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GENDER-BIAS AND ITS INFLUENCE ON THE ACCURACY OF EYEWITNESS
IDENTIFICATION OF PERPETRATORS

In Partial Fulfillment of the Requirements
for the Degree
Master of Science in Psychology with a Clinical Emphasis

By
Elizabeth K. Conkey

Fall 2014

THESIS OF ELIZABETH CONKEY APPROVED BY

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MASTER'S THESIS

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Abstract

Previous research has looked at how eyewitnesses can identify characteristically with victims of crimes, but few have looked at how eyewitnesses identify with the perpetrators in any capacity (Block, Greenberg, & Goodman, 2009). More specifically, few have looked at how gender-bias influences eyewitness identification of the perpetrator and characteristics (Butts, Mixon, Mulekar, & Bringmann, 1995; Wright & Sladden, 2003). The purpose of the current research was to look directly at how gender influenced the accuracy of eyewitness identification of a perpetrator. It was hypothesized that women would remember more details about a female perpetrator than a male perpetrator, and conversely, males would remember more details about a male perpetrator than a female perpetrator. It was also hypothesized that females would be overall more accurate than male participants. Participants were 165 college students volunteering in exchange for research credit. Participants observed a staged crime via recording while engaging in a monitoring task and completed measures of intelligence, demographic information, and trauma history as well as identifying information for perpetrators. Results were non-significant as to whether or not females are more accurate or have better recall of details but the results do have impact for future research; particularly in how vigilance can impact the accuracy of detailed recall.

Keywords: gender, gender-bias, eyewitness testimony

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Gender-Bias and its Influence on the Accuracy of Eyewitness Identification of Perpetrators

Previous research has investigated how eyewitnesses relate to the victims of crimes, but few have looked at how eyewitnesses relate to the perpetrators in any capacity (Block, Greenberg, & Goodman, 2009; Krug & Weaver III, 2005). The purpose of the current research was to look directly at how gender influences the accuracy of eyewitness identification of a perpetrator, considering same and opposite-gender bias. Gender-bias has been previously researched in the identification of victims of crimes but little emphasis has been placed on the perpetrator identification (Butts et al., 1995; Lovén, Herlitz & Rehnman, 2011; Megreya & Bindemann, 2012; Wright & Sladden, 2003). This current research is also to investigate the number of details remembered based on the gender difference between the perpetrator and the participant.

Memory

Memory is a broad term for the processes and storage that occur in the brain, having to do with the encoding and retrieval of information. Memory has been defined as a mental process characterized by specific functions as well as limitations, and measured by theories such as Trace Life, Storage Capacity, and Nature of the Encoding Process (Seibert, Gimbel, Hagler, & Brewer, 2011). Previous research also has demonstrated that memory is active, reconstructive, and adaptive in certain situations including those involving high emotional states and when witnessing a crime (Christianson, 1992; Harris & Pashler, 2005; Kensinger & Corkin, 2003; Loftus, 1975, 1979; Loftus et al., 1978; Talmi, Schimmack, Paterson, & Moscovitch, 2007).

Memory can be categorized into two primary groupings: long-term memory and short-term memory (Mohs, 2013). Short-term memory is information that is recalled within a span of 30 seconds of exposure following distraction whereas long-term memory focuses on recall after 30 seconds (Mohs, 2013). Short-term memory has a fairly limited capacity and is used when there is a need to use the information during or immediately following the event whereas long-term memory is used to recall information at a later time (Mohs, 2013). The main focus of the prior research on memory has been on the distinction of long-term memory processes rather than short-term. Long-term memory also is the focus of eyewitness recall and can be further broken down into the classifications of semantic memory and episodic memory (Martin-Ordas & Call, 2013; Tulving, 1972).

Semantic memory refers to relatively permanent storage of general world knowledge or facts that are not related to specific events; while episodic memory refers to events that are specific to personal past experiences (Tulving, 2005). Episodic memory allows a person to recall at a later time events that he or she has experienced personally (Martin-Ordas & Call, 2013; Tulving, 1972). Episodic memory also involves learning and requires encoding of new information (Wojcik, Moulin, & Souchay, 2013).

Retrieving information from episodic memory, whether it is spontaneous remembering or conscious recollection relies on the organization of past events (Martin-Ordas & Call, 2013; Tulving, 2005). The focus of this organization of past events is centered on the knowledge of what, where, and when the unique event occurred (Martin-Ordas & Call, 2013). Clayton et al. (2003) argued that the what, where, and when of episodic memory are bound together to represent the same event, and therefore, retrieving

one of the pieces of information will result in the retrieval of other components as well (Martin-Ordas & Call, 2013).

Memory Inaccuracy

Episodic memories can be highly inaccurate, even though the brain does not recognize this (Xygalata et al., 2013). There are a number of factors that can contribute to overall memory inaccuracy as well as episodic memory inaccuracy, including age, gender, and previous mental schemas.

Age. Age is an important factor that must be considered when taking recall of memories into consideration. In this current research the age of the participants was restricted only to those individuals over the age of eighteen. The brain changes over time and age consequently plays a role in perception and memory of events. Specifically, episodic memory becomes less accurate with increasing age. Older adults are often considered, compared to the general population, to be more competent in their recall; yet, there are age-related deficits in perception and memory that make the accuracy of their recall questionable (List, 1986). Similar research has indicated that children younger than 12 years of age and older adults remember witnessed information significantly less well than older children and younger adults (Cohen & Harnick, 1980; Yarmey & Kent, 1980). Conversely, Dent and Stephenson (1979) indicated that the accuracy of children's accounts may be significantly impacted based on the skill of the interviewer. In research conducted for children's eyewitness accounts an interviewer can impact the accuracy of the recalled information through leading questions, closed questions, or suggestive that are asked of the eyewitness (Dent & Stephenson, 1979; Douglass, Brewer, Semmler, Bustamante, & Hiley, 2013). Another instance of interviewers interfering with the

accuracy of eyewitness accounts is when interviewers rush through the interviewing process which leads the eyewitness to only give details that they have the most confidence (Douglass et. al., 2013).

