

    a. Caucasian b. African American c. Asian d. Hispanic

    e. other

16. What was the man's approximate height?

    a. short b. average c. tall

17. How would you describe the man's body type?

    a. thin b. average c. heavily built

18. How long was the man's hair?

    a. shaved/ bald b. short (above the ears and collar) c. about collar-length

    d. long (past the shoulders)

19. Did the man have any facial hair?

    a. yes b. no

20. Exactly how old do you think the man was?

    a. 1-9 b. 10-19 c. 20-29 d. 30-39 e. 40-49

    f. 50-59 g. 60-69

21. Did the man have any visible tattoos?

    a. yes b. no

22. What color was the bag that the man was holding?

    a. red b. white c. blue d. black e. brown

23. Was the man missing any teeth?

    a. yes b. no

24. What was the man's occupation?

    a. baker b. electrician c. college student d. postal worker e. librarian

25. Was the man wearing a scarf at any point during the video?

    a. yes b. no