Investigations on adult memory recall suggest that elderly individuals also are not as accurate in describing details. For example, Coxon and Valentine (1997) asked groups of young adults (ages 16 to 19) and older adults (ages 60 to 85) to watch a recording of a staged crime and their accuracy in answering questions and their ease of accepting misleading information was measured. The younger group was significantly more accurate in recalling details than the older adults, but both groups of participants gave fewer correct answers than the young adult group (Coxon & Valentine, 1997). Tying back to emotional arousal, in general recognition studies, accuracy of information benefited from the exposure to negative arousing items in young adults, but there was a benefit for both positive and negative arousing items in older adults (Naveh-Benjamin, Maddox, Jones, Old, & Kilb, 2012).

Schemas. Mental schemas are the cognitive frameworks or concepts that help organize and interpret information (Sims, 1992). They fill in the gaps of recall with expectancy consistent information. Researchers have found that age differences in memory are lessened for schema-consistent information (i.e., information that fits a previous mental model one has learned through his or her lifetime) and are greatest for schema-inconsistent information (List, 1986; Mandler & Ritchey, 1977; McCabe et al., 2010; Park et al., 1996).

Schemas are used in times of emergency to allow the brain to quickly pick up on available information and fill in the blanks (Shapiro, 2009). For example, a study by List

(1986) indicated that all individuals had expectations of how perpetrators should act as well as the usual events of a specific crime (e.g., shoplifting). These expectations (i.e., threatening victims, using weapons, wearing a mask) generally were consistent with actual shoplifting incidences and all individuals shared exceptionally similar expectations about crime occurrences (List, 1986). These same expectations also impact recall through previous schema models.

Another way that schemas are used is by deploying a previous model of the event that the eyewitness has created in his/her mind. Farrar and Goodman (1990) hypothesized a *schema confirmation-deployment model*. This is a three-step process of activating a schema, confirming information consistent with the schema, and then deploying the schema in recall. Schema activation can decrease cognitive effort, making schema-consistent information easier to interpret and more accessible during recall (Shapiro, 2009). Witnesses of crimes often use cognitive schemas, preconceived notions, and stereotypes about crimes and criminals when reporting, regardless of whether these beliefs are accurate. When there are no existing schemas, the eyewitness will generalize from past experiences. There is some evidence, however, where people have well-developed event schemas for criminals that include physical attributes of the perpetrator. In these cases, it involves placing stereotypes that are seen in the media into the schema to fill in the gaps.

One way that attention to detail, schemas, and recall may be different for males and females are by way of a familiarity bias (Krug & Weaver III, 2005). The familiarity bias, also known as self-relevance, may also strengthen memory for eyewitness testimony (Block et al., 2009). Self-relevance is when witnesses recognize information that is most

like him/her. Symons and Johnson (1997) concluded that self-relevant encoding leads to better memory than does semantic and other encoding strategies. Self-relevant schemas provide a particularly organized and elaborated semantic network in which to store information (Block et al., 2009). The things known about one's own gender and stereotypes of one's own gender are easier to use when filling in gaps in memory because they are readily available.

Biological Influences

Memory is malleable and outside influences can affect the way we remember, but so do biological influences. This difference of remembering emotional information may be due to biological differences between men and women in respect to the brain. Hamann and Canli (2004) suggested that differential amygdala activation between men and women may contribute to different levels of memory performance for emotional stimuli. Specifically, past research has shown that performance for emotional materials was better predicted by right hemisphere amygdala activation in men and left hemisphere amygdala activation in women (Naveh-Benjamin et al., 2012). That overlap in activation in the amygdala and other regions responsible for encoding processes may reflect greater integration of emotional content and episodic memory in women (Canli, Desmond, Zhao, & Gabrieli, 2002; e.g., Cahill et al., 2001; Cahill et al., 2004; Naveh-Benjamin et al., 2012). In studies of episodic memories memory, men's and women's accounts of their own personal experiences differ in both detail and complexity (Bloise & Johnson, 2007). Women's memories are longer and more detailed (e.g., Bloise & Johnson, 2007; Cowan & Davidson, 1984; Fivush et al., 2003; Friedman & Pines, 1991; Pohl, Bender, & Lachmann, 2005) than men's descriptions, which are more likely refer to other people

and events (e.g., Bauer, Stennes, & Haight, 2003; Bloise & Johnson, 2007; Fivush et al., 2003).

Gender Differences in Memory

Gender can also be a factor in the inaccuracy of memory. Being of one gender or the other can impact what is perceived in an incident, and thus, can both positively and negatively impact memories. Several studies have identified gender differences in episodic memory in particular. Women's memories in general have been shown to include more recollection of emotional content (Bauer et al., 2003; Ely & Mercurio, 2011; Niedzwienska, 2003). In relation to episodic memory, women's recollections are also more vivid than those of men, and characterized by greater specificity (Acitelli & Holmberg, 1993; Pillemer et al., 2003; Ely & Mercurio, 2011). Men and women have also been shown to have differences in recall. The memory benefit for both verbal and non-verbal materials was observed in women over men in a study by Herlitz and Yonker (2002), who tested young adult men and women in a series of tasks involving the recall and recognition of verbal material, faces, and abstract pictorial stimuli. Their results showed that, regardless of intelligence as measured by the Wechsler Adult Intelligence Scale-Revised, women outperformed men on memory of verbal tasks (i.e., repeating word pairs) and showed a slight benefit in memory for faces (Naveh-Benjamin et al., 2012; Wechsler, 1981). These differences in recall may not be due to socialization but biological differences between males and females.

Facial recognition. Some researchers have suggested that the female self-relevance may arise due to females paying more attention to female faces than to male faces (Cross, Cross, & Daly, 1971; Ellis et al., 1973; Herlitz & Rehnman, 2008;

McKelvie, 1981; Rehnman & Herlitz, 2006, 2007). The study by Fiedler, Semin, and Finkenauer (1993) focused on gender in-groups and out-groups by asking men and women to discuss gender-related material. Fiedler et al. (1993) found evidence that women focus more on in-group details, but this was not the same for males. Fiedler et al. (1993) found no difference for males identifying gender-related material. These researchers also found that when people process personally-relevant information about members of their own gender that they use inferential processing and fill in information about the person based on previous mental schemas. Most theoretical models of self-relevance that examine facial recognition focus on processes that occur during encoding, rather than during storage or retrieval (Hugenberg et al., 2010; Meissner & Brigham, 2001; Sporer, 2001). Overall, previous studies suggest that attention during the encoding process highly contributes to the female self-relevance by facilitating easier recollection of female faces (Palmer, Brewer, & Horry, 2013).

Gender and Schemas. Gender schemas enhance recall for a criminal's expectancy-consistent gender-related behavior and appearance, but may also distort recall for expectancy-inconsistent information. For example, if a male perpetrator acts stereotypically male during the crime then it is more likely eyewitnesses will accurately recall the details (Shapiro, 2009). For example, individuals may interpret a female's behavior of taking a bicycle without permission as borrowing rather than stealing, but interpreting the identical behavior by a male suspect as stealing (Shapiro, 2009). The opposite is true if a male acts in a manner inconsistent with a gender-role or gender (e.g., a female bullying the victim of a crime versus a man playing coy during a crime). If the male acts effeminate then there is more likely to be misinformation remembered. In

general, there is more recall and elaboration when the perpetrator exhibits gender-role consistent rather than inconsistent characteristics (Shapiro, 2009).

Own-gender-bias. As discussed above, prior research has demonstrated a female self-relevance in face recognition, with females by better at recognizing female faces than male faces. Women recognize more faces than men do; whereas men and boys often recognize male and female faces with equal accuracy (Cross, Cross, & Daly, 1971; Ellis et al., 1973; Going & Read, 1974; Herlitz, Nilsson, & Backman, 1997; Herlitz & Yonker, 2002; Loven et al., 2011; Rehnman & Herlitz, 2007). In other studies, males remembered more female than male faces (Feinman & Entwisle, 1976). Overall, findings are inconsistent regarding men (Steffens, Landmann, & Macklenbrauker, 2013).

One variation of self-relevance that has received relatively little attention is the own-gender bias. Own-gender-bias is when an individual recalls more information and more accurate information about particular people involved in the event when they are the same gender as the individual recalling the information. The own-gender-bias phenomenon was demonstrated by Shapiro and Penrod (1986). Specifically, they found an own gender bias for correct identifications of faces for both female and male participants. Own-gender-bias is one of the factors that significantly influences memory recall even though it has not yet been definitively shown how great the differences are or what the specific differences are between men and women (Wells & Olson, 2003).

It is not surprising there has been question as to the reliability and validity of these studies (Block et al., 2009; Shapiro, 2009; Wise et al., 2009). Studies have focused on the eyewitness identification of the victims of crimes but few have looked at the eyewitness identification of the perpetrator (Areh, 2011; Wright & Sladden, 2003; Krug &

Weaver, 2005). The use of gender in identifying perpetrators is particularly important to study in the context of the criminal justice system. Bias for recall of certain information as a function of an eyewitness's gender can have implications for testimony in the courtroom and subsequent punishment.

Introduction to Eyewitness Recall

General Eyewitness Information

For over three decades numerous researchers have examined the accuracy of eyewitness testimony through experiments and many have arrived at the same conclusion: eyewitness accounts are far from reliable (Loftus, 1975; Loftus & Zanni, 1975; Weingardt, Toland, & Loftus, 1994; Wells, 1993; Wells, Lindsey, & Ferguson, 1979). Eyewitness testimony plays an important role in shaping both police investigations and ensuing trials. Eyewitness misidentification is the leading cause of wrongful convictions in the United States. Studies reveal that today nearly 75,000 suspects continue to be targeted every year based on eyewitness identification with a roughly 40% rate of misidentification (Tallent, 2011). As of 2011, out of 250 cases studied by the Innocence Project, 190 of those cases involved eyewitness misidentifications. In many wrongful conviction cases, multiple eyewitnesses identify the wrong person. Furthermore, in 2011 the American Psychological Association observed that controlled experiments and studies show that the rate of incorrect identifications is approximately 33% (Walsh, 2013).

The fragility of eyewitness memory and lack of reliability in eyewitness testimony established primarily by Loftus (1979, 2003, 2005) has gained widespread acceptance, and as a result, the testimony of memory experts in criminal cases involving

eyewitness identifications is now commonplace (Sporer et al., 1995). Psychological research also has revealed great inconsistency in the accuracy with which individuals can remember the eyewitnessed events, and the extent to which their recalled information can be distorted by misleading post-event information (e.g., Coxon & Valentine, 1997; Wells & Loftus, 1984). It has been previously hypothesized that witnesses are not be able to have accurate recall of an event if their memory is influenced by erroneous event information (Coxon & Valentine, 1997). Research over the past 25 years has revealed evidence that eyewitness accounts can be distorted by new information that is inconsistent with the original event (e.g., Coxon & Valentine, 1997; Loftus, 1979). Such information could, for example, be encountered through the assumptions made by police via interview or through hearing another eyewitness account of events (Coxon & Valentine, 1997). An alternative way in which the recall of an event made inaccurate is through relevant information not being encoded during the original event.

Research has shown that many factors can affect the accuracy of eyewitness memory, including the context of the witnessed event and the race and gender of those involved (Cutler, Penrod, O'Rourke, & Martens, 1986; Lindholm & Christianson, 1998; Loftus, 1979). Thus eyewitness memory is malleable just as any other type of memory. Whether it is actively recalling eyewitness memories or coding the memories for later recall the memory can be influenced by internal and external information. Another way that eyewitness memories are influenced is by who commits the crime.

Gender Differences in Testimony

Stern (1910) was the pioneer for gender differences in eyewitness research. His 1910 study on gender differences, which had children witness an event and report their

testimony, concluded that men were better eyewitnesses than women. However, a major limitation to Stern's research was that his testing groups were not comparable by age or gender (Butts et al., 1995). Also, there was no controlling for age-related schematic differences or for the gender of the participant as compared to the gender of the perpetrator. Due to Stern's (1910) findings there has been a long-held opinion in the field of eyewitness testimonies and gender differences that the content in women's testimonies was less accurate but was also more resistant to the influence of misleading information than were men (Butts et al., 1995). More recent research by Shepherd, Ellis and Davies (1982) showed that women performed better on eyewitness tasks. Additional studies have investigated this phenomenon by investigating how much eyewitnesses recall and elaborate on both the crime and the criminal's features when controlling for the gender of the perpetrator (Butts et al., 1995; Shapiro, 2009; Shepherd, Ellis, & Davies, 1982; Wright & Sladden, 2003). These researchers concluded that the differences in the testimonies of men and women occurred because men and women have been shown to have different attention to detail. Thus, women are more accurate because they attend to more detail in eyewitness situations than men (Butts et al., 1995; Shapiro, 2009; Shepherd, Ellis, & Davies, 1982; Wright & Sladden, 2003). However, there has been little research on how the gender of the perpetrator affects eyewitness accuracy of recall regarding the perpetrator (Areh, 2011; Butts et al., 1995; Shapiro, 2009; Shepherd, Ellis, & Davies, 1982; Wright & Sladden, 2003). The goal of this research was to expand on how perpetrators are identified by eyewitnesses. Little attention has been given to this type of recall and it is an area in need of expansion.

Purpose and Hypotheses

Eyewitness testimonies can be influenced by many factors. These factors include the gender of the eyewitness, the gender of the perpetrator, the levels of violence that occurred during the incident, and even how the incident is encoded into episodic memory. Gender-bias is one of the most influential factors related to eyewitness accounts that has had scant previous research, and thus, a level of ambiguity and misunderstanding that needs to be researched further (Butts et al., 1995; Lovén, Herlitz & Rehnman, 2011; Megreya & Bindemann, 2012; Wright & Sladden, 2003).

The purpose of the current research was to examine how gender influences the accuracy of eyewitness identification of a perpetrator, considering same- and opposite-gender bias. Gender-bias has been previously researched in the identification of victims of crimes but little emphasis has been placed on the perpetrator identification (Butts et al., 1995; Lovén, Herlitz & Rehnman, 2011; Megreya & Bindemann, 2012; Wright & Sladden, 2003). It was hypothesized that women would remember more details about a female perpetrator than a male perpetrator, and conversely, males would remember more details about a male perpetrator than a female perpetrator. It was also expected that females would have a higher degree of accuracy generally when identifying the perpetrator characteristics as compared to how males identify perpetrators of either gender. Hypotheses were based on the research by Butts et al. (1995), Shapiro (1995), Shepherd, Ellis, and Davis (1982), and Wright and Sladden (2003), which found that women and men have different attention to details, with women, on average, exhibiting more details than men.

Method

Participants

Participants were 171 students from a Pacific Northwest university. One hundred nineteen were female and 46 were male. There were a total of 6 participants not used in the data due to there being an error when administering their session. The mean age of the final analysis group was 22.13 years old ($SD = 6.24$). In this group of participants, 74% identified as European American, 9% as Latino/Latina, 6% as African American, and 2% as Asian American. There were 64 participants in the female participant/female perpetrator group, 55 in the female participant/ male perpetrator group, 24 in the male participant/female perpetrator group, 22 in the male participants/male perpetrator group. In each session there were a maximum of 7 participants and a minimum of 1 participant.

Measures and Apparatus

Personal Information Sheet. The personal information sheet consisted of demographic information such as age, gender, race/ethnicity, level of education, sexual orientation, relationship status, and if they have had a traumatic brain injury. See Appendix A.

Shipley Institute of Living Scale for Measuring Intellectual Impairment (Shipley, 1967). The Shipley Institute of Living Scale for Measuring Intellectual Impairment (Shipley) is an instrument used to measure the vocabulary, abstraction, and cognitive quotient of individuals. It is a 60 item self-report questionnaire consisting of two parts. The first section of the Shipley assesses vocabulary by having the participant chose words that are most like the word in question. The second section of the Shipley is the abstraction section. In this portion of the Shipley participants must fill in patterns of

words, letters, or numbers. The Shipley uses the scores from the vocabulary section and the abstraction section to determine the total mental age of the participant and the cognitive quotient. These scores are used as a representation of intelligence and used as a covariate in analyses to see if there is a relationship between the accuracy or details remembered and the intelligence of the participant. The overall sample had a mean of 94.98 ($SD = .49$); female participants ($M = 94.71$, $SD = 17.57$) and male participants ($M = 95.28$, $SD = 13.55$).

Video: Simulated Crime. There were two video tapes of the crime; one with a male perpetrator and one with a female perpetrator. In both films the perpetrator walks into a computer lab where there are three other people seated at computer stations, and disconnects a computer monitor before taking it out of the room. The perpetrators are of similar complexion but have differing heights, weight, and gender. The perpetrators were dressed in casual attire including: jeans, tennis-shoes and a grey sweatshirt. This video was used to simulate a crime that could likely occur on campus but would not create a heightened sense of panic or helping behaviors in the participants.

Procedures

Potential participants were recruited via undergraduate psychology classes as well as through an online research sign-up program through the University. Willing participants were directed to sign up for a time slot to show up to a lab on campus. There were two experimenters present for each administration; one administrated the study (researcher), and the other person who came in to tell the participants that a crime had occurred and campus security has called them up to collect the participants' answers

(confederate). Both the researcher and confederate were given a script to use as to maintain consistency throughout the sessions.

Participants arrived in a designated lab space. They were told that they were going to be participating in a study monitoring cheating behaviors and their cell phones must be placed up front with the researcher, or turned off during the study, because those are tools used in cheating. Then the participants were instructed to monitor head turns, a cheating behavior, and keep a tally on the sheet given to them. After being given instructions, the participants went to individual computer stations. The participants monitored by watching a 5-minute simulated “live feed” of the computer lab at a Pacific Northwest university, which was actually a simulated scene previously recorded. The video depicted people working in the computer lab and a “thief” who comes into the computer room and steals a piece of computer equipment (i.e., computer monitor). In the video, one of the actors looked around and noticed that something is missing, and then leaves the room to simulate calling the police. This crime occurs approximately half-way into the simulated live feed.

The researcher sat in a location so as not see the computer monitor where the participants were observing, so that they were not be held to the standards of using helping behaviors to stop the crime as it is seen in the video. The participants were instructed that once finished with the monitoring task they were to leave the individual computer station and return to the large table in the middle of the lab then begin to fill out the rest of their packet of surveys.

While the participants were finishing their packets of surveys, the researcher would monitor the participants so as not to answer questions about trauma until after the

confederate arrived and collected information about the crime. Thus, when one of the participants in each session would answer the first page of questions for the Shipley (1967) then the researcher would text message the confederate to come into the lab and act as though campus security had sent them up to the room to collect information on a crime that occurred while the participants were watching the video. Once the confederate entered the room, the participants were informed that they had witnessed a crime and campus security would like all of the information that they could remember. Participants were instructed to use a blank back of a page in their survey packet to answer the questions that the confederate would write on the chalkboard in the front of the lab. The confederate either used their cell phone to look up the list of questions or brought up the script with the questions written down. The questions that the participants were asked related to gender, ethnic origin, hair, clothing/shoes, jewelry/accessories, approximate age, weight/build, height, eyes/ears/mouth/nose/etc., complexion, glasses, scars/marks/tattoos, any other details about the offender. The total details recalled by participants were determined by coding the answers that the participants gave according to the questions provided by the confederate. Participants were also asked, they witnessed the event, any obstructions to the view, particular reasons for remembering the event or offenders, and if they knew or had seen anyone involved before.

Each detail the participant recorded, either incorrect or correct, was given a score, which was then added up for a total number of details recalled ($M = 15.62$, $SD = 4.67$). The total accurate details recalled was determined by the same manner. If the participant recalled a correct detail then they were given a score of one. If the participant recalled an incorrect detail then they were given a score of negative one for that detail. The total was

added up and that became the score for the total number of correct details recalled by the participants. Due to the wording of the questions given to the participants there was not a maximum number of details that could be remembered accurately ($M = 14.02$, $SD = 4.45$).

Once the participants finished answering the campus security questions they were instructed to complete the surveys. When the participants finished the surveys they were bring them up to the researcher, staple them to the tally sheet, and put them into an envelope. At that time the researcher gave the participant a debriefing form stating that what they saw was a simulation, no crime occurred, and no police were involved. Research credit was given to all participants for time spent. All procedures were in accordance with American Psychological Association ethical guidelines and approved by the University's Institutional Review Board.

Results

Pearson's correlations were used to determine if there was any relationship between memory and potential covariates. Age of the participants was not significantly related to the total details remembered, $r = -.15$, $p = .06$ nor was cognitive quotient, $r = -.10$, $p = .24$. Age of the participants, was significantly related to the total accurate details remembered, $r = -.18$, $p = .03$. Cognitive quotient was not significantly related to the total accurate details remembered, $r = -.10$, $p = .22$. The size of the session was used to examine if there is a correlation between the size of the group and the total accurate details remembered. The covariate, session size, was not significantly related to the total details remembered, $r = -.11$, $p = .15$. Session size was not significantly related to the accurate details remembered, $r = -.14$, $p = .08$. Thus, no covariates were retained.

Tests of Hypotheses

It was hypothesized that women would remember more details about a female perpetrator than a male perpetrator, and conversely, males would remember more details about a male perpetrator than a female perpetrator. Each participant was given a score of total details. This score was an addition of both correct and incorrect details of the witnessed event. A 2 (male vs. female participant) \times (male vs. female perpetrator) Analysis of Variance (ANOVA) was performed on how much total information was recalled about the crime and perpetrator. This ANOVA revealed a non-significant main effect for the gender of the participants, $F(1,158) = 2.04, p = .15$. The ANOVA revealed a non-significant main effect for the gender of the perpetrator, $F(1,158) = .94, p = .33$. There was not a significant interaction between the gender of the perpetrator and the gender of the participant, $F(1,158) = .24, p = .67$. Specifically, there was no difference between the female participant with a male perpetrator condition and the female participant and the female perpetrator condition. There no difference in the male participant with a male perpetrator, and the male participant and the female perpetrator. See Figure 1.

It was expected that females would have a higher degree of accuracy generally when identifying the perpetrator characteristics as compared to how males identify perpetrators of either gender. The accuracy of the details was measured by coding each response that the participant gave about the event they witnessed. Participants were given a score of 1 for correct details and a score of -1 for incorrect details. There were an equal number of possible answers for both male and female participants. These score were then added together to create an overall accuracy score. A 2 (male vs. female participant) \times

(male vs. female perpetrator) ANOVA was performed on how much correct information was recalled about the crime and perpetrator. This ANOVA revealed a non-significant main effect for the gender of the participants, $F(1,159) = 2.19, p = .14$. The ANOVA revealed a non-significant main effect for the gender of the perpetrator, $F(1,159) = .89, p = .35$. There was not a significant interaction for the gender of the perpetrator and the gender of the participant, $F(1,159) = 2.04, p = .16$. See Figure 2.

Discussion

It was hypothesized that women would remember more details about a female perpetrator than a male perpetrator, and conversely, males would remember more details about a male perpetrator than a female perpetrator. There were no significant results found for main effect or interaction. This study is closer to reality in that the participants are not primed that they are seeing something of a crime. One of the most prevalent factors in previous research that impact the recall of these memories is the level of violence that occurred during the event (Loftus, 1975, 1979; Loftus et al., 1978). The relationship between levels of violence and accuracy of recall seems primarily related to the amount of shock experienced by the witness. Extreme levels of violence may reduce the overall accuracy of the memory recalled because the focus on survival overrides the importance of memory recall (Brown & Morey, 2012; Hayes, VanElzakker, & Shin, 2012). The current study did not use arousal as one of the independent variable and left the arousal level the same in participants by not having a victim of a crime be part of the study and by not priming the participants to the crime occurring. Also, it was found that participants paid attention to incorrect details. Participants reported attending to what the

actors were doing on the computers in the video instead of or distracting from the details of the offender.

Results were not as expected and there were several limitations to the current study that may account. Using convenience sampling may have affected the external validity of the results. Also there was extra variance that was not accounted for by the variables in question. This could be due to many outside factors and have an impact of the results. These students were all from the same university and were psychology students, which could have impacted the level of knowledge about the experiment and this could have led to people trying to interfere with the results.

Future studies would benefit from investigating how vigilance may play a role in the identification of perpetrators. Stress levels were not assessed in this study but future studies may gain insight to how stress impacts the details recalled. Subsequent research may also gain information about how helping and prosocial behaviors impact how individuals recall information about certain event.

It was hypothesized that females would have a greater level of accuracy of recalled information than male participants. There were no significant main effect or interactions. This study is similar to other studies in that there were commonly recalled items. Regardless of gender, participants did answer many details similarly. Across the participants there were common stereotypical themes regarding the reported details of the crime. This supports previous research by Farrar and Goodman (1990) and how the brain deploys a schema model based on previous experiences. There were several common details that were inaccurately recalled. One was the race and/or ethnicity of the perpetrator. This phenomenon may have been due to cultural stereotyping due to height.

The actress in the female perpetrator condition was under average height and this could have influenced the memory recall via schemas of shorter being of Asian descent.

Another schema related detail was the addition of the perpetrator having a backpack. This could be due to the simulated crime being on campus and a backpack would be something common place. The participants also reported being suspicious of someone interrupting the study. This could have allowed the participants to be primed to thinking that this was staged or it could have disrupted the recall of information. There also was a level of contamination of the reported answers due to unforeseen reactions to the staged crime. When conducting in a group setting there were times when people would talk amongst themselves when told not to or when they were told that there was a crime then some participants would ask questions in front of the group influencing what they had seen.

This study had the limitation of having to have the participants write down the details the recalled in no particular order. With a standard form not only would it be more authentic but it would potentially impact the accuracy of the details remembered due to the structure of a questionnaire. This also comes with its own limitation, however, such as participants being skeptical of the authenticity or by introducing logos which could influence the eyewitness memory. The time that lapsed between the participants watching the video and the time the confederate comes into the room could have been a factor in the accuracy of the details remembered by participants. This portion of the study was dictated on the participants pace of answering the questionnaires. The goal was to not have the participants make it to the section of the questionnaires where they answered questions about crime details. Thus, each time the study was ran then the researcher

would monitor to see when the fastest person in the session was on a specific page and call in the confederate to the testing room. Another limitation to this study could be that the script for each confederate was not followed word for word. Confederates were told that they could use their own verbiage for the script so that it would not sound robotic or forced. This could then account for some of the error variance and other discrepancies found across the different sessions. Future research could benefit from focusing on how the realness of the crime impacts the accuracy of recall. This could also be linked to previous criminal activity of the participant, whether it is victim or perpetrator. Another avenue for future research could be how priming affects the accuracy of details. For an example letting the participants know ahead of time that they are going to be viewing a crime could potentially alert participants to recall certain details. Another suggestion for future research would be to use a standard witness identification form for all of the participants. This could potentially yield more accurate details because the participants will have a form prompting them of what to recall and in a specific order. Future analysis would benefit from having set time constraints on how long time lapsed from viewing the video until the time of recalled information. This likely could result in better accuracy of details.

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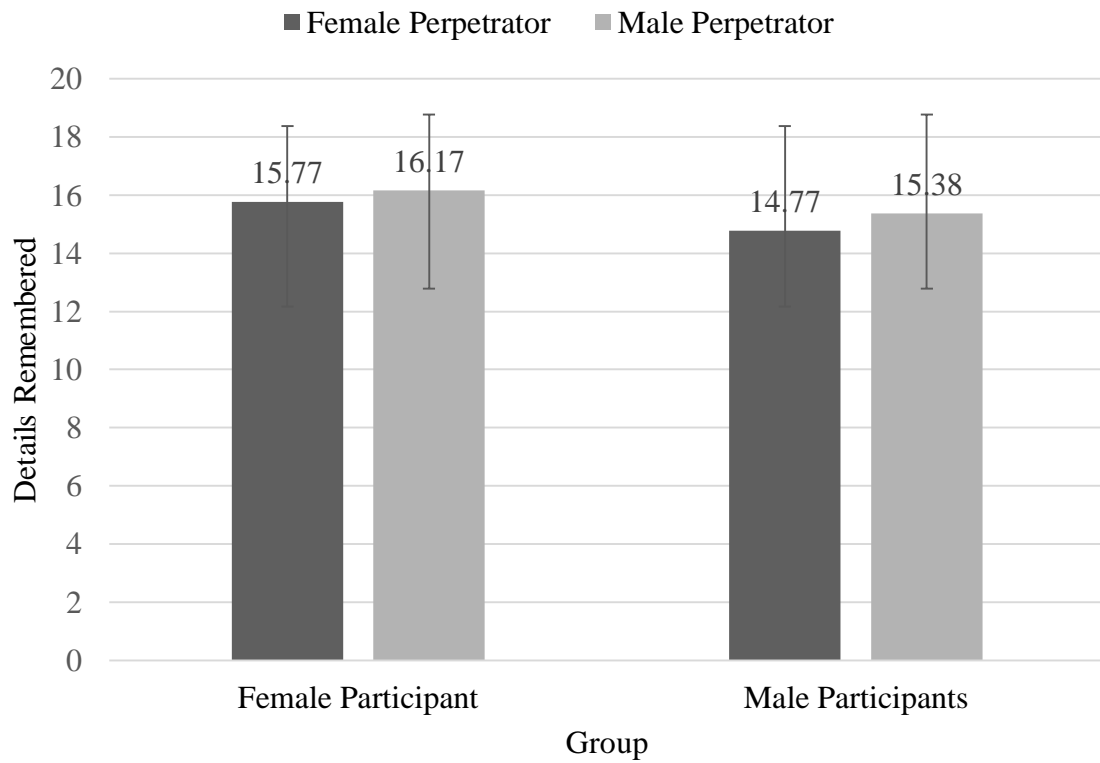


Figure 1. Means for each experimental group based on the total number of details remembered by the participants. Standard deviations are represented by the error bars on each column.

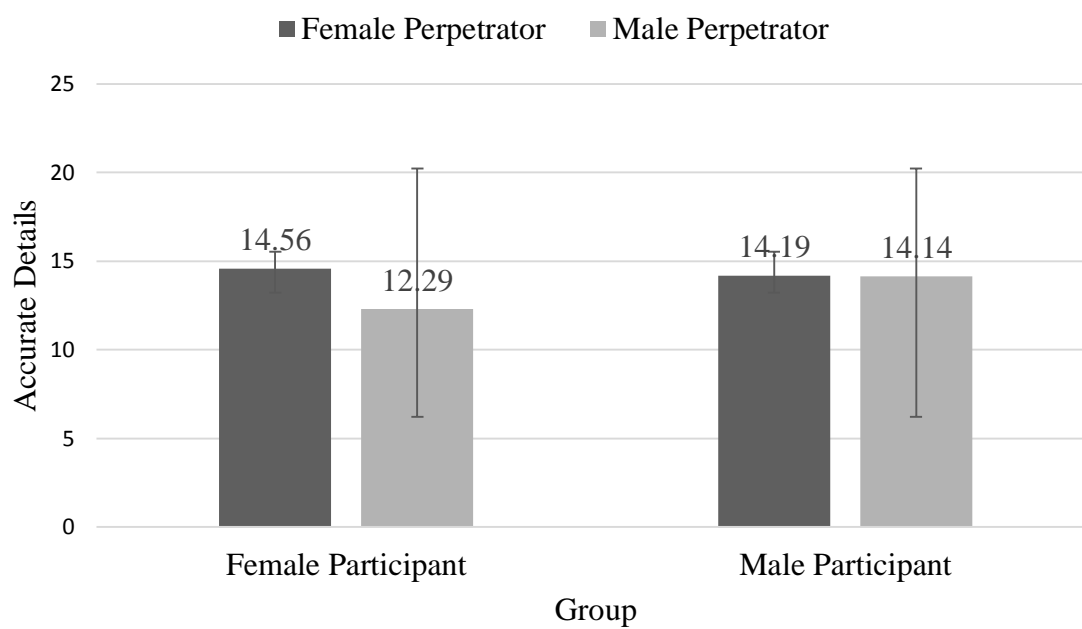


Figure 2. Means determined by the total number of accurate details recalled in each experimental group. Standard deviations are represented by the error bars on each column.

Demographics Form

Please Complete the Following:

1. Age: _____
2. Gender: a. Female b. Male c. Transgender
3. Ethnic Affiliation/Race:
 - a. African American/Black
 - b. American Indian/Native American
 - c. Latino/Mexican American
 - d. Caucasian/European American/White
 - e. Middle Eastern
 - f. Other: _____
4. Year in college:
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Graduate Student
 - f. Post Bac
5. Sexual Orientation:
 - a. Heterosexual
 - b. Homosexual
 - c. Bisexual
 - d. Other: _____
6. Relationship Status:
 - a. Single
 - b. Separated
 - c. Married
 - d. Widowed
 - e. Divorced
 - f. Other: _____
7. Have You Ever Had a Head Injury?
 - a. Yes
 - b. No
 - 7a. If yes, how many times have you lost consciousness? _____
 - 7b. If yes, how many minutes did you lose consciousness (If you have lost consciousness more than one time please report the longest time you have lost consciousness)_____

8. Is English your second language?
 - a. Yes
 - b. No

Monitoring Cheating Behaviors

This task is to monitor how often people engage in cheating behaviors. A cheating behavior is defined as turning the head between 45 and 90 degrees in either direction (right or left) to view another person's work or talking.

<p>Talking</p> <p>Minutes 1-3</p>	<p>Head Turning</p> <p>Minutes 1-3</p>
<p>Minutes 4-end</p>	<p>Minutes 4-end</p>

Was there anything unusual, confusing or suspicious about this study?

What have you heard about this study?

Did you recognize anyone in this study?

Debriefing

The study that you just completed is taking a look at how men and women identify perpetrators of crimes. I am attempting to see if there is a difference in how women and men describe perpetrators. I hypothesized that women were be better eyewitnesses than males. In order for you to not focus solely on the perpetrator it was important that I withhold any information about the video that you watched until you completed the study. **No actual crime occurred.** The video that you witnessed was a staged crime and there were no security officers or police involved. **Please do not talk about this study with others so that we can obtain the most accurate results.** I also ask that you please do not discuss any of the answers from the exercise with your friends who may be participating. Thank you so much for taking the time to be a part of my study today. I hope that you have a great day and wonderful rest of the term!

Elizabeth Conkey (econkey@eagles.ewu.edu)



Cheney • Spokane

Information Sheet: Investigation of Cheating Behaviors in College Students, HS-4427

Principal Investigator: Elizabeth Conkey, B.S.; EWU, econkey@eagles.ewu.edu, (541) 430-3564

Supervisor: Kayleen Islam-Zwart, Ph.D.; EWU, kislamzward@ewu.edu, (509) 359-2380

The goal of this research project is to better understand how often students engage in cheating behaviors outside of the classroom. This study is part of a graduate student thesis project. The study could benefit in providing information regarding the prevalence of cheating behaviors. To participate in this study you must be 18 years old or older. In exchange for participation, you will be compensated with up to the equivalent of one hour of research credit for time spent in the study. Participation in this research is voluntary and you may withdraw at any time after the study has begun and receive partial credit for time spent.

You will be watching footage of students and monitor their cheating behaviors. Then you will fill out short surveys. You are free to answer only the questions you feel comfortable answering. The most sensitive questions will be about criminal involvement (for example, "Have you seen a stranger (or someone you didn't know very well) attack or beat up someone and seriously injure or kill them?").

The information you were share with us were be anonymous, as each survey were have a number, but no name. There is no way to link the information you provide with your name. There are no questions or documents that were require your signature, name, or any other personal identification. Participation is completely voluntary and you may withdraw at any time or skip any question you do not feel comfortable answering.

There are no physical risks involved in completing the series of questionnaires or monitoring footage and psychological risks involved are minimal; however, you may experience momentary anxiousness or stress when answering some of the questions or watching footage. If at any time you experience psychological distress as a result of the study, please notify the experimenter and steps will be taken to provide you with proper referrals.

Eastern Washington University and the Department of Psychology support the practice of protecting research participants' rights. The information in this form is provided so that you can decide whether you wish to participate in the study. It is important that you understand that your participation is voluntary and anonymous. You will receive your extra credit based on time spent in this study. This means that even if you agree to participate you are free to withdraw from the experiment at any time, but not without penalty. If you have any concerns about your rights as a participant in this research or any complaints you wish to make, you may contact Ruth Galm, Human Protection Administrator, (509) 359-6567 or rgalm@ewu.edu

Elizabeth Conkey

EDUCATION

M.S., Psychology with a Clinical Emphasis
Eastern Washington University, Cheney, WA December 2014

B.S., Psychology with Sociology Minor
Western Oregon University, Monmouth, OR June 2012

THERAPY EXPERIENCE

Mental Health Specialist I/II with Assertive Community Team
Lifeways, Pendleton, OR August 2014-Present

Intern Therapist August 2013 – June 2014
Frontier Behavioral Health Adult Outpatient Program, Spokane, WA

GROUP THERAPY EXPERIENCE

Coping Skills Group Co-facilitator August 2013 – June 2014
Intern Therapist at Frontier Behavioral Health Adult Outpatient Program, Spokane, WA

Orientation Group Co-facilitator December 2013 – Present
Intern Therapist at Frontier Behavioral Health Adult Outpatient Program, Spokane, WA

JOB HISTORY

Note Taker for Introduction to Sociology Course September 2009 – December 2009
Umpqua Community College, Roseburg, OR

Library Lab Aide

Umpqua Community College, Roseburg, OR September 2009 – June 2010

MEDIATION EXPERIENCE

Basic Mediator September 2011 – June 2012

LEADERSHIP EXPERIENCE

Member May 2011 – Present
National Society of Leadership and Success

Member

Psi Chi May 2011 – Present

Member

Who's Who Among Students in American Universities and Colleges
December 2011 – Present

AWARDS

Guest Speaker May 2014
Fifth Annual Lavender Graduation at Eastern Washington University

- Presented on diversity issues to 2014 graduates from various high schools and universities.

VOLUNTEER EXPERIENCE

Student Ambassador

July 2007

Oregon Ambassadors of Music

- Traveled with 400 high school students across 7 countries in 18 days.
- Received exposure to many cultures.
- Played the clarinet in the woodwind section.

RESEARCH EXPERIENCE

Primary Investigator

Eastern Washington University, Cheney, WA

October 2012 –December 2014

Thesis project on eyewitness identification of perpetrators

- Conduct research under the supervision of Dr. Kayleen Islam-Zwart
- Analyze data using SPSS.
- Collect data using in person, group administration.
- Perform literature reviews.
- Organized data presented at WPA 2014.

Junior Investigator

Western Oregon University, Monmouth, OR

September 2011 – June 2012

Research project on cross-cultural study of novice teachers of a second language

- Conducted research under the supervision of Dr. Debi Brannan
- Collected data through online surveys.
- Analyzed data using SPSS.
- Organized data to be used in a peer-reviewed journal
- Wrote grants for funding.

Primary Investigator

Western Oregon University, Monmouth, OR

October 2011 – June 2012

Research project on novice teachers of a second language, gender and optimism

- Conducted research under the supervision of Dr. Debi Brannan.
- Analyzed data using SPSS.
- Collected data using an online survey database.
- Performed literature reviews to use the data in a peer-reviewed journal.
- Organized data presented at WPA 2012.

Primary Investigator

March 2011

Western Oregon University, Monmouth, OR

Research project on short-term memory among college students

- Created an original research study.
- Conducted independent research under the supervision of Dr. David Foster.
- Presented the findings in an informal setting among fellow psychology students.

PRESENTATIONS

Conkey, E. Chui P. H., Kirby, L., Islam-Zwart, K., & El-Alayli, A. (2014, April).

Gender-Bias and its Influence on the Accuracy of Eyewitness Identification of

Perpetrators. Poster presented at Western Psychological Association, Portland, Oregon.

Conkey, E. (2011, May). *Literature review of the trait approach to leadership*. Poster presented at Western Oregon University, Monmouth, Oregon.

Nibler, N., **Conkey, E.**, Sturm, D., Brannan, D., & Bleistein, T. (2012, February) *Gender and Optimism's Influence on Perceived ESOL Teaching Performance*. A symposium presented at the Oregon Academy of Sciences. Portland, OR.

Conkey, E., Nibler, N. Sturm, D. Brannan, D. & Bleistein, T. (2012, April) *Gender and optimism's influence on perceived ESOL teaching performance*. Poster presentation at Western Psychological Association, San Francisco, California.

PUBLICATIONS

Conkey, E., Sturm, D., Nibler, N., Brannan, D. (2011, October). *Managing your company's DOT drug and alcohol testing program: Portland Employer Drug Free Initiative*. Portland, Oregon.

Sturm, D., **Conkey, E.**, Nibler, N., Brannan, D. & Bleistein, T. (2012). *Gender and optimism as predictors of novice ESOL teaching performance*, PURE Insights, 1(8) 35-41.

Assisted Authors on Manuscript

Brannan, D. & Bleinsten, T. (2012). *Novice ESOL teachers' perceptions of social support and self-efficacy*, TESOL Quarterly, 46, 519-541. DOI: 10.1002/tesq.